*Review Article*

# Massive Open Online Courses in India-Public Opinion and the Road Ahead

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**Abstract** - *Massive Open Online Courses (MOOCs) are a fairly recent concept in the sector of education. They have witnessed tremendous growth in their popularity. They have become a means to learn and acquire new skills from the comforts of one's own home. MOOCs are affordable and offer a flexible means of learning. They are a boon for those who cannot pursue their desired course(s) in a traditional educational setting of a classroom and a formal institutional campus. The purpose of this paper is to understand the popular public opinion of a random sample of 505 people from various age groups and vocations on MOOCs. In the survey, the acceptability of MOOCs was assessed, and the potential that they hold in transforming the face of formal education and their usefulness among different age groups was explored. The results revealed that there is growing acceptability and inclination of people to enrol in MOOCs for skill enhancement and job opportunities. The paper also speculates a rise in the number of enrolments in these online courses in the near future once the National Education Policy is implemented by the Government of India.*

## I. INTRODUCTION

Education is an important means to become an independent individual who acts as an asset to society. Every individual is entitled to quality education in order to contribute to the development of society. Only 39.0% of females in India above the age of 25 have received secondary education, while the statistics for males for the same is 63.5%. This shows a huge gender disparity. The quality of education available to people from different economic strata shows huge gaps. In such a scenario, Massive Open Online Courses (MOOCs) have the potential to play a pivotal role, not only in bridging the gender gap but also help in bringing people from different socio-economic backgrounds to acquire the same quality of education [1].

In today's fast-moving and highly competitive world, it has become important to acquire new skills and widen one's knowledge base in order to stay a step ahead of the crowd. MOOCs are one such popular medium through which more and more people are exploring these different avenues. MOOCs can help in democratizing education owing to their widespread availability and free access. MOOCs are a revolutionary innovation in the education sector that provides an all-new learning experience that can be accessed from the comforts of one's home through audiovisual lectures and open discussion forums. They can play an important role in making quality education accessible to the masses.

The COVID-19 Pandemic has resulted in a rise in the popularity of MOOCs. The rapid spread of the internet and increasing accessibility of affordable smartphones have increased the potential prospects for online education in India. According to Class Central, during the COVID-19 pandemic, MOOCs platforms recorded a geometric increase in their enrolments. Udemy- a MOOCs platform, issued a report documenting a surge in global online learning as the pandemic hit. In a month, they saw 425% enrolment growth across various courses and a 55% growth in new course creation [2].

MOOCs are also a very important means to achieve United Nations Sustainable Development Goal No. 4 - *"Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all"*. MOOCs can bridge the gap between the student and teachers in the remote corners of the world. They can make school/university education accessible in areas with no physical institutions for the purpose of education. The uniformity of teaching methodology and the high standards of knowledge imparted can exponentially accelerate the achievement of UN SDG Goal No. 4 of 'Quality Education'.

Government platforms [3] and emerging educational start-ups are coming up with e-learning content that is convenient to access and less expensive than the traditional means of education [4]. A lot of these courses offer college credits and market recognized certifications which have increased their demand. With both work and education moving online, people have more time at their hands to

reap the benefits of MOOC programs from the comfort of their homes. Another reason for this exponential growth in online learning is the employers weaning about the lack of skilled human resources, and in order to stay relevant, people are using MOOCs to acquire the skills to match the employer's requirements. Besides this, people in pursuit of lifelong learning or acquiring knowledge about the topic which is not directly related to their major course module or general life are also enrolling for MOOCs.

The efforts of the Government of India (GOI) to make quality education accessible to all in the country has found MOOCs an important facilitator to achieve this goal. In 2014, the Government of India announced its own MOOCs platform, SWAYAM, which is an acronym for Study Webs of Active-Learning for Young Aspiring Minds). Courses are offered on SWAYAM in four quadrants:

(1) video lectures
(2) printable reading material
(3) online discussion forums for clearing doubts
(4) tests / assessments

SWAYAM has appointed nine national coordinators in order to ensure quality education in all fields, and these are- All India Council for Technical Education (AICTE), National Programme on Technology Enhanced Learning (NPTEL), University Grants Commission (UGC), Consortium for Educational Communication (CEC), National Council of Educational Research and Training (NCERT), National Institute of Open Schooling (NIOS), Indira Gandhi National Open University (IGNOU), Indian Institute of Management Bangalore (IIM-B) and National Institute of Technical Teachers Training & Research (NITTTR). India's New Education Policy has reinforced the important role which MOOCs will eventually play in revolutionizing education in India.

Besides the initiatives undertaken by GOI, numerous educational start-ups have been established in India. Upgrade, founded in 2015, is India's largest online higher education company. It has partnered with a number of national and international universities like Deakin University, NMIMS, BIMTECH, Chandigarh University, Birla Institute of Technology and Science, Pilani, Cambridge Judge Business School, and offers various programs in data sciences and technology. They have a close tie-up with the industry to tailor their course to suit the current job market. In the last decade, a number of other educational start-ups, like Eruditus, Talentsprint, Simplilearn, have made their place in the education sector. Most of them have collaborations with Institutes of Eminence in India and top-ranked international universities.

Thus, MOOCs availability on government and private platforms has dramatically increased access to learning opportunities in today's world. Education is changing at a fast pace with the use of technology to support both teaching and learning. Hence, it's important to know if the public is aware and ready to take advantage of the massive facilities available to learn and acquire knowledge.

## II. OBJECTIVE OF THE STUDY

The objective of this paper is to study the public perception, awareness and acceptability of MOOCs and simultaneously develop an understanding of the current and potential impact of MOOCs on education in India. We wanted to analyse why the respondents enrolled in these courses and what was the learning outcome and satisfaction level among the learners.

## III. LITERATURE REVIEW

MOOCs have attracted a wide range of attention from researchers across the globe and in India, owing to their multifaceted benefits and unprecedented reach. MOOCs over the last decade have received attention from the media as well. The New York Times described the year 2012 as "the year of the MOOC", noting the meteoric rise of different MOOC platforms that year [5]. David Cormier and Bryan Alexander coined the term MOOC (Massive Open Online Courses) in 2008. It referred to a course called Connectivism and Connectivity Knowledge. It was developed by Stephen Downes and George Siemens of the University of Manitoba (Canada) and has since revolutionized modern education [6]. The primary objective of MOOCs is to provide free online courses, open to everyone from any part of the world. MOOCs are mainly conducted to cater to large audiences through a single platform, which would otherwise be impossible in a face-to-face setting. Different institutions from across the globe can come together and provide affordable online courses. Any person having a smartphone/tablet/computer and an internet connection can enrol in a MOOC, eliminating any disadvantages posed by their geographical location. MOOCs are expected to minimize class disparity in higher education by providing access to unlimited students at a minimal fee or free of cost [7].

In 2015, a critique was made on the governmental decisions on MOOCs in India, arguing that universities and students were not properly consulted while establishing SWAYAM [8]. A large part of the criticism of MOOCs in India found in the paper can now be seen as obsolete because of the availability of a large range of MOOC courses across different streams on the SWAYAM portal. The research also pointed out how virtual education would lead to poor or no interaction between the teacher and the student. Attention was also drawn to the fact that MOOCs across the world have the potential to facilitate social mobility among underprivileged students who can access a plethora of courses online free of cost or with a very little fee. MOOCs benefit students who cannot enrol in traditional educational institutions [9].

Researchers have studied state sponsorship of MOOCs in India and China, pointing out similarities between the two governments with regard to an active state role in funding online platforms for developing MOOC courses [10]. Others have done a similar study comparing Indian MOOC platforms with those of other countries. They give a comprehensive overview and history of MOOCs in India [11]. It has also been observed that MOOCs may

contribute to achieving access to quality and equity in education. A study further recognized the role of MOOCs in lifelong learning [12].

A recent study explored MOOCs offered on the SWAYAM portal with special emphasis on courses by the Consortium for Educational Communication (CEC), one of the nine coordinators of SWAYAM. CEC develops courses for graduate teaching. The research indicates that the courses on the SWAYAM portal are accessible, affordable, and of good quality for skill-building and knowledge [13]. Some other studies have analysed MOOCs on agriculture offered on the SWAYAM platform and observed that nearly fifty per cent of the learners were satisfied with the quality and design of the courses [14].

## IV. METHODOLOGY

### A. Sampling Method and Size
Convenience sampling and snowball sampling were used as sampling methods in this research. The questionnaire was circulated among various groups of professions, including students, employees from the private and public sector, self-employed and homemakers as well. The questionnaire was circulated all over India, and 505 responses were recorded in total.

### B. Type and Source of Data
The study is based on primary data collection. It was collected using a questionnaire method through a Google form. The questionnaire covered a total of 27questions, including the basic personal data of the respondent. The drafted questions included multiple types of questions, viz multiple-choice questions, Likert scale [15] based questions, questions with the close end.

### C. Tools and Techniques
Varied tools and techniques have been used for this study ranging from statistical data analysis to other accounting techniques. These techniques have been used as a device to analyse the responses of the participants in the questionnaire. The data in the paper have been presented in the form of graphs, charts and tables, which helps present the quantitative data in a simple and clear way with a lasting impression.

## V. RESULTS
To understand the public perception of MOOCs in India and their acceptability in the field of education, an online survey was conducted in which various questions were asked regarding MOOCs and their effectiveness. A total of 505 responses were recorded through a Google Form, wherein 328 respondents were female while 177 were male, accounting for 65% 35%, respectively. The Google Form was circulated to people of different age groups and from various states and union territories of India. However, it was observed that most of the respondents (35.2%) who took the survey were from New Delhi/National Capital Region (NCR). 11.7% were from Assam, and 10% were from Uttar Pradesh. Responses

from other states were less than 10%, and the least number of responses came from Ladakh and Tripura.

The questionnaire received a maximum of 406 responses from students among 505 responses. 78 responses were from people in the job, of which 44 were employed in the private sector and the rest in the public sector. When it came to the age group of the participants in the survey, most of them were below 20 years (283 responses), while 160 respondents belonged to the 21-30 age group category. Both the data clearly indicates that MOOCs are more popular with students as opposed to individuals who are employed. Figures 1 and 2 represent the age group and vocation of the respondents, respectively.
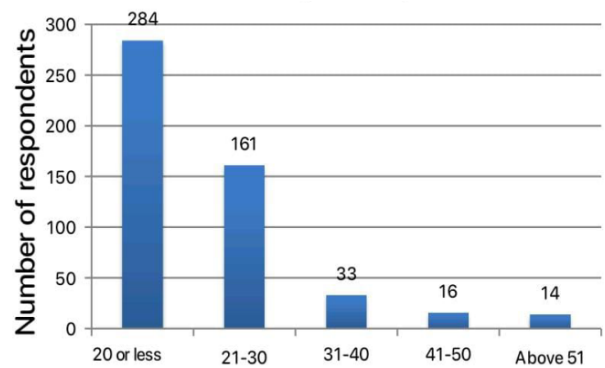


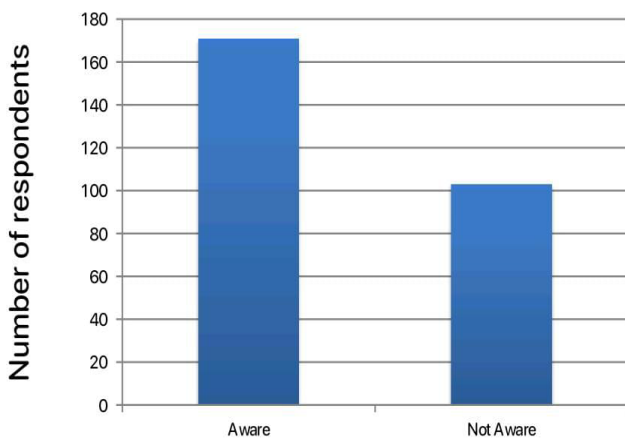**Fig. 1 Bar diagram showing the age group of respondents**
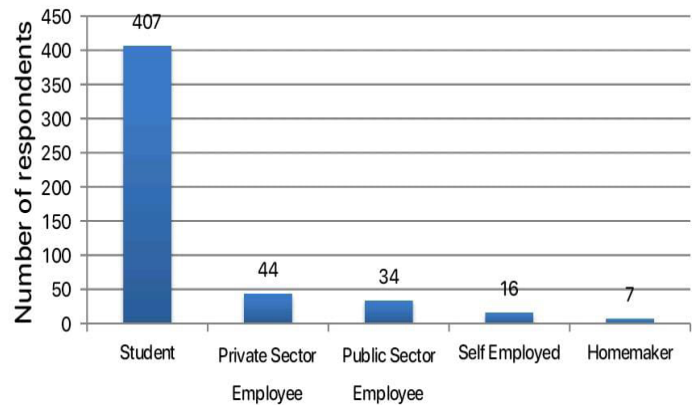


**Fig. 2 The profession of respondents**

Of the total 505 respondents, only 273(54%) were aware of MOOCs. Only these individuals (273) took up the rest of the questionnaire. The people who were aware of MOOCs were asked more questions pertaining to MOOCs so as to see their impact on education. Most participants got to know about MOOCs from social media (59.7%) and through their friends (44%), as can be seen in Figure 3
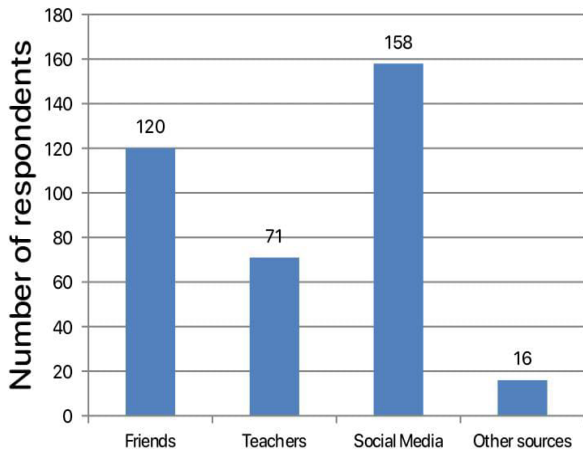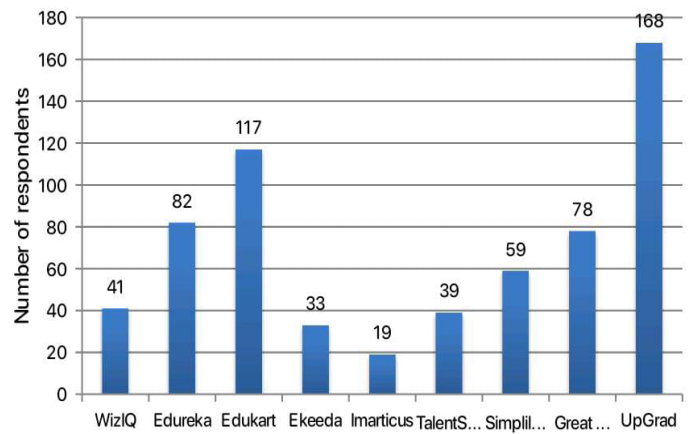
**Fig. 3 Various sources through which people gathered information relating to MOOCS**



**Fig. 5 Figure represents the awareness of various educational start-ups among the participants**

It was also inquired whether the participants are aware of the fact that a number of MOOCs are offered under the various initiatives undertaken by the Government of India (GOI) and various private educational start-ups. Only 170 respondents from a total of 273 knew about the different initiatives undertaken by GOI (Figure 4).
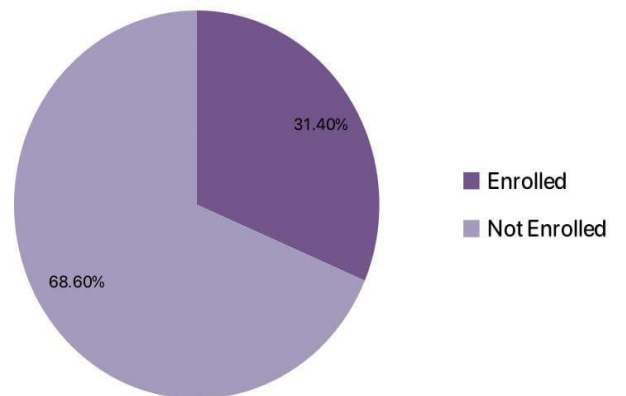
A number of these educational start-ups offer MOOCs in collaboration with some institute of eminence (IOE) in India; however, about fifty per cent of the people who took the survey were aware of this. Of the 273 individuals who were informed about MOOCs, only 86 had ever enrolled for such a course. This can be seen in Figure 6.



**Fig. 4 Number of individuals informed of indian government's initiatives**



**Fig. 6 Pie chart depicting the enrolment status of students in various MOOCs**

A number of educational start-ups have established themselves in India in the last decade. The survey conducted revealed that most individuals who took the survey knew about *UpGrad* (74.2%). 46.4%, 34.1%, and 31% of respondents were aware of *Edukart, Edureka* and Great learning, respectively. However, other start-ups like *Simplilearn, WizIQ, Talent sprint, Ekeeda,* and *Imarticus* have still to make their presence felt in the education field. Figure 5 depicts these results.
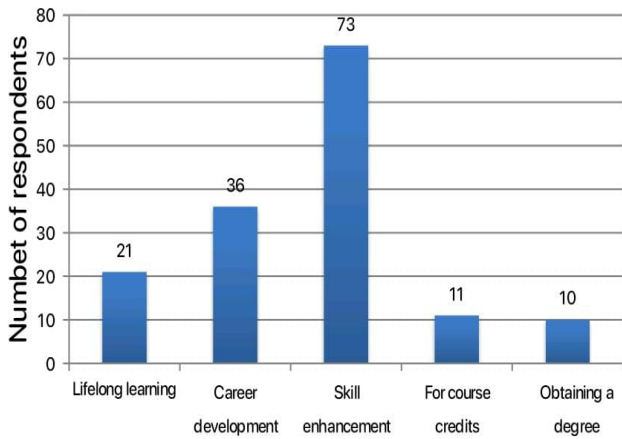
The duration of most of these courses undertaken by them varied from 2 to 12 weeks. However, a few of the courses were of much shorter (2-17 hours) duration as well. Most of the respondents did these courses for skill enhancement and career development. Figure 7 depicts this data.

**Fig. 7 Objective behind undertaking MOOCs**

The online courses are available in a variety of disciplines such as humanities, commerce, science & technology, languages etc. From the questionnaire, it was seen that majority of the individuals had taken science & technology courses (51 out of 86). The bar diagram in Figure 8 shows this trend.
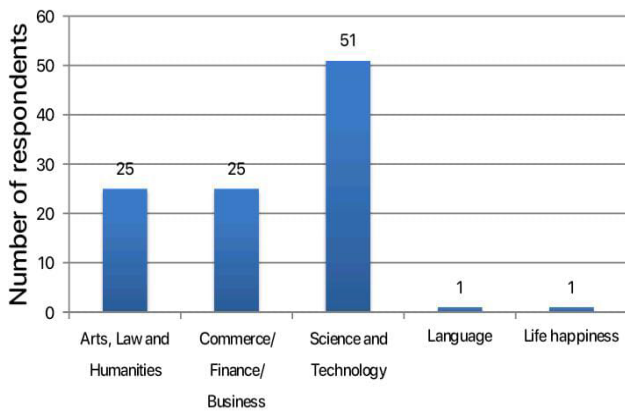


**Fig. 8 Course category taken up by the participants**

There are numerous platforms hosting Massive Open Online Courses. When the participants of the questionnaire were inquired about which platform they used for taking a MOOC, it was observed that more than half of the respondents used Coursera (53 out of 86). The second-largest used platform was found to be Udemy from our survey in which 27 out of 86 enrolled, and the third-largest platform used among the participants in the questionnaire was Swayam which is a platform developed by the GOI (Government of India). 25 participants used Swayam for taking MOOC. Figure 9 represents this data.
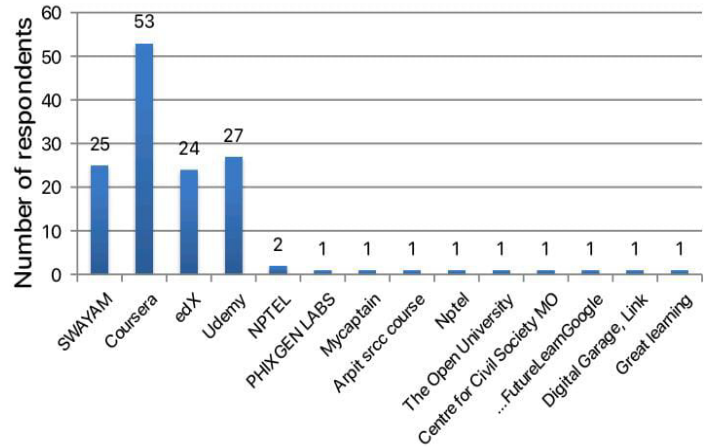


**Fig. 9 Data of the MOOC platforms used by the participants**

MOOCs are self-paced courses and can be taken by anyone anywhere and at any time. Hence one has to be motivated enough to do these courses. Figure 10 represents the motivation level of individuals who took various MOOCs.
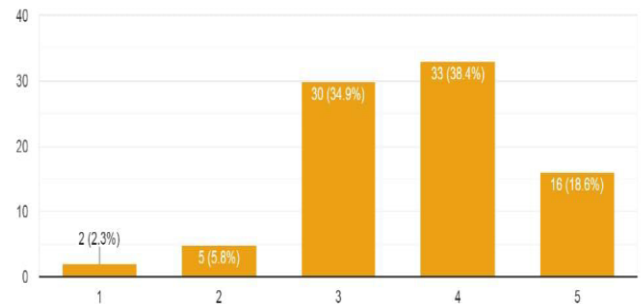


**Fig. 10 Motivation level of people while undertaking a MOOC on the likert scale**

It has been observed that although participants were motivated enough to undertake MOOCs, they did not undertake the proctored examination at the end of the course. Out of 86 respondents who enrolled for various MOOCs, 38 had given the proctored examination, while 48 of them didn't do so. It clearly reveals that less than 50% per cent of these individuals are taking the end course examination and hence don't end up getting a certificate. (Figure 11)
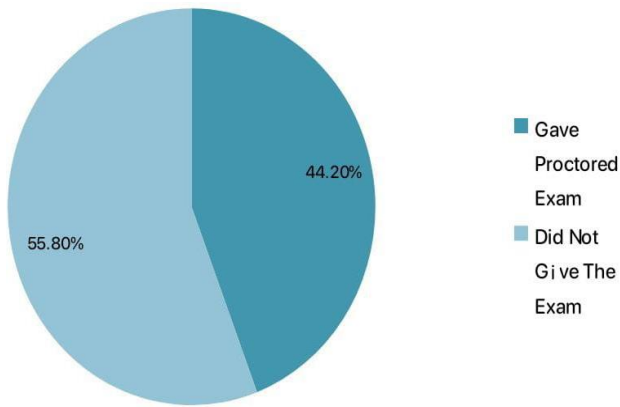
**Fig. 11 Data of participants giving the proctored examination**

Unlike the physical classroom, the online classes are pre-recorded video lectures where teachers aren't present to solve the queries and doubts then and there, which makes it very difficult for students to understand the concept clearly. Hence, the respondents were asked how often they got to interact with their teachers. The responses were not very satisfying, as the majority of them on the Likert scale chose 1 on the scale of 5. Figure 12 represents these observations. In the absence of the teacher, the doubts were addressed via open discussion forums majorly (75.6% responses). There was another doubt clearing also means, such as special doubt sessions with teachers, through emails which were not used often. A few of them faced the problem of not having any opportunity to clear their doubts.
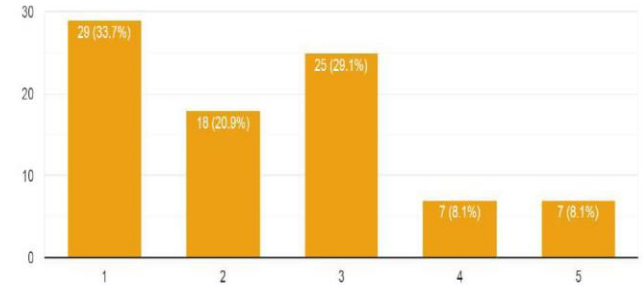


**Fig. 12 Level of interaction between students and teachers indicated on likert scale**

Participants were also inquired about how relevant the discussions and the course material provided to them were. It was discerned that their discussions through the open platform were quite relevant, as noticed on the scale of 1-5; most of the responses were between3-5 (Figure 13). It was further seen that students enrolled in MOOCs didn't have to purchase extra study material, as 87.2% of the individuals felt that the material provided by the instructor was sufficient and beneficial. (Figure 14)
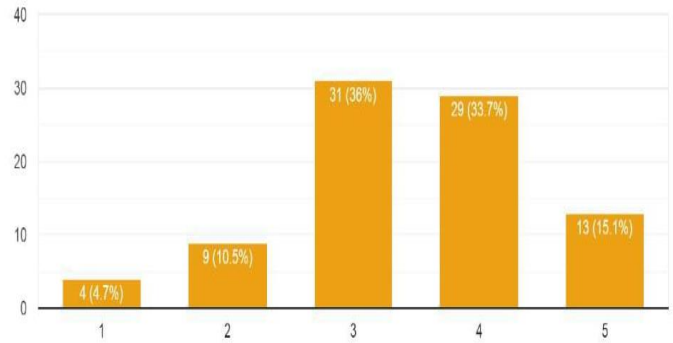


**Fig. 13 Likert scale depicting the relevance of the discussions on the forum**
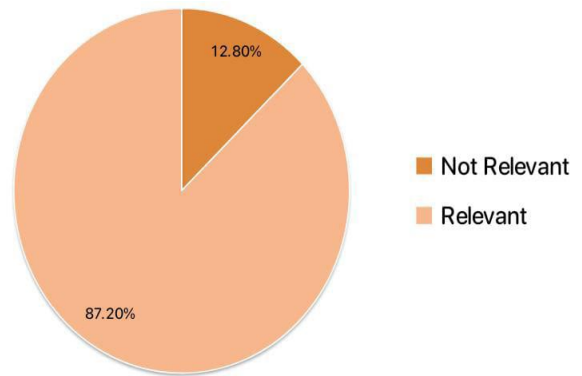


**Fig. 14 Pie chart showing the relevance of study material provided**

A large number of participants have responded positively to their experience of taking an online course. Out of 86 responses, 38 of them chose 4 on the scale of 5, while 25 of them picked 3 and 17 of them selected 5. This shows that the courses are beneficial, and the responses reveal that anyone can enrol in MOOCs without any hesitation. (Figure 15)
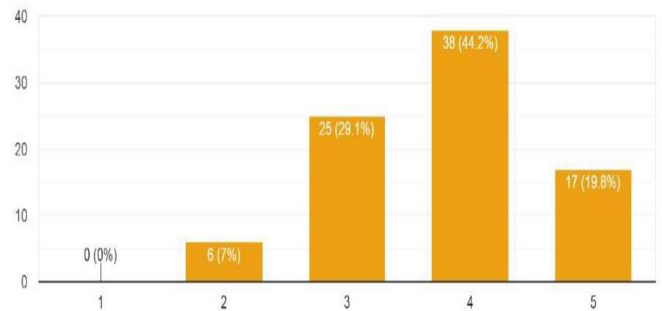


**Fig. 15 Participants on their MOOC experience**

The survey further shows that although people are enrolling in online courses, they still would not prefer online courses over physical classrooms. Out of 86 of the participants, 57% do not think that the learning outcomes of MOOCs are similar to classroom lectures, and only 86 responses, 30 said that they would prefer MOOCs over classroom learning. Although there are several cons of taking online courses, users of MOOCs are feasted taking

the same. The survey shows that 94.20% of the individuals who took the survey are happily recommending others to enrol in MOOCs. From this, it can be said that the majority of the users find these courses useful and satisfactory to the extent that they are confidently recommending others to join them. (Figure 16)
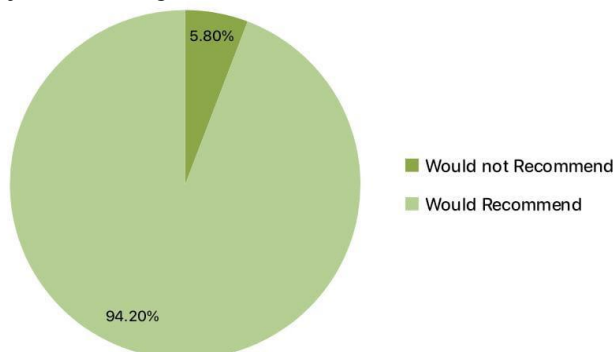


**Fig. 16 Pie chart depicting the number of participants who would recommend MOOCs to others**

## VI. DISCUSSION

Massive Open Online Courses or MOOCs are online education and skill development courses that can be accessed from any part of the world with just an internet connection and a computer/smartphone. MOOCs are helping democratize education by bringing people from different socio-economic backgrounds together to acquire the same quality of education. The COVID-19 pandemic resulted in an increase in the popularity and enrolments in MOOCs. This survey aims to record the public perception, awareness and acceptability of MOOCs in India.

Out of a total of 508 respondents, 330 were females (65%), and 178 were males (35%). MOOCs can particularly play a significant role in making quality education accessible to women who, for various reasons, cannot move to metropolitan cities to enrol themselves in universities. The majority of the respondents were from only five states and union territories, namely Delhi (35.6%), Assam (11.6%), Uttar Pradesh (10%), Haryana (7.9%) and Rajasthan (7.1%). At present most MOOCs are in the English language, and that could be one of the reasons for not many students enrolling in these courses from states where regional languages predominate. A total of 274 respondents (53.9%) had prior knowledge of MOOCs. This implies that a large number of people are still unaware of the existence of MOOCs. Despite the MOOCs being accessible all across the country, their benefits remain underutilized as still, a large number of people do not have any knowledge regarding them. Most of the respondents were students who were pursuing an undergraduate degree. A striking 87.6% of them were below the age of 31. Another study in 2021 pointed that MOOCs takers were youngsters - graduates or higher degree holders [14]. It is also reported that 90% of participants had at least one college degree [16]. Nearly 66% of all the participants who took MOOCs through edX had a bachelor's degree or above [17].

Out of the total number of people surveyed, 171 respondents had prior knowledge of MOOCs being offered under the various initiatives undertaken by the Government of India. Social media, friends and teachers were the most popular source of information about MOOCs. In recent years, a lot of education start-ups and companies have emerged which are offering MOOCs in skills and areas which are in high demand in the employment market. Up Grad came out as the most widely known Indian educational start-up, followed by Edukart and Edureka, respectively, while other platforms were known to a relatively fewer number of respondents. The most likely explanation for Up Grad's popularity [18] is that the company is actively promoting and advertising its brand through various social media platforms as well as traditional media such as newspapers and television. Interestingly, it was observed that private MOOCs providers are more popular among the masses than the Government of India operated SWAYAM portal. A lack of awareness about the role of MOOCs for teachers training programs and other MOOC initiatives under SWAYAM has been reported earlier [19].

Several of these education companies have started to collaborate with private universities both in India and abroad and are offering diplomas, certificates and even online degrees. Higher government funding on advertisement is needed to increase the outreach of its education initiatives. On similar lines, it was observed that only 129 respondents were aware that Institutes of Eminence (IoE) in India are offering MOOCs in collaboration with industries and educational start-ups. This points out the fact that very few are aware of the initiatives taken by the Government of India to encourage MOOCs and online education in comparison to the private platforms, which by virtue of their effective advertisement strategies, have gained preponderant influence over the masses. Hence there is a need for better publicity and advertisement strategy for these initiatives in order to garner greater attention to MOOCs offered through the initiatives taken by the government in India.

Out of 274 respondents who were aware of MOOCs, only 86 had ever enrolled in such a course. It was observed that MOOCs don't seem to be so popular in India and are accessible to only a small section of society [12]. Therefore, there is still a need for an impetus to facilitate greater enrolment numbers and permeability of MOOCs in different sectors/areas/regions in India. Since the majority of respondents became familiar with MOOCs through social media, an effective social media strategy can be employed to advertise SWAYAM to reach a larger audience. In fact, educational start-up up Grad is very effective marketing its online courses through various advertising campaigns [18].

In this ever-developing modern era, millennials are required to keep upgrading their skill set from time to time in order to match the expectations of the employers wanting the most skill-equipped employees on board. This cut-throat competition to stay relevant in the employment

market is acting as a boost for MOOCs, which provide the opportunity to the masses to pick up any course from any institution across the world and add a skill to their resume. The responses recorded testify this since the majority of the respondents took MOOCs either for skill enhancement or career development. This corroborates some other findings where it was found that the majority of MOOCs takers had the aim of knowledge enhancement (64.59%) and skill enhancement (50%) [14].

It was observed that the motivation to enrol in MOOCs is very high, yet not a lot of these enrollees end up appearing for the proctored examination to receive the certificate of course completion. Only 44.2% of the respondents who took MOOCs gave the proctored examination for receiving the certificate. This percentage is still quite high when compared to recorded observations where only 16.67% of participant-respondents sat for the proctored examination [14]. However, it highlights the underlying trend that the majority of enrollees are not motivated to give the examination upon completion of the course. Similar results have earlier been reported with a high dropout rate [16]. Course completion rate stood at a meagre 8%. There can be two explanations for such a situation - either the enrollees were not serious about the course and didn't feel confident enough to take the examination, or a more reasonable explanation could be that a lot of these privately offered courses can be taken up for free, but in order to receive the course completion certificate, one often has to pay a hefty fee which not many can afford. This is a major demerit associated with the MOOCs offered privately.

Another trend observed is that respondents rarely got to interact with their teachers, which again can be taken as a disadvantage of MOOCs. The massive nature of these courses makes it difficult to have one on one interaction with the tutors, but the open discussion platforms provide opportunities to discuss their doubts and queries with a large community of students undertaking the same course, helping them to gain insights into different perspectives on the same topic. Moreover, the majority of respondents found these discussion forums fairly relatable.

Discussion forums are an integral part of any MOOCs, and it was observed that most respondents had a satisfying experience in these open forums. This is contrary to the research wherein the participation in the discussion forums was about only 10% [20]. It was observed that 87.2% of the respondents who ever enrolled in MOOCs found the course materials provided to them of high relevance. Only 11 respondents felt the need to purchase additional study material. Similar results were obtained in an earlier study where 79% of participant respondents found the reading material to be adequate [14]. This tells that these online courses equip the students with sufficient resources and materials to be able to study and later appear for the proctored examination. This further reflects on the financial viability and feasibility of MOOCs, especially those offered through SWAYAM, as they do not charge any fees.

The survey points out that the majority of MOOCs taken to fall under the category of science and technology. Such high popularity of science and technology courses can be attributed to the increasing acceptance of MOOC credits by several sciences and technological institutes in India. With the increasing demand for specialists in fields like computer science, data analytics, video and graphic designing and several such skill-oriented courses are ranking higher in popularity.

A lot of people enrol in these MOOCs for skill development and subsequently increase their employability in the job market. Hence even though the learning outcomes from MOOCs are not the same as classroom teaching yet 94.2 % of respondents had no hesitation in recommending these courses to others. It has also been established that MOOCs are good to enrich knowledge and to upgrade one's skills [6].

With the increasing digitalization, there is a need for new approaches to be adopted, and one of them is blended learning. It has previously been mentioned that the blended learning strategy sets the pedagogical framework for appropriate use of online resources, technologies and tools to support face-to-face interaction between students and teachers [21]. MOOCs lacked at providing face to face interaction with the tutor, but this blended mode of learning where offline classroom teaching can be integrated with some online classes can inculcate a higher understanding of concepts. The integration of online and offline methods of teaching can also help in limiting the dropout rate of MOOCs since the satisfaction from the courses increases. The blended learning method provides learners support to make the most effective use of the e-resources [21]. Thus, it can be identified that blended learning will be the modus operandi for future learning where students are offered a holistic learning atmosphere through a well-designed curriculum of MOOC, an interactive offline discussion, multiple e-books and other sources needed for better hold of concepts.

## VII. RECOMMENDATIONS

To deduct accurate generalisations, the sample size could be larger and representative of a more diverse population. Increasing the number of respondents from 500 in the present study can offer an even more comprehensive set of data that could offer better insights. The aspect of gender has not been studied separately with regard to online education. The present research could not explore this aspect due to a lack of previous research on this topic. In the present study, we observed through our questionnaire that female respondents were more than males. However, the data is still insufficient to point out a visible trend of relatively more female students enrolling in MOOC courses than men. Furthermore, different modes of collecting surveys could be employed for researchers to collect data from different sample representatives.

## VIII. CONCLUSION

The transition from traditional classroom learning to MOOCs based online learning will take some time but is expected to be adopted by many in the coming years. The future of MOOCs appears to be very bright in India. MOOCs can help promote the practice of online and blended pedagogy to improve the quality and scale of teaching within the existing university system. With the gradual rollout of the National Education Policy (NEP) 2020, the popularity and acceptance of MOOCs will also increase. The NEP policy recommends the establishment of an Academic Bank of Credits (ABC), of which the students will be the individual account holders. Students can acquire credits by enrolling in any course offered outside the educational institution they are enrolled in and accumulate the credits to obtain a degree or a diploma. This would also enable the students to get their credits transferred from one institution to another. MOOCs will play a pivotal role in this new system as the government plans to incorporate SWAYAM course credits in the Academic Bank of Credits. With students being allowed to obtain up to 40% of their course credits from online sources such as SWAYAM, the demand and utility of MOOCS will skyrocket in India. MOOCs hold the potential to transform the Indian higher education system. This is only possible if there is sufficient awareness about such schemes among the people. This study has pointed out the low popularity of MOOCs, especially those offered by government institutions like SWAYAM. Awareness about such schemes should be increased with a new targeted advertisement strategy to bring it at par with the private players in the market.

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