



AWARENESS AND UTILIZATION OF MASSIVE OPEN ONLINE RESOURCES: AN EMPIRICAL STUDY AMONG TEACHERS ENGAGED IN HIGHER EDUCATION IN DELHI AND NCR

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Abstract

The education system and learning has metamorphosed in this century and the credit for this change goes to technology. The digital technology has dramatically transformed the face of education. Massive open online courses (MOOC) is a tool used by many reputed institutes to enhance the knowledge and skills of the individual around the world. This research paper is an attempt to assess the awareness level of higher education teachers of the availability of MOOCs and to measure the level of MOOCs usage among the higher education teachers. For the purpose of this study both primary and secondary data have been collected. A structured questionnaire was prepared to obtain the views of the target group. Non probability sampling technique has been used for data collection and the sample size of 78 teachers of higher education has been considered for the purpose. Major findings of the study are that most of the teachers do not go for certification, customized course will be more beneficial and also that most of the teachers are aware of MOOC but have never used it.

Keywords: e-Learning, Higher Education, On-line Learning, MOOCs.

Introduction

Growth and development of any country depends on the level of education of its citizen. It is evident that the countries that are developed have higher number of their population that is educated. "The United Nations Educational, Scientific and Cultural Organization (UNESCO) places similar importance on education, stating that it is necessary for an individual's achievement of goals, increase of knowledge and potential, and effective participation in wider society".

Education is the key to development and technological advancement of any country. In a country like India with a population of 1340 million and with 50% youth population, catering to this huge population with basic education is a big challenge. According to Ministry of Human Resource Development, the Gross Enrolment Ratio in higher education in India was 23.6% in the year 2014-2015. It is calculated for the 18-23 years age group. It is total enrolment as a percentage of the eligible population.

There was need of mode of learning that has a far reach and for this MOOC seems to be silver lining for those who have got no access to the formal education due to any reasons like lack of infrastructure, financial issues or social problems. As the basic terminology Massive and Open is best suited for Indian demography.

This reveals that the students want to go for higher education but due to lack of facilities both at the personal level or by the facility provided is not adequate enough to support them to fulfill their dreams. These open universities are not able to do justice with the students due to dearth of qualified faculties, proper infrastructure, student's access to study material, interaction with faculty etc.

A major landmark took place with MIT launching open online course and any one that had internet connection could apply for these courses. This came as a breeze for those who wanted to do the course from some leading universities or institution the biggest benefit was one could listen to the lectures the professors of the institutions which one could only dream of. There was ample study material, course work format reviews assessment and certification was also offered.

MOOC is also a platform for those working people who want to have degree of a particular course but cannot leave their jobs to do so. These MOOC programs are great help to the working group. According to the data published in New York Times May 2014 more than 900 MOOCs are offered by various colleges and universities of US.

According to Steve Kolowich (2013) dozens of universities had affiliated with MOOCs, including many international institutions. Seeing to effectiveness and acceptability of MOOC the Government of India launched Massive Open Online Courses (MOOCs) on 15th August 2016 called Swayam with aim to provide educational policy and practice with the emphasis on Access, Equity and Quality. e-learning resources to students across country.

MOOC can be an instrument for their growth and development of teachers in higher education it can be an effective tool for the refresher program, peer learning, latest pedagogy updates. (Mackness, Waite, Roberts, & Lovegrove, 2013) in their study have advocated that small task –oriented MOOCs can effectively support professional development of open academic practice.



Yuan & Powell, 2013 in their study have found that formal certificate or course credit is not necessary for the professional development. Dabner, Davis, and Zaka (2012) points out that professional teacher development is often inadequately done and emphasize on workshops to develop only the technical skills through few technological tools. MOOCs represent an untapped potential for teacher professional development but still it has a long way to go. It needs to customize the programs according to the subject and other issues like recognition, validation, and accreditation of learning.

Purpose of the Study

The purpose of this empirical study is to assess present knowledge, awareness and utilization of Massive Open Online courses among the teachers of higher education. The study encompasses a detailed analysis of reasons that influence the higher education teachers in selection of MOOC and the reasons for going for MOOC certification. The study is conducted with the following objectives:

- To assess the awareness level of teachers engaged in higher education of the availability of Massive Open Online Courses.
- To measure the level of Massive Open Online Courses usage among the higher education teachers.
- To identify the factors that influences the higher education teachers for going for MOOC certification.
- To know the priorities of the higher education teachers in selection of any MOOC.

Research Methodology

The study is based on survey method. The data for the study has been collected through two sources - Primary Data and Secondary Data. Self developed questionnaire consisting of 30 questions in four sections has been used as a tool for primary data collection. The first section addressed the demographic information of the teachers engaged in higher education. This section was followed by a main question asking if the teachers are aware of massive open online courses (MOOCs). Based on the respondent's answer, the participant was directed to different sections. The responses to the questions were of dichotomous type and multiple choice type. The responses to the questions prepared for the purpose were sought from a sample of 78 teachers engaged in higher education. Convenience sampling was administered in the study. The data has been analysed with the help of statistical techniques such as percentage, cross tabulation and chi-square test. For the purpose of this study secondary data has been collected through websites, journals and newspapers. Various research papers and articles related to awareness and usage of MOOC in India have also been reviewed.

Review of Literature

Education trend has been changed tremendously over the past years. MOOC is the recent innovation which has replaced the old model of higher education. The European Association of Distance Teaching Universities (EADTU) defines MOOCs as "online courses designed for large numbers of participants, accessible anywhere by the Internet, open to everyone without entry qualifications and offer a free course experience online for free.

According to Pope J. (2014) MOOCs are appeared to be a solution to the problem of "scaling up" higher education. Castel (2017) says that it was predicted that the global demand for higher education places is ever-growing, for countries like India, in Asia, higher education is taxing, and MOOCs may provide a solution. MOOCs provide a real opportunity to reduce costs, enhance quality and address the increasing global demand for higher education.

Mujafarova & Kaya (2014) emphasized the benefits of Massive Open Online Course, or MOOC, as a response to the students who are challenged financially. As the tuition fees for education are rising rapidly, those who cannot afford them have an alternative way to enrich their experience. The main characteristics of MOOCs are: quality, flexibility, high level of interaction and, what is especially valuable that these courses are free of charge. The structure of a typical MOOC is suitable for each individual user, though the course is targeted at the mass audience. A five to seven minute video is followed by interactive quizzes. A student has an opportunity to pause or rewind the video and watch it on his/her own pace. Students submit home tasks, which are automatically graded. But the most important is the feedback, which is provided both by the instructor and the peers. The major MOOC providers, Coursera, edX, and Udacity, have offered a range of approaches with one central problem—massive student numbers are impossible for teachers to handle. To deal with the problem, MOOCs commonly offer a simple solution — get the students to teach and grade each other (Baggaley, 2014). Peer-review motivates and supports students, giving the chance to share knowledge and ideas with the ones you might have never had chance to meet in-person.

Another recent study conducted by Muhammad, S. H. et al (2016) explores the awareness, adoption, benefits and challenges of MOOC in Sub-Saharan Africa. The study employed survey method to gather primary data from 300 randomly selected students. The result of the study shows a variation in awareness level among IT and non-IT students. The study indicates the improved learning performance and effectiveness among study samples. The study further reveals that user unfriendliness, inadequate Internet connectivity, power instability and cost of enrolments as factors influencing slow adoption of MOOC and

the awareness and adoption of MOOCs can be enhanced through establishment of hubs, provision of national accredited curriculum and subsidized cost of enrollments.

A study conducted by Onah, Sinclair & Boyatt (2014) reveals that one of the major issue in MOOCs effectiveness is the high dropout rate of MOOC learners. Although many thousands of participants enroll on these courses, the completion rate for most courses is below 13%. The results of this study show that no real intension to complete, lack of time, course difficulty and lack of support, lack of digital skills or learning skills, bad experience, unrealistic expectations, late start and peer review are some of the main reason for participants' dropout in MOOCs.

Dhanani J. V et. al. (2015) conducted a study with the objective is to find out awareness and use of MOOC and educational videos series by the medical faculties in Valsad, Gujarat. A predesigned and pretested questionnaire was distributed to 108 faculty members. The results were collected and statistical analysis was done by using Microsoft Excel. The study shows that the awareness of online learning tools such as MOOCs and educational video series are very low among faculty members. However, after some awareness program, they will start using these resources for self-directed learning.

Balaji, Mahri & Fatnassi (2015) conducted a study to know the MOOCs implementation and usage among teachers and students in a higher education institution in Oman. The findings of the study highlight that Awareness on MOOC is very poor among all other teaching staffs except business and IT departments. Even with IT and business staff, only 50 percent of them are doing or did courses with MOOC due to more work load in the college. The research has explored that the infrastructure of the college is excellent for taking courses with MOOC. The staff members who are familiar with MOOC accept that it provides good platform to upgrade their knowledge and stay in touch with the recent development in their domain with nominal cost or for free.

Results and Discussions

4.1 Demographic Information of the Respondents

Based on the analysis of the responses the results are summarized in the following tables. Table 1 indicates the demographic characteristics of the respondents. It shows that 69.2% respondents are females. This indicates a dominance of female participation in this study. Majority of the respondents are of the age group 25 – 45 years, however very few respondents more than 45 years of age. Regarding the educational qualification of the respondents, more than half (59%) of the respondents are post graduates whereas 41% respondents are doctorates, as the study is on teachers engaged in higher education so the post graduation is a mandatory qualification for them. A significant number (56.4%) of the respondents are from management specialization and 38.5% respondents are specialized in information technology field however very few number (5.1%) of the respondents are from commerce field. The questionnaire also captured how many years of experience the respondents have. It is sufficed to note that majority of the respondents were having 5-10 years of teaching experience however 23% of the teachers were having more than 15 years of teaching experience.

Table 1: Demographic Characteristics of the Respondents (N=78)

Gender	Frequency	Percentage
Male	24	30.8%
Female	54	69.2%
Age		
25-35 Yrs	36	46.2%
35-45 Yrs	36	46.2%
45-55 Yrs	4	5.1%
55 and above	2	2.6%
Qualification		
Post Graduation	46	59%
Doctorate	32	41%
Specialisation		
Management	44	56.4%
Information Technology	30	38.5%
Commerce	4	5.1%
Total teaching experience		
0- 5 Years	16	20.5%
5- 10 Years	30	38.5%
10- 15 Years	14	17.9%
More than 15 Years	18	23.1%

4.2 Awareness of MOOC

Majority of the respondents 70 out of 78 (89% approx) were aware of MOOC. Only 8 out of 78 responses (10.3%) were not aware of it. However they all were interested in knowing about MOOCs. An important number of respondents 22 out of 78 (28.2%) have heard about MOOCs but never used it. Majority of them heard about MOOCs from their peer groups and in seminars, conferences and workshops. The reasons stated by the majority of the respondents for not using the MOOCs are no compulsion (45.5%) of the regulating bodies for pursuing such courses and course schedule did not match with their vacations (36.4%). However few respondents have also reported high fees (18.2%), lack of technology (9%) and lack of interest (9%) were some of the other reasons for not using MOOCs. Despite the high awareness of MOOC existence only 38 teachers out of 78 responses (48.7%) have used MOOC but did not go for certification and a very small number of respondents (12.8%) have opted for certification.

Table2: Participants' awareness of MOOCs (N=78)

Are you aware of MOOC ?		%
Not even heard of it	8	10.3%
Heard but never used it	22	28.2%
Have used it but never opted for certification	38	48.7%
Did not go for certification	10	12.8%

Table3: Reasons for not using MOOCs (N=22)

Reasons for not using MOOCs		%
Lack of technology	2	9.1%
Lack of computer literacy	0	0%
Lack of interest	2	9.1%
No compulsion	10	45.5%
Unavailability of desired courses	0	0%
Fees was too high	4	18.2%
Course schedule did not match with my vacations	8	36.4%

4.3 Reasons for Enrolling in MOOC but not Opted for Certification

It can be interpreted from the responses shown in the table 4 reflects the reasons stated by the respondents for enrolling in MOOC. Majority of the respondents (82.4%) enroll for MOOC to upgrade their knowledge. The other reasons behind enrollment of MOOCs are to make their class room lecture interesting (41.2%), to learn new pedagogy (35.3%) and to experience how the professors of the premium institute teach (29.4%) respectively. The reasons reported by the respondents for not opting for certification were the course schedule did not match with the respondent's time (55.6%) followed by high fees (38.9%) and lengthy assignments (33.3%) . Considering the first MOOC from Harvard University, and MIT, the following statistics are available from Harvard Computer science lecturer David J. Malan tracked the number of students who were engaged with his virtual course (offered through edX), Out of the 150,349 students who registered for CS50x, and only 1388 actually received one. According to data collected by MITx for course 6.002x: Circuits and Electronics, for which 154,763 people registered, only 7,157 ended up certified.

A very few number of respondents said that as these certificates are not required for API, they didn't opt for the certification. It is also observed from the survey that many of the respondents enrolled for MOOCs but could not complete the course due to shortage of time. But majority of them (55.6%) agree that certification is necessary after course completion. However the number of respondents who were not sure whether the certification is necessary or not, was also quite significant (33.3%). The result of the study also shows that majority of the respondents apply the learning of these MOOCs in their day to day teaching and majority are interested in doing more such courses. Majority would like to recommend such courses to others but very few (22.2%) were interested in developing their own MOOC.

Table 4: Reasons for enrolling in MOOC (N=38)

Why did you enroll for MOOC?		
To upgrade knowledge	28	82.4%
To learn new pedagogy	12	35.3%
Make my lecture interesting	14	41.2%
To know how the professor of the premium institute teach	10	29.4%

Table 5: Reasons for not opted for certification (N=38)

Why did you not opted for Certification		
High Fees	14	38.9%
Not required for API	8	22.2%
Assignments are lengthy	12	33.3%
Difficult evaluation process	2	5.6%
Course schedule did not match with my time	20	55.6%

The analysis of responses shown in the table 6 reflects that the majority of the respondents like MOOCs because of the course flexibility, content of the courses and the teaching pedagogy. However very few respondents like the length of the videos, evaluation process and the option of subtitle in the MOOCs. The various suggestions offered by the respondents are also listed in the table 7. More than half (66.7%) of the respondents reported that the cost of the certificate should be reduced. Many respondents perceive that the MOOCs should be tailor made means that the learner should be given flexibility to select parts of different courses which are relevant for them. The other important suggestions given by the respondents for improvement are that such courses should be accredited in the curriculum, quality rating for such courses should be provided on the basis of the users' feedback and awareness of such courses should be increased among the teachers and students. The majority of the respondents (72%) are planning to develop their own MOOC in future.

Table 6: Reasons for liking of MOOCs (N=38)

What did you like about MOOC?		
Flexibility	34	89.5%
Content	26	68.4%
Option of subtitle	2	5.3%
Length of video	8	21.1%
Evaluation process	4	10.5%
Teaching pedagogy	18	47.4%

Table 7: Suggestions offered by the respondents

Suggestions made by the respondents	Sample Size =38	
It should be tailor made	16	44.4%
Less costly	24	66.7%
You can choose the material	9	16.7%
Learning from the professor of the reputed institute	18	50%
Quality rating of such courses should be increased	12	33.3%
Awareness of such courses should be increased	14	38.9%

Tables 8, 9 and 10 show the response of the respondents who went for MOOC certification. The reasons stated by majority of the respondents for going for MOOC certification are desire to add value and desire to learn something new. However some respondents stated the reason for going for MOOC certification are to learn new methodology and to make class effective. In response to a question of priority they look for while selecting a MOOC, 80% of the respondents look for University and institute affiliation, 60% look for the course content and 40% look for the course coordinator. A very few respondents look for the course fee and certificate applicability too. It was also observed from the survey that all the respondents gained in-depth subject knowledge, analytical skills and new teaching methodology from MOOCs.

Table 8: Reasons for going for certification

Why did you go for certification?	Sample Size = 10	
Wanted to learn something new	6	60%
To do value addition	8	80%
To learn new methodology	4	40%
To make class effective	2	20%
To improve my CV	0	0%

Table 9: Priorities for selecting a course

What are your priorities for selecting a course	Sample Size = 10	
University/Institute Affiliation	8	80%
Government/Private	0	0%
Course Coordinator (Faculty)	4	40%
Fees	2	20%
Duration	0	0%
Prerequisites	0	0%
Content	6	60%
Certificate applicability	2	20%

Benefits from MOOCs

What skills you have developed from MOOC	Sample Size = 10	
I felt informed	4	40%
Acquired new teaching methods	6	60%
I have become more analytical	6	60%
In-depth knowledge of the subject	6	60%

The cross tabulation and chi-square test have been performed in excel to find out the association between demographic characteristics of the respondents with MOOC awareness and usage. Table 10, 11, 12 and 13 shows the cross tabulation and chi-square test results between independent variable gender, age and experience of the respondents and dependent variable MOOC awareness.

4.4 Association between Gender and MOOC Awareness

Null Hypothesis: There is no association between gender and MOOC awareness.

Table 10: Association between Gender and MOOC awareness

Gender	did go for certification	have used it but not opted for certification	Heard but never used it	Not even heard of it	Grand Total
Female	8	28	14	4	54
Male	2	10	8	4	24
Grand Total	10	38	22	8	78

Chi-square value (calculated) = 2.6104 Degree of freedom = 3

The table value of chi square at 3 degree of freedom at 5% level of significance is 7.815, since the calculated value is less than the table value, the null hypothesis is accepted. This implies that we can state with 95% confidence level that the two variables gender and awareness of MOOC are independent. The result shows that the awareness and usage does not appear to be significantly different between male and female teachers.

Association between Respondents' Age and MOOC awareness

Null Hypothesis: There is no association between Respondents' age and MOOC awareness.

Table 11: Association between Respondents' Age and MOOC awareness

Respondents' Age	did go for certification	have used it but not opted for certification	Heard but never used it	Not even heard of it	Grand Total
25 - 35 yrs	4	14	12	6	36
35 - 45 yrs	6	22	8		36
45 - 55 yrs		2	2		4
55 and above				2	2
Grand Total	10	38	22	8	78

Chi-square value (calculated) = 27.375 Degree of freedom = 9

The table value of chi square at 9 degree of freedom at 5% level of significance is 16.92. Since the calculated value of chi-square is more than the table value, therefore we fail to accept null hypothesis. Hence we can infer that the awareness and usage of MOOC is significantly different among the different age group of teachers.

Association between Respondents’ experience and MOOC awareness

Null Hypothesis: There is no association between Respondents’ experience and MOOC awareness.

Table 12: Association between Respondents’ experience and MOOC awareness

Experience	did go for certification	have used it but not opted for certification	Heard but never used it	Not even heard of it	Grand Total
0 - 5 yrs		8	2	6	16
5 - 10 yrs	6	12	12		30
10 - 15 yrs	4	8	2		14
15 yrs and above		10	6	2	18
Grand Total	10	38	22	8	78

Chi-square value (calculated) = 29.237 Degree of freedom = 9

The table value of chi square at 9 degree of freedom at 5% level of significance is 16.92, since the calculated value is more than the table value, the null hypothesis is rejected. This shows that the two variables MOOC awareness and usage and work experience of teachers are not independent. Hence we have a convincing evidence that the awareness and usage of MOOC is significantly different among teachers with different years of experience.

Association between Respondents’ specialization area and MOOC awareness

Null Hypothesis: There is no association between Respondents’ specialization area and MOOC awareness.

Table: 13 Association between Respondents’ area of specialization and MOOC awareness

Area of Specialisation	did go for certification	have used it but not opted for certification	Heard but never used it	Not even heard of it	Grand Total
Commerce	2	2			4
Information Technology	4	10	14	2	30
Management	4	26	8	6	44
Grand Total	10	38	22	8	78

Chi-square value (calculated) = 14.824 Degree of freedom = 6

The table value of chi square at 6 degree of freedom at 5% level of significance is 12.59, since the calculated value is more than the table value, the null hypothesis is failed to be accepted. Hence we can infer that the awareness and usage of MOOC is significantly different among teachers with different area of specialization.

Conclusion

It was concluded from the study that majority of the respondents (89% approx) were aware of MOOC. 10.3% were not aware of it. However they all were interested in knowing about MOOCs. An important number of respondents 28.2% have heard about MOOCs but never used it. Majority of them heard about MOOCs from their peer groups and in seminars, conferences and workshops. According to research study of Shakya, Shrestha& Manandhar 2016 conducted in Nepal found that 81% of respondent have not heard of MOOC providers but only 9% of them are not aware of MOOC, only 5% of the respondents got themselves enrolled for it but 77% were willing to take MOOC course.

It is also observed in the study that there is no association between gender of the respondents and MOOC awareness and usage. However a significant difference has been observed in this study between age of the respondents, work experience and area of specialization and MOOC awareness and usage. This may be attributed to the fact as teachers of Information technology area are more well versed with the technology and use of computer.

It is revealed from the study that the reasons why teachers were not using MOOC in spite of having awareness was that it did not match with their time schedule, lack of interest, high fee was also one of the reasons why teachers did not go for MOOC. It is also reflected in the present study that the recognition and the waitage is not properly given to the course. According to (King & Nanfita, 2013).The existing problem for using MOOCs for teachers development is the courses are general in nature and not specifically directed toward teachers.



The reasons reported by the respondents for not opting for certification were the course schedule did not match with the respondent's time, high fees, lengthy assignments and not required for API.(Jobe,Ostlund &Sevensson 1014)mentioned in their study that it will take a long way for MOOC to make niche for the teachers development program that is financially suitable, the course fee reduces the key benefit that these courses has over the traditional course. They have also highlighted the challenges associated with recognition, validation, and accreditation of learning associated with MOOC.

It is important to highlight that around 48% of the teachers (respondents) did use MOOC but only 12% did go certification. Considering the first MOOC from Harvard University, and MIT, the following statistics are available from Harvard Computer science lecturer David J. Malan tracked the number of students who were engaged with his virtual course (offered through edX), Out of the 150,349 students who registered for CS50x, and only 1388 actually received one. According to data collected by MITx for course 6.002x: Circuits and Electronics, for which 154,763 people registered, only 7,157 ended up certified.

It is revealed in the study that majority of the respondents (82.4%) enroll for MOOC to upgrade their knowledge. The other reasons behind enrollment of MOOCs are to make their class room lecture interesting ,to learn new pedagogy ,and to experience how the professors of the premium institute teach. According to(Revathi Vishwanathan 2012) the digital learning can be used maximum for learning new teaching styles from the facilitator and also for upgrading the subject knowledge the study also revealed that the information could be used for classroom teaching.

The reasons stated by majority of the respondents in response to a question of priority they look for while selecting a MOOC, 80% of the respondents look for University and institute affiliation, 60% look for the course content and 40% look for the course coordinator. A very few respondents look for the course fee and certificate applicability too. It was also observed from the survey that all the respondents gained in-depth subject knowledge, analytical skills and new teaching methodology from MOOCs. In their survey of MOOC among students, (Chang, Hung and Lin 2015) found the key drivers for the participants to join MOOC are instructor's suggestions, development of professional skills, and the possibility to explore areas of interest Belanger and Thornton (2013) The reason why student enroll for MOOC are lifelong learning, to gain subject knowledge with no completion and achievement expectation student even join for fun, expectation and social experience they join the course they find it convenient than traditional education they even try to explore online education.

Suggestions

The suggestions that can be made on the basis of the study are:

MOOC is wide ocean of knowledge base which can be effectively used by the teachers in higher education for improving the class room teaching the most beneficial way in which MOOC can be used is for cross functional knowledge. The class room teaching in the higher education is no more confined to domain subject knowledge MOOC can facilitate the teachers to update their knowledge not only related to their subject but also in other areas as well and make their lectures effective. It can also be suggested that the MOOC providers should try to make some tailor made course for the teachers, the providers should try to keep the fee structure as less as possible so attractive than the traditional methods. The use of the MOOC can be increased if the assessment bodies start giving due recognition and waitage to these courses in the promotions and value addition in their bio-data. The awareness regarding availability and benefits of such courses should be increased through workshops, seminars and conferences. As there are plethora of courses available online on one particular subject, the teachers generally find it difficult to select the best course available in their area of specialization. Quality ratings hence should be introduced depending upon the feedback of the users who have completed that course. This will facilitate them in selection of an appropriate course.

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