A Study On Utilization And Barriers Of Moocs Among Faculty Members Of Engineering Colleges

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ABSTRACT

The main objectives of this study are to investigate the motivational factors that influenced the learners to attend the MOOC courses, the purpose of attending MOOCs, course duration they preferred and also this study is focused on barriers encountered to the learners when they attempt to access MOOC courses to improve their knowledge and skills. A Structured Questionnaire was framed and it was distributed to 500 faculty members working in Engineering Colleges where located in selected three districts. Out of 500 Questionnaire distributed, 365 questionnaire were successfully received from the respondents. SPSS Statistical Software Tool was used for data analysis. Improvement in Teaching, Learning, and Research was the most influenced motivational factor by the respondents to attend the courses. 49.3% of respondents participated in MOOCs to improve teaching and learning. 41.6% of respondents completed four weeks duration courses. Lack of Technical Skills was the major barrier among the respondents to access MOOCs.

Keywords: MOOCs, Motivational Factors, Faculty Members, Engineering Colleges, Barriers

1.INTRODUCTION

Indian Higher Education System is a very old and traditional way of the education system. It is a very challenging task for the authorities to give quality education to all. Ensuring equitable access to higher education is a challenge with gender, regions, and socio-economic groups. Ministry of Education, UGC, AICTE, and other education authorities have taken a lot of initiatives to improve the quality of education and also to provide quality educational content to all. Many Universities and Colleges are nowadays offering Open Education system, Distance Education system to provide opportunities to everyone who wishes to pursue Education.

In Information and Communication Technology (ICT) era, there are lot of inventions and improvements made in Education sector. One of the most advanced technologies in Education is Online Learning. With the help of the Internet and Computers, Online Learning has reached tremendous growth in Higher Education system. Particularly Massive Open Online Courses (MOOCs) are playing a vital role to bring quality content to the learners. MOOCs are easy to access, flexible, and permit large number of participants through online mode.

2.REVIEW OF LITERATURE

Aldowah et al. (2020)[1] stated that some of the social motivational factors such as connecting with others, relatedness, friends taking a course, and social norms impact users' retention in MOOC. **Sun et al. (2019)[2]** highlighted that relevancy to job, acquiring a new skill, and professional development are some of the motivational factors to access MOOCs. **Keller (2006)[3]** defined motivational design as "the process of arranging resources and procedures to bring about changes in motivation". **Cole and Timmerman (2015)[4]** reviewed that MOOC enable learners "to interact with peers of different education background as well as sharing ideas and opinions". **Olga et.al (2016)[5]** find out that learners are used to access MOOC as an online learning platform in order to increase their knowledge and skills. **Salinas (2004)[6], Zabalza (2009)[7]** concluded in their research that faculty must adapt to a new profile based on professional competence. **Ma and Lee (2018)[8]** found that chinese faculty members faced barriers included a lack of self-control and a negative attitude towards study, lack of internet access, resources, and lack of interaction, higher cost, lack of time, and lack of incentive to complete courses. **Bonk & Lee (2017)[9]** pointed out that consuming time; poor content quality and lack of support are the factors have decreased the MOOC. **Shaikh (2017)[10]** reported that teachers are getting enrolled, but number of teachers who successively complete the course was very low and the dropout rate is very high.

3.OBJECTIVES OF THE STUDY

1. To find out the purpose of attending the MOOC courses among the faculty members of Engineering College
2. To ascertain the various motivational factors for attending the MOOC courses
3. To identify the preferred duration of MOOC courses and
4. To study the barriers in attending the MOOC courses

4.METHODOLOGY

In order to fulfil the objectives of the study, a well-structured questionnaire was designed and administrated directly to the faculty members by using Census Sampling Technique. It was divided into four sections such as, motivational factors that influenced to access MOOC courses, purpose of attending MOOCs, Duration of the courses and barriers encountered to access MOOCs. A total of 500 questionnaires randomly administrated and 365 responses received (73%). **Babbie (2000)[11]** considers a return rate of 50 per cent adequate for analysis and reporting and a return rate of 60 percent as good and 70 percent as very good. The

questionnaires those that were incomplete are not considered for the study. The data collected were converted into SPSS for analysis.

5.DATA ANALYSIS AND INTERPRETATION

5.1.Distribution of Respondents

The questionnaires were geographically distributed among 500 faculty members working in Enginering Colleges located in three districts as given in Table 1.

Table 1 Distribution of Respondents

S. No.	Districts	No. of Questionnaires Distributed	No. of Questionnaires Received	%
1	Salem	170	137	37.5%
2	Namakkal	165	127	34.8%
3	Erode	165	101	27.7%
Total		**500**	**365**	**73%**

5.2.Demographic Information

The data collected from the faculty members of Engineering Colleges were further grouped into four categories such as "Designation", "Age", "Qualification", & "Stream" and the same is shown in Table 2.

Table 2 Demographic Information

S. No.	Description		Nos.	%
1	Designation	Assistant Professor	287	78.6%
		Associate Professor	52	14.2%
		Professor	26	7.1%
2	Age Group	Below 30 Years	94	25.8%
		31 to 40 Years	201	55.1%
		41 Years and above	70	19.2%
	Qualification	PG	253	69.3%
		Research	112	30.7%
4	Stream	Engineering	293	80.3%
		Non-Engineering	72	19.7%

It is found from Table 2 that 78.6% of the faculty members are Assistant Professor, 14.2% of respondents are Associate Professor, 7.1% of respondents are Professor. Further, it is found

that 55.1% of the faculty members are belonging to 31 to 40 years of age group, 25.8% of respondents are in the age group of below 30 years and 19.2% of respondents are belonging to 41 and above years of age group. The results further showed that 69.3% of the faculty members were possessed PG qualification and remaining 30.7% were possessed Research qualification. It is further indiacated that 80.3% of respondents are belonging to Engineering Stream and 19.7% of belonging to Non-Engineering.

5.3.Motivational Factors

MOOCs are considered as self-learning courses to improve knowledge, skills and professional development. The following are the major motivational factors identified for this study and the same is given in Table 3.

Table 3 Motivational Factors

S. No.	Description	Yes	No	M	SD	R
1	Professional Challenges	259 71%	106 29%	1.71	.45	3
2	Improvement in Latest Technologies	288 78.9%	77 21.1%	1.79	.40	2
3	Sustainability	207 56.7%	158 43.3%	1.57	.49	5
4	Improvement in Teaching and Research Skills	302 82.7%	63 17.3%	1.83	.37	1
5	Updation of Knowledge and Skills	238 65.2%	127 34.8%	1.65	.47	4

(M=Mean;SD=Standard Deviation; R=Rank)

Table 3 shows the various motivational factors for attending MOOC courses. The faculty members (82.7%) were attended the MOOC courses for improving the Teaching and Research Skills. Improvement in latest technology has been found as another major factor by 78.9% of faculty members. A good number faculty members (71%) were attended the MOOC Courses to face professional challenges. Updation of knowledge and skills were idendified as the least motivational factors by 65.2% of faculty members, which is followed by sustainability (56.7%).

5.4. Purpose of attending MOOC Courses

The purpose of attending the MOOC courses are differed from person to person. In this study, six major purposes were idendified and analysed on Likert's Five Point Scale and the results are shown in Table 4.

Table 4 Purpose of attending MOOC Courses

S. No.	Description	SD	DA	UD	A	SA	M	SD	R
1	To update knowledge and skills	42 11.5%	0 .0%	30 8.2%	96 26.3%	197 54%	4.11	1.28	2
2	To get promotion	48 13.2%	22 6%	142 38.9%	96 26.3%	57 15.6%	3.25	1.18	6
3	To develop own MOOC	50 13.7%	76 20.8%	90 24.7%	83 22.7%	66 18.1%	3.11	1.30	4
4	To get better opportunities	56 15.3%	22 6%	126 34.5%	111 30.4%	50 13.7%	3.21	1.21	5
5	To learn for Professional Development	12 3.3%	4 1.1%	46 12.6%	179 49%	124 34%	4.09	.89	3
6	To improve Teaching & Research	20 5.5%	4 1.1%	40 11%	121 33.2%	180 49.3%	4.20	1.05	1

(SD=Strongly Disagree; DA=Disagree; UD=Undecided; A=Agree; SA=Strongly Agree; M=Mean; SD=Standard Deviation; R=Rank)

It is observed from Table 4 that majority of faculty members (82.5%) were attended MOOC courses to improve teaching and research. The results further showed that 80.3% of faculty members were attended MOOC courses to update knowledge and skills. A good number of faculty members (83%) were attended to learn for professional development. Further, the result shows that 40.8% of faculty members were attended to develop own MOOC courses. Few faculty members (41.9%) were attended MOOC Courses for promotion.

5.5. Preferred MOOC Course Duration

The faculty members are engaged in teaching and research in the Higher Educational System. Majority of the participants are not able to complete the course due to various reasons. In this study, the preferred course duration has been analysed and the results are given in Table 5.

Table 5 Preferred MOOC Course Duration

S. No.	Description	Yes	No	M	SD	R
1	One Week	138 37.8%	227 62.2%	1.38	.48	2
2	Two Weeks	117 32.1%	248 67.9%	1.32	.46	3
3	Three Weeks	44 12.1%	321 87.9%	1.12	.32	4
4	Four Weeks & Above	152 41.6%	213 58.4%	1.42	.49	1

(M=Mean; SD=Standard Deviation; R=Rank)

Majority of the faculty members (41.6%) were preferred four weeks and above course, which is followed by one week course (37.8%). However, two weeks courses were also preferred by only 32.1% of faculty members. It is resulted that three weeks courses were preferred only by 12.1% of faculty members.

5.6. Barriers

The faculty members are finding so many problems in attending courses due to engagement in teaching and research especially in Higher Educational Institutions. The major barriers experienced by the faculty members are listed in Table 6.

Table 6 Barriers in attending MOOC Courses

S. No.	Description	SD	DA	UD	A	SA	M	SD	R
1	Inadequate ICT Infrastructure	54 14.8%	128 35.1%	64 17.5%	82 22.5%	37 10.1%	2.78	1.23	7
2	Lack of ICT Literacy	62 17%	90 24.7%	106 29%	78 21.4%	29 7.9%	2.79	1.19	6
3	Inadequate support from the management	60 16.4%	80 21.9%	118 32.3%	50 13.7%	57 15.6%	2.90	1.27	4
4	Lack of Technical Skills	50 13.7%	70 19.2%	110 30.1%	104 28.5%	31 8.5%	2.99	1.17	1
5	Lack of Relevancy	58 15.9%	62 17%	122 33.4%	102 27.9%	21 5.8%	2.91	1.14	3
6	Lack of Credibility	42 11.5%	78 21.4%	120 32.9%	94 25.8%	31 8.5%	2.98	1.12	2
7	Courses are not easily accessible	58 15.9%	88 24.1%	104 28.5%	84 23%	31 8.5%	2.84	1.19	5
8	Courses are not delivered systematically	62 17%	122 33.4%	62 17%	92 25.2%	27 7.4%	2.73	1.22	8

(SD=Strongly Disagree; DA=Disagree; UD=Undecided; A=Agree; SA=Strongly Agree; M=Mean; SD=Standard Deviation; R=Rank)
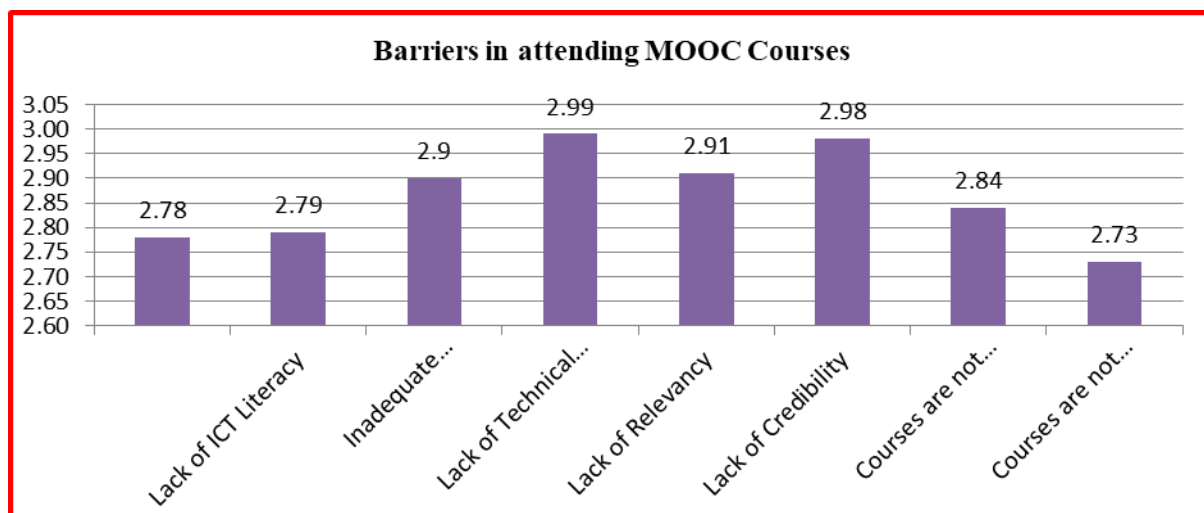
Figure 1. Barriers in attending MOOC Courses

It is resulted from Table 6 and Figure 1 that "Lack of Technical Skills" forms as the major barrier among 37% of faculty members. "Lack of Credibilty" was found as another major barrier by 34.3% of faculty members. It is evident that 33.7% of faculty members were identified MOOC courses are not relevant. A good number of faculty members (29.3%) were also found that "Inadequate support from management" has been another barrier for MOOC courses. Eventhough the technologies are improved, 31.5% of faculty members are not able to access the courses. Similarly, lack of ICT Literacy , 29.3% of faculty members were not able to attend the MOOC courses, which is followed by MOOC courses are not delivered systematically indiated by 32.6% of the faculty members.

6.CONCLUSION AND RECOMMENDATIONS

Based on the results, majority of the faculty memners were attended the MOOC courses to improve the teaching and research skills . The MOOC Courses helped the faculty members for improving their skills in ICT and also to face the professional challenges. The faculty members are involved in developing their own MOOC courses, however they are also facing some barriers such as lack of technical skills, lack of credibility and lack of relevance. In order to improve the MOOC Courses, it is very essential to ensure that MOOC courses will help to update knowledge and skills in their domain and should help to get better opportunity.   The MOOC courses should deliver the content systematically by improving ICT infrastructure facilities and create awareness on ICT Literacy among the faculty members of Engineering Colleges.

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