Mitigating the Challenges of Online Learning and Conduct of Examinations - From Faculty Perspective to Student Satisfaction

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Abstract— This paper aims to explore the effects of imposition of online classes, teaching practices and conduct of examinations on students and faculty alike. The methodologies presented here are the actual practices followed by the faculties while delivering online classes, remote content preparation and distribution, exam guidelines and its implementation during the exams. This paper also explores the exam experience and overall satisfaction from student perspective. Survey was conducted among students in an anonymous way without collecting their identity to gauge their opinion on the way the online classes and exams were conducted. The sample of the study consisted of nearly 142 undergraduate students studying across three engineering colleges. This study finds interesting and mixed conclusions from students. We discuss in brief the challenges faced and how it was overcome by the faculty members and students alike, especially while conducting online examination. Some suggestions have also been made to improve upon not only the online teaching learning processes but also when the pandemic situation normalizes and physical classes would again become the norm.

Keywords— Online classes; online teaching; active learning; COVID-19; student survey; student perception.

JEET Category—**Research.**

I. INTRODUCTION

THERE was a time when online teaching and learning were seen as a futuristic concept and practiced more as a technological demonstration to fulfill certain institutional obligations. The common areas where it was being widely used were limited to content delivery for faculty development programs and for self-learning in a specialized domain.
Barring Coursera and edX platforms, the scale of online teaching was minuscule. But with unprecedented pandemic induced lockdown, things got drastically changed and have led to the practical implementation of online teaching methods at an extraordinary large scale (Naylor & Nyanjom, 2020;

Babinčáková & Bernard, 2020; Pratama & Surahman, 2020; Kavitha & Anitha, 2021). In this context there is a need to understand how teachers and students are responding to the unique transformation at their respective levels.

The strategy for a successful online class lies more in the method of delivery rather than the content itself (Palloff & Pratt, 2013). Active-cooperative learning techniques like flipped classroom and think-pair-share have been discussed in (Jha, 2020) where the importance of a trained faculty has been emphasized. Critical elements like proper course design, activities involving students and the necessary support elements related to online teaching and learning processes have been discussed in (Oliver, 1999). A survey was conducted among teachers in (Saripudin et al., 2020) wherein the familiarities of online teaching tools were examined. In that study, while majority of them agreed that the tools were easy to operate; authors concluded that sufficient preparations by the teachers for conducting online classes were much needed. In literature, various methodologies have been suggested related to active learning techniques in online classes. Learning coefficient has been used to measure the effectiveness of interactive sessions in (Kolhekar et al., 2021). Ultimately, it is the students for whom all these teaching strategies are devised and implemented. So it becomes very indispensable to get the feedback from students. Satisfaction levels of students regarding online classes were found to be moderate in (Simsek et al., 2021). Students' mental health, emotional behavior and previous learning experiences in offline classes greatly influenced the opinion towards online classes (Baltà-Salvador et al., 2021; Platt et al., 2014). Challenges faced by students while preparing and appearing for exams have been discussed in (Simsek et al., 2021; Baltà-Salvador et al., 2021). The psychological aspects of online learning have been discussed in (Gaikwad & Kulkarni, 2021).

Fig. 1. Sample screenshot of Zoom application while students were taking mid-semester exam.

Fig. 2. (color online) Students' response for ease of using online tools for live classes.

This paper investigates the strategies adopted by the faculty members to conduct interactive online classes and examinations. The overall perception of students is also discussed. Students' reactions have been shown in the result section of this paper which was collected through Google forms in an anonymous way. Based on the observations of faculty members and students' feedbacks, some recommendations have been made in the conclusion section of this paper to further enhance the teaching learning experiences in current scenario and beyond.

II. Methodology

In a sense, concept of distance learning has been truly adopted in the present scenario with the migration to online platforms. Higher education had the potential to go online earlier also but it lagged the momentum required due to the hesitance that it will not be effective. Due to the pandemic situation arising out of Covid-19, there was no option other than overcoming the reluctance to use the technology extensively. This transformation has not been so smooth. It all started with a simple step like sharing the soft copy of the course presentation with students, which otherwise would have been presented to them in a regular class. This was followed by the conduct of live online classes using Zoom application. Initially there were many problems, for example, making students aware of the software, ensuring that they remain present throughout the lecture hour, etc. With the use of technology, there is more openness in the content delivery also. These contents can be accessed in real time by the Quality Assessment team of the institute. Those materials can be shared to the concerned students anytime with minimal costs involved.

For an online activity to succeed, it is very important that the students remain engaged throughout the duration of that activity (Williams et al., 2018). To achieve this, questions were asked in the middle of the sessions and students were supposed to answer either orally or using chat box.

Apart from flipped classroom technique (Bishop & Verleger, 2013) wherein students were asked to come prepared after going through certain videos, they were also engaged in real time. Students were pre notified and made to get acquainted through the online applications so that they don't feel any technical problems during live classes. For learning management system, Canvas was used to deliver write ups and assignments. The recorded lectures were also made available for the benefit of especially those who missed out live classes due to any reason.

As per extant government directions to contain pandemic situation, the mid-term examinations were also conducted online facilitated by visual monitoring of students through online Zoom application. Students were assigned to different rooms within the Zoom application window for proper monitoring by an individual faculty assigned to a particular room. Clear instructions and rubrics were given for the online exams. They were asked to position themselves and arrange the accessories in such a way that they are visible online during exams as can be seen from the figure 1.

For collecting students' views and to gauge their perceptions regarding online classes, a Google form containing questionnaires were circulated among them. To keep the feedback process free of any external influence, students' identification data were not collected. This form was circulated among 190 engineering students studying in undergraduate courses in three different engineering colleges out of which 142 responded. The students belonged to a mix of 2nd, 3rd and final year courses. Some of the feedback questions that were asked are: "Is it easy for you to use online tools for live classes, Were you satisfied with the way of explanation in online classes, Did you feel involved in class, Your overall satisfaction with this online class, Which mode will you prefer in the upcoming semester, etc.

There were many challenges in conducting online classes and exams. The most prominent was the slow internet speed faced by the students. Since students were at different geographical locations, connectivity was the main issue. Although all students possessed smartphones, many of them were not apt enough for long hour studies due to the lack of suitable screen sizes. In some cases absence of personal computer facilities was also a concern. To ensure minimal effects on students on account of lack of proper facilities, self-explanatory hand-outs were provided to them.

For faculty, taking up numerical topics in online mode posed a significant challenge. While in normal blackboard environment, teacher has the flexibility to interact with students and steer them to the desired outcomes, there is no such level of flexibility in online mode. This was overcome to

a certain extent by randomly asking students (pointedly by their roll numbers) to spell out the next steps in that particular problem solving process. This also ensured active participation from them. Also, there were instances where students just logged in to the online classes for attendance but moved away from the system while classes were in progress. To minimize such instances, questions were asked through chat box directed at a particular student.

III. RESULT

Before the start of online activities and exams, it was ascertained that all students have suitable resources and their technical queries were answered to their satisfaction. Students were also contacted privately to know their problems. For their enthusiasm, many of them were acknowledged for their promptness during online activities.

Figure 2-6 shows the student survey data extracted from the Google form. Figure 2 shows the response of students related to how convenient they were at using the online tools for the live classes. Before start of the online class, students were made aware of the features of online tools to be used during the semester. Some of them had to take regular guidance from others to be comfortable with the system. Figure 3 gives insight into the extent to which internet connectivity was an issue with the students. While signal problem is the dominant

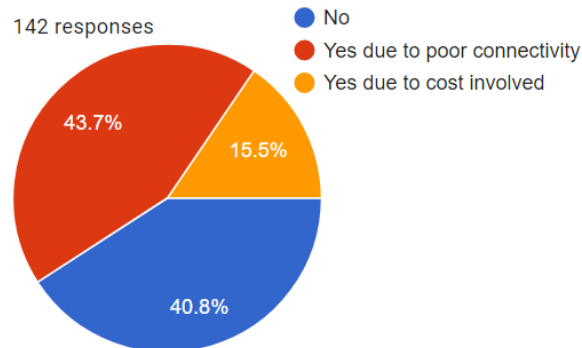**Any issue with the internet facility?**

Fig. 3. (color online) Students' feedback highlighting internet issues during live online classes. Although internet facility is within the reach of every student, its speed remains a matter of concern for attending live classes.

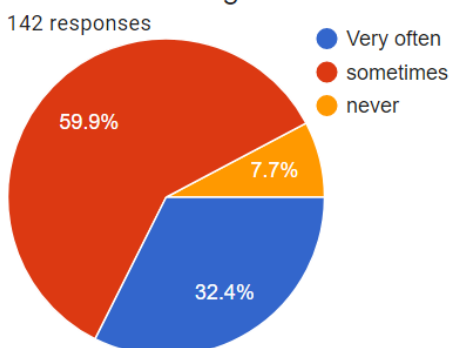**Did the faculty ask you questions in chat box during the class?**

Fig. 4. (color online) Students' response that highlights the use of chat box as an interactive measure for student engagement.
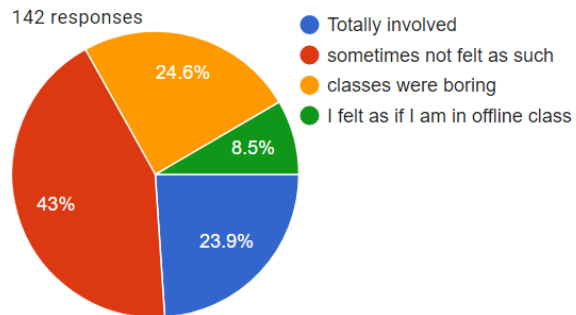
Did you feel involved in class?

Fig. 5. (color online) Students' response when asked about their involvement in online classes. It included active participation in activities as and when initiated by the faculty. Getting students immersed in online classes is a challenging task especially when there are at least four back to back live classes of an hour each totaling four continuous hours.

Which mode will you prefer for the upcoming semester?
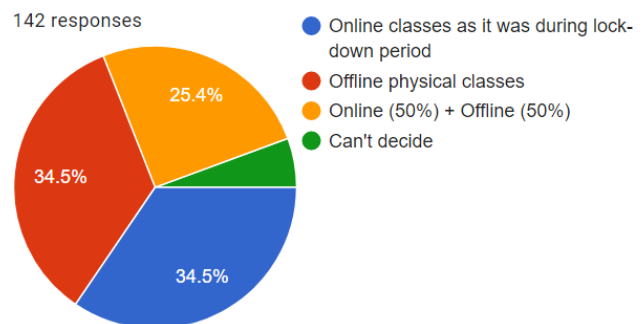

Fig. 6. (color online) Students' response when asked about their preference for mode of conduct of classes for the upcoming semester. Inclination towards some form of online component has been preferred by 34.5% + 25.4% = 59.9% students while 34.5% were in favour of offline physical classes.
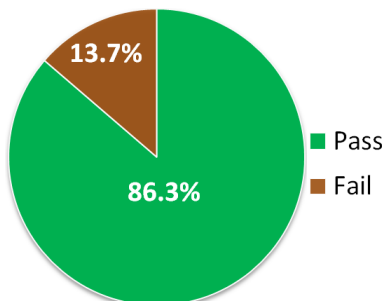

Fig. 7. (color online) Students' performance in terms of results. Out of a total of 190 students, 164 (86.3%) of them passed in the subjects the authors taught in online mode.

one, some did have economic concern. Figure 4 shows the student response related to chat box query by the faculty. Student involvement in class is very important for improvement of critical thinking and skill enhancement. Figure 5 shows the students' response when asked about their involvement in class. Through student engagement, course outcomes can be easily attained. Getting students to concentrate and participate in the online activities is a challenging task. Some of the techniques employed to mitigate this challenge were: students were encouraged to ask doubt, some of the presentation slides were made dynamic, and anecdotes were given while explaining certain concepts.

TABLE I
SOME OF THE STUDENTS' DESCRIPTIVE FEEDBACK FOR ONLINE CLASSES IN
THEIR OWN WORDS

Advantages of online classes	Disadvantages of online classes
We can explore more in our leisure time that means after completion of online classes, we can study further in internet. If offline classes are conducted, we feel tired after completion of college daily.	Cost of internet, health issues. Increasing eyesight problems with frequent headaches, Laziness increased.
Travelling expenses were reduced.	You can't pay attention. Direct interaction is better than indirect interaction.
In present pandemic situation all the students and faculty are safe because of these online classes.	Main problem is sometimes if the server is down and there is no net so we can't listen to class and also at home we can't keep interest in listening to class.
We can listen to the class from anywhere.	Lack of interest and understanding. Missing Practical study.
Self-Paced Learning.	I missed the way of explanation which I used to love in offline classes.

Figure 6 shows the preference of students for the mode of class which they wish for the upcoming semester. It is interesting to see that the percentage in favour of offline physical classes and online classes are same. But when we take a closer look at the survey result, the preference of online class is more once the overall percentage is calculated by adding the online components 34.5% + 25.4% = 59.9%. The logic for online preference can be further deciphered by looking at Table 1 where feedback related to advantages and disadvantages of online classes in students' own words have been summarized. The impact on students' performance in terms of examination results is indicated in figure 7. While regular classes and mid-semester examinations were conducted online, the end-semester examinations were conducted in offline pen & paper mode. This result analysis on students' performance takes into account mid as well as end semester exams both. With a pass percentage of 86.3%, it may be recognized that the challenges of online teaching & learning processes can be overcome with suitable and consistent efforts, some of which have been discussed earlier in this paper.

IV. CONCLUSION

In conclusion it can be inferred that though students faced certain problems in online classes, majority are in favour of retaining some online component for the conduct of classes. From student feedback it is observed that the preference for online classes are mainly due to the prevailing pandemic situation and it's time-saving also as commuting time to college is saved and that can be utilized for other skill development activities. Also, students can watch the recorded lectures. At the same time they also rued the online classes as there is little scope of peer interaction, continuous use of devices lead to health concerns like eyesight problem etc.

From faculty perspective it has been a challenging exercise to provide students a sense of offline experience in online mode. It takes a lot of efforts to conduct online classes effectively. Through proper planning and student engagement initiatives, online activities can be smoothly conducted and thereby course outcomes can be realized.

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