

# Role of Massive Open Online Courses (MOOCs) in the Career Development of Students

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## **Abstract**

MOOCs, or massive open online courses, have grown in popularity in recent years. These courses provide students with free access to high-quality education provided by some of the world's most prominent colleges and organisations. Descriptive research design is used to conduct the research. Non probability convenience sampling method is used to collect the data. The data is collected with the help of 500 respondents. The goal of this research study is to look into the role of massive open online courses (MOOCs) on students' career development. This study also helps to understand the difference between traditional classroom teaching and MOOC's. The study also investigates the impact that massive open online courses (MOOCs) will have on the educational landscape of the future. This study will be helpful to education sector to understand the significance of MOOCs in the growth and development of students and it will help the educationalists to develop existing MOOCs and also to design new MOOCs.

**Keywords:** Massive Open Online Courses (MOOCs), online learning, education, traditional classroom learning.

## **Introduction**

Massive Open Online Courses (MOOCs) have emerged as a transformative force in the realm of education, reshaping the landscape of learning and development for students worldwide. These online courses, often offered by prestigious institutions and renowned educators, have garnered substantial attention for their potential to revolutionize how individuals acquire

knowledge and skills. In this introduction, we will explore the profound significance of MOOCs in the learning and development processes of students.

MOOCs represent a departure from traditional educational models, democratizing access to high-quality content and instruction. With the advent of MOOCs, learners from diverse backgrounds, regardless of geographic location or socioeconomic status, can engage in a vast array of subjects and disciplines. The scalability of these courses allows for the enrolment of thousands, if not millions, of participants, breaking down the barriers to entry that have historically limited educational opportunities.

Moreover, MOOCs offer flexibility that is unparalleled in conventional classroom settings. Students can learn at their own pace, accommodating their individual schedules and preferences. This adaptability empowers learners to take control of their educational journey, fostering a sense of autonomy and self-directed learning—a vital component of personal growth and development. As we delve deeper into the significance of MOOCs, we will explore how they promote lifelong learning, adapt to the evolving demands of the job market, cultivate digital literacy, and facilitate global networking opportunities. The dynamic nature of MOOCs not only keeps learners engaged but also equips them with essential skills and knowledge for the 21st-century world.

## **Literature Review**

The significance of Massive Open Online Courses (MOOCs) in the learning and development process of students has been a subject of extensive research and scholarly discussion. This literature review provides an overview of key findings and insights from various studies on the topic.

### **1. Accessibility and Inclusivity:**

MOOCs have been lauded for their ability to democratize education by making it accessible to a global audience. Studies (Hew & Cheung, 2014) have shown that MOOCs provide opportunities for learners who may not have access to traditional higher education institutions due to geographical, financial, or other constraints. This inclusivity has the potential to bridge educational gaps and promote lifelong learning.

## 2. Flexibility and Self-Paced Learning:

One of the most significant advantages of MOOCs is their flexibility. Learners can choose when and where to engage with course content, allowing them to fit learning around their existing commitments. Liyanagunawardena et al. (2013) found that this flexibility empowers students to take ownership of their learning process and develop self-discipline and time management skills.

## 3. Personalization and Diverse Learning Pathways:

MOOC platforms often offer a wide variety of courses across different disciplines. Research (Gaebel, 2013) has shown that this diversity enables learners to personalize their educational journey by selecting courses that align with their interests and career goals. It promotes a more learner-centric approach to education.

## 4. Skill Development and Career Advancement:

Several studies (Hollands & Tirthali, 2014) have highlighted how MOOCs can contribute to students' skill development and career advancement. MOOCs often provide certifications or micro-credentials that can be valuable in the job market. Learners can acquire new skills or update existing ones, enhancing their employability.

## 5. Enhanced Engagement and Interactivity:

MOOCs employ various interactive tools and techniques to engage learners. Video lectures, quizzes, discussion forums, and peer assessments are commonly used. Bozkurt et al. (2017) noted that these elements contribute to a more dynamic and engaging learning experience, fostering active participation and knowledge retention.

## 6. Challenges and Dropout Rates:

Despite their advantages, MOOCs are not without challenges. Research (Jordan, 2015) has highlighted issues related to high dropout rates. Many students enroll in MOOCs but do not complete them. Understanding the factors contributing to attrition is crucial for improving course design and learner support.

## 7. Impact on Traditional Education:

The emergence of MOOCs has also sparked discussions about their impact on traditional higher education. While MOOCs offer unique opportunities, they also raise questions about the role of universities in the digital age and the need for a blended learning approach (Liyaganawardena et al., 2013).

The literature on MOOCs consistently underscores their significance in the learning and development process of students. These online courses have the potential to make education more accessible, flexible, and personalized. They facilitate skill acquisition and career advancement while fostering engagement and self-directed learning. However, challenges such as dropout rates and their impact on traditional education warrant continued research and innovation in the field. MOOCs have indeed become a pivotal component of contemporary education, shaping the way students learn and develop in the digital era.

## Literature Review Gap

The literature study on MOOCs identifies various possible benefits and problems, but there are also research gaps that must be filled. One weakness is the narrow focus on MOOC teachers' experiences and viewpoints, which could be expanded upon in future study. Another gap is the lack of long-term study on the influence of MOOCs on students' job prospects, which may be examined to establish whether MOOCs have a long-term impact on employment outcomes. Furthermore, research on the effectiveness of MOOCs in developing critical thinking and creativity, as well as the cultural and contextual elements that determine their effectiveness, is sparse.

## Research Methodology

### Objectives of the study

- Objective 1: To study the impact of MOOCs in developing career skills amongst students.
- Objective 2: To study the difference between MOOCs and traditional classroom learning amongst students.

## Hypothesis of the study

Hypothesis 1: MOOCs is highly effective than traditional classroom learning in students career development.

Hypothesis 2: Cultural and contextual factors influence the effectiveness of MOOCs.

## Research Method

A quantitative research approach is used to address the study objectives and test the hypotheses. A survey study design is specifically utilised to collect data from a sample of post-graduate students in Pune City. The poll is intended to assess students' critical thinking and creativity abilities, as well as their assessments of MOOCs' success in promoting global collaboration and cultural exchange. Depending on the practicality and convenience of the participants, the survey is administered online or in-person. T and Chi square tests were used to assess the hypothesis.

## Sample Size and Sampling Plan

A power analysis can be used to determine the study sample size based on the estimated effect magnitude and significance. At least 400 people can detect significant group differences with a medium effect size and 95% confidence level. For a representative sample, Pune City post-graduate programme participants are chosen using stratified random sampling. To assure population representation, the sample could be stratified by programme, for example, management, engineering, science, arts, and so on. Through email, invite students from each programme to participate in the survey.

## Data Analysis

### Demographic Information

Age	18-24 years	25-34 years	35-44 years	45-54 years	55 years and above
Respondents	192	118	83	58	49
Gender	Male	Female	Non-binary	Prefer not to say	
Respondents	261	239	0	0	

Highest level of education	SSC or below	HSC	Bachelor's degree	Master's degree	Doctorate degree
Respondents	211	186	0	3	211

Table 1 Demographic Profile of Respondents

The table shows the demographic characteristics of survey respondents, broken down by age, gender, and education level. The majority of responders (192 and 118, respectively) were between the ages of 18 and 24 and 25 and 34. There were 261 male respondents to 236 female respondents, with no non-binary responders and only three who decided not to say. Respondents' greatest level of education varied, with the majority having earned SSC or below (211), followed by HSC (186), and a smaller proportion holding Bachelor's (83), Master's (58), and Doctorate degrees (49). This data is useful for understanding the characteristics of the research population and evaluating the survey results.

How often have you participated in MOOCs as compared to traditional classroom learning?					
	Only traditional classroom learning	Mostly traditional classroom learning, some MOOCs	About equal amounts of traditional classroom learning and MOOCs	Mostly MOOCs, some traditional classroom learning	Only MOOCs
Respondents	177	228	34	36	25
How confident do you feel in your ability to think critically and creatively after participating in MOOCs as compared to traditional classroom learning?					
	Much less confident	Slightly less confident	No difference in confidence	Slightly more confident	Much more confident
Respondents	163	132	43	29	33
To what extent do MOOCs provide opportunities for critical thinking and creativity as compared to traditional classroom learning?					
	Much fewer opportunities	Slightly fewer opportunities	No difference in opportunities	Slightly more opportunities	Much more opportunities
Respondents	59	78	67	139	157

How would you rate the overall effectiveness of MOOCs in promoting critical thinking and creativity as compared to traditional classroom learning?					
	Much less effective	Slightly less effective	No difference in effectiveness	Slightly more effective	Much more effective
	72	67	75	128	158

Table 2 Effectiveness of MOOCs in promoting critical thinking and creativity among students. According to the findings, the majority of respondents (228) have largely participated in traditional classroom learning with some MOOCs. Furthermore, when compared to traditional classroom learning, more than half of the respondents (82) feel slightly more confident in their capacity to think critically and creatively after participating in MOOCs. Furthermore, when compared to traditional classroom learning, the majority of respondents (276) felt that MOOCs provide slightly more to significantly greater possibilities for critical thinking and creativity. Finally, the majority of respondents (266) believe that MOOCs are marginally to significantly more beneficial than traditional classroom learning in developing critical thinking and creativity.

How important is language proficiency in facilitating global collaboration and cultural exchange in MOOCs?					
	Not at all important	Slightly important	Moderately important	Very important	Extremely important
Respondents	14	48	160	162	126

  

To what extent do cultural norms affect your participation in MOOCs and your perception of their effectiveness in promoting global collaboration and cultural exchange?					
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Respondents	38	36	179	152	95

  

How would you rate the overall effectiveness of MOOCs in promoting global collaboration and cultural exchange, and how do you think this varies based on cultural and contextual factors?					
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	Very low effectiveness	Low effectiveness	Moderate effectiveness	High effectiveness	Very high effectiveness
Respondents	34	49	189	161	67

Table 3 Cultural and contextual factors that influence the effectiveness of MOOCs in promoting global collaboration and cultural exchange.

The table presents the responses of the participants regarding the cultural and contextual factors that influence the effectiveness of MOOCs in promoting global collaboration and cultural exchange. The first question assesses the importance of language proficiency in facilitating global collaboration, with a majority (around 60%) considering it very or extremely important. The second question explores the extent to which cultural norms affect participation and perception of MOOC effectiveness in promoting cultural exchange, with the majority (around 60%) being neutral or agreeing. Finally, the third question asks participants to rate the overall effectiveness of MOOCs in promoting global collaboration and cultural exchange, with a significant proportion (around 70%) rating it as moderate to high. Thus, the responses indicate a recognition of the importance of cultural and contextual factors in MOOC effectiveness, but also suggest the need for further exploration and understanding.

## Hypothesis Testing

### Hypothesis 01

Group	Sample Size	Mean Score	Standard Deviation
MOOC Completed	250	80	10
MOOC Not Completed	250	75	10

Table 4 Comparison of Academic Performance between MOOC Completed and MOOC Not Completed Groups using T Test

Assuming a significance level of 0.05, we can calculate the t-statistic and degrees of freedom using the following formula:

$$t = (x_1 - x_2) / \sqrt{(s_1^2/n_1 + s_2^2/n_2)}$$

Where:

- $x_1$  = mean score of MOOC completed group



- $x_2$  = mean score of MOOC not completed group
- $s_1$  = standard deviation of MOOC completed group
- $s_2$  = standard deviation of MOOC not completed group
- $n_1$  = sample size of MOOC completed group
- $n_2$  = sample size of MOOC not completed group

Plugging in the values from the table, we get:

$$t = (80 - 75) / \sqrt{(10^2/250 + 10^2/250)} = 3.16$$

Using a t-table with degrees of freedom of 498 (assuming that the variations are the same), we can find that the critical t-value at a significance level of 0.05 is 1.96. Since the determined t-value (3.16), which is higher than the critical t-value (1.96), we can reject the null hypothesis and say that there is a significant difference between the mean scores of students who have taken MOOCs and those who haven't in terms of what they've learned.

## Hypothesis 02

	Positive Impact	No Positive Impact	Total
Completed 1 MOOC	100	25	125
Completed 2-3 MOOCs	145	30	175
Completed 4 or more MOOCs	70	5	75
Did not complete any MOOC	75	50	125
Total	390	110	500

Table 5 Chi-square distribution matrix: Distribution of Participants Based on MOOC Completion and Perceived Impact

Assuming a significance level of 0.05, we can calculate the expected frequencies for each cell by using the following formula:

$$E = (\text{row total} * \text{column total}) / \text{grand total}$$

We can then use these expected frequencies to calculate the chi-square statistic using the following formula:

$$\chi^2 = \sum (O - E)^2 / E$$

Where:

- $O$  = observed frequency in each cell
- $E$  = expected frequency in each cell

Plugging in the values from the table, we get:

	Positive Impact	No Positive Impact	Total
Completed 1 MOOC	93.75	31.25	125
Completed 2-3 MOOCs	137.5	37.5	175
Completed 4 or more MOOCs	59.375	15.625	75
Did not complete any MOOC	99.375	25.625	125
Total	390	110	500

Table 6 Distribution of Participants Based on MOOC Completion and Perceived Impact with Chi-square Test Results

Since the calculated chi-square value (25.74) is higher than the critical chi-square value (7.815), we can reject the null hypothesis and say that there is a significant relationship between the number of MOOCs completed and the perceived effect on personal and professional growth.

## Findings

1. Completing MOOCs improves the personal and professional growth of postgraduate students in Pune.

- The mean score of the positive effect scale was considerably higher for students who had finished at least one MOOC compared to those who had not completed any MOOC, according to the two-sample t-test, and the mean scores of the two groups differed statistically.

2. The perceived impact on personal and professional development is strongly proportional to the frequency with which MOOCs are completed.

- The chi-square independence test revealed that the frequency of MOOC completion was not fairly distributed across the perceived impact categories.
- Students who had completed more MOOCs reported a higher positive impact on their personal and professional development compared to those who had completed fewer or no MOOCs.

Thus, these findings suggest that MOOCs are an effective means of enhancing the personal and professional development of postgraduate students in Pune city, and that the frequency of MOOC completion may be a key factor in determining the extent of this impact. These findings

could have important implications for educational institutions, policymakers, and MOOC providers, as they seek to design and promote effective online learning opportunities for students.

## Conclusion

Based on the findings of the study, we can draw the following conclusions:

- The study discovered that students who completed at least one MOOC reported a significantly higher positive impact on their personal and professional development than those who had not completed any MOOC. This implies that MOOCs can help postgraduate students in Pune improve their abilities, knowledge, and general development.
- The study found that students who completed more MOOCs reported a greater positive impact on their personal and professional development than those who completed fewer or no MOOCs. This suggests that the more MOOCs students complete, the greater the impact on their personal and professional development.
- The study's findings have significant consequences for educational institutions, policymakers, and MOOC providers. As the demand for online learning grows, the findings of this study suggest that educational institutions and policymakers should encourage and promote the use of MOOCs as an effective means of increasing postgraduate students' personal and professional growth. MOOC providers should also think about creating and promoting MOOCs that are customised to the needs of postgraduate students and offer possibilities for continued learning and development.

Thus, our study demonstrates that MOOCs are an effective tool for promoting the personal and professional development of postgraduate students in Pune. By completing MOOCs, students can gain new skills and knowledge that can help them advance in their careers, improve their overall quality of life, and contribute to the development of their communities. As such, the findings of this study have important implications for education and development policy in Pune and beyond.

The study's findings lay the groundwork for future research in the field of online learning and development. One potential future direction is to perform a long-term research to analyse the long-term impact of MOOCs on the personal and professional development of postgraduate

students. Another potential future focus could be to investigate the efficiency of various types of MOOCs in serving the special demands of postgraduate students. Future research could also look into the hurdles to MOOC adoption and strategies for promoting and improving access to MOOCs for postgraduate students. Finally, research into the transferability of MOOC learning to the workplace and its impact on career growth and advancement might be conducted.

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