

Adaptation to Online Learning amongst Students in Higher Education Institutions

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ABSTRACT

The Covid-19 pandemic has significantly changed the methods of teaching-learning in Higher education institutions (HEIs). The present study explores the transitions in teaching-learning methods and the adaptations of the students for online learning. An online survey was directed to 674 respondents and the statistical analysis of the observations indicate that there was a significant increase in attendance of the online courses and in enrolment of online certificate courses (paired t test, $p < 0.05$). The current study collects data about technical competence before and after pandemic, changes in learning patterns, exposure and availability of the online learning resources, amongst students in HEIs. The observations of the survey indicate that post-pandemic, there is a significant enhancement of technical skills and an increase in usage of the online learning aids (paired t test, $p < 0.05$). The survey evidenced that 50.1% students felt that they have sufficient equipment for online learning. It was observed that students felt anxious or impatient (60.5%), if they could not attend the online sessions due to technical glitches and got distracted. 51.8% of students felt that online lectures are difficult to grasp in comparison to offline class and 68.4% of students were not provided any training for attending online lectures, indicative of a dearth in guidance. The current study emphasises on application of blended learning as an effective learning strategy in future. The results from the current study may aid in implementing and strengthening the National Education Policy (NEP) 2020.

Keywords - Covid-19, Online Teaching-learning, Higher education institutions (HEIs), Blended learning, National Education Policy (NEP).

INTRODUCTION

Most countries around the world had temporarily closed educational institutions to contain the spread of the COVID-19 pandemic in the year 2020. The structure of teaching and learning, including assessment methodologies, was affected by these closures. According to United Nations Educational Scientific and Cultural Organization (UNESCO), 154 crore students were affected globally due to school and university closures because of the COVID-19 outbreak [1]. The education system tried to encounter this challenge by engaging different modes of learning through a combination of technologies. In

India, the pandemic transformed the age-old, traditional chalk-talk teaching methodology to a pattern which is driven by technology. The disruption in the traditional delivery of education has caused the policymakers to figure out mass student engagement while ensuring inclusive e-learning and tackling the digital divide across the country. The tools which are widely being used to boost up the education and learning of the students have been facilitated by web service providers such as Google Classroom, Blackboard, Zoom, Microsoft Teams, Canvas etc. These online platforms are significantly contributing to

the transformation of the mode of imparting education [2].

Online learning is a term that was first used in 1995 when the web-based system 'WebCT' was developed as the first Learning Management System (LMS), which later became Blackboard. In that context, online learning was about using the LMS or uploading text online [3-4]. The Higher Education Institutes (HEIs) were already exposed to the concept of remote learning before the pandemic. However, for many years, Indian universities and colleges were not permitted to offer more than 20 percent of a degree online, partly because of concerns about quality and limited mechanisms for oversight and regulation. Now, to widen access to higher education and raise the profile of Indian institutions globally, restrictions on online learning have been lifted. The government of India is encouraging universities to offer online courses and degrees - a change that could reshape the education delivery in the country [5].

Education can become transformative when teachers and students synthesize information and experiences, critically weigh unique perspectives, and incorporate queries. The education system should encourage students to increase their capacities of analysis, imagination, critical synthesis, creative expression, self-awareness, and clarity in thinking [6].

The current study aims to explore the transitions in teaching-learning methods, challenges faced and the adaptations amongst students in Higher education institutions. The study may help the policy architects and educators in making informed decisions during development of the curriculum in future and its implementation process.

MATERIAL AND METHODS

The present study was conducted as a survey, using google based questionnaire form having a mixture of scaling, open and close-ended questions. The link of the questionnaire with a declaration that the data would be used only for academic and research purposes was circulated online (WhatsApp, telegram, email and other social media sites) for students to fill it up and submit. The data collected during the second half of the year 2020 was used in the study.

Sample Size – A total of 674 respondents from HEIs were considered for this study. The data collected from the respondents were subjected to statistical analysis and the results were recorded and interpreted to draw inferences.

Statistical analysis – The data analysis has been performed using pie charts, bar diagram, cross tabulation, t-test, ANOVA and post-hoc comparisons. The data collected has been statistically analysed and validated used Microsoft excel, and Jamovi software (1.1.9) [7].

RESULTS

Students from diverse fields of arts, science, commerce, management, engineering, medicine, participated in the current study. There were 564 undergraduate and 110 postgraduate respondents for the survey. Among the participants, 519 were female and 155 were male respondents. The age group distribution of the respondents was found to be ranging from 18 - - 23 years.

There is an increased usage of online platforms/virtual classrooms for learning and also a significant increase in enrolment of online certificate courses after the pandemic (Figure 1). The differences were statistically significant (paired t test, $p < 0.05$).

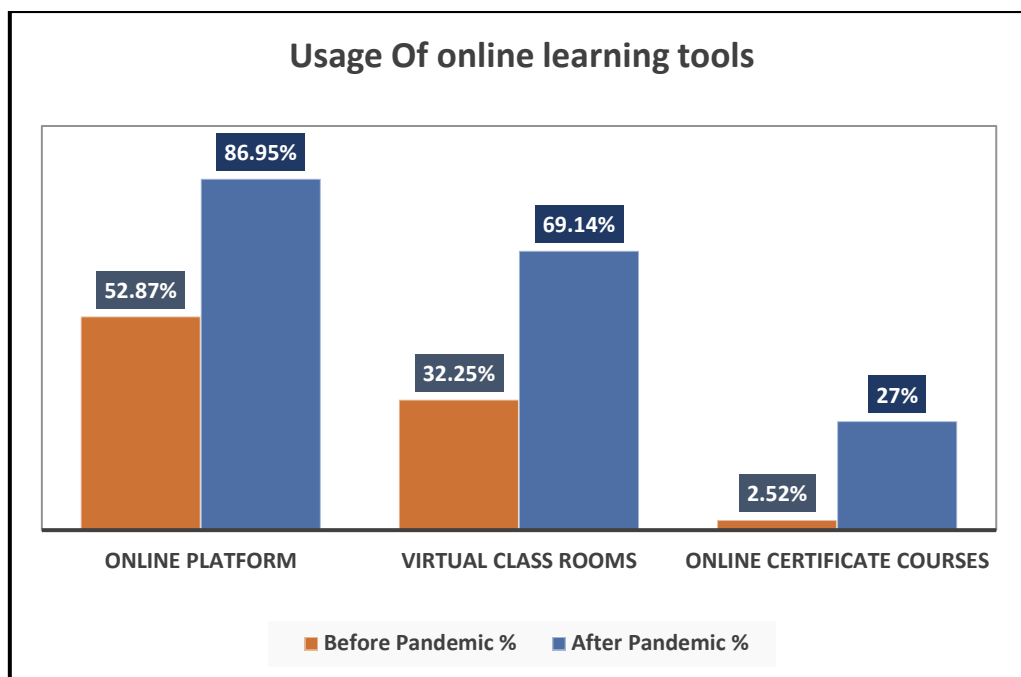


Figure 1: Bar chart indicating percentage of students using online platform, virtual classrooms and online certificate courses before and after Covid-19 pandemic.

In this study, 50.1% of students reported that they are equipped for the transition towards online learning in terms of facilities and equipment available to attend online lectures. The majority of students used mobile data as the source of internet connection compared to Wifi connection. The study highlighted that the technical

skills in learners has improved after the pandemic. Most of the students were not provided with any training to attend the online sessions (Table 1). They learnt the management of various online tools and platforms through YouTube, tutorials and self-reading modes.

Table 1: Facilities available to students for online learning

Facilities available to students for online learning			
Devices used	Mobile (86.6%)	Laptop (41.1%)	Desktop (4.8%)
Internet source	Mobile data (44.9%)	Wifi (24.5%)	Both (30.5%)
Training provided	No (68.4%)	Yes (31.45%)	

It was also observed that 84% students faced technical glitches during the online sessions. The most common reason being poor sound quality (61.27%) and slow internet connection (44.5%). In the current study, 60.5% of the students reported that they felt impatient and anxious due to technical glitches.

The study indicated that the students are adapting to the new pattern of learning from the comfort of their home. However, 42.6% students reported that their home environment was not conducive for online lectures. This was further confirmed when

56.8% students reported facing distractions at home. The survey also evidenced that 57.5% of students were not comfortable switching their video mode on during the online sessions. It was also evident in the current study, that in the virtual learning mode the students were missing direct interaction with their peers (55.1%).

39.7% of students reported less personal attention by the instructor during the online sessions and 70% of students confirmed engaging in different activities during online sessions. Checking messages, eating, receiving calls, sleeping, were the most

common activities that the students engaged in, during the classes. A lack of motivation amongst students to attend online sessions was also indicated in the study, as 31.5% respondents said that they did not feel motivated to attend online sessions. To

determine the parameters which affected online learning, the current survey, scaled the experience of online learning amongst students of HEIs and found that 43% student had satisfactory experience (Figure 2).

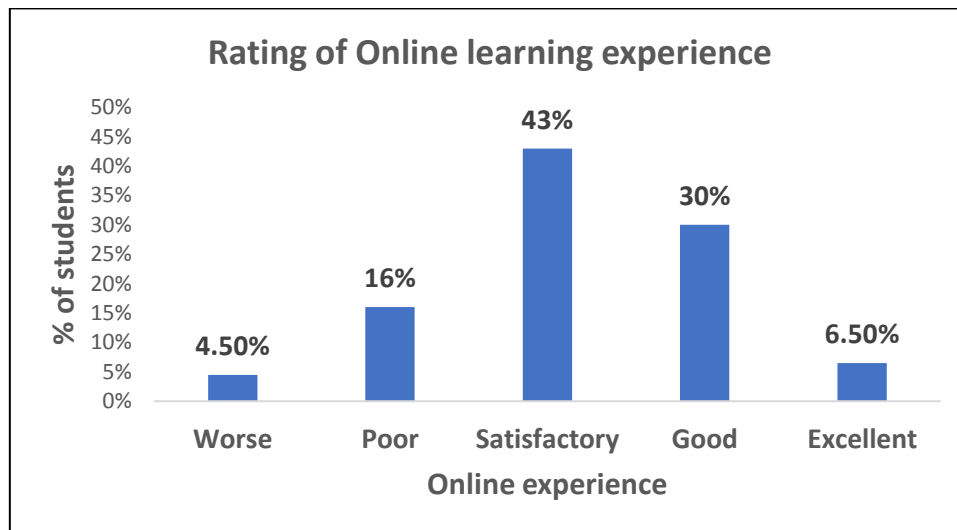


Figure 2: Bar chart scaling the online learning experience of the learners from HEIs.

As per the study, it was found that 80% of students could ask questions and clarify their doubts during the online sessions. Online lectures provide the students with an

option of studying at their own pace and 45.10% of students reported flexible timings as one of the benefits of e-learning (Table 2).

Table 2: Analysis and comparison of attributes affecting online learning

Attributes	Comparison group		Mean difference	P value	Inference
Flexible timings allowed*	Maybe	No	0.429	<0.001	Learning experience was good if timings were flexible
		Yes	-0.316	<0.001	
	No	Yes	-0.746	<0.001	
Type of lectures*	Online live teaching	Recorded teaching	0.241	0.057	Learning experience was good if both live online and recorded lectures were available
	Both	Online live teaching	0.147	<0.001	
		Recorded teaching	0.388	0.201	
Facility to ask doubts #	No	Yes	-5.46	<0.001	Learning experience was good if facility to clarify doubts was available
Personal attention was less received^	Maybe	No	-0.425	<0.001	Learning experience was good if students received attention
		Yes	0.275	0.002	
	No	Yes	0.700	<0.001	
Study environment – distractions faced#	No	Yes	10.0	<0.001	Learning experience was good if there were no distractions

Note – ‘*’ - Tukey’s test, ‘#’ – Independent t-test, ‘^’ - Games-Howell test.

About 27.8% and 10.3% students reported good and excellent technical skills, respectively, before the pandemic whereas

39.3% and 18.3% of students rated their technical skills as good and excellent, respectively, after the pandemic (Figure 3).

In the current study, the improvement in technical skills was statistically significant (paired t test, $p < 0.001$). It was also verified that technical skills were affected by

adequate facilities ($p < 0.001$) but remain unaffected by lack of training (p value, 0.964).

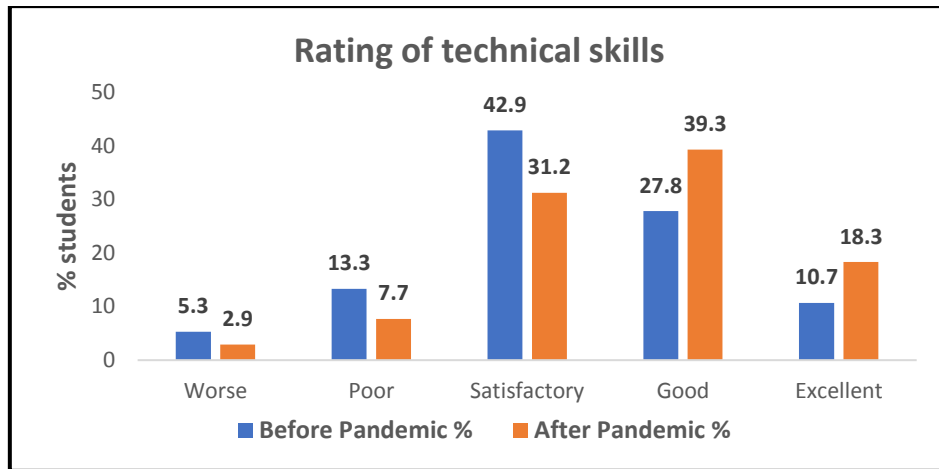


Figure 3: Bar chart scaling the technical skills of the learners from HEIs before and after the Covid-19 pandemic.

51.8% of students did not find online learning more effective in comparison to the traditional offline mode of learning and 44.21% reported that certain topics were difficult to grasp in online mode. The study found that 56.1% of the learners indicated that they would prefer blended learning. 63% students felt that practicals cannot be conducted in online mode.

DISCUSSION

The online education market in India is expected to accelerate. SWAYAM (study webs of active learning for young aspiring minds), an online learning platform run by the Ministry of Human Resource Development, attracted at least 50,000 new subscribers since the announcement of lockdown period in India, effective from March 23rd, 2020 [1]. Similar trends were observed in the current study and transition to online learning after the onset of the pandemic was statistically significant.

However, the students need to have adequate facilities for effective participation in online learning. The current study indicated that mobile was more commonly used in comparison with other devices for e-learning. This was in accordance with the study carried out by Muthuprasad et al. [8], which reports that smart phones were the most commonly used tool to access online

sessions. The study highlighted that the technical skills in learners has improved after the pandemic and they learnt the management of various online tools and platforms through YouTube, tutorials and self-reading modes. However, providing training to students may enhance their learning experience.

Learners faced technical glitches, device compatibility and electricity issues which also disrupted student's e-learning sessions. Similar observations were made in another study by Agarwal and Kaushik [9], wherein they reported technical faults during the conduct of sessions as one of the most frequent factors hindering online learning. These technical glitches may lead to anxiety disorders in the students. This calls for a study evaluating psychological characteristics of e-learners which encompass their learning style, acceptance of technological devices, psychological mechanisms associated with online learning and cognitive aspects related to the learning process. This will help to determine the impact and the outcome of virtual learning on students.

The learners reported that their home environment was not conducive for online

lectures due to distractions at home. Hence, they were not comfortable switching to video mode during the online sessions. They were also missing direct interaction with their peers. These findings were similar to observations made by Jena PK [10], who reported that students feel lonely and are unable to share feelings with peers. The atmosphere of a face-to-face meeting is lost and interpersonal relationship between students and teachers may be getting hampered due to this pattern of learning. As the physical interaction between students and instructor is absent in online interaction, this makes the students feel that they receive less attention. Due to lack of attention and motivation, the students may get involved in other activities. Similar observations were made in another study which stated that the decreasing motivation has made keeping up with academic work more difficult [11].

After the statistical analysis, it was evident that the online learning experience was affected by various parameters like facility to clarify doubts, flexible timings, recorded/live lectures, along with learning environment. The major benefit which was observed was that online recorded lectures provided the students with an option of studying at their own pace and flexible timings. This observation was in accordance with a study carried out by Muthuprasad et al. [8], which reports that students find the option of online class attractive due to its flexibility and convenience. Students also reported remarkable improvement in their technical skills after the onset of the pandemic. These observations were in corroboration with the findings of Jena PK [10], who reported that initially students faced some difficulty in joining online classes but got acquainted later with improvement in required technical skills.

However, the shift from offline to online lectures was difficult to grasp for many students. This re-affirms the belief that blended learning would be the way ahead for teaching-learning in the coming era. The findings are in accordance with a previous

study, which reported that blending learning maintains or increases the access for most student cohorts and produces improved success rates for minority and non-minority students alike [12]. Additionally, all educational institutes need to periodically organize workshops to enhance the use of online learning for students and to improve their experience, as a lack of same has been indicated in the survey. Similar suggestions were also made in another recent study by Gautam & Sharma [13].

Majority of students felt that practicals cannot be conducted in online mode. Hence, it is imperative that in subjects which involve practical, a virtual laboratory should be set-up and training be provided to students to acquaint them with online practical or demonstrations. This will also compensate for the loss of learning of practical aspects to some extent. A similar suggestion was also proposed in another study by Chic et al., on surgical residents. The study said that although there is no substitute for hands-on learning through operative experience and direct patient care, these may be ways to mitigate the loss of learning exposure during this time [14]. The online education market in India was valued at INR 39 billion in 2018 and is expected to reach INR 360.30 billion by 2024 [15]. However, with the implementation of National education policy (NEP) 2020, this growth is expected to accelerate. The National Education Policy 2020, has been formed to improve the country's educational system and to create a blueprint for the future of India. The Indian cabinet approved the National Education Policy on July 29, 2020. The NEP 2020 recommends reforms in elementary, secondary, higher, and technical education in India. National Educational Technology Forum will be established to facilitate open dialogue on how to effectively use technological tools in elementary, secondary, and higher education. This will help in improving teaching, grading, planning, and other aspects of education [16].

CONCLUSION

UNESCO has proposed that it is essential for the policy-makers and practitioners to analyse the past crisis and address the challenges that might appear in the future. National Education Policy 2020, emphasizes the application and integration of technology in school and higher education that will enable India to meet the requirements of quality education in comparison with global standards. A multi-pronged strategy is essential to manage and build a robust Indian education system in the coming decades. This study addressed increasingly important issues of transition to online learning from a student's perspective. The study highlighted the effects of challenging parameters - technical facilities available to students, focus, motivation, student's psyche, and beneficial parameters - timing flexibility, comfort of learning from home, for students. These determinants may form the core of how we can make more effective decisions about future learning patterns. The learners would benefit more if blended learning is adopted as the new pattern of learning. However, in a country like India; it becomes necessary for HEIs to analyse the challenges in this new pattern especially with NEP 2020 getting implemented soon. However, a further in-depth statistical study needs to be undertaken to evaluate the challenges for blended learning confronted by students in rural areas. The results from the current study may aid in implementing and strengthening the National Education Policy (NEP) 2020.

Conflict Of Interest Statement: The authors declare that they have no competing interests with whomsoever.

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