

# A Study of Awareness and Perception Regarding MOOC Courses with Special Reference to NPTEL

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## Abstract

**Purpose :** The study aimed to determine the level of awareness among students regarding NPTEL MOOCs and the reasons for registering or not registering for the courses. Further, this study explored the impact of gender and qualification on the category of aware respondents.

**Methodology :** The study was a cross-sectional study for which data were collected from the Delhi-NCR region from January to March 2023. The study was based on primary data, considering 379 responses that were collected with the help of a structured questionnaire. The chi-square test and descriptive statistics were used to analyze the data.

**Findings :** The study found that receiving the certificate, being more convenient regarding timing and location, and having command over the subject were the perceived benefits of doing NPTEL courses. The main reasons for not finishing the course were time constraints, students' poor course selection, and loss of momentum as the course progressed. Gender was found to be independent of the category of aware respondents, while qualification was not found to be independent.

**Practical Implications :** It was recommended that universities, colleges, and teachers adopt blended learning, which included e-learning as well as face-to-face learning, to help students score more. The NPTEL course providers and teachers should spread awareness regarding the courses, as 31% of the respondents were not aware of NPTEL. The study recommended that students be more careful while choosing the course and complete the course to earn the certificate, which can enhance their curriculum and, in turn, help them get a good job.

**Originality :** Unlike prior research on the utility of MOOCs, the current work examined the learner's perception toward the NPTEL courses conducted by the premium institutions in India.

**Keywords :** MOOC, online learning, distance education, distance learning, NPTEL

**JEL Classification Codes :** I20, I21, I23

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**A** Massive Open Online Course (MOOC) is an online course targeted at unlimited participation by learners and open access through the website from anywhere around the globe for free or at a negligible cost. Education is everyone's right, and MOOCs bring openness, which means they are accessible to anyone from anywhere, flexible about place and time, and easily understandable. Online education is conveyed through the internet to students using their desktop, laptop, or mobile device. MOOCs are a new and widely researched development in distance education.

Several institutes provide MOOCs. Some are NPTEL, Coursera, WizIQ, Udemy, edX, and Open2Study. In the last ten years, online courses have become very popular, not only for those students who want to continue a full-time job or raise their household but also for those who are taking a regular course. Several advantages are associated with online learning: students are not bound to attend classes at a predetermined time. They can enhance their knowledge at their convenience. Secondly, they can work while pursuing courses, as the physical presence of the learner is not required under this method. Thirdly, the educational procedures and materials provided in online degree programs are usually the same as those provided in on-campus programs. Although there are some differences in the level of interaction and previous studies concluded that the traditional teaching method (face-to-face teaching) cannot be replaced with the online method, we cannot neglect the significance of online learning in the present scenario.

## **The National Programme on Technology Enhanced Learning (NPTEL)**

In the year 2003, the seven Indian Institutes of Technology (Bombay, Delhi, Kanpur, Kharagpur, Madras, Guwahati, and Roorkee), along with the Indian Institute of Science, Bangalore, took the initiative to start MOOC named The National Programme on Technology Enhanced Learning (NPTEL). It has the largest repository in the world for courses in engineering, basic sciences, and selected humanities and social sciences subjects. NPTEL has a YouTube channel, which is the most subscribed channel, with more than 1.5 million subscribers. It provides a 4-, 8-, or 12-week certification program. There is no charge for registering and learning a course. If a person needs to get a certification, he/she must only pay a fee of ₹1,000. Most of the courses are approved as faculty development programs by the AICTE, which has motivated the teachers to do the courses.

In India, to promote online learning, the government has approved the application of the top 100 institutions in the National Institutional Ranking Framework (NIRF) to provide fully online degree programs in restricted areas. By 2030, India is set to have the largest working-age population in the world. Not only do they need literacy, they need both job and life skills. Currently, around 25% of students in India opt for higher education, a figure that the Indian government wants to reach 50% by 2035.

As we can see, the importance of online learning in India is great, and MOOCs have so many advantages. However, the non-monitoring of the learner while completing their assignments and exams remains one of the drawbacks. Various studies state an increase in the enrolment of online courses in higher education. A few studies also noted high dropout rates. Hence, the study aimed at the following:

- ✦ To determine the awareness level of NPTEL among UG and PG students.
- ✦ To determine the perceived benefits associated with NPTEL courses.
- ✦ To determine the reasons behind not completing NPTEL courses.
- ✦ To determine the reasons for not opting for NPTEL courses.
- ✦ To determine the relationship between gender, qualification, and category of respondents.

## Literature Review

Shokeen et al. (2023) investigated students' intentions to use blended learning. The study demonstrated that behavioral intention (BI) and attitude toward blended learning (ATT) were significantly positively impacted by effort expectancy (EE), performance expectancy (PE), enabling conditions (FC), and self-management of learned (SL) utilizing confirmatory factor analysis (CFA) and structural equation modeling (SEM). Kumar et al. (2023) investigated how satisfied students were with distance education. Researchers examined the variables affecting students' satisfaction and engagement with distance learning in Indian higher education institutions (HEIs). Their confirmatory factor analysis study using structural equation modeling revealed that HEIs must rethink their assessment procedures and methods to make them more appropriate for the remote learning environment.

Gill et al. (2023) evaluated the expectations of the students regarding the use of technology in higher education. They showed how digital technology improved learning and understanding. However, the study also found barriers to the use of technology in classrooms, primarily because of the expertise of teachers and their inclination toward conventional instruction. Rajabalee et al. (2020) investigated the relationship between student engagement and academic performance in an e-learning environment. The study considered 1,061 students from different branches, comprising law and management, science and engineering, agriculture, the humanities, and social studies. The study found a significant positive correlation between the performance and engagement of students in an online module. It also highlighted an increase in the enrolment of online courses in the higher education sector. The study concluded that the average engagement level of good-performing students is higher than that of low-performing students.

Arora and Srinivasan (2020) conducted a study of higher education teachers to understand the impact of a breakdown of the traditional education system due to the COVID-19 pandemic on teaching and learning. The study used a *t*-test and descriptive analysis to analyze the data collected through the structured questionnaire and found a significant difference between the expected and actual benefits of adopting virtual classes. The study also identified the challenges, drawbacks, and reasons for the non-adoption of virtual classes. Zanelidin et al. (2019) surveyed 67 undergrad students at a university in the United Arab Emirates regarding video-based e-learning. The study sought to ascertain the benefits, effectiveness, and level of satisfaction of students when using a video-based e-learning approach in the classroom. It was found that there were several advantages associated with e-learning, but the traditional lecturing approach was used for teaching. The study found better learning results from e-learning than from face-to-face learning. The study also stated that most students preferred blended learning, which included e-learning and face-to-face learning, as they considered that this would help them score more.

Prasad et al. (2019) focused on determining the challenges, advantages, and factors affecting the students' point of view on MOOCs. The advantages of the courses were their vastness, openness, heterogeneity, and ability to exchange thoughts between students. The most significant drawbacks of the courses were identified as a lack of interaction between the teacher and the students and a lack of on-time query resolution. The study suggested that technological factors, motivation throughout the course, and the proper ambiance for taking the course were required for the students to acquire the appropriate knowledge. The study further suggested that the participants should always check the materiality of the course, its policies, and its procedures. Pham et al. (2019) conducted a study to determine whether e-learning student satisfaction and loyalty were influenced by e-learning service quality. The study found a direct relationship between e-learning student loyalty and e-learning service quality. The study also concluded that e-learning system quality, e-learning instructor quality, and course material quality were the most critical factors in overall e-learning service quality.

Weiland et al. (2019) conducted a study investigating and monitoring student performance in MOOCs. They also aimed to understand how interaction and visualization techniques can assist teachers in predicting students' performance in learning environments. It was observed that students interacted differently when resources were

available to them. It could be seen that through MOOCs, weak students were easily identified, which was good as special attention could be provided to them. The study indicated that a suitable learning environment could be developed with the help of a combination of MOOCs and the traditional approach to studying. Chopra et al. (2019) determined the efficiency of e-learning. The study observed that the information quality of e-learning courses was poor compared to the system and service quality. Information provided by these websites was not practical due to one-way communication. The researchers suggested a second-order model for e-learning effectiveness. It was found that e-learning comprised system quality, service quality, and information quality.

Saadatdoost et al. (2019) comprehend students' perceptions of MOOCs. The researchers used the personal interview method to collect data, consisting of the following seven themes: Thread features, social networking sites, improved user interface, moderator, structured discussion, and multilingual facility. The study found a high dropout rate. Patidar and Singh (2018) studied the gender view on the need for open courseware, interactive learning, presentation, approach toward learning, certification, and credibility for higher learning. The study found that males and females had the same view regarding interactive content presentation, well-defined course curriculum, learning approach, and certification factors in India's need for open courseware.

Alqurashi (2018) studied the data collected from 167 respondents from undergraduate and graduate studies to determine online learning self-efficacy (OLSE), the interaction between OLSE and learner content and known learner content and instructor content. Researchers found that students were highly satisfied when the course content was well-designed. The instructor had to focus on the expected and perceived benefits that the students were seeking from online education. Learner and instructor interaction worked as the main and most significant predictors for improving the satisfaction level of students in online education. Zawacki-Richter et al. (2018) stated that in this technological world, teaching has changed from teaching at one place to teaching thousands of students at a particular time from one location through online mode, or MOOCs. A MOOC is defined as a course that is open, participatory, and available to participants for the duration of their lives. The findings revealed how MOOCs are helpful for university students, how they affect the quality of the course, what the challenges in these courses are, and how they can be more beneficial for participants.

Ventista (2018) conducted a study titled "Self-assessment in Massive Open Online Courses." They pointed out a high attrition rate in MOOCs. The study suggested using the self-assessment model to evaluate the course instead of peer evaluation, as peer evaluation could be biased. Othman et al. (2018) studied how much more effective MOOCs were in Malaysia compared to regular studies. The study also sought to identify the factors that would increase students' interest in MOOCs. A total of 513 students participated in the survey. Structural equation modeling (SEM) and confirmatory factor analysis tools were used, and it was found that making MOOCs more interactive and collaborative with peers would improve the courses' overall interactivity.

Kumar Basak et al. (2018) conducted a comparative analysis of e-learning, mobile learning (m-learning), and distance learning (d-learning). Based on the existing literature of 126 studies, the study analyzed the differences, benefits, disadvantages, similarities, and differences among the above three. The study concluded that all three approaches were interrelated. Lone (2017) studied the concept of online education and its present and future states in India. The study estimated that the e-learning market in India was about \$3 billion, and the government and various startups were putting their best efforts into making e-learning available in each corner of the country. Online education made education and learning more interactive, allowing students to plan their futures and gain practical application of their learning. The study also found some challenges for the e-learning platforms: computerization, a lack of infrastructure, and hardware availability to access online learning.

While addressing the fundamental questions about the nature and extent of online education, Allen et al. (2016) observed a continuous increase in people opting for the online mode. Service providers believed that, for their long-term sustenance, online education was the key but felt that the blended mode was superior to the pure online mode. At the same time, they believed that online learning had become crucial to reaching the masses, especially

students from economically weaker sections (EWS) or remote geographical regions. However, the authors also observed that the retention rate of students enrolled in on-campus programs was much higher. Gamage et al. (2016) found that MOOCs were variable; some courses on the same platform were outstanding, whereas others were not up to the mark and lacked quality learning material, which meant they did not fulfill the user's goals. The research used 107 students and 98 professors. It concluded that there was a lack of tools available to measure the effectiveness of MOOCs and that these courses were not mature enough in the evaluation process either. This research stressed evaluating the quality and success factors that would help develop MOOCs.

Goh (2016) studied what the challenges of MOOCs were. The study identified the obstacles people faced when promoting MOOCs and implementing them for academic purposes. The study found that most candidates did not complete the entire course because they did not have enough time, were not particularly interested, etc. Most participants were only interested in the content or thought the course duration was prolonged. That was why they were not keen on continuing with the whole course. Thus, the retention of the candidates was the most challenging task in this entire process after they joined the course. Wong (2016) studied the key factors that led to the facilitation of effective teaching through MOOCs. A random sample of MOOCs was reviewed and filtered out to determine the extent to which factors could be identified in these courses. The observation was that MOOCs comprised six stages: delivery, preparation, participation, interaction, consolidation, and past-course support.

Toven-Lindsey et al. (2015) concluded that Massive Open Online Courses (MOOCs) have become a prominent feature of online education in recent years. Still, limited work was available on their effectiveness in enhancing the participants' learning. Innovative methods were needed to be developed to make the learning process more engaging and the online delivery method more effective. Chung (2015) observed that MOOCs were changing the landscape of online learning and, at the same time, felt that the diversified environment made course delivery complex and challenging. The researchers indicated that a self-regulated learning (SLR) environment needed to be created to overcome the challenges. The authors also tried to provide insights into SLR strategies to improve effective learning, specifically referring to non-English-speaking students opting for MOOCs.

Gasevic et al. (2014) predicted the future possibilities of MOOCs. The observation made in this research was that MOOCs require social presence, which needs to be established to allow students to build trust and comfortably engage in a deeper level of social knowledge, construction, and group-based problem-solving. Therefore, understanding student motivation, metacognitive skills, learning strategies, and attitudes was of paramount importance for research and practices in learning and teaching in MOOCs. Bruff et al. (2013) investigated the effectiveness of MOOCs to find that the lecture videos had clarity, effectiveness, and were informative. It was good for self-learning. Students did not actively engage in the online community provided by the on-campus portion of the course. More customization of MOOCs would lead to a better learning experience beyond the classroom's confines.

Kuo et al. (2013) studied undergraduate and postgraduate students at Western University who had enrolled in online courses for 12 weeks to find the students' satisfaction level and current state of online education. The study found that some predictors had a significant relationship with online learning: instructor-student interaction, learner content, and internet efficiency. Among these learners, content was the principal and significant predictor of student satisfaction in online education. It was also found that some areas needed more attention, such as course content, learner-instructor interaction, content design, and its proper organization, so that the satisfaction level of the students with online education could be increased.

## Research Methodology

🔗 **Type of Research :** The study is descriptive, as we needed to explore the motives for registration and the reasons behind non-registration for the NPTEL courses. The study is a cross-sectional study.



➤ **Data Collection** : The data was collected through the primary source with the help of a structured questionnaire. The questionnaire's reliability was measured through the test-retest method; the correlation value was determined at 0.802, which is reliable as it is more than the considerable value of 0.7. The questionnaire is divided into three parts: Part 1 consists of the questions to be filled in by those who have registered for the NPTEL courses; Part 2 consists of the questions to be filled in by those who have not registered for the NPTEL courses; Part 3 consists of the general questions regarding the profile of the respondents to be filled in by all the respondents.

➤ **Sampling Technique and Sample Size** : The study used a convenient sampling technique. The study received responses from 392 respondents, of whom 13 were unsuitable for the study. Hence, the study considered only 379 responses. The respondents are students of higher education.

➤ **Time Frame of the Study** : The data was collected from January to March 2023. The study was conducted in the Delhi-NCR region.

➤ **Statistical Tools** : SPSS version 22 was used to analyze the data. The Chi-square test was used to determine the relationship between age, qualification, and respondent category. Descriptive statistics were used to analyze the perceived benefits and the reasons for not completing the course and not registering for NPTEL courses.

## Data Analysis and Results

### Awareness Level of the NPTEL

From Table 1, we can infer that most of the respondents are aware of the NPTEL. Approximately 71% of the respondents are aware of the NPTEL, whereas only 29% are not aware of it.

### Category of Aware Respondents of NPTEL

Table 2 shows that of the 269 aware respondents, 215 registered for the course, i.e., approximately 80%. Out of these 215 registered respondents, 153 appeared for the exams for the certification, while 62 only registered and did not appear for the exams for the certification. A total of 54 respondents (approximately 20%) are not registered for any course under NPTEL.

**Table 1. Awareness of NPTEL**

Responses	No. of Respondents	%
Yes	269	70.98
No	110	29.02
<b>Total</b>	<b>379</b>	<b>100.00</b>

**Table 2. Category of Aware Respondents**

Responses	No. of Respondents	%
Registered and completed	153	56.88
Registered but not completed	62	23.05
Not Registered	54	20.07
<b>Total</b>	<b>269</b>	<b>100.00</b>

### **Source of Information about NPTEL**

From Table 3, we can see that the majority of the 269 aware respondents (approx. 64%) received information about the NPTEL from their institute, followed by online platforms (approx. 16%) and friends' groups (approx. 13%).

### **Perceived Benefits Associated with NPTEL Courses**

To determine the reason for registration in NPTEL from the 215 registered respondents (153 registered and completed + 62 registered but not completed), the researchers provided ten possible reasons for registration. After that, they asked respondents to respond on a 1–5 Likert scale (from strongly disagree to strongly agree). Table 4 shows the descriptive analysis of the same.

From Table 4, we can infer that the most important perceived benefits are receiving the certificate, being more convenient regarding the timing and location, command over the subject, followed by an edge over the competitors, helping to get a good job, being more comfortable in an online discussion, the development of personnel, increasing performance, and curiosity about learning online.

**Table 3. Source of Information About NPTEL**

Responses	No. of Respondents	%
Online	42	15.61
Magazines	2	0.74
Seminars/ workshops	13	4.83
Institution	171	63.57
Friends/peer group	35	13.01
Others	6	2.23
<b>Total</b>	<b>269</b>	<b>100.00</b>

**Table 4. Descriptive Statistics – Perceived Benefits**

Response Options	N	Minimum	Maximum	Mean	Std. Deviation
To have command over the subject	215	2	5	4.06	.732
Edge from competitors	215	1	5	3.68	.993
Curious to learn online	215	1	5	3.26	1.028
More comfortable in online discussions	215	1	5	3.57	1.033
It is more suitable in time and location parameters	215	1	5	4.08	.900
Will get a certificate after completion	215	1	5	4.34	.823
Helps to get a good job	215	1	5	3.60	1.152
Increase performance	215	1	5	3.42	1.265
Enhance creativity	215	1	5	3.36	1.214
Development of personnel	215	1	5	3.47	1.204
Valid N (listwise)	214				

**Table 5. Reasons for Not Completing the Course**

<b>Response Options</b>	<b>Strongly Agree (5)</b>	<b>%</b>	<b>Agree (4)</b>	<b>%</b>	<b>Neutral (3)</b>	<b>%</b>	<b>Disagree (2)</b>	<b>%</b>	<b>Strongly Disagree (1)</b>	<b>%</b>	<b>Total Responses</b>	<b>%</b>
I did not find enough time.	17	27.42	18	29.03	14	22.58	3	4.84	10	16.13	62	100
I lost momentum as the course progressed.	13	20.97	14	22.58	9	14.52	9	14.52	17	27.42	62	100
I am not able to follow the course in English language.	10	16.13	8	12.90	10	16.13	17	27.42	17	27.42	62	100
I was not serious about the course.	7	11.29	9	14.52	12	19.35	7	11.29	27	43.55	62	100
Not enough online support.	7	11.29	8	12.90	15	24.19	17	27.42	15	24.19	62	100
I am not motivated.	8	12.90	12	19.35	10	16.13	15	24.19	17	27.42	62	100
Wrong course selection.	15	24.19	14	22.58	12	19.35	9	14.52	12	19.35	62	100
I had personal issues due to unforeseen circumstances.	8	12.90	7	11.29	9	14.52	11	17.74	27	43.55	62	100

### ***Reasons for Not Completing the Course***

The study provided the eight possible reasons for non-completion of the course and asked 62 participants who registered but did not complete the course to mention the reason on a 1–5 Likert scale (from *strongly disagree* to *strongly agree*). Table 5 shows the analysis of the same.

From Table 5, we can infer that time is the major constraint behind not completing the course, followed by the wrong selection of course by the students and momentum loss as the course progressed. As we can see, most of the respondents are in the category of “*strongly agree*,” “*agree*,” or “*neutral*.” All the other factors do not have much relevance, as most respondents strongly disagree or disagree.

### ***Reasons for not Registering with NPTEL***

To determine the reason for the 54 non-registered respondents out of the 269 aware respondents, we provided the



**Table 6. Descriptive Statistics : Reasons for not Registering with NPTEL**

Response Options	N	Minimum	Maximum	Mean	Std. Deviation
I am not interested	54	2	5	3.96	.868
I am not motivated	54	2	5	4.06	.856
I do not have enough time	54	1	5	2.78	1.254
Lack of internet facility	54	1	5	2.65	1.216
Lack of PC / laptop	54	1	5	2.61	1.352
Costly	54	1	5	2.33	1.259
Not Determined	54	1	5	2.93	1.179
I didn't get positive feedback for the NPTEL course	54	1	5	2.65	1.135
I don't feel the need for any course	54	2	5	4.02	.879
Valid N (listwise)	54				

nine possible reasons for non-registration. We asked them to mention the reason on a 1–5 Likert scale (from *strongly disagree* to *strongly agree*). Table 6 shows a descriptive analysis of the same.

From Table 6, we can infer that students are not motivated to take the course, students feel no need for such courses, and students are not interested, which are the main reasons for not registering for the NPTEL courses, as the mean value of the above three factors is four or more than four. All the other factors have a mean value below three, which indicates that these factors are not too important.

## Relationship Between Gender and Category of Respondents

A chi-square test was used to determine the relationship between gender and the categories of respondents, as both the variables (dependent and independent) were categorical. The study categorizes all the NPTEL-aware respondents into three categories: registered and completed, registered but not completed, and not registered.

From Table 7, we can interpret that out of the 153 registered and completed categories, 90 are male and 63 are

**Table 7. Crosstabulation Between Gender & Category**

			Category			
			Registered and completed	Registered but not completed	Not Registered	Total
Gender	Male	Count	90	41	28	159
		% within Gender	56.6%	25.8%	17.6%	100.0%
		% within Category	58.8%	66.1%	51.9%	59.1%
		% of Total	33.5%	15.2%	10.4%	59.1%
	Female	Count	63	21	26	110
		% within Gender	57.3%	19.1%	23.6%	100.0%
		% within Category	41.2%	33.9%	48.1%	40.9%
		% of Total	23.4%	7.8%	9.7%	40.9%
	Total	Count	153	62	54	269
% within Gender		56.9%	23.0%	20.1%	100.0%	
% within Category		100.0%	100.0%	100.0%	100.0%	
% of Total		56.9%	23.0%	20.1%	100.0%	

**Table 8. Chi-Square Tests : Gender and Category of Aware Respondents**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.446	2	.294
N of Valid Cases	269		

female, making both approximately 57% within gender. Out of the 62 registered but not completed respondents, 41 are male, and 21 are female, approximately 26% and 19%, respectively, within gender. Of the 54 unregistered aware respondents, 28 are male and 26 are female, approximately 18% and 24%, respectively, within gender.

From Table 8, we can infer that the Pearson chi-square value is 0.294, which is more than the 0.05 level of significance. Hence, we can say that the null hypothesis that gender is independent of the category of the respondent is not rejected. This implies that gender does not have a significant impact on the category.

### Relationship Between Qualification and Category of Aware Respondents

A chi-square test has been used to determine the relationship between the qualification and category of aware respondents.

From Table 9, we can interpret that out of the 153 registered and completed categories, 74 are undergraduates and 79 are postgraduates, approximately 53% and 61%, respectively, in qualification. Of the 62 registered but not completed respondents, 44 are undergrads, and 18 are postgraduates, approximately 32% and 14%, respectively,

**Table 9. Crosstabulation Between Qualification and Category**

		Category			
			Registered and completed	Registered but not completed	Total
Qualification	Under Graduate	Count	74	44	139
		% within Qualification	53.2%	31.7%	100.0%
		% within Category	48.4%	71.0%	51.7%
		% of Total	27.5%	16.4%	51.7%
	Post Graduate	Count	79	18	130
		% within Qualification	60.8%	13.8%	100.0%
		% within Category	51.6%	29.0%	48.3%
		% of Total	29.4%	6.7%	48.3%
Total		Count	153	62	269
		% within Qualification	56.9%	23.0%	100.0%
		% within Category	100.0%	100.0%	100.0%
		% of Total	56.9%	23.0%	100.0%

**Table 10. Chi-Square Tests : Qualification and Category of Aware Respondents**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.447	2	.001
N of Valid Cases	269		

within the qualification. Out of the 54 not registered aware respondents, 21 are undergrads, and 33 are postgraduates, which are approximately 15% and 25%, respectively, within the qualification.

From Table 10, we can infer that the Pearson Chi-square value is .001, less than the 0.05 significance level. Hence, we can say that the null hypothesis that the adoption of virtual classes is independent of qualification is rejected, which implies that qualification significantly impacts the category.

## **Findings and Conclusion**

The study found a high level of awareness of NPTEL. Most aware respondents have registered for the courses, and of those, approximately 57% have completed the course by taking the exam. Receiving the certificate, being more convenient in regard to timing and location, and having command of the subject are the three most important perceived benefits of registration in NPTEL courses. Time is the major constraint behind not completing the course, followed by the wrong selection of the course by the students and momentum loss as the course progresses. Lack of motivation to do the course, students' feeling no need for such courses, and students not being interested are the main reasons for not registering for the NPTEL courses. Gender is not a significant factor for the various categories of respondents aware of NPTEL. On the other hand, qualification is found to be a significant factor. The study found that the students are satisfied with the courses they have taken through the NPTEL, and their overall educational experience is very satisfactory. Most respondents are interested in doing another course through NPTEL, but on the same note, they believe that online teaching cannot replace face-to-face teaching.

## **Implications of the Study**

The study recommends that universities, colleges, and teachers adopt blended learning, which includes e-learning and face-to-face learning, as they consider that this will help students score more. The study recommends that NPTEL course providers spread awareness regarding the courses, as 31% of the respondents were not aware of NPTEL. The study suggests that students should be more careful while choosing the course, complete the course, and earn the certificate, which can enhance their curriculum and, in turn, help them get a good job. Furthermore, we recommend teachers spread awareness of MOOCs and motivate students to enroll.

## **Limitations of the Study and Scope for Further Research**

The study's findings are based on the information received from respondents, which can be biased. The study results are concentrated on the sample units, which cannot be generalized. The study covers only the Delhi-NCR region; future studies can be conducted in other districts at the state or national levels. Further, the study can be conducted from the teachers' point of view, as the current research focuses on students in higher education.

## **Authors' Contribution**

CMA (Dr.) Amit Kumar Arora conceived the idea and developed a quantitative design to undertake the empirical study. Dr. Santosh Kumar extracted research papers with a high reputation and filtered them based on keywords. Dr. Arora did the numerical computations using SPSS 22. Dr. Arora conducted the analysis, reported the study results, and wrote the study's discussion, implications, and conclusion in consultation with Dr. Deepak Bansal and Dr. Swati Bansal.

## Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial or non-financial interest in the subject matter or materials discussed in this manuscript.

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