Indian Higher Education: Sustainable Development And Acceptance Of Digital Learning Platforms And MOOCS In Pre And Post Covid Scenarios

Section A-Research paper

INDIAN HIGHER EDUCATION: SUSTAINABLE DEVELOPMENT AND ACCEPTANCE OF DIGITAL LEARNING PLATFORMS AND MOOCS IN PRE AND POST COVID SCENARIOS

Devesh Lowe[1*], Bhavna Galhotra[2]

Abstract

Higher education in India was not always confined to a learning process in four walls. Our ancient learning methodology included conversations, debates, life study and learning through observations. With passage of time learning was confined to study of written texts and prescribed syllabi. Though it has contributed remarkably in the last two centuries towards the establishment of new world order, its relevance is now often questioned due to pace of technological changes and industry's expectations from young graduates. In the last decade there is an evident shift towards Digital Learning platforms as a mandatory part of standard curriculum, and as source of obtaining extra knowledge with flexibility of choosing subjects and content for learning. Platforms like Coursera, edx, NPTEL, STP, Swayam and Udemy are ready to efficiently fill the gap between standard university curriculum and industry requirement. Acceptance of these platforms witnessed a sharp rise during COVID era and registration increased multiple folds. It was clear that the time has come for digital learning to be accepted at par with standard chalk and talk approach. After the decline of COVID restrictions and life returning to normalcy, growth and acceptability of online learning platforms opens a big area of study. In this paper authors have identified and recognized the role of digital learning platforms as mandatory part of higher education and have studied the impact on young learners. This paper presents an analysis based on the opinions of first time users of such platforms. This paper presents a comparative analysis of growth and acceptability of online learning platforms by young Indian students in pre-Covid, during-covid and post-covid timelines.

Keywords: Digital Learning Platforms, Higher Education, On-line Courses

[1*,2]Assistant Professor, Jagan Institute of Management Studies, New Delhi

*Correponding Author: Devesh Lowe
*Assistant Professor, Jagan Institute of Management Studies, New Delhi

Eur. Chem. Bull. **2023**, *12(Special Issue 5), 6484 –6492*

6484

Indian Higher Education: Sustainable Development And Acceptance Of Digital Learning Platforms And MOOCS In Pre And Post Covid Scenarios

Section A-Research paper

Introduction

In the pre-COVID era, digital learning platforms and Massive Open Online Courses (MOOCs) experienced significant growth in India. These platforms gained popularity due to various factors, such as increased internet penetration, smartphone adoption, and a growing demand for accessible and affordable education [1].

1. Emergence of Digital Learning Platforms: Prior to COVID-19, digital learning platforms like Coursera, Udemy, edX, and Khan Academy gained traction in India. These platforms offered a wide range of courses across diverse subjects, allowing learners to access high-quality educational content at their convenience.

2. Government Initiatives: The Indian government played a crucial role in promoting digital education. Initiatives like the National Digital Literacy Mission, Digital India Campaign, and the e-Basta platform aimed to increase digital literacy and provide access to online learning resources across the country.

3. Rise of MOOCs: MOOCs gained popularity in India as well. Platforms like Coursera, edX, and NPTEL (National Program on Technology Enhanced Learning) offered courses from prestigious institutions like Indian Institutes of Technology (IITs), Indian Institutes of Management (IIMs), and renowned universities. These courses allowed learners to acquire new skills and knowledge from top instructors worldwide.

4. Increasing Internet Penetration: India witnessed a significant increase in internet penetration, particularly with the growth of mobile internet users. This enabled individuals to access online learning platforms and courses through smartphones, making education more accessible and convenient.

5. Affordable Education: Digital learning platforms and MOOCs often provided free or affordable courses, allowing learners from diverse backgrounds to access quality education without the financial burden of traditional education.

6. Professional Development: Professionals in India sought digital learning platforms and MOOCs to upskill or acquire new knowledge relevant to their careers. This demand for continuous professional development contributed to the growth of online learning platforms.

7. Recognized Certification: Many digital learning platforms offered certifications upon course completion. These certificates were recognized by employers and institutions, adding value to learners' resumes and career prospects.

Overall, the growth of digital learning platforms and MOOCs in the pre-COVID era in India was driven by increased internet penetration, government initiatives, affordability, convenience with the demand for lifelong learning and professional development. These platforms opened up new avenues for education, allowing learners to access quality courses from anywhere, at any time. [1]

In the post-COVID era, the growth of digital learning platforms and MOOCs courses in India has experienced a significant acceleration. The pandemic and subsequent lockdowns have further propelled the adoption of online education, leading to an increased demand for digital learning platforms. Here are some key factors driving the growth:

1. Shift to Online Education: With the closure of educational institutions during the pandemic, students and professionals turned to online platforms for their learning needs. This rapid shift to online education has led to a surge in the number of learners accessing digital learning platforms and MOOCs courses. [2]

2. Increased Awareness and Acceptance: The pandemic has created greater awareness and acceptance of online education among the Indian population. People have realized the benefits of remote learning, such as flexibility, convenience, and the ability to learn at their own pace. This shift in perception has contributed to the growth of digital learning platforms. [3]

3. Skill Development and Career Advancement: The pandemic-induced economic uncertainty has led to a renewed focus on skill development and career advancement. Individuals are seeking online courses to upskill, reskill, and stay competitive in the job market. Digital learning platforms and MOOCs courses offer a wide range of skill-based programs that cater to these needs. [4]

4. Industry Collaboration: Many industries have partnered with online learning platforms to provide specialized courses and certifications. This collaboration helps bridge the skill gap and enables learners to acquire industry-relevant knowledge and credentials, enhancing their employability.

5. Government Initiatives: The Indian government has launched various initiatives to promote online education, especially in the

Eur. Chem. Bull. **2023**, *12(Special Issue 5), 6484 –6492*

6485

post-COVID era. Programs like the SWAYAM (Study Webs of Active Learning for Young Aspiring Minds) and the National Education Policy 2020 emphasize the importance of digital learning and encourage the adoption of online platforms. [5]

6. Technological Advancements: Advancements in technology have made online learning more accessible and engaging. Improved internet connectivity, affordable smartphones, and the availability of vernacular content have enabled learners from diverse backgrounds and regions to access digital learning platforms.

7. Global Collaboration and Access: MOOCs courses have allowed learners in India to access education from renowned international institutions. Platforms like Coursera, edX, and Udacity offer courses from prestigious universities worldwide, giving learners the opportunity to learn from global experts.

8. Blended Learning Models: Educational institutions in India have started adopting blended learning models that combine online and offline components. This integration of digital learning platforms and MOOCs courses into traditional education systems has further driven the growth of online education in the post-COVID era.

Overall, the post-COVID era has witnessed a significant surge in the growth of digital learning platforms and MOOCs courses in India. The pandemic has accelerated the adoption of online education and highlighted its potential to provide accessible, flexible, and quality learning opportunities to a wide range of learners.

Background Study
With the development of internet technology, the field of education has fully developed. The Internet has given people the ability to access unlimited information conveniently and efficiently. With high bandwidth networks and advanced mobile devices, learning is available to everyone 24/7. There is also no time limit, because anyone can learn anywhere and anytime thanks to the availability of the mobile application. Online learning is a better choice and alternative to traditional classroom teaching. Online learning has gained momentum thanks to advanced computing technology and extensive research on content and pedagogy. Today, online learning has become an essential part of the educational routine. Online learning has given everyone the flexibility to access available learning material that effectively supports knowledge acquisition. Advantages of

digital learning programs for a more interesting learning experience [1].

- Scalable - delivering unique content to a large audience at a reasonable cost
- Strategic - the main focus is on the needs of the students as well as the demands of the field
- Ease of use - content is available anywhere, anytime.
- Mixed - Content should be a mix of asynchronous and synchronous methods.
- Integrated - Content must match the mix of digital technology
- Experiential – This provides an opportunity to reflect on the content and apply it to the course content in real time.
- Relevant — Create the best learning experiences contextually.
- Measurable - training goals are achieved through analysis and other assessments.

MOOCs (massive open online courses) are the most popular online learning in higher education. MOOCs have different ways of delivering content as well as tracking student progress. It is an effective way to bridge the gap between industry and university course content and create better opportunities for skill development. There are several sites like EDX, and Coursera has partnered with colleges and universities to deliver content through online platforms [4].

Types of Massive Open Online Courses
- Transfer MOOC- This is a common type of MOOC where the course is designed around the end user. It offers traditional classroom methods using a digital platform. Lectures are scheduled in the form of videos and students have access to reading assignments.
- Conducted MOOC- This is a type of MOOC that is more interactive using whiteboard approaches and also includes stimulated training modules. It gives immediate feedback to the student.
- MOOCs - Synchronous and Asynchronous Methods - The synchronous method involves providing students with online access such as online webinars or online courses through video conferencing tools, while the asynchronous method is to learn and watch videos anytime. It is most convenient for working professionals
- Adaptive MOOC- Adaptive MOOC is personalized with built-in algorithms based on student performance. It is most useful in business training.

- Mini MOOC - This is a predefined transitional course for a limited number of weeks

Previous work by authors
- Leveraging Digital Learning Platforms for Competitive Advantage in Higher Education
- Devesh Lowe, Bhavna Galhotra, Yukti Ahuja; Korean institute of Digital Convergence-International Journal of Information Communication Technology and Digital Convergence Vol. 5, No. 1, June 2020, pp. 48-57 ISSN 2466-0094
- Primary data collected and research done in January 2020 and article published in June 2020

Research Methodology
- The previous study was an attempt to understand the students' perspective towards MOOCS programs offered on digital learning platforms, and identify the factors playing a pivotal role in the development of e-content.
- The authors used a self-constructed questionnaire for the survey. The questionnaire had 20 items related to the perception of students regarding digital learning platforms and MOOCs programs offered by them.
- A five-point agreement scale has been used to measure the responses. To check the validity of the questionnaire, it was subject to review by experts.
- A survey was conducted on students of University colleges and higher education institutes in and around Delhi NCR. Institution running technical and management courses in and around Delhi NCR were considered for the study.
- The survey was conducted in digital format and a link for the online form was shared with students. A total of 170 students responded to the call with completed questionnaires.
- In the present study a similar digital questionnaire format was used as previous work.
- A questionnaire was prepared and the link was shared with students of similar age group, studying similar curriculum and affiliated to similar courses in the university system as was done in the previous study.
- Objective of the study was to identify the difference in perception among students towards online digital learning platforms in a Pre-Covid and Post Covid situation.
- Most students were offered online courses during COVID to upgrade their knowledge in the lockdown period during covid pandemic.

- Many universities and colleges made it mandatory for students to complete at least one MOOCs program.
- It was also observed that when Covid restrictions were eased and colleges and universities were back with full attendance, this mandatory MOOCs clause was made optional.
- Where the previous study was conducted to understand the contributing factors for the popularity and efficiency of Digital learning platforms and various MOOCs offered by them.

The present study uses the same parameters to understand the change in perception towards Digital Learning Platforms and MOOCs programs, but this time in view of the Post Covid scenario. Following is a list of common questions that composed the questionnaire used in both the studies.

1. Which digital learning platform are you using / have used?
2. Duration of MOOCs course
3. How many hours do you spend on online learning content in a week
4. Did this course justify its learning objectives.
5. When did you complete the course?
6. How do you rate your course?
7. Why did you choose MOOCS? Word cloud
8. What was/is the best thing about this course and learning pedagogy?
9. What was/is the worst thing about this learning pedagogy?
10. Would you be willing to enroll for another such program if a need arises in your future knowledge development.?
11. Do you think it is beneficial to include digital online learning programs as a part of regular credit system?

Comparative Analysis
Following is the comparative analysis of the responses collected from students in both the surveys. It is clearly observed that students and educationist were aware about the digital learning platforms in the pre-covid era and many of them were using them. But it is also worth noting that most of the users were directed towards state funded learning platforms like Spoken-tutorials or NPTEL, as compared with other learning platforms. [4] As demonstrated in figure 1, state funded platforms held more than 82% of market share in pre covid era. But in the post-covid scenario students' attention towards other open learning platforms increased drastically. Platforms like Udemy, EDx and Upgrad gained a significant market share. Udemy, Edx and Coursera together

received enrolment from more than 50% of our respondents.

A drastic change has been observed in the duration of MOOCs courses enrolled in pre-covid and post-covid time. In pre-covid era, most of the enrollments were found in courses of shorter duration i.e. less than 3 weeks duration. Duration 2-3 weeks gained attention from more than 57% of respondents. The scenario completely changed with the arrival of Covid and online classes. Student enrolment in more than 4 weeks courses rose to 68% of total responses. (Ref figure 2)

When it comes to learning objectives, MOOCs courses and Digital Learning platforms have a high satisfaction rate. In both the studies, more than 92% of enrolled students responded (ref figure 3) satisfaction over the content delivered. Figure 4 demonstrates the timeline in which courses have been completed. Both pre and post covid studies show that most students complete their courses in a given timeline or extended timeline as permitted by the platform. [6]

In both the studies, respondents have appreciated the course content, use of AV technology, clarity of concepts and timeline used in these courses (ref figure 5). Most respondents in pre-covid scenario showed not much satisfaction in the use of AV in the video lectures, but the impression changed in post covid scenario. Authors believe that it can be

due to the fact that in pre covid, most students were enrolled in state sponsored platforms and courses but in post-covid era, respondents were enrolled mostly in paid programs which offer more visual effects. [3]

The word-clouds in figure 6 to figure 8 demonstrate the response of students in the statement questions regarding the objective of students to choose, MOOCs programs, best parts of the programs and the shortcomings in the courses. In both the studies students have used the positive words like LEARN, KNOWLEDGE, CERTIFICATION, UPGRADE, GAIN, GOOD, EASY, LEARNING, INERESTING and DEVELOPMENT as demonstrators for their opinion towards these courses. But when it comes to describing the negative side of these courses or giving shortcomings, the biggest key demonstrator word is NOTHING. This demonstrates the level of satisfaction among students regarding MOOCs and digital learning platforms.

Figure 9 and figure 10 indicate the response of students in both the studies where they are willing to include MOOCs program as a part of regular teaching curriculum (89.5% and 82.4% respectively). These figures also exhibit a huge percentage of students interested in re-enrolling for more such courses to enhance their knowledge (77.8% and 69.4% respectively).

Figure 1: *Response to -Which digital learning platform are you using / have used? In Pre-Covid and Post-Covid*
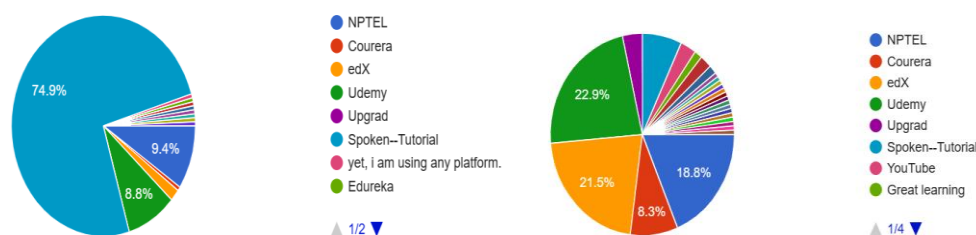

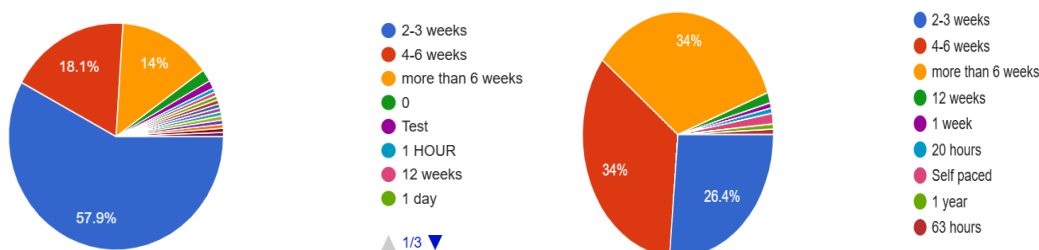**Figure 2:** *Response to -Duration of MOOCs course. In Pre-Covid and Post Covid*

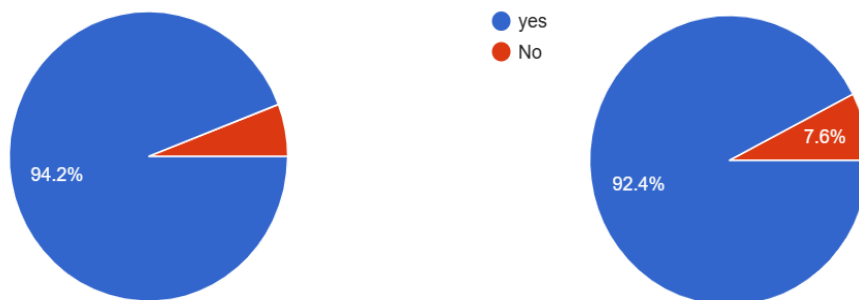**Figure 3:** *Response to -Did this course justify its learning objectives. In Pre-Covid and Post-Covid*

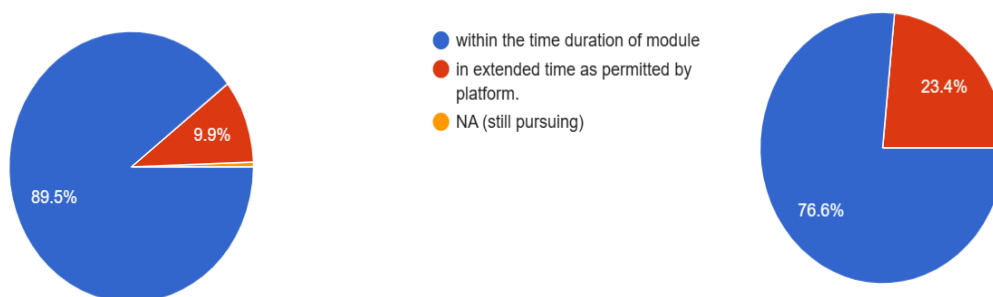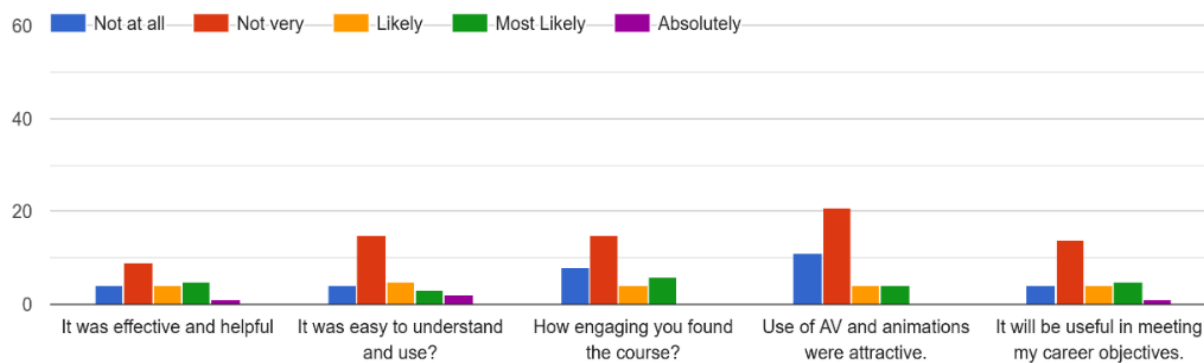**Figure 4:** *Response to - When did you complete the course? In Pre-Covid and Post-Covid*

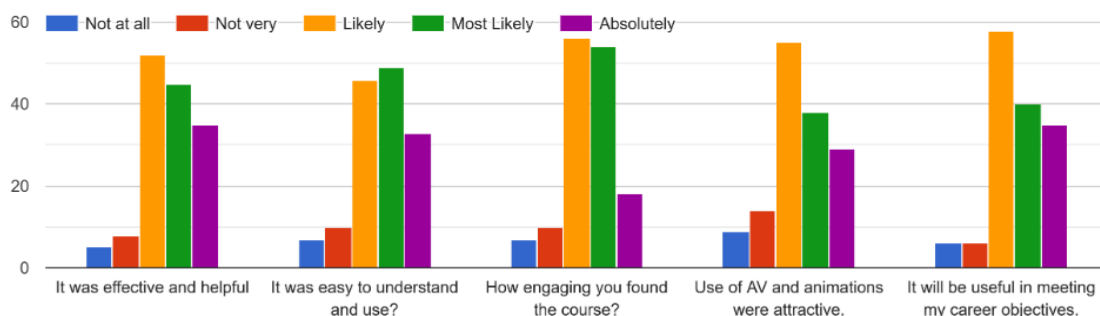**Figure 5:** *How would you rate this course? Pre-Covid*

How would you rate the course?

Figure 6: *Word cloud of response to -Why did you choose MOOCs? In Pre-Covid and Post-Covid*

Figure 7: *Word cloud of response to - What was/is the best thing about this course and learning pedagogy in Pre-Covid and Post-Covid*

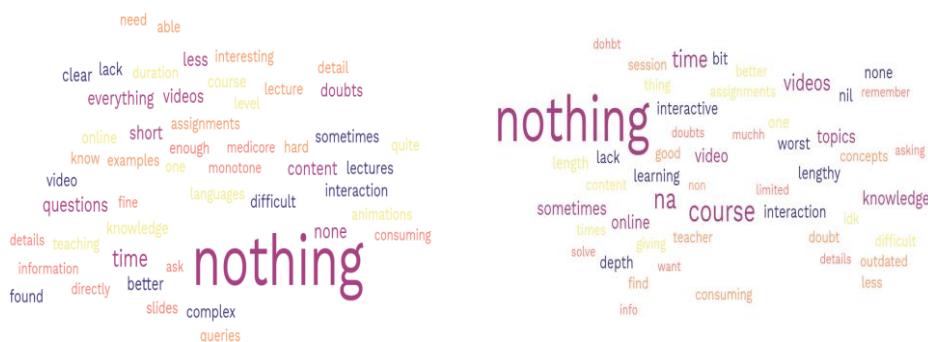**Figure 8:** *Word-cloud on response to -What was/is the worst thing about this learning pedagogy.*

Figure 9: *Response to - Would you be willing to enroll for another such program if a need arises in your future knowledge development. in Pre-covid and Post Covid*
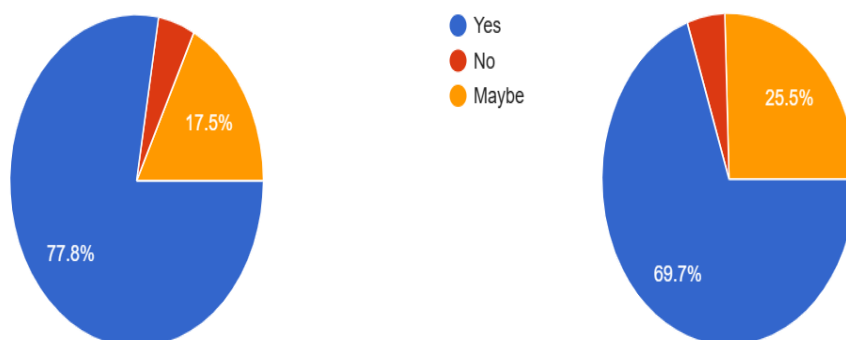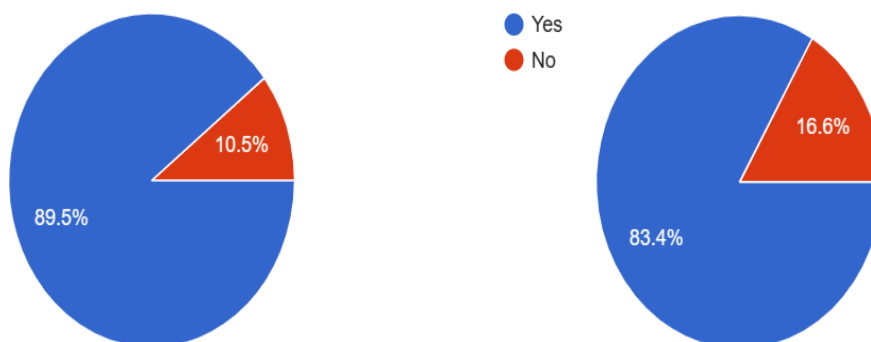

Figure 10: *Response to - Do you think it is beneficial to include digital online learning programs as a part of regular credit system? in PRe-Covid and Post Covid*

Conclusion

MOOCs have changed the learning environment; students are giving more thought to choosing and participating in online courses. Most colleges and universities have incorporated online modules into their curriculum, and each semester includes certain credits so that students can earn certificates and earn credits accordingly. All these courses are freely available or at a very low cost. Assessment-based certificates are also available for various online courses. In this paper, the authors identified different age groups in which undergraduate and graduate students are interested in MOOCs and feel that these courses will be important for them in the future. The authors collected the material based on certain questions based on online education system and certificate evaluations. In this article, the authors analyzed students' perceptions of how these programs are effective for students' careers based on the content delivered.

Reference
1. P. T. Sumaryani Ode Alumu, "Massive Open Online Courses and E-learning in Higher
2. Education," *Indian Journal of Science and Technology,* 2016.
3. S. J. Wieser D, "Online, Not Distance Education: The Merits of Collaborative Learning in Online Education," *The Disruptive power of Online Education, Emerald Publishing,* 2018.
4. B. G. Devesh Lowe, "Asynchronous E-learning in India:A Comparative Study of NPTEL and Spoken Tutorials," *International Journal of Engineering Technology Science and Research,* 2017.
5. D. L. Bhavna Galhotra, "Analysing E-Learning: An Experience with Synchronous Tools," *IJETMAS,* 2017.
6. J. Chauhan, "An overview of MOOCs in India," *International Journal of Computer Trends and Technology,* 2017.
7. K. P. Kanjilal Uma, "The Journey of

Indian Higher Education: Sustainable Development And Acceptance Of Digital Learning Platforms And MOOCS In Pre And Post Covid Scenarios

Section A-Research paper

SWAYAM: India MOOCs Initiative," in *8th Pan-Commonwealth Forum on Open Learning*, 2016.

8. B. A. Mainka C, "E-learning: vision to reality," *Interactive Technology and Smart education,* 2006.

9. M. R. Y. S. R. M. M. a. G. W. Santally, "Enabling continuous improvement in online teaching and learning through e-learning capability and maturity assessment," *Business Process Management Journal,* 2020.

10. S. V. Nisha Faizul, "MOOCs: Changing Trend Towards Open Distance Learning with Special Reference to India," *DESIDOC Journal of Library & Information Technology,* 2015.

11. N. A. Chatterjee P, "Massive open online courses (MOOCs) in education — A case study in Indian context and vision to ubiquitous learning," in *2014 IEEE International Conference on MOOC, Innovation and Technology in Education (MITE)*, 2014.

12. B. N. M. Martin J T, "Academics' e-learning adoption in higher education institutions: a matter of trust," *The Learning Organization,* 2016.

13. M.-A. A. Rodriguez-Ardura I, "Immersive Experiences in Online Higher Education: Virtual Presence and Flow," *The Future of Innovation and Technology in Education: Policies and Practices for Teaching and Learning Excellence (Emerald Studies in Higher Education, Innovation and Technology),,* 2018.

14. K. M. BAder L, "E-learning from a student's view with focus on Global Studies," *Multi cultural Education and Technology Journal,* 2013.

15. F. M. N. Misha Chakraborty, "Strengthening student engagement: what do students want in online courses?," *European Journal of Training and Development.*

16. D. S. Phutela N, "A qualitative study of students perspective on e-learning adoption in India," *Journal of applied research in Higher Education,* 2020.

17. M. M. R. I. M. a. I. M. Sarker, "Use of e-learning at higher educational institutions in Bangladesh: Opportunities and challenges," *Journal of Applied Research in Higher Education,* 2019.

18. L. B, "Temporal experiences of e-learning by distance learners," *Education + Training,* pp. 179-189, Vol 56 No 2/3 2014.

19. H. A. Mehmet Kesim, "A Theoretical Analysis of MOOCS Types From a Perspective of Learning Theories," in *5th world conference on Learning, Teaching and Educational Leadership*, 2019.

20. D. Peterson, "GPS strategies," 30 May 2019. [Online]. Available: https://www.thoughtco.com/the-pros-and-cons-of-moocs-31030. [Accessed Feb 2020].

Eur. Chem. Bull. **2023**, *12(Special Issue 5), 6484 –6492*

6492