Critical Study and Analysis of Usefulness of Massive Open Online Courses

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ABSTRACT

In this era of technology and innovation, newer concepts, technologies, products and challenges are coming into the market rapidly. In the education domain, newer subjects with latest tools and technologies keep on changing frequently. Students, faculties, business owners, employees and researchers have to update their technical skills very frequently to cope up with new technologies and concepts. There are many different ways to update personal technical skills. Massive open online courses (MOOCs) are one of such popular mechanism available to update our skills. This paper represents analysis of what people thinks regarding usefulness of the MOOCs attended by them. This paper also describes various issues related to such MOOCs. Alarming results obtained after the analysis are given using various visual summaries.

KEYWORDS

Massive Open Online Courses, MOOCs, Blended MOOCs, NPTEL, Spoken Tutorials, Online Courses, Online Education

1.0 INTRODUCTION

Invention of new technologies are growing day by day rapidly, hence employees can't survive for longer period of time without updating their technical skills in competitive business. For students it is easier to learn new technologies as they are learning for first time from their mentors/teachers. But for working professionals it is little difficult to attend school/college to upgrade their technical skills. To address this problem faced by people, concept of online learning becomes more popular. One of such buzzword in discussion today is MOOC.

MOOC stands for Massive Open Online Course. According to Wikipedia, a massive open online course (MOOC) is an online course aimed at unlimited participation and open access via the web [1]. Key reasons behind popularity of MOOCs are as under:

Offers quality education to the remote corners of the world

Offered by leading universities and institutions of the world

Usually courses are free of registration cost

Enrollment is open for all, with almost no enrollment limits

Helps people to upgrade their technical skills related to new domain/technologies

2.0 LITERATURE REVIEW

As defined by Wiktionary, a massive open online course designed for a very large enrollment, offered on the World Wide Web by an educational institution and typically free of charge [2]. During literature review, it has been observed that most of the key aspects given by the Wiktionary in its definition are found in almost all the MOOCs. Key characteristics of such courses observed during literature review are as under:

MOOCs are online, Internet based courses

Usually most of the courses are free of cost and credit-less

Offered by leading universities through partnerships with MOOC service providers (such as Coursera, Udacity, edX, etc.)

Enrollment is open for all, anyone with an Internet connection can attend course

Most online courses provide recorded video lectures by subject experts.

Supports very large and often have a student enrollment in thousands; only single mentors/teaching faculty cannot respond to all registered students

Evaluation is generally through automatic or peer-generated feedback

MOOC was started in 20th Century before today's Internet based online MOOCs; distance learning appeared in the form of correspondence courses in the 1890s-1920s, and later radio and television broadcast of courses and early forms of e-learning. Typically, fewer than five percent of the students would complete a course [1], [3].

According to popular news agency, the New York Times, year 2012 became "the year of the MOOC" as several well-financed providers, associated with top universities emerged, including Coursera, Udacity, and edX [1][4][5]. India's top ranked institutions, Indian Institute of Technologies have also started offering various online courses through NPTEL, Spoken Tutorials and Virtual Labs.

During literature survey, it has been found that Stanford University, University of Washington, Indian Institute of Technology, Indian Institute of Science, UC Berkeley, University of Michigan, Oxford University, MIT and Harvard University are non-profit institutional participants. Also, there are commercial popular applications available in the MOOCs arena. Some of the popular MOOCs service providers/participants in this field are Coursera, Udamy, Udacity, FutureLearn, etc. Some times for value added services and course certifications, some of the MOOCs are also charging nominal amount.

2.1 Issues related to MOOCs

Resource Preparation Time: According to one of the survey conducted by the Chronicle of Higher Education in 2013 indicates that "typically a professor spent over 100 hours on his MOOC before it even started, by recording online lecture videos and doing other preparation". The professors then spent 8–10 hours per week on the course, including participation in discussion forums [1][6]. This clearly indicates that MOOC preparation time is very high compare to preparing content for traditional class room teaching.

Course completion ratio: It is typically lower than 10%, with a sharp participation drop starting in the first week. In the course Bioelectricity, Fall 2012 at Duke University, 12,725 students enrolled, but only 7,761 ever watched a video, 3,658 attempted a quiz, 345 attempted the final exam, and 313 passed, earning a certificate [1][7][8]. Early data from the Coursera suggest a completion rate of 7% to 9% only [9].

Evaluation of Students: As MOOC offers mass enrollment, it is difficult for service provider to evaluate the student's performance. During literature survey it has been observed that following two methods are popular for student's performance evaluation:

- Automated quiz evaluation
- Peer review mechanism – where assignment submitted by one student is evaluated by other participating students.

Some of the institutions have also started blended MOOCs, where mass enrollment is allowed for the course offered by the institutions; students have to give quizzes/examination under supervision of mentors.

During literature review following important challenges and criticisms has been observed:

- ICT usage training is needed for non-IT people.
- Course completion rate is very poor for MOOCs.
- Engaging student is difficult for MOOCs service providers.
- Cheating during Quiz attempts / assignment submission is possible.
- Difficult for job provider to accept the student's result which is generated under non-controlled/supervised environment.
- Grading may be imperfect and cheating by the student is reality.
- No personal touch possible like traditional classroom teaching.

1.0 SUMMARY AND ANALYSIS OF RESULTS OBTAINED

From the received responses, visual summary is prepared to find the actual usefulness of MOOCs among the participants. Based on results obtained and literature review, important points are recommended to improve the usefulness of various MOOCs. The questions asked and summaries of their responses are as under:

Que.1: Do you feel that MOOCs / Online courses are adding values to your present technical skill sets?

The result of Que.1 shown in Fig. 1 indicates that 46 % of participants are strongly agreed that attending such type of courses are adding values to their present technical skill sets. 51 % says they are agreeing and only 3 % says that MOOCs are not adding values to their technical skill sets.

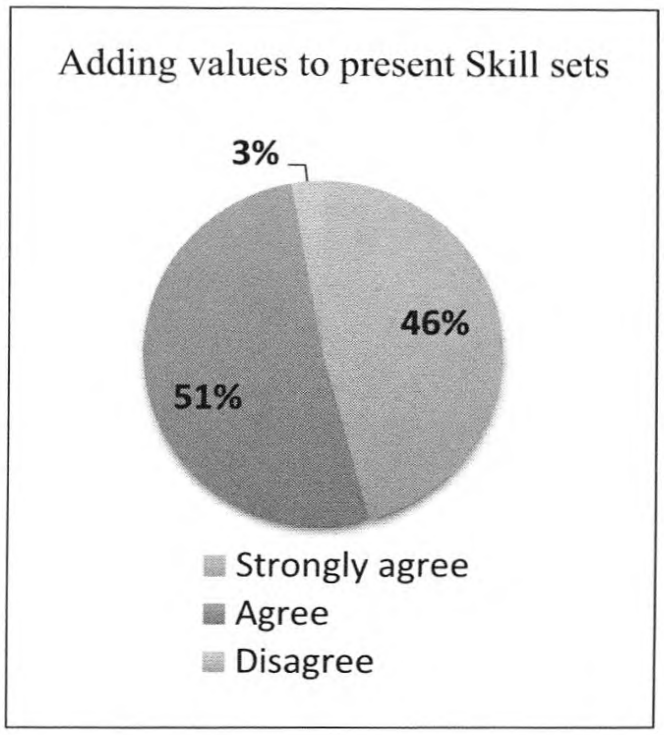

Fig. 2. Adding values to skill set

Que.2: How many Online Courses / MOOCs have you attended so far?

Result from Que. 2 shown in Fig. 2 indicates that almost 49% of participants had attended more than 2 MOOCs.

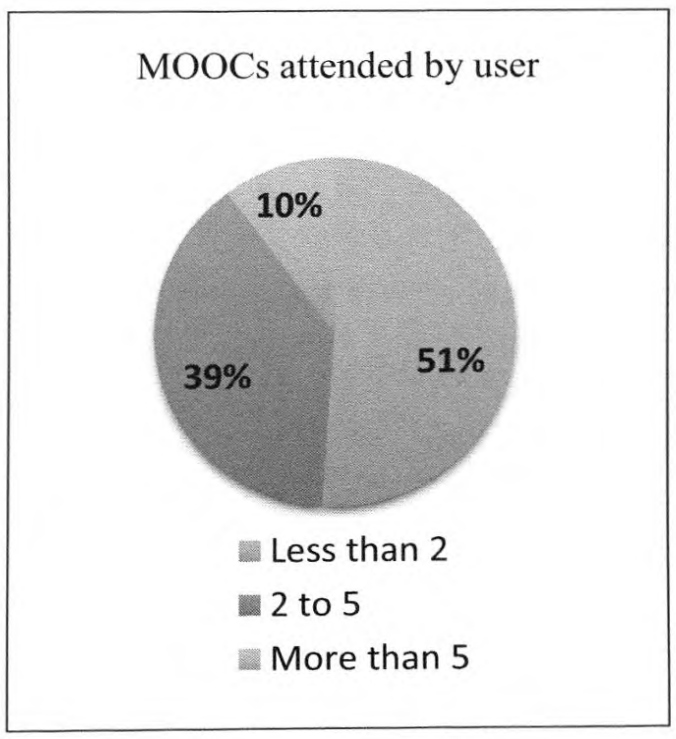

Fig. 2. Courses attended so far

Que. 3: What is your motive behind attending such courses?

63% of participants are attending MOOCs to upgrade their technical skills where as 28 % are attending for research purpose. So, almost 91 % of people are attending MOOCs for technical skill updating and research purpose.

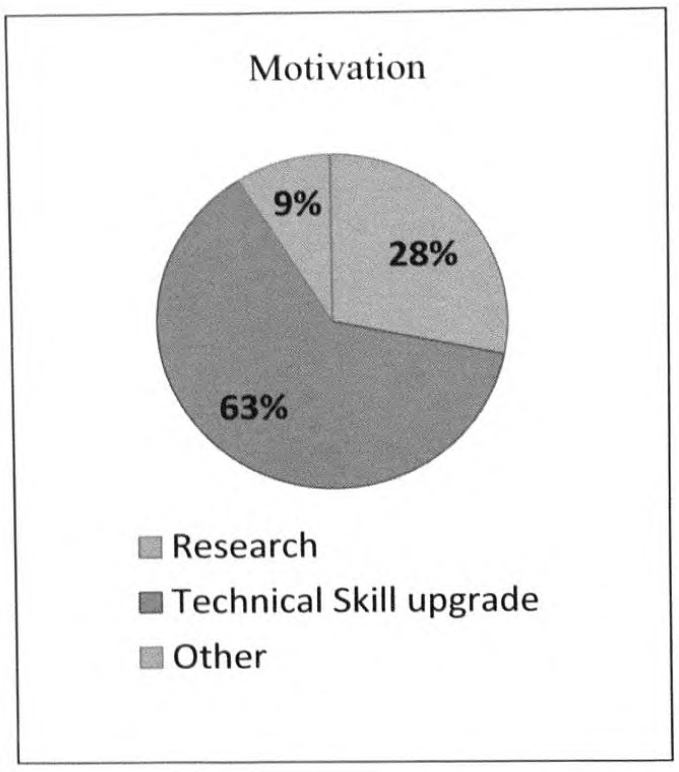

Fig. 3. Motive behind attending MOOCs

Que. 4: Do you feel that course materials provided by MOOCs are useful during your regular teaching?

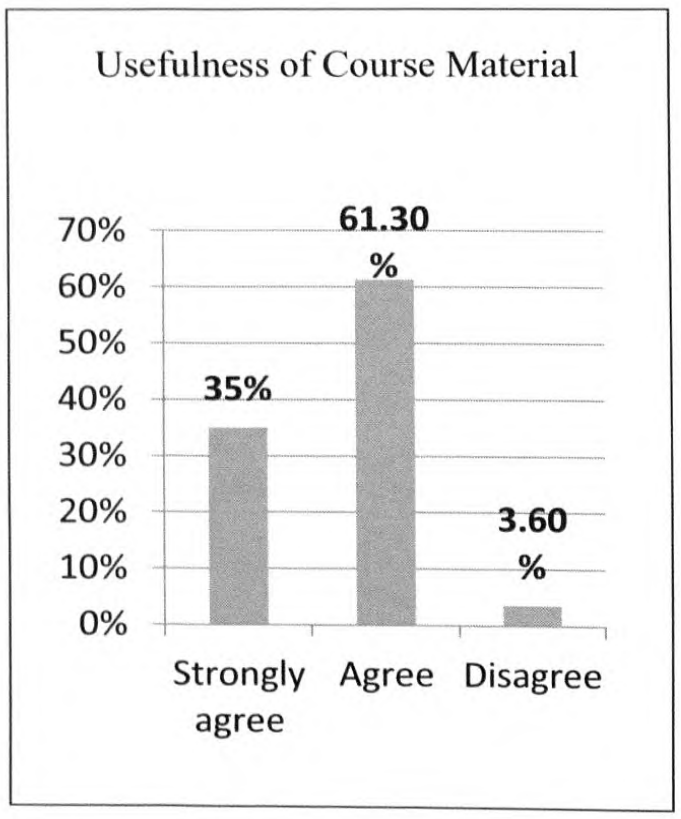

Fig. 4. Usefulness of study material

35% strongly agreed and 61% agreed that MOOCs resources are useful during teaching. Only 3.6% of respondent believes that course material provided by MOOCs is not useful in regular teaching.

Que. 5: Do you feel attending such courses improves your overall teaching skills?

42% strongly agreed and 55% agreed that attending such courses improves overall teaching skills. Only 3 % participants disagree with Que. 5.

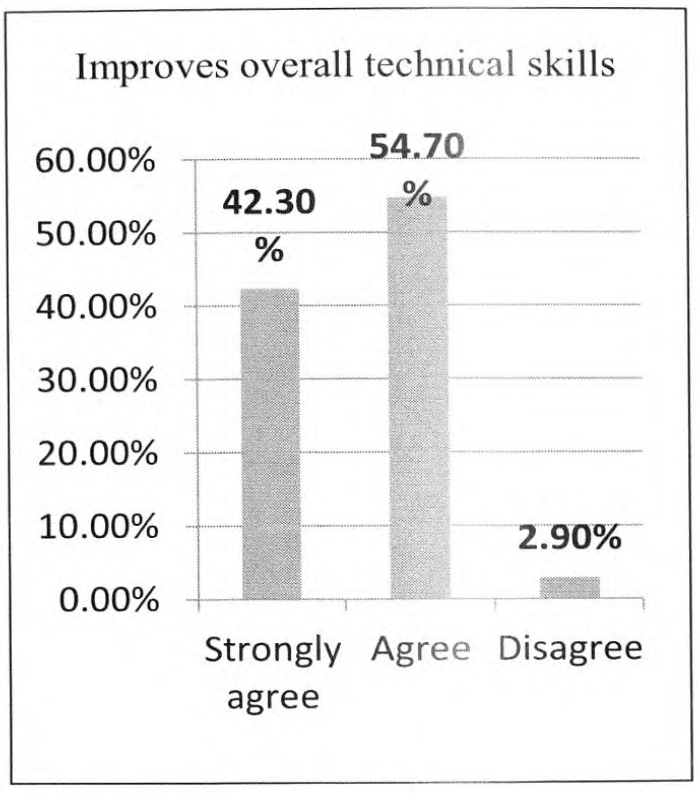

Fig. 5. Improves Overall Technical Skills

Que. 6: Are you interested in future to attend such more courses?

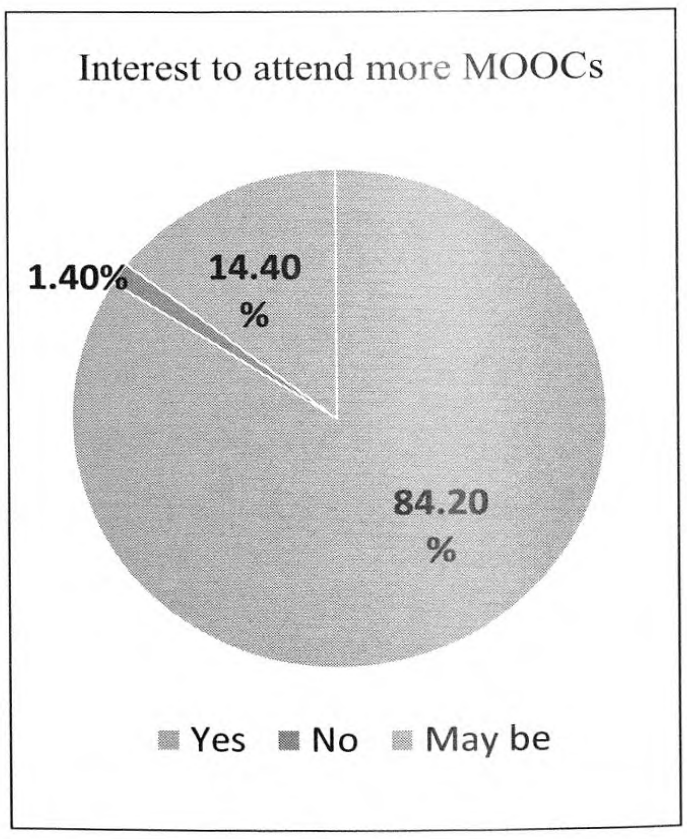

Fig. 6. Interest to attend more MOOCs

Result shown in Fig. 6 clearly shows that 84% participants are interested in attending more MOOCs.

Que. 7: How likely is it that you would recommend such MOOCs to friends / colleagues / students?

Result of Que. 7 shown in Fig.7 indicates that 81% of participants are likely to recommend MOOCs to their friends/colleagues/students. 17% participants replied neutral for the same.

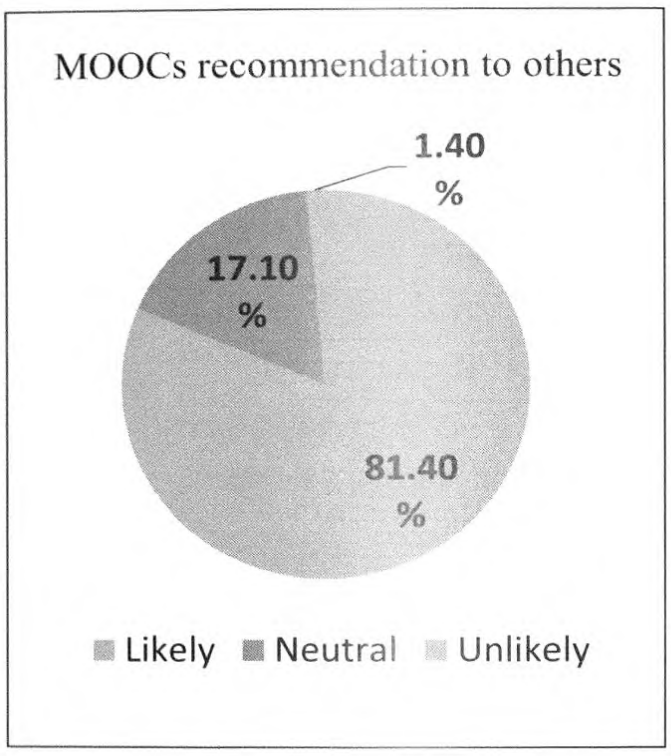

Fig. 7. MOOCs recommendation to others

Que. 8: Please rate your experience related to MOOCs that you have attended/attending?

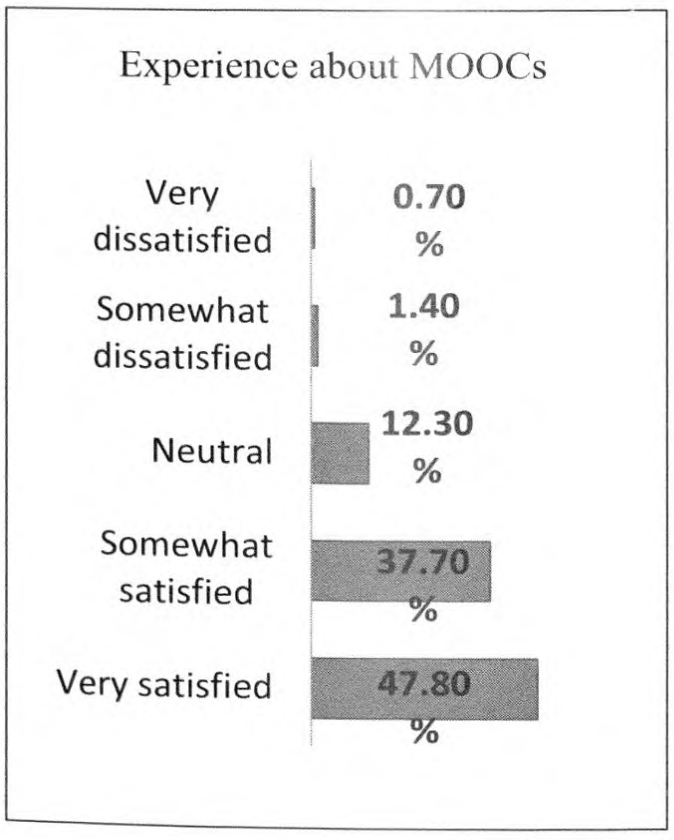

Fig. 8. Personal Experience

In response to personal experience about MOOCs, 48% are very satisfied, 38% are somewhat satisfied and 12% of participants replied neutral.

Que. 9: Which range includes your age?

Responses of Que. 9 shown in Fig. 9 indicate that 34% participants are younger than 24 years, 34% are in range of 25 to 34 years, and 25% are between 35 to 44 years.

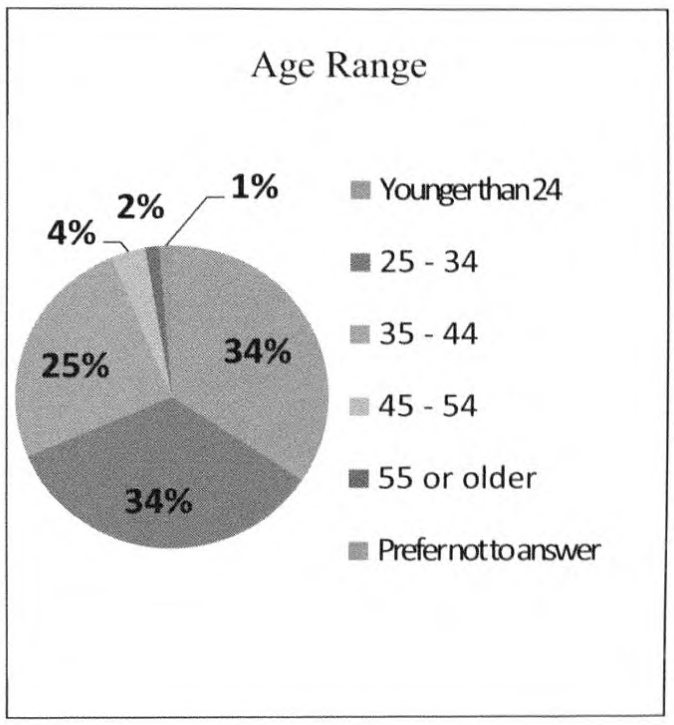

Fig. 9. Age Range

Que. 10: Please indicate your gender.

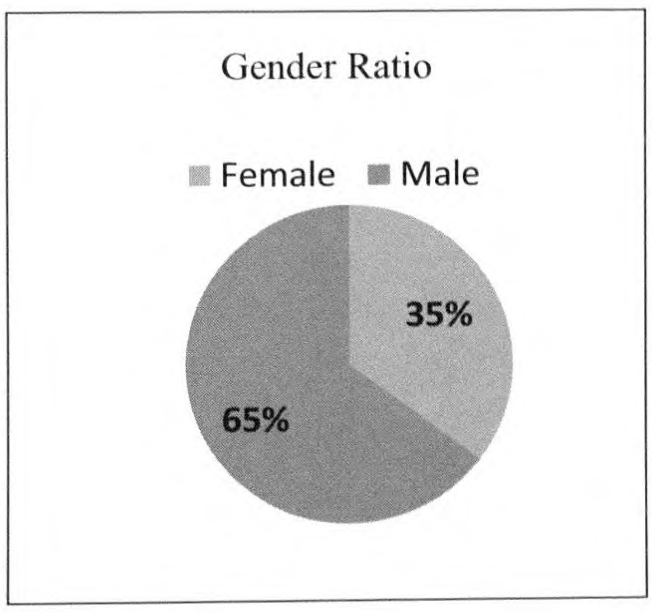

Fig. 10. Gender Ratio

65% of participants are male and 35% are female.

Que. 11: Tell us about your profession.

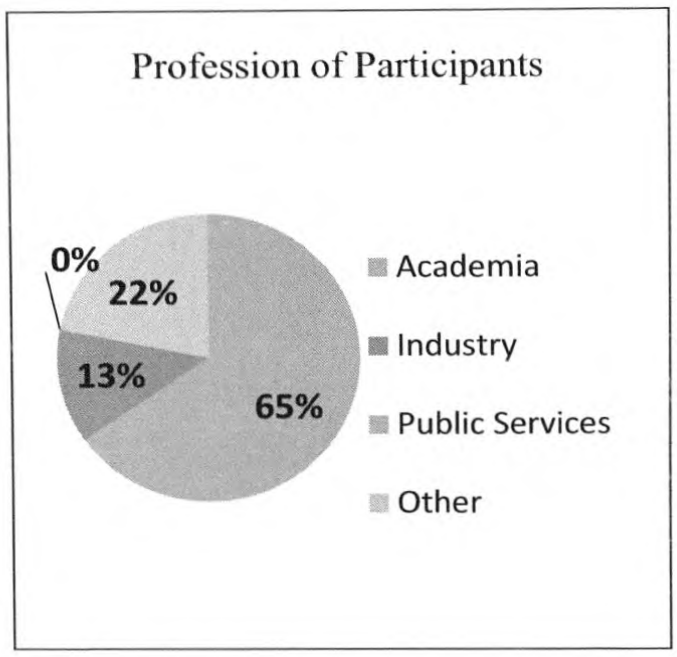

Fig. 11. Profession of participants

Around 65% of participants are from academia, 13% from industry and 22% are from students and others category.

Que. 12: What is your teaching experience?

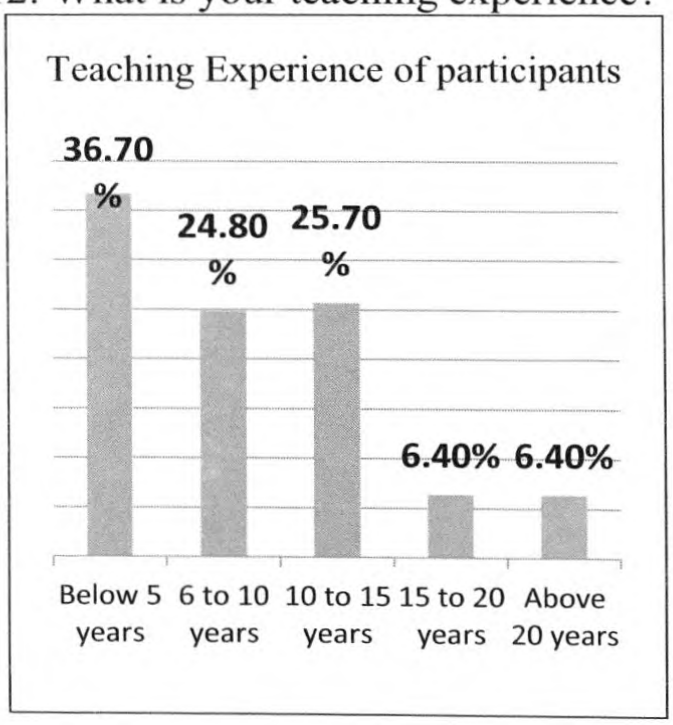

Fig. 12. Teaching experience of participants

37% participants have teaching experience below 5 years, 25% have between 6 to 10, 26% have between 11 to 15 years and around 12% of participants have more than 15 years of teaching experience. This clearly shows that MOOCs are not only attended and preferred by students but it is also popular among experienced people.

2.0 RECOMMENDATIONS TO IMPROVE THE USEFULNESS OF MOOCs

Based on literature review, personal experience of attending several MOOCs and feedback given by experienced mentors, following recommendations are given to improve the usefulness of MOOCs:

- Course content should be available in regional languages. With the help of local / regional chapters of professional bodies, MOOCs service providers may speed up the tasks of content translations.
- Blended mechanism should be adopted to increase the trust and truthiness of MOOCs result of student.
- Seminar / Workshops for generating awareness about MOOCs among the working professionals should be planned.
- New Model or mechanisms need to be developed to make Credit-based MOOCs.
- Government-Public-Private Participatory mode should be adopted for generating awareness about MOOCs.

3.0 CONCLUSION

Analysis based on literature review and survey in this paper shows that MOOCs are really useful to update technical skills among the working professionals. Almost 97% who had attended MOOCs agreed that such courses are improving their overall technical skills. Also, 96% of participants agreed that course content provided by the MOOCs are useful during regular teaching process in classroom. Result indicates that majority of the participants are attending MOOCs for updating their technical skills. Result also indicates that MOOCs are not only popular amongst the young generation, but it is also popular amongst all well-experienced employees. This paper is one of the small steps from my side to generate awareness regarding actual utilization of MOOCs.

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