Massive Open Online Courses in Social Sciences and Their Implementation at Universities in Delhi: An Exploratory Study

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ABSTRACT

Universities around the world have successfully incorporated Massive Open Online Courses (MOOCs) into their curricula and have facilitated credit transfers. The present study examines the integration of MOOCs in seven Indian universities. Moreover, the study focuses on the level of amalgamation of MOOCs, perceptions of institutions regarding the provision of online courses, and transition of MOOCs from informal to formal education. Furthermore, the study investigates the hindrances faced by higher educational institutions in providing services to MOOC learners. Purposive sampling technique was employed to facilitate selection of institutions. The responses were collected using a structured questionnaire. The study found moderate level, low level and very low-level integration of MOOCs in all seven universities. Six out of seven institutions namely, JNU, JMI, DU, GGSIPU, DBRAUD and NLU, adopted "Explain the perceived usefulness" as a strategy to influence the affordability uptake of MOOCs. Five out of seven institutions educate users about different MOOC platforms in the information literacy events. Surprisingly, two institution libraries out of seven revealed that their library services align with MOOCs. Surprisingly, majority of libraries of the seven institutions have not formulated any noteworthy strategy to foster the uptake of MOOCs among the academic community. Therefore, LIS professionals ought to grasp the nuances of various MOOC platforms. Also, library strategies should include MOOCs so that users can benefit.

Keywords: MOOCs; E-learning; Social sciences; Universities; Open universities; India

1. INTRODUCTION

The online learning ecosystem provides learners with a variety of resources and helps stakeholders in an educational institution in study and research. Instructors in online learning handle large number of learners with ease, which is difficult in face-to-face learning[1]. Therefore, higher educational institutions have taken initiatives to introduce online courses for students[2-4]. Majority of people opined that online education has been designed to replicate offline practices. MOOCs' affordability is celebrated when looking at different aspects, and their value becomes evident to learners. Thus, this perspective could be directly linked to improved online pedagogy and curriculum design, as well as achievement of the sustainable development goals (SDGs)[5]. Proper implementation of MOOCs can increase students' understanding of skill development and competencies[6-8]. Furthermore, online education also provides new ways to reach more students to help them build novel skills and capabilities[9]. "MOOCs provide an opportunity to plan, test and validate disruptive approaches to education"[10]. Proper implementation of MOOCs forces universities to engage in internal restructuring and formulate educational policies of the Institutions[11]. Universities have integrated MOOCs into their curricula and are providing credit transfers. In addition, many studies on MOOCs have been published in the last decade. However, no study has examined the implementation of accredited MOOCs[12]. Working professionals are most open to MOOCs, which form an important element in improving higher education. Students are driven by a desire to acquire new skills and experiences rather than formal accreditation[13]. Although the high dropout rate is discounted as unimportant, MOOCs are viewed as tools for adult and lifetime learning needs[14]. A thorough analysis of MOOCs' acceptability in the Indian context is necessary since the corporate e-learning market is expanding rapidly[15].

The present study aims to examine integration of MOOCs in Indian universities. Moreover, the study focuses on the level of integration of MOOCs in higher educational institutions (HEIs), their preparedness in adoption and integration of MOOCs, perceptions regarding provision of online courses, and the transition of MOOCs from informal to formal education. Furthermore, the study investigates hindrances faced by libraries of these Institutions in providing services to MOOC learners. The study also explores various initiatives of libraries related to MOOC integration. The study examines readiness of higher education institutions (HEIs) in Delhi to integrate MOOCs in the social sciences and understand the challenges encountered by them in offering services to learners. The outcomes of this study can help the academic community,

academic administrators, information science professionals, policymakers and academic institutions in the adoption of MOOCs in their formal mode of education and provision of better services to learners.

2. OBJECTIVES OF THE STUDY

This study strives to achieve the following:
1. To study preparedness of HEIs in Delhi to integrate MOOCs in social sciences;
2. To comprehend the level of integration of MOOCs in these HEIs;
3. To understand the inhibits faced by HEIs in providing services to social science MOOC learners;
4. To know the perceptions of HEIs in developing MOOCs;
5. To ascertain the library initiatives for integration of MOOCs in HEIs;
6. To identify strategies devised by institutions to influence MOOC uptake; and
7. To comprehend the usefulness of MOOCs' integration and reconciliation with onsite courses in some focal HEIs in social sciences; and to understand the components of information literacy programmes organised by libraries to promote MOOCs.

3. LITERATURE REVIEW

Several studies were reviewed to identify gaps in MOOCs and their implementation in higher educational institutions. Some articles were not included in the review and were excluded following objective criteria such as (a) articles that do not focus on objectives of the study; (b) articles not addressing the issues directly; (c) papers that do not demonstrate empirical evidence.

Hew and Cheung; Margaryan[16-17], et al. explained that flexibility in learning, un-engaging instruction and lack of interaction are some of the reasons for students' favour or disfavour of accredited MOOCs. Israel[18] shows that MOOCs can be integrated into conventional classrooms in two ways: first, as a replacement for conventional onsite courses, and second, as supplementary resources for conventional on-site courses. Therefore, it is a form of blended learning with on-site course components. Goglio and Bertolini[19] found that learners appreciate the new knowledge and skills acquired through MOOCs. However, not everyone can reap its positive benefits. Major hindrances in using MOOCs are issues of self-selection and individual resources. It also enhances the risk associated with reinforcing social closure mechanisms based on educational credentials. Reich and Ruipérez-Valiente[20] highlighted issues relating to inequalities of opportunity in accessing MOOCs, which has drawn attention of many scholars, in contrast with low returns to enrolment in MOOCs which received less attention[21]. Furthermore, MOOCs are seen as a practical extension of professional development and continuing lifelong learning. Sablina[22], et al. studied the perception of learners about the impact of MOOCs on their overall life experience and found that job-specific returns are represented by acquisition of new knowledge and competencies. Lodigiani[23] opined, "MOOCs do not imply high monetary costs of entry." Onah[24], et al. stated that while designing an e-learning platform such as MOOC, developers must focus on how students learn skills since this will help them to be independent learners and help in independent learning. They also suggested that the underlying pedagogy of the courses and learners' engagement with the contents should be studied. Besides this, students need to apply meta cognitive skills to become lifelong learners through active participation[25].

Murray[26] highlighted that MOOCs have low retention rates as revealed by the high percentage of dropouts without completion. Another study by Gupta[27] suggested that customised study materials should be developed which can enhance engagement of learners. Thus, researchers need to study learners' behaviour and their intention to complete MOOCs[28]. Aldowah[29], et al. highlighted the reasons for dropout as lack of motivation and innovativeness in learners.

Therefore, creativity in content creation suiting the needs of learners may help encourage students to complete MOOCs and reduce dropout[30].

Shao and Chen[31] found that perceived active control and synchronicity are significant in individuals' continuance intention of MOOCs. They also suggested that interactive design can help to focus on and solve the dropout problem. Gupta[32] indicated that credit benefits should be provided to students who enrol. Additionally, employers should give weightage to the certification offered by MOOCs to learners. Singh and Kakkar[33] felt that Study Webs of Active-Learning for Young Aspiring Minds (SWAYAM) is a vital platform to improve free access to education through the MOOC platform. Swayam supports formal learning and contributes significantly to India's gross enrolment ratio. Dey[34] states that MOOCs have made a significant contribution to democratisation of higher education and improved quality.

The study by Al-Rahmi[35], et al. reviewed 219 studies on MOOCs in higher education from 2012 to 2017. Further, the study assessed five components of the dynamics related to MOOC improvement: intention to use, interaction, engagement, motivations, and satisfaction. The University Grants Commission of India has advised HEIs to deliver a significant percentage of their curriculum through credit-based MOOCs on the SWAYAM portal. The study reveals increased student enrollment but low certification, suggesting MOOCs are more effective in a synchronous mode[36]. Kundu and Tripti[37] revealed that MOOCs provide continuous re-skilling opportunities; however, participation remains low from under-represented groups. Okwu[38], et al., explored adoption of MOOCs among library professionals in Nigeria and found that adoption is still in its infancy. Major reasons identified were lack of knowledge and weak infrastructure for internet connectivity. Therefore, the study suggested professional

organisations such as professional Associations, work to make members aware of the benefits of MOOCs. Alhazzani and Noura[39] studied the impact of MOOCs in Saudi Arabia and found that MOOCs have significantly improved education outcomes.

4. METHODOLOGY AND SCOPE OF THE STUDY

The study surveyed seven universities in Delhi. The methodology of the study is exploratory and focuses on the implementation of MOOCs in seven institutions. The MOOC platform SWAYAM, is a not-for-profit set up and is developed through government initiatives in India. SWAYAM website mentions that it brings together leading universities and educators across the country to provide education in a wide range of subjects. A questionnaire was used for data collection from seven universities in Delhi.

A purposive sampling technique was employed for selection of Institutions for data collection. The purposive sampling technique was used to select the universities offering social science courses in Delhi. A questionnaire was prepared, and responses to the questions were recorded by visiting different universities. Purposive sampling technique was used to select the higher education institutions under study. The questionnaire included the following:

• Institution Preparedness relating to MOOCs Integration,
• Availability of a computer lab with a number of PCs,
• Level of integration of MOOCs into traditional courses,
• Problems Faced by HEIs in providing service to MOOC Learners,
• Perception of HEIs in developing MOOCs,
• Library Initiatives for integration of MOOCs in the university,
• Information literacy programme components on accredited MOOCs,
• Strategies devised to influence MOOCs uptake and perceived usefulness of MOOCS integration in formal education,
• Level of skills and competency in using MOOCs of institutional librarian.

Furthermore, metro train and UBER Moto were used as modes of transport for data collection from the seven institutions in Delhi between 9 May to 2 August, 2023. The institutions were visited multiple times in the scorching summer heat to collect data from MOOC administrators and librarians. The collected data was transferred to an Excel datasheet and analysed following the objectives of the study. The datasets are presented in Tables and discussed in correlation with other similar studies conducted in the past.

The scope of the study is confined to seven universities in Delhi viz., (i) University of Delhi (DU), National Intuitional Ranking Framework (NIRF) Ranking 2023, Rank11; (ii) Jamia Milia Islamia (JMI), NIRF rank 3; (iii) Jawaharlal Nehru University, (JNU) NIRF Rank 2; (iv) Guru Gobind Singh Indraprastha University (GGSIPU) Rank 74; (v) Indian Institute of Law (ILI), Rank 17 (among the law institutions); (vi) National Law University (NLU), New Delhi Rank 2 (among the law institutions); and, (vii) Dr B. R. Ambedkar University Delhi. (DBRAUD) NIRF 2016, Rank 96.

4. RESULTS

4.1 Institution Preparedness Relating to MOOCs

Higher Education Institutions (HEIs) have been facing considerable pressure to reduce costs, increase access to ensure wider audience, and demonstrate that students are acquiring valuable knowledge and skills. MOOCs are introduced as the latest development in the trajectory of online learning, and many institutions are adopting MOOCs for students and considering them for earned credits. Table 1 illustrates responses of the MOOC administrators stating that all major universities such as Jamia Millia Islamia, Delhi University, Indian Law Institute, Guru Gobind Singh University, National Law University, and Dr B.R. Ambedkar University, have been building digital infrastructure to support accredited MOOCs and enable students to earn credits in formal education. At Jamia Millia University, 20 staff members are working on MOOC course development, compared to four at Delhi University, one at Dr B.R. Ambedkar University, and one at National Law University. JNU and NLU have employed advisor for development of

Table 1. Institution preparedness relating to MOOCs integration

Information(s)	JMI	DU	JNU	ILI	GGSIPU	DBRAUD	NLU
Studio available	✓	✓	×	×	✓	×	✓
Staff employed on MOOC	20	04	@	×	✓	01	01
Accepted UGC notification on MOOCs	✓	✓	✓	@	✓	✓	✓
MOOCs development-related PCs	✓	04	@	@	×	02	02
Video camera	02	03	01	@	✓	01	02
Nos of studio DBRAUDio mic	01	04	01	@	04	01	01
Hard disk	10	04	@	@	✓	01	02
Cloud storage	@	✓	@	@	✓	01	@
No. of editing software	05	02	@	@	07	02	02

Note: ✓ means 'Yes'and × means 'No' and @ means 'Not Available'
The number indicates availability of equipment by number

MOOCs in their institutions. Additionally, we discovered that some quantitative information about MOOC-related resources such as the number of video cameras at JNU, Jamia Millia Islamia University, Delhi University, Dr. B.R. Ambedkar University, and National Law University, respectively 1, 2, 3, 1, and 2. In survey, data from ILI could not be received to ascertain their preparedness, however university revealed the no availability of studio and self-employed staff on MOOCs.

The number of studio microphones at JNU and Jamia Millia Islamia University is one, compared to four at Delhi University and one each at both Guru Gobind Singh University and National Law University. Cloud storage facilities are available at the universities, and there are five editing software packages at Jamia Millia Islamia University, two at Delhi University, seven at Guru Gobind Singh University, two at Dr B.R. Ambedkar University and two at National Law University. There are also 10 hard disks at Jamia Millia Islamia University, four at Delhi University, only one at Dr B.R. Ambedkar University and two at National Law University.

Table 2 shows the strength of personal computers (PCs) in the computer lab to support access to MOOCs. JNU and GGSIPU have computer facility of more than 30 PCs for this purpose, followed by ILI, which has the second-highest number of PCs in their lab. DU has (16-20) PCs, and JMI has fewer than 10 PCs to support MOOC integration in formal curricula. The National Law University has a total of 25 PCs to support MOOC learning.

No university has a dedicated budget set aside for purchasing ICT equipment to meet the needs of students enrolled in MOOCs in the university. Only GGSIPU reports having a separate budget to buy ICT equipment to meet any demand from MOOC learners.

4.2 Level of Integration of MOOCs into Conventional Mode

MOOCs are emerging in the higher education environment, providing various forms for acquiring knowledge through this new method. A question was posed whether they offer credits and rewards for successful completion of accredited MOOCs in Social Sciences. The inquiry also focused on whether the institutions are associating with external organisations or institutions to develop and deliver accredited Massive Open Courses in Social Sciences. JNU, Jamia Millia Islamia University, National Law University, Guru Gobind University, and Dr. B.R. Ambedkar University offer credits and rewards to students. The study found that four major universities viz., Jamia Millia Islamia University, Indian Law Institute, National Law University, and Guru Gobind Singh Indraprastha University are collaborating with external experts to deliver MOOCs in Social Sciences. However, JNU, the University of Delhi, and Dr B.R. Ambedkar University currently do not work with any external organisations. Additionally, only Guru Gobind Singh Indraprastha University has guidelines on MOOCs, while there are no specific guidelines at other higher education institutions in Delhi. In response to questions about whether they would be prepared to take part in any initiative related to the introduction of an accredited MOOC program on their campuses, all universities responded positively, with most expressing readiness for participation.

Teachers are successfully integrating MOOCs into mainstream classrooms. We asked institutions to rate the level of integration of MOOCs into conventional higher educational institutions in Delhi. Table 3 shows the responses from respondents which shows that JMI revealed 'moderate level of integration'. According to responses from various universities, only Delhi University

Table 2. Availability of PCs

Number of the PCs	JMI	DU	JNU	ILI	GGSIPU	DBRDBRAUD	NLU
Less than 10 computers	✓	-	-	-	-	×	-
10 to 15	-	-	-	-	-	×	-
16 to 20	-	✓	-	-	-	×	-
21 to 30	-	-	-	✓	-	×	✓
More than 30	-	-	✓	-	✓	×	-

Note: ✓ means 'Yes' and × means 'No'

Table 3. Level of integration

Level of integration of MOOCs	JMI	DU	JNU	ILI	GGSIPU	DBRDBRAUD	NLU
High level of integration	-	-	-	-	-	-	-
Moderate level of integration	✓	-	-	✓	✓	✓	✓
Low level of integration	-	✓	-	-	-	-	-
Very low level of integration	-	-	✓	-	-	-	-

Note: ✓ means 'Yes' and × means 'No' and @ means 'Not available'

acknowledged that there is low level of integration of MOOCs into traditional higher education institutions. JNU highlighted 'very low level of integration', however, other universities, including Jamia Millia Islamia, Indian Law Institute, Guru Gobind Singh Indraprastha University, National Law University, and Dr. B.R. Ambedkar University, acknowledged that there is 'moderate level of integration'.

It is found that only Guru Gobind Singh Indraprastha University has guidelines on MOOCs, while there are no specific guidelines for MOOCs at other universities like Jamia Millia Islamia, Delhi University, Indian Law Institute, and Dr. B.R. Ambedkar University. In National Law University, special guidelines are under review and may be implemented in the upcoming years.

4.3 Problems Faced by HEIs in Providing Service to MOOCs Learners

High dropout rate is one of the most significant challenges faced by MOOC developers. One possible reason is that courses are unable to meet specific learning needs of students. Therefore, problems faced by universities providing services to MOOC learners were identified and are presented in Table 4. Four out of the seven institutions namely, JMI, DU, DBRAUD and NLU, encounter challenges related to insufficient manpower in delivering MOOCs to learners. Additionally, only three of these institutions, JMI, DU, and DBRAUD, face the issue of having less than required trained staff to effectively provide services during delivery of MOOCs. Furthermore, three out of the seven institutions namely, DU, GGSIPU, and DBRAUD, struggle with providing additional training and support to faculty members while offering MOOCs to learners. Moreover, two of the seven institutions, JNU and DU, face the problem of lack of funds in developing and providing MOOCs to learners. Similarly, GGSIPU and NLU encounter hindrances in managing learners' attitudes towards staff. JMI and JNU face challenge of subscription to e-resources while delivering MOOCs. Both JMI and NLU face issues in ensuring information literacy. Lastly, DU and NLU find it time-consuming to provide personalized services to MOOCs learners.

The researchers could not get the data relating to problem faced from ILI, New Delhi even after several attempts. Therefore, it is not ascertained what problems have been faced by ILI in providing services to MOOCs learners. This is also considered a limitation of the present study.

4.4 Perception of HEIs in Developing MOOCs

MOOCs are viewed as a game changer in the rapidly developing e-learning ecosystem. It offers students the opportunity to study from faculty members of top educational institutions using a variety of electronic gadgets.

Table 5 illustrates that six out of seven institutes (JNU, JMI, DU, ILI, GGSIPU, and NLU) have expressed that MOOCs play a significant role in promoting the study material produced within their respective institutions. Additionally, five out of the seven institutes (JNU, JMI, DU, GGSIPU, and NLU) have acknowledged that MOOC courses contribute to the introduction of novelty and innovation in teaching and learning practices.

Furthermore, five out of seven institutions (JNU, DU, GGSIPU, DBRAUD, and NLU) firmly believe that participating in online courses can enhance their reputation and foster brand growth. Similarly, five out of seven institutions (JMI, JNU, ILI, GGSIPU, DBRAUD, and NLU) revealed aiming to reach a wider audience through MOOCs is one of the perceptions. Four institutions out of seven (JMI, ILI, GGSIPU, and NLU) have stated that online courses aid in achieving better educational outcomes.

Consequently, three institutes (DU, GGSIPU, and NLU) have observed that online courses provide faculty members with more time, enabling them to focus more on research within their respective institutions. GGSIPU and

Table 4. Problems faced by HEIs in providing services to MOOCs learners

Problems faced	JMI	DU	JNU	ILI	GGSIPU	DBRDBRAUD	NLU
Lack of funds	×	✓	✓	@	×	×	×
Trained staff to deliver services	✓	✓	×	@	×	✓	×
The attitude learners towards staff	×	×	×	@	✓	×	✓
Subscription of e-resources	✓	×	✓	@	×	×	×
Conducting information literacy programmes	✓	×	×	@	×	×	✓
Less manpower	✓	✓	×	@	×	✓	✓
Time-consuming process to provide personalised services to learners	×	✓	×	@	×	×	✓
Providing additional training and support to faculty	×	✓	×	@	✓	✓	×
Allocating dedicated resources for integration efforts	×	✓	×	@	✓	×	×
Redesigning curriculum to incorporate MOOCs effectively	✓	×	×	@	✓	×	×

Note: ✓ means 'Yes' and × means 'No' and @ means 'Not Available'

DBRAUD have also highlighted that MOOC courses assist in addressing faculty shortages within their institutions. Lastly, only two institutes namely, GGSIPU and NLU, have reported that online courses contribute to revenue generation.

4.5 Library Initiatives for Integration

The library plays a vital role in the success of the academic community. Therefore, we ascertained library initiatives in the integration of MOOCs in traditional education. A question was posed in the questionnaire to understand how library educates users about accredited MOOCs through user education programmes.

Table 6 illustrates four out of the seven institutions namely, DU, JNU, GGSIPU, and NLU, provide education to their users regarding accredited MOOCs through their library websites and in user education programmes. Additionally, three out of the seven institutions, DU, JNU, and GGSIPU, educate their users about accredited MOOCs through group discussions and trial methods as part of their user education program. These institutions also prefer to disseminate information through notice boards, as part of their user education program. Furthermore, three out of the seven institutions namely, DU, GGSIPU, and NLU, educate their users about accredited MOOCs through lectures as part of their user education program. However, only two out of the seven institutions, DU and GGSIPU, provide education to their users about accredited MOOCs through technology demonstrations and consultation via email.

4.6 Information Literacy Initiatives for the Adoption of MOOCs

Learners also interact with a global community of learners, educators and experts in MOOCs. Thus, a question was asked to the respondents to ascertain the components of information literacy programmes on accredited MOOCs. Table 7 shows that five out of seven institutions have included information about different MOOC platforms - (JMI, DU, JNU, ILI and GGSIPU), in information literacy events. Further, DU, JNU, ILI, GGSIPU and NLU have included "Use of e-resource" in information literacy events. Four out of seven, JMI, DU, GGSIPU and NLU, have included "Overview of accredited MOOCs" as one of the components in information literacy events. However, only the following four institutions include users of library catalogues: JNU, ILI, GGSIPU and NLU. JNU, GGSIPU; NLU have included "Remote access of e-resources" as one of the components in information literacy. Interestingly, only JNU, GGSIPU and NLU have included "Similarity Tools demonstration".

It is also found that GGSIPU and NLU have included "Library service aligning MOOCs" as one of the components in information literacy. JMI and GGSIPU institutions have included "Technical Know-how" as one of the components. DBRAUD has not included any of the components relating to MOOCs in information literacy.

4.7 Strategies to Influence the MOOCs Uptake

A question was asked to the respondents regarding various strategies to increase uptake of MOOCs by students.

Table 5. Perception of HEIs in developing MOOCs

Perception(s)	JMI	DU	JNU	ILI	GGSIPU	DBRDBRAUD	NLU
Aiming to reach a wider audience	✓	×	✓	✓	✓	✓	✓
Enhancing reputation and brand building	×	✓	✓	×	✓	✓	✓
Revenue Generation	×	×	×	×	✓	×	✓
Novelty and innovation in teaching and learning	✓	✓	✓	×	✓	×	✓
Overcoming the shortage of faculty	×	×	×	×	✓	✓	×
Educational outcomes can be enhanced	✓	×	×	✓	✓	×	✓
Promoting the study material produced by HEI	✓	✓	✓	✓	✓	×	✓
Faculty get time and focus more on research	×	✓	×	×	✓	×	✓

Note: ✓ means 'Yes' and × means 'No'

Table 6. Library initiatives for integration of MOOCs in HEIs

Education programmes	JMI	DU	JNU	ILI	GGSIPU	DBRAUD	NLU
Group discussion	×	✓	✓	×	✓	×	-
Demonstration of technology	×	✓	×	×	✓	×	-
Trial method	×	✓	✓	×	✓	×	-
Lecture	×	✓	×	×	✓	×	✓
Consultation through email	×	✓	×	×	✓	×	-
Information through notice board	×	✓	✓	×	✓	×	-
Library website	×	✓	✓	×	✓	×	✓
Any other, (Please Specify)	×	×	×	×	×	×	×

Note: ✓ means 'Yes' and × means 'No'

Table 7. Information literacy programme components on accredited MOOCs

Information literacy programme components	JMI	DU	JNU	ILI	GGSIPU	DBRAUD	NLU
Overview of accredited MOOCs	✓	✓	×	×	✓	×	✓
Information about different platforms	✓	✓	✓	✓	✓	×	×
Technical know-how	✓	×	×	×	✓	×	×
Library service aligning MOOCs	×	×	×	×	✓	×	✓
Use of e-resources	×	✓	✓	✓	✓	×	✓
Remote access of e-resources	×	×	✓	×	✓	×	✓
Similarity Tools demonstration	×	×	✓	×	✓	×	✓
Use of library catalogue	×	×	✓	✓	✓	×	✓
Any other, (Please specify)	×	×	×	×	×	×	×

Note: ✓ means 'Yes' and × means 'No'

Table 8 shows the responses. Six out of seven institutions namely, JNU, JMI, DU, GGSIPU, DBRAUD and NLU, adopted "Explain the perceived Usefulness" as a strategy to influence MOOCs uptake. Further, four out of the seven institutions namely, DU, GGSIPU, DBRAUD, and NLU, emphasise absence of cost as a value proposition to influence student uptake of MOOCs. Only GGSIPU has implemented the strategy of Perceived Connectedness, to influence student participation in MOOCs. Moreover, four out of the seven institutions namely, JMI, DU, GGSIPU, and NLU, have adopted Positive Attitudes as a strategy to influence student uptake of MOOCs. JNU and GGSIPU have implemented the strategy of attempting to change student attitudes towards MOOCs, to influence their participation. And, three out of the seven institutions viz., DU, GGSIPU, and DBRAUD, have adopted the "Explain better accessibility of the course" strategy to encourage enrollment. Only one institution namely, GGSIPU, has implemented the strategy of behavioural change to influence uptake.

The researchers could not get the data relating to problem faced from ILI, New Delhi. However, after going to the website of the Institution, it is ascertained that Institution has not yet devised any strategy relating to adoption of MOOCs learners.

4.8 Perceived Usefulness of MOOCs Integration in Formal Education

MOOCs are the most recent step in developing open educational resources for students worldwide, demonstrating a significant difference from other methods of Internet education. The questionnaire inquired about the perceived usefulness of accredited MOOC integration in formal education. Table 9 shows that five out of seven institutions (DU, JNU, ILI, DBRAUD and NLU) responded that they perceived MOOCs as useful since it is somewhat akin to borrowing a textbook from the library. Five out of seven institutions (DU, JNU, ILI, DBRAUD and NLU) responded that they saw MOOCs as useful because of their desire to know more about MOOCs. Five out of seven institutions (JMI, DU, , GGSIPU, DBRAUD and

NLU) responded that they saw MOOCs as useful because videos can be played at the required pace multiple times. Five out of seven institutions (DU, JNU, JMI, GGSIPU and NLU) gave the reason that quiz results are available instantly. Five out of seven institutions (DU, JNU, ILI, DBRAUD and NLU) responded that reading lists in MOOCs are exhaustive.

Four out of seven institutions (DU, ILI, DBRAUD and NLU) responded that MOOCs are available free of cost which adds to the positive feeling. Four out of seven institutions (JMI, DU, ILI, and DBRAUD) responded that they saw MOOCs as useful in earning more course certificates, adding value to the resume. Four out of seven institutions (DU, JMI, DBRAUD and NLU) responded that they saw MOOCs as useful because many useful website links are provided by instructors. Three out of seven institutions (ILI, DBRAUD and NLU) responded that they saw MOOCs as additional incentives. Three out of seven institutions namely, DU, ILI, and DBRAUD, mentioned that they saw MOOCs as useful since MOOCs increase knowledge. Respondents at DU, JNU and ILI revealed that discussion forums on MOOCs are effective.

Three out of seven institutions (DU, ILI and NLU) responded that they saw MOOCs as useful they are like real classes. Three out of seven institutions (JMI, DU and NLU) responded that they saw MOOC as useful because video interactions are helpful. Only NLU responded that electronic whiteboards help in learning the concept easily.

4.9 Availability of Skills Level in HEIs

Massive Open Online Courses promote free access to educational materials so that learners can have an opportunity for career development and lifelong learning. The opportunities offered through MOOCs for acquiring skills can be used by lectures at universities, particularly in developing countries. This study assessed the teaching of digital literacy skills by professors and their participation in MOOCs. Table 10 shows that among the seven institutions surveyed, four namely, JMI, JNU, GGSIPU, and DBRAUD, reported possessing average level of competency. On the other hand, two institutions, DU, and ILI, indicated

Table 8. Strategies devised to influence the MOOCs uptake

Strategies	JMI	DU	JNU	ILI	GGSIPU	DBRAUD	NLU
Explain the perceived usefulness	✓	✓	✓	@	✓	✓	✓
Explain better accessibility of the course	×	✓	×	@	✓	✓	×
No cost value	×	✓	×	@	✓	✓	✓
Perceived connectedness	×	×	×	@	✓	×	×
Perceived competence of the instructor	×	×	×	@	✓	×	×
Autonomy	×	×	×	@	×	×	×
Positive attitudes about MOOCs	✓	✓	×	@	✓	×	✓
Explain better satisfaction level	×	×	×	@	×	×	×
Try to change the attitude towards MOOCs	×	×	✓	@	✓	×	×
Behavioral change	×	×	×	@	✓	×	×
Any other, (please specify)	×	×	×	@	×	×	×

Note: ✓ means 'Yes' and × means 'No' and @ means 'Not available'

Table 9. Perceived usefulness of MOOCS integration in formal education

Perceived usefulness of MOOCs integration in formal education	JMI	DU	JNU	ILI	GGSIPU	DBRAUD	NLU
It is somewhat akin to borrowing a textbook from the library to learn	×	✓	✓	✓	×	✓	✓
Free of cost	×	✓	×	✓	×	✓	✓
Additional incentives	×	×	×	✓	×	✓	✓
Curiosity about MOOCs	×	✓	✓	✓	×	✓	✓
Earning more course certificates for writing in the resume	✓	✓	×	✓	×	✓	×
Obsession with watching MOOCs increases knowledge	×	✓	×	✓	×	✓	×
Useful discussion on discussion forums	×	✓	✓	✓	×	×	×
MOOC is like a real class	×	✓	×	✓	×	×	✓
Video interaction is helpful	✓	✓	×	×	×	×	✓
Videos can be played at the required pace multiple times	✓	✓	×	×	✓	✓	✓
Quiz results are available instantly	✓	✓	✓	×	✓	×	✓
Electronic whiteboard helps in learning the concept easily	×	✓	×	×	×	×	✓
Useful website links are provided by instructors	✓	✓	×	×	×	✓	✓
Reading lists in the MOOC are exhaustive	×	✓	✓	✓	×	✓	✓

Note: ✓ means 'Yes' and × means 'No'

Table 10. Level of skills and competency in using MOOCs of institutional librarians

Skills and competency in using MOOCs	JMI	DU	JNU	ILI	GGSIPU	DBRAUD	NLU
High level of competency							✓
Moderate high level		✓		✓			
Average	✓		✓		✓	✓	
Low level							
No level of competency							

Note: ✓ means 'Yes' and × means 'No'

a moderate to high level of competency in employing MOOCs. Also, NLU claimed a high level of proficiency in utilizing MOOCs.

5. DISCUSSION AND CONCLSUION

Regarding perceptions of institutions about the provision of online courses, six institutions out of seven institutions namely, JNU, JMI, DU, ILI, GGSIPU and NLU, have expressed that MOOC courses aid in promoting the study material produced in their respective institutes. Five out of seven institutions namely, JNU, JMI, DU, GGSIPU and NLU, opined that MOOCs facilitate novelty and innovation in teaching and learning. MOOC administrators that all major universities such as Jamia Millia Islamia, Delhi University, Indian Law Institute, Guru Gobind Singh University, National Law University, and Dr. B.R. Ambedkar University, have sufficient digital infrastructure to support accredited MOOCs and enable students to earn credits in their formal education. The study found that JMI has 'moderate level of integration', while Delhi University mentioned 'low level of integration' of MOOCs into traditional higher education institutions. JNU highlighted 'very low level of integration', however, Jamia Millia Islamia, Indian Law Institute, Guru Gobind Singh Indraprastha University, National Law University, and Dr. B.R. Ambedkar University, acknowledged that there is 'moderate level of integration. JNU and GGSIPU have a computer facility of more than 30 PCs for this purpose, followed by ILI which has the second-highest number of PCs in their lab. DU has (16-20) PCs; JMI has fewer than 10 PCs to support MOOCs integration in formal curricula. Finally, National Law University has a total of 25 PCs to support MOOCs learning. However, four out of the seven institutions namely, JMI, DU, DBRAUD, and NLU, encounter challenges related to insufficient manpower in delivering MOOCs to learners. Five out of seven institutions (DU, JNU, GGSIPU, DBRAUD and NLU) responded that they saw MOOCs as useful because videos can be played at the required pace and multiple times. Five out of seven institutions namely, JMI, DU, JNU, ILI and GGSIPU, have included information about different MOOCs platforms in the information literacy events.

Six out of seven institutions namely, JNU, JMI, DU, GGSIPU, DBRAUD and NLU, adopted "Explain the perceived usefulness" as a strategy to influence MOOCs uptake. Among the seven institutions surveyed, it was found that four namely, JMI, JNU, GGSIPU and DBRAUD, reported possessing an average level of competency in utilizing MOOCs. Two institutions, DU and ILI, indicated a moderate to high level of competency in employing MOOCs. Additionally, NLU claimed a high level of proficiency in utilizing MOOCs. The findings of the study concludes that institutions need to gear up and formulate strategies to align their library services with MOOCs so that learners can benefit. These institutions have revealed that they have the infrastructure to integrate MOOCs into traditional learning; however, lack of manpower

hinders the integration and fostering of activities relating to MOOCs. Therefore, institutions should depute more staff so that work relating to MOOCs can be accelerated. Libraries have completely ignored the development of MOOCs and have not envisaged enhancements in this area to align their services. Libraries have also not trained their manpower in the development of MOOCs which can be vital for success and to make an impact in academic activities. Libraries must realize that the future lies in converting library spaces as activity hubs, not just physical but developing MOOCs, so that libraries can take a central role in students' development.

Furthermore, the study also guides institutions to harness the benefits of MOOCs so that students can be equipped to work in different cultural settings and make a significant contribution to society, locally and globally. This study recommends that library staff ought to encourage students to participate in MOOCs for career development. Therefore, libraries should organize events to educate students about MOOC courses. The responses relating to few questions could not be received from ILI and DRBAUD even after several attempts by researchers. Thus, this is also one of the limitations of the study. The major limitation of the study is that it is restricted to higher education institutions in Delhi. Therefore, further study should be undertaken to comprehend the perceptions of other higher educational institutions across the country.

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ACKNOWLEDGEMENT

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