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Challenges and Prospects of Online Learning during and Post Covid-19 Pandemic

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Abstract

The whole country has witnessed a massive change in the functioning at all spheres in the last two years due to Covid-19 pandemic. Education sector and, particularly, higher education in India had never gone through such a transformation which was totally unprepared for. Shifting to online teaching from face-to-face was a natural compulsion at all levels of education. Technical teachers also had to accept this challenge of engaging their students online. Even for the students, this unforeseen change to online learning was filled with several challenges; though some prospects could also be explored. The present study has been undertaken with some crucial objectives; viz. to identify the preference of the students for learning online over conventional learning; to explore the challenges faced in online learning; and to categorise the levels of motivation and confidence of students while studying on virtual platform. Teachers' perception related to quality parameters in online learning was also observed. Though students were excited about using gadgets in learning, they found the traditional/conventional classes more interesting than those conducted online. Blended learning seemed to be the preferred mode of learning by the students. The teachers realised that apart from the cognitive aspect, the affective domain also matters even in higher education.

Keywords: Covid-19; Pandemic; Online learning; Blended learning; Virtual platform

Introduction

The students pursuing higher education, whom we cater to, are digital natives, completely immersed with digital gadgets. These students are born with internet and smartphones and are found to display different characteristics which have not been prevalent in the learners of the previous generation. They are highly attracted by and attached to digital tools. Contrary to this, the teachers addressing these students are all not that tech-savvy, leaving a very few. Hence, there is often found to be a crucial gap in this regard.

Covid-19 has been the most heard/used word in the last few years. It is a global epidemic and has spread around every nook and corner of the world. The Covid-19 pandemic triggered considerable loss of human life in the entire world and has affected us in all aspects of livelihood. Education system has also been severely affected. With the advent of the pandemic, online learning has taken over the entire traditional form of education system into a whole new level. It is also commonly referred to as e-learning. It is basically an education using internet rather than the regular face-to-face (F2F) classroom one. The rapid advancement of technology has led online learning less challenging. Since the Covid-19 outbreak, online learning has emerged pivotal in everyone's lives and has been growing at a rapid pace. The pandemic was a mixed experience for almost the entire human community. All aspects of human life were greatly affected and education happened to be one of those which was remarkably shattered, at least in India. Students, both from school and higher education, had to sit indoors and listen to the teachers viewing them on screen. Both the students and teachers were quite unprepared initially for such an experience. The term online learning, itself came as a big blow to the teachers offering its own challenges and opportunities at the same time.

Online learning refers to a learning environment via internet and other technological tools and devices for synchronous and asynchronous instructional deliveries [1]. Heather and Horn [2] have defined online learning as education where content and instruction are delivered primarily over the Internet. The advantages of online learning have been many, particularly in this period when both students and teachers were forced to stay indoors.

Literature review

Though online education is somewhat new in the context of higher education in India, it is being widely and successfully practiced in the western countries. A brief of the major works carried out at national and international levels is being provided here. The unexpected transition to online learning as a result of Covid-19 pandemic in developing countries has unveiled some disparities and challenges, as well as advantages. One of the immediate courses of action adopted by countries all over the world in countering the spread of the disease involves the complete shutdown of educational institutions, thereby affecting over millions of students globally (according to UNESCO, 2020). As the schools and colleges faced a complete shutdown, teachers had to go for online instruction. Hence, online pedagogy has undoubtedly come as a saviour in such onerous times as reported in [3]. During those days, Mishra et al [4] opined that everyone must learn to survive with the present calamity as it may take a long time to have normal days back. The preparedness of educators in the field of technological skill should be improved as it may augment their pedagogical knowledge as well as content expertise [5]. Institutions must focus on pedagogical issues and emphasise on cooperative and collaborative learning, project-based learning, case study, etc. [6, 7]. There is also a need for the institutions to find suitable educators engaged in innovation, decision-making and management of online learning systems [8].

Several issues are associated with online education but the benefits cannot be ignored. Stern [9] has found that online education is convenient for students, as they can access the materials available online for 24 hours. Technical problems can be solved by prerecording video lectures, checking and analysing the content regularly and keeping an alternate option in case things do not work fine. Hence, students have an availability of material round the clock. This flexibility in time and space in online leaning was reported by Khan et al [10], who also mentioned about easy and rapid share of study material, quick feedback and greater freedom to connect with faculty.

There is less interaction between teacher and students while learning online, students become anxious, teaching activities are also affected; both teachers and students need to adapt [11]. If planned well, online learning can be advantageous at various fronts. It makes education student- centred as students take part in the learning process and teachers act as guides [12]. Hasan et al [13] studies that learners who spend more time on online learning platforms have more self-regulated learning expertise as compared to those who spend less. Not much findings in technical education in India in this sphere have been found, therefore, this study was undertaken.

The current study

Ample studies have been done in the area of education in India during the pandemic and even post Covid-19. However, research in higher education, particularly in technical education, is relatively less in number, that too in the Indian context. The authors, being

members of faculty themselves, had a variety of experience in teaching remotely from home during the period. Students also faced some hassles initially and slowly things started getting on track. Therefore, this study was undertaken with the following objectives:

1. To identify the preference for learning online over conventional learning.
2. To explore the challenges faced by students in learning online.
3. To categorise the levels of motivation and confidence of students while studying on virtual platform.
4. To observe teachers' perception related to quality parameters in online learning.

It was also tried to frame out an alternate preference, as a prospect, for learning based on the responses.

Methodology

This study was done during and just after the colleges started reopening, post pandemic. Respondent students and teachers were from Engineering colleges, i.e., technical education. The study is primarily based on survey method. A five-point rating scale was prepared using google form for the students. The link was shared among the students to which they responded at ease during their leisure hours. This was less time taking as also cost-effective. Further, a good number of responses, more than 400, could be recorded. This convenience sample was a representative of the population as the demographics of the sample matched that of the population The rating scale was initially administered to 35 students for content analysis and finalising the items. The teachers were supplied a structured questionnaire with open-ended questions. Interviews were also made additionally to get a better observation. Descriptive statistics, mainly, percentage, mean, and standard deviation were employed for analysing the data.

Findings and Results

While going for online learning, students preferred more of videos and animations. Muthuprasad et al [14] have already concluded from a recent study in India that students preferred recorded lecture videos. However, a small group (22%) preferred to listen to teachers' talks or lectures being delivered online. Students also rated the teacher's preparation for online classes while choosing their preferences, and, almost half of the respondents felt that the lectures delivered by the teachers online are more structured than those delivered in traditional/ conventional classes. Although in this context, teachers opined that initially, they tried to convert the traditional lecture as it is for an online class. Later on, they tried to accommodate some power point presentations, question answers, besides, trying certain creative approaches too.

More than 50% of the respondents do not prefer to study online more than compared to that in actual classroom with live teacher and students. 71% of the students found the traditional/ conventional classes more interesting than those conducted online. They also reported that understanding the lessons is better while studying in traditional/conventional classes than studying online. Again, a majority opined that they lack the feel of a learning environment while studying on virtual platform. In a F2F mode of classroom, students had a better scope for collaborative learning, immediate access to the teacher and instant feedback on their performance were also possible.

The perception regarding requirements for online classes (teaching-learning) varied among both the groups as can be understood from the table here.

The teachers faced a problem when it came to using more of videos. Firstly, finding a relevant video very much apt for the students was not always possible, and preparing their own videos was again a herculean task for many of them, as reported by the respondent teachers. Some of the teachers said to have prepared even the power-point presentations first-time for the students, hence it was too time consuming. They opined that the need was never felt before to go with power point presentations for lecturing or interacting with students. A majority of the teachers preferred power point presentations while teaching virtually as they were convinced that in case of a power failure, or disruption in connectivity, students, will at least, get to know about the topic and its content by going through the presentations themselves. Moreover, they can look at these, whenever needed and can revisit in case of any confusion/doubt. The teachers however realised that the power point presentations are not much effective so as to be used throughout the lecture hour, they

can be used only at certain instances, like opening or closing of a topic, to display certain graphs, data, diagrams, etc. Some students were reported to have demanded the power-point presentations. Apart from the requirements perceived by the teachers, as can be viewed in Table 1, teachers opined that such requirements being mostly technical, are more challenging for them.

Sl. No.	*Perception of students*	*Perception of teachers*
1	Smart phone/laptop	Smart phone/laptop
2	Internet with good bandwidth	Internet with good bandwidth
3	A quiet place to sit and listen	A room dedicated for the online interaction
4	--	Video lectures
5	--	e-learning resources
6	--	Power point presentations
7	--	Jam board, whiteboard
8	--	Social media like LinkedIn, WhatsApp, etc.
9	--	Feedback mechanism
10	--	More preparation time

Table 1: Requirements for online classes – perception of teachers & students.

The scenario is not much different for the students as they had to struggle for a dedicated device to attend to the online classes. Moreover, getting a quiet place for the academic activities (Table 1) was another big issue. Almost 60% of the students reported that they feel less motivated while studying online. Among the major reasons cited, the top two reasons are as listed here:

- Disengaged lecture; no room for interaction.
- Lack of real feel of classroom as students could not see or talk to one another.

Regarding the feedback received in online classes as compared to that received in traditional/conventional classes, the responses were almost same for the 3 categories of 'agree, disagree and uncertain'; the reason being that feedback was almost missing in both the modes, as reported by more than 80% of the respondents. Teachers, as being suddenly forced to go online, could not think of a robust feedback mechanism. They were found to be using google form or social networks, but these seemed to be inadequate, as reported by them.

Students reported themselves to be quite confident using the devices for attending the online classes, however most of them faced several challenges, some of which are listed here:

- Loss of network connectivity.
- Strain on eyes.
- Typing messages in the chat-box is time-consuming.

Some challenges were common for both the teachers and students, for instance, the network issue - either no network or very unstable; disturbance in the surroundings; lack of adequate infrastructure at home to create an ambience for learning. A major bottleneck in this method of teaching-learning was conducting the laboratory classes. Both the parties felt almost helpless in this regard, initially, as nothing could be done regarding carrying out the experiments in laboratories or even demonstrations. Of late, we have now the virtual labs, much to our respite. Though the virtual labs do not provide a first-hand experience, even then, much of the idea can be gathered by the students trying to connect theory with practical.

Therefore, some teachers who are concerned about quality in the process are too much anxious as to how to make the students feel interested, at least the ones who are confirmed to be attending the class. Some of the indicators of quality at classroom level are reported to be the following as shown in Table 2.

Sl. No.	*Quality indicator*	*Response percent (%)*
1	Classroom interaction – teacher to teacher, student to student	73
2	Student engagement & involvement	69
3	Teacher support & encouragement	65
4	Teacher control	64
5	Physical environment of classroom	60
6	Belongingness, affiliation to peer group, relatedness	31
7	Feeling of success	24
8	Accommodating students' learning preferences	19

Table 2: Quality indicators as responded by teachers.

Out of the 8 indicators cited in Table 2, the teachers opined that classroom interaction in the virtual mode required more structured sessions as compared to the traditional ones. Further, as student engagement posed a major challenge to all teachers across the disciplines, they found that the online lectures needed to incorporate more of videos which could be their own or even the downloaded ones. These needed to be supplemented with more reading materials. The tasks needed to be of smaller duration with inbuilt feedback to the learners. All these factors further brought an apprehension to the teachers who were senior by age.

One of the note-worthy findings is that inspite of all the odds and challenges, majority of the students felt that teachers cannot be replaced by technology. A recent generalized review on the strength, weaknesses, opportunities & challenges (SWOC) of online education in India did not reveal any new paradigm on the learners' perceptions [6]. Though the students feel at ease with technology, the feel of real classroom is actually missing. Moreover, almost 90% of the students agreed to the fact that the presence of teacher, face-to-face in traditional/conventional classes gave them more confidence than that in online. 72% of the students would prefer to study through traditional mode, given a choice, the reasons for this being many, majorly the 'feel of real classroom' being absent in virtual mode. What the students meant by the phrase 'feel of real classroom' was heavily based on the social interaction with the peers and the teachers. A 'sense of belongingness' and the feeling of being 'cared for' are two important parameters that students were always being privileged with in the brick-and-mortar classrooms. It was a great realisation as opined by more than 90% of the teachers that affective domain mattered even in case of grown up boys and girls, apart from the content transfer. As observed by most of the teachers, though some students are always hesitant to speak for several reasons, some never open-up at all, even for such students the social presence of teacher proved to be one of the motivating factors.

Teachers have been found to try newer ways and strategies to involve students in the learning process. They were found to maximize student engagement through feedback mechanism. Going online helped the teachers to provide instant feedback primarily through google forms and messaging in chat box. However, while providing instructions to students, they found it more time taking as some of the students could not understand the written instructions clearly and they had to be explained also. Apart from online meeting platforms, they used whatsapp also.

Teachers were found to be educating themselves regarding use of technology in the instructional processes as they did not have any prior exposure or training in utilizing the gadgets in teaching. Surprisingly, 2% of the teachers, even prepared their recorded videos and shared it on youtube. Through self-learning, a portion of the responding teachers (23%) felt comfortable handling technology. Some teacher respondents had the apprehension of being replaced by technology, but were very much relieved with the observation from their students who came almost as saviours to them. They themselves felt motivated to find that their long years of dedicated service did not go in vain and that they are required by the system to provide that 'humaneness', which cannot be imagined through technology.

Discussions and Recommendations

Though teachers had tried their best and changed to the online mode all of a sudden as also the students, it took a long time of almost two years for the teachers to understand the fact that teaching in virtual mode cannot be done just by replicating the face-to-face interactions in the traditional lectures. Quality of teaching is also a vital element to be considered when it comes to engaging the learners. One of the reasons for poor quality as compared to offline interactions could be the internet speed, as already pointed out by Belson et al [15] that at 105th position, the internet speed in India is amongst the lowest in the world.

The distractions to the students, in online mode, are many and that poses a big challenge to the teachers. A major issue in this regard is the uncertainty of students even being present in the session, since all the students are found to log into the session, but then when they are called for any task, there comes no response from the other side. An obvious reason to this could be the poor network; but, this cannot be a perennial and universal cause.

Teaching on virtual platform also requires planning, but the teachers have to give special consideration to factors like student participation, attention and engagement, content volume, to cite a few. The feeling of being disengaged is something which needs to be seriously tackled. Students, in higher education, cannot be left to just brood over theories mugging up notes in the last minute for the sake of only earning good scores. Unfortunately, in the system of education that we are at the moment following, emphasis is given too much on the scores and pass percentage. It is found that most or almost all of the students study for the sake of assessment and evaluation. It would not be incorrect to say that teachers also focus on ensuring that majority of the students pass their courses without any backlog. Here, it is required to understand that teachers are also much stressed to ensure that there is minimum or no backlog at all; failing, which, they face severe consequences. Unfortunately, the very focus from learning shifts to enabling good scores.

Power point presentations, that the teachers are now quite used to, can be enriched through some embedded videos or activities, where the students can engage themselves in the learning activity. In that way, teachers can use them in more creative and interactive ways. Though the teachers had tried newer ways and strategies for improved student participation in the learning process, they found it difficult to manage time. This was mainly because of two reasons - firstly, they had to invest more time in creating activities and uploading the same, and secondly, the feedback itself had to be explained one-to-one.

However, inspite of the different challenges faced by them, the teachers have nevertheless explored the opportunity of harnessing technology with their own efforts and eagerness. While the unforeseen transition to online teaching having been enforced, most faculty members faced a steep learning curve initially, trying to catch up with the contemporary trend. Kim [16] reported an improvement in the technological skills of teachers and the students.

While online learning is a boon for many learners, several courses, however, are best learnt in offline mode or face-to-face learning environment. Both the teachers and the students have majorly agreed that the two types of learning (online & traditional) should be blended together to get maximum benefits. The practice, wherein both online and in-person learning experiences are involved, is called blended learning. This type of learning takes advantage of the strengths of both traditional classroom and online learning methods so that the learners have a more engaging and fruitful learning experience. The blended approach makes learning more effective by reducing the hours learners spend offline, yet providing them with live interactions. Thus, education system, in its present scenario, has seemingly become more oriented and preferable in such virtual modes. Some academicians prefer to call it a hybrid mode of teaching-learning. Each type has its pros and cons, and a mix of the two would provide a better learning environment. At present, even in our country, we find many models of hybrid learning being tried out at different levels. Online pedagogy will be sustained and education will become more of a hybrid one, as reported by Adedoyin and Soykan [17].

There has been some brighter side too to this kind of remote learning. Some students during the online interactions were very active even in helping the teachers with fixing some of the technical problems. Introvert students, who were otherwise, hesitant to interact in the physical classroom were found to express virtually at least through the chat messages. The humaneness in teaching is also to be considered here. As has been observed in the findings that teachers cannot be replaced by technology, the point is clear now that the

affective domain in teaching is as important as the intellectual skills and cognitive strategies. When teachers connect with students while teaching, the emotional aspect also plays a very important role in learning. The affective part is often missed by teachers and instructors, due to several genuine reasons like syllabus completion, classroom management issues, etc., but it needs to be understood that for holistic learning, all the domains of learning have to be essentially considered.

It is quite evident from the findings that some teachers are yet to be comfortable with handling gadgets during classroom instructions. Though it is quite encouraging to find that teachers have updated themselves through self-learning during the pandemic, many of them expressed their discomfort while integrating technology in teaching. Teachers need to be trained in using technology other than pedagogical knowledge. They can learn from their colleagues also who are more competent in handling technology and electronic gadgets. The respondent teachers reported to have realised that their presence does matter even in the undergraduate level. This also leads to an understanding that teachers need to go prepared and must try to improve their instructions on a continual basis.

Conclusion

With cutting-edge technological resources available and the freedom to direct one's own study schedule, online learning definitely seems to be the future of education. Though some of the students preferred learning online over conventional learning, the challenges faced by them have been common to most of them. As the students found the virtual mode quite fascinating for the first time, the initial motivation among them had been high barring a very few who did not have access to smart phones or any such device. Although blended learning has been the preference as reflected through this study, the picture is not that rosy in our country. There are several places where the internet is yet to reach; and, moreover, we have families where there is only one mobile, or not even a smart phone. A realisation, which all of the teachers must have now, is that integration of technology in teaching is a must. Technology is everywhere now and students feel more comfortable in a technology-enabled learning environment. Even when students enter the world-of- work after passing out, they will have to work with technology, irrespective of whatever capacities they would be involved in. This study will help in designing the online classes in a more befitting manner. Teachers can collaborate to find out the optimum use of technology in order to maximise learning. Teachers need to update themselves not only in the content, but also in the 'hows' of teaching as also integrating that with technology, and, therefore, they should develop themselves through further education & trainings with dedication and sincerity. Teachers can very well explore the options for hybrid learning, as the learners prefer a mix of traditional and virtual modes.

Declaration

The authors have no competing as well as no conflict of interests to declare that are relevant to the content of this manuscript.

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