Towards acceptance of MOOCs in the Higher Education: A Perspective of Indian Students

Anupriya, Raj Kishor Bisht, Prashant Gahtori, Sanjay Jasola, Kapil Ghai, Neetu Sharma

Abstract: Massive Open Online Courses (MOOCs) are gaining popularity and these are a matter of appreciation among a large number of students worldwide. Currently, the Indian higher education system is ranked third in the world, and MOOCs are also growing rapidly in India. Therefore, systematic data analysis is the key requirement to understand the acceptance of MOOCs in higher education in India. Statistical data analysis is done on a data of 945 students from Graphic Era Hill University India, where MOOCs are a part of the academic curriculum and students are free to choose any MOOCs in each semester. This statistical analysis reveals the popularity of various platforms among students. It is also found that students’ selection of MOOC is not independent of gender and different academic level of courses. Overall, the statistical analysis suggests that MOOCs are acceptable for different streams and MOOCs offer ease in academic learning.

Keywords: MOOCs, Systematic analysis

I. INTRODUCTION

The exponential growth in digital technologies has revolutionized the traditional education system, with an enormous number of online courses and learning modules available for the broad spectrum of students. Therefore, an appropriate term ‘MOOC’, meaning Massive open online course was coined by Dave Cormier earlier in 2008, now become the reality with more than 100 million registered users worldwide[1]. Notably, first online course developers Stephen Downes and George Siemens (2008), followed by further scale-up initiatives of Stanford professor Sebastian Thrun, and Director Research Google Peter Norvig had given the hallmark in MOOC’s success story[2]. Moreover, the first MOOC service provider Udacity, and afterward MITx, Coursera, edX, MiriadaX, Open2Study, etc. had also become key elements in generating a MOOCs revenue model. Subsequent add-on with the introduction of peer review, peer-assessment, and self-assessment also further broadened the scope and spectrum of MOOCs [3]. Seeking the urgent quality education need, several national governments blended learning initiatives with their MOOC platforms, for example, SWAYAM- India, Malaysia MOOC- Malaysia, ThaiMOOC- Thailand, EduOpen- Italy, MiriadaX- Spain, Campus Il- Israel, etc. [4-6].

The recent class central report of 2019 [7] suggests that the students enrolled in popular MOOCs Coursera, edX, Udacity, Future Learn, SWAYAM and NPTEL are 45 million, 24 million, 11.5 Million, 10 million, 10 million, and 02 million respectively.

Despite large access, MOOCs acceptance with formal course credits and qualifications is remained unresolved in major institutions worldwide and a very few especially higher education institutions, including Georgia Tech, MITx, University of Leeds, Malaysian qualifications agency [8], Graphic Era Hill University [9], etc. granted course credits across a wide range of courses as a part of the teaching curriculum.

First hand MOOCs offer huge potential with the following competitive advantages: (i) A large number of enrolment at a time, (ii) Open online accessibility, (iii) Free of cost academic delivery, (iv) Heterogeneous participation with a different set of learning, (v) Promotes learning in an inter-professional educational environment, (vi) Self-pacing, (vii) Promotes creativity, (viii) Inculcates self-directed learning skills, (ix) Repetition of the learning module. Other hands, MOOCs limits its universal application due to following reasons: (i) Unspecific short courses, (ii) High drop-out rate, (iii) Resource- intensive course development, (iv) No well-defined assessment criteria, (v) Dubious certification, (vii) No appraisal and recognition of MOOCs certificates, and (viii) Low monetary incentives for course content developers. Although a tremendous amount of data is generated across several fields due to MOOCs for further follow-up studies, however a very few reports highlighting an ideal model(s) for better understanding of learners’ behavior [10]. Another report by Rienties and Toetenel with student data has found that learner satisfaction in MOOCs has different reasons than degree-seeking students in formal education [11]. With a large number of MOOCs enrolments in a variety of courses, learners are diverse. These participants comprise males and females of different age groups, also from the different educational and socio-economical background. This diverse nature of users is also part of many studies where gender influences on completion of courses [12]. Few studies show that females are more likely to finish up these courses. Similarly, findings between the age and course completion are related to each other and another study finds out the positive relationship between age and course completion [13]. Another Stanford University study found that in a generalized group of students 88% were male in MOOCs for undergraduate and graduate level. Graphic Era Hill University is a pioneer in integrating MOOCs in the curriculum for all courses for the last six years.

Revised Manuscript Received on August 10, 2019.
Anupriya, Department of Computer Applications, Graphic Era Hill University, Clement Town Dehradun, India.
Raj Kishor Bisht, Department of Mathematics, Graphic Era Hill University, Clement Town Dehradun, India.
Prashant Gahtori, School of Pharmacy, Graphic Era Hill University, Clement Town Dehradun, India.
Sanjay Jasola, Department of Computer Science and Engineering, Graphic Era Hill University, Clement Town Dehradun, India.
Kapil Ghai, Department of Chemistry, Graphic Era Hill University, Clement Town Dehradun, India.
Dr. Neetu Sharma, Department of Chemistry, Graphic Era Deemed to be University Dehradun, India.

International Journal of Innovative Technology and Exploring Engineering (IJITEE)
ISSN: 2278-3075, Volume-8 Issue-10S2, August 2019
Published By:
Blue Eyes Intelligence Engineering & Sciences Publication

Retrieved Number: J100308810S2192019©BEIESP
DOI: 10.35940/ijitee.J1003.08810S219
The University offers a flexible learning environment with a choice of MOOCs selection; therefore, more than thirty-five thousand MOOCs have been completed by the students. In this paper, we explore the popularity of various MOOCs platforms and dependency on MOOCs selection on gender-basis as well as different academic level of courses.

II. ANALYSIS

To know the acceptability of various MOOCs among students, students were asked to provide their MOOCs related information like name, gender, age, department, the platform used, and duration of course and title of the course. At last, students were asked to provide the reason for selecting a particular course from four different choices; ease of learning, recommendation by faculty, part of the curriculum, and others. In our survey, we have analyzed the data of 945 students of different streams of Graphic Era Hill University. The data comprise 473 male and 472 female students. In this, 814 students were undergraduate courses and 95 from postgraduate courses and 36 from diploma and other courses. Table 1 shows the gender-wise distribution of various platforms chosen by students.

Table 1. Gender wise distribution of various platforms

| Platforms | Male | Female | Total |
|-----------|------|--------|-------|
| SWAYAM    | 341  | 322    | 663   |
| COURSERA  | 48   | 57     | 105   |
| edX       | 34   | 43     | 77    |
| NPTEL     | 23   | 26     | 49    |
| UDEMY     | 7    | 3      | 10    |
| FUTURE LEARN | 7 | 13    | 20    |
| OTHERS    | 13   | 8      | 21    |
| Total     | 473  | 472    | 945   |

The data reported in Table 2 shows the academic level-wise distribution of various platforms chosen by students.

Table 2. Academic level-wise distribution of various platforms

| Platforms | UG | PG | Others | Total |
|-----------|----|----|--------|-------|
| SWAYAM    | 582| 60 | 21     | 663   |
| COURSERA  | 96 | 7  | 2      | 105   |
| edX       | 63 | 8  | 6      | 77    |
| NPTEL     | 37 | 9  | 3      | 49    |
| UDEMY     | 9  | 1  | 0      | 10    |
| FUTURE LEARN | 9 | 7  | 4      | 20    |
| OTHERS    | 18 | 3  | 0      | 21    |
| Total     | 814| 95 | 36     | 945   |

From Tables 1 and 2, we observe that the SWAYAM platform is the first choice of students in every aspect whether we consider gender or academic level. The second choice is Coursera followed by edX. Table 3 shows the overall popularity of various MOOCs platforms percentage and its graphical representation is shown in Fig. 1.

Table 3. The popularity of various MOOCs platforms in percentage

| Platform | Percentage |
|----------|------------|
| SWAYAM   | 70.16      |
| COURSERA | 11.11      |
| edX      | 8.15       |
| NPTEL    | 5.19       |
| UDEMY    | 1.06       |
| FUTURE LEARN | 2.12 |
| OTHERS   | 2.22       |

Fig. 1 Graphical representation of the percentage of various platforms used by students

Now analyze the reasons chosen by students for selecting MOOCs. As discussed earlier, four choices were provided to students. For further use, assign labels to the choices. Table 4 shows the labels, corresponding reasons, and many students for different reasons of course selection. Graphical representation of the percentage of students selecting different reasons is given in Fig. 2.

Table 4. Distribution of students for selecting different reasons

| Label | Reason                      | No. of students |
|-------|-----------------------------|-----------------|
| A     | Ease of academic learning   | 461             |
| B     | Faculty recommendation      | 172             |
| C     | Part of the curriculum      | 212             |
| D     | Others                      | 100             |

Fig. 2 Percentage of students selecting various reasons
We also analyze department wise distribution of students selecting different reasons and it is shown in Table 5.

Table 5. Department wise distribution of students for selecting different reasons

| Sr. No. | Department     | No. of students for a different reason | Total |
|---------|----------------|----------------------------------------|-------|
|         |                | Ease of learning | Faculty Recommendation | Part of the curriculum | Others |       |
| 1       | Agriculture    | 22             | 4                      | 17                   | 7      | 50     |
| 2       | Allied Sciences| 38             | 2                      | 21                   | 18     | 79     |
| 3       | Architecture   | 6              | 5                      | 2                    | 1      | 14     |
| 4       | Commerce       | 67             | 39                     | 15                   | 6      | 127    |
| 5       | Computer Applic| 44             | 12                     | 17                   | 12     | 85     |
| 6       | Engineering    | 42             | 16                     | 13                   | 8      | 79     |
| 7       | Management     | 128            | 50                     | 90                   | 23     | 291    |
| 8       | Pharmacy       | 47             | 16                     | 10                   | 11     | 84     |
| 9       | Humanities     | 15             | 7                      | 7                    | 3      | 32     |
| 10      | Fashion Design | 26             | 8                      | 11                   | 4      | 49     |
| 11      | Others         | 26             | 13                     | 9                    | 7      | 55     |
| Total   |                | 461            | 172                    | 212                  | 100    | 945    |

Analysis of the different reasons for selecting courses shows that the majority of students selected the course because of ease of learning, even though the course is a part of the curriculum. It is interesting to note that it is also true for department wise distribution. Thus, based on the sample data, it can be stated that MOOCs provide ease of academic learning among students.

After the initial analysis of MOOC’s acceptability, to check the role of gender or the academic level in choosing MOOCs, we further analyzed the dependence between gender and decision and between academic level (UG/PG) and the decision of selecting MOOCs. Our objective to answer the following questions:

Q1. Whether the decision of choosing MOOCs is dependent on gender?

Q2. Whether the decision of choosing MOOCs is dependent on an academic level (UG/PG)?

To get the answer to the first question, we framed the following null hypothesis:

$H_0$: The decision of choosing MOOCs is not dependent on gender.

Thus, the alternative hypothesis would be $H_1$: The decision of choosing MOOCs is dependent on gender.

We choose a 5% level of significance. To analyze the data, we use the chi-square test statistic to test the independence between gender and decision. Table 6 shows the observed values of the gender-wise distribution of students selecting various reasons.

Table 6. Gender wise distribution of students for selecting different reasons

| Gender | Reason | A  | B  | C  | D  | Total |
|--------|--------|----|----|----|----|-------|
| Female |        | 228| 87 | 120| 37 | 472   |
| Male   |        | 233| 85 | 92 | 63 | 473   |
| Total  |        | 461| 172| 212| 100| 945   |

Upon calculation, we get $\chi^2 = 10.535$ and the $p$-value 0.0145. The $p$-value is less than .05, thus the null hypothesis is rejected at a 5% level of significance. It is observed from the sample that the decision of choosing MOOCs is not independent of gender, that is, gender has some role in selecting MOOCs.

To get the answer to the second question, we framed the following null hypothesis:

$H_0$: The decision of choosing MOOCs is not dependent on the academic level (UG/PG).

Thus, the alternative hypothesis would be $H_1$: The decision of choosing MOOCs is dependent on the course level (UG/PG).

We choose a 5% level of significance. To analyze the data, we use a Chi square test statistic to test the independence between gender and decision. Table 7 shows the observed values of the academic level-wise distribution of students selecting various reasons.

Table 7. Level wise distribution of students for selecting different reasons

| Level | Reason | A  | B  | C  | D  | Total |
|-------|--------|----|----|----|----|-------|
| UG    |        | 385| 154| 184| 91 | 814   |
| PG    |        | 61 | 9  | 21 | 4  | 95    |
| Total |        | 446| 163| 205| 95 | 909   |

Since observed frequency in one cell is less than 5, thus first we merge the third and fourth columns and then apply the Chi-square test of independence. Upon calculation, we get $\chi^2 = 10.629$ and the $p$-value 0.0049. The $p$-value is less than .05, thus the null hypothesis is rejected at a 5% level of significance. It is observed from the sample that the decision of choosing MOOCs is not independent of UG and PG level of courses.
This further signifies that the academic level also has some role in selecting MOOCs.

III. CONCLUSION

The present analysis was based on 945 students of different branches of Graphic Era Hill University, Dehradun to explore the acceptance of MOOCs among students and analyzing the view of students towards selecting MOOCs. The statistical analysis based on sample data shows that the SWAYAM platform has the highest acceptability among the students irrespective of gender and academic level and MOOCs offer ease in academic learning. The results further suggest that the selection of MOOCs is not independent of gender and academic level, that is, gender and academic level affect the selection of MOOCs which opens further dimensions to explore.

REFERENCES

1. Rai, L. (2019). Successful Learning Through Massive Open Online Courses. IEEE Potentials, 38(6), 19-24.
2. Kaplan, A.M. and Haenlein, M., 2016. Higher education and the digital revolution: About MOOCs, SPOCs, social media, and the Cookie Monster. Business Horizons, 59(4), pp.441-450.
3. Burd, E.L., Smith, S.P., and Reisman, S., 2015. Exploring business models for MOOCs in higher education. Innovative Higher Education, 40(1), pp.37-49.
4. Mathai, K. J. (2019). Impact of MOOC in Teachers' Education Through Swayam Platform–In Indian Context.
5. DE SANTIS, A., Sannicandro, K., Bellini, C., & Minerva, T. (2019). Reasons for Attending a MOOC: A Survey on EduOpen Learners.
6. Wang, K., & Zhu, C. (2019). MOOC-based flipped learning in higher education: students’ participation, experience, and learning performance. International Journal of Educational Technology in Higher Education, 16(1), 33.
7. Shah, D., By the numbers: MOOCs in 2018, Class Central MOOC Report, Accessed 08 February 2019.
8. Perrotta, C. (2018). Digital Learning in the UK: Sociological Reflections on an Unequal Marketplace. Social Sciences, 7(10), 170.
9. Ahmad, I. and Jasola, S., 2017, November. Supplementing higher education with MOOCs: A case study. In 2017 International Conference on Emerging Trends in Computing and Communication Technologies (ICETCCT) (pp. 1-5).IEEE.
10. Sujatha, R., & Kavitha, D. (2018). Learner retention in MOOC environment: Analyzing the role of motivation, self-efficacy, and perceived effectiveness. International Journal of Education and Development Using ICT, 14(2).
11. Rienties, B. and Toetenel, L., 2016. The impact of learning design on student behaviour, satisfaction and performance: A cross-institutional comparison across 151 modules. Computers in Human Behavior, 60, pp.333-341.
12. Castillo, N. M., Lee, J., Zahra, F. T., & Wagner, D. A. (2015). MOOCs for development: Trends, challenges and opportunities. Information Technologies & International Development,11(2), 35–42.
13. Morris, N.P., Swinnerton, B.J. and Hotchkiss, S., 2015. Can demographic information predict MOOC learner outcomes? In Experience Track: Proceedings of the European MOOC Stakeholder. Leeds.
14. Mackay, R.F., 2013. Learning analytics at Stanford takes huge leap forward with MOOCs. Stanford Report.