Student Survey Regarding On-Line Classes During and Post Covid-19 Period

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***Abstract-** The whole world will have a portion of the syllabus for online classes even in the post COVID situation. Since it is a drastic change in education system, a survey was conducted to know the opinion about online classes from the students. This paper will highlight the behaviour of learning process of class room and online teaching from the student's point of view. It is based on online teaching and tests conducted during last three months. It shows the student standpoint of view and also the future of education scenario in post COVID -19 periods. The survey was conducted by considering about 10 important parameters of online teaching. This paper also shows the comparison of marks of class room test and online test for the same subject for same students. It points the need for some drastic change that are required to make online classes more effective during and post COVID scenario.*

I. INTRODUCTION

Education system is a process in which there will be uninterrupted flow of knowledge and technology from the person who is having it (the teacher), to the person who is having the desire and capability of receiving its (the student).The age old chalk and board system ruled the world for more than 200 years. But in the past 30 years, drastic changes have taken place. Chalk and board gave way to white board and ink pen. The advantage was dustless class room. Then was the time of overhead projector. It was having the advantage that the teacher was able to prepare sketches prior to class and use the same over the years. Then was the time of computer and LCD projector. It is still in use and is having the advantage of preparing and storing all works as power point presentation. It is also capable of showing working of machines and others in the form of video or animations. After that came smart board. It is having the advantage of simultaneously giving a lecture for students sitting in different class rooms of the same campus. Finally, mobile based class room education was half way through. In this system, each student can view and store the materials of the lecture. But COVID-19 gave a drastic turn to education system. It is now online almost at every place in the world. Hence a survey was conducted for comparing class room teaching and online classes. In view of this, this paper will highlight the behavior of learning process from the student's point of view and also indicate the future of education scenario in post COVID -19 periods. It also shows the comparison between performances of class room test and online test for the same students. Methodology adopted will explain the procedure in detail.

II. METHODOLOGY

A. The method of class room teaching just before COVID lock down

Class room teaching was done using LCD projector for this subject. The subject is ELEMENTS OF MECHANICAL ENGINEERING. The syllabus is in accordance with National Board of Accreditation, India. The course outcomes are written for the whole syllabus and all wordings are according to Bloom's taxonomy. The subject consists of four units which are made equal from the point of view of difficulty in understanding and also in terms of marks allotment in question paper. Two and a half units were covered before COVID lock down. One class room test was conducted and evaluated.

B. The method of online teaching during COVID lock down

Remaining one and a half units were covered by online classes, for the same students by the same teacher. For online class, different online services like were used. To make the students to understand the concept better, many video tutorials were done as supporting

materials for the necessary portions by the same teacher and were uploaded for the students to access.

C. The method of conducting tests

Question papers for both the tests were prepared identically by considering Bloom's taxonomy. Levels and course outcomes were indicated against each question. Question papers were having ten objectives of multiple choices with four options each. Each objective was having half mark each, totalling to five marks. Then there were five questions of five marks each and with one choice, totalling to 20 marks. In total, tests were for 25 marks. Test duration for both class room and online tests was 60 minutes. For online test, additional 20 minutes were given for the students to take photograph of each sheet, convert it in to a single pdf and finally to upload to Google class. Each students were asked to write their names and put signatures in all the sheets before taking photographs. Valuation of online test was done by the teacher by online only and the marks were awarded in the same manner as class room test

D. The method used for conducting the survey.

Ten important parameters in the form of question to students were selected for the survey. Also, an average mark of the same students during the class room teaching is compared with that of the online test after the online teaching. The parameters are:-
1. Understanding ability between online and class room teaching.
2. Convenience of learning between online and class room teaching.
3. Best advantages of online teaching from student perspective.
4. Most common disadvantages of online teaching from student perspective.
5. Effectiveness of online teaching for practical.
6. Need of laboratory.
7. 7. During and post COVID situation, portions to be covered with online classes.
8. Promotion without exam during COVID.
9. Effectiveness of video tutorials as supporting material along with online class.
10. Regarding the change in syllabus during or post COVID situation.

The survey form was sent to the students for expressing their opinion by filling the appropriate answers. There were objective type questions with single selection and multiple check box selections. About 24 hours' time was given for them to think and answer.

III.   RESULTS AND DISCUSSION

The following graphs in the form of figures are the results of the survey. The discussion for each parameter is done along with the results.
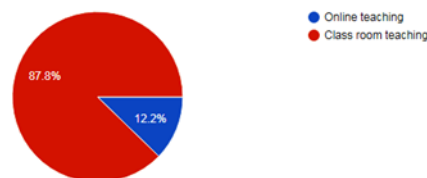

Figure 1.Effective understanding through online class.

Nearly 88 percent of the students are of the opinion that class room teaching is a better method than actually understand the concept. About 12 percent of them are saying that they can understand better in online class. This depends upon their capability to hear and concentrate on online class.
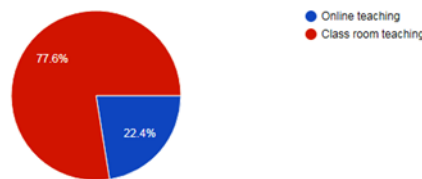

Figure 2. Convenience about online class

Obviously, about 78 % of the students are finding online classes more convenient for them, as they can sit at ease at home and take online class. This will avoid their long distance travel every day.

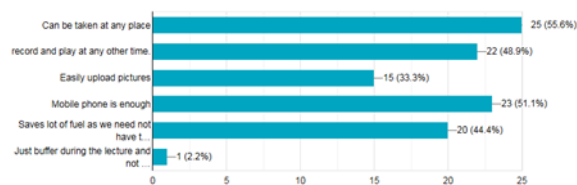3)The following are the best advantages of online teaching.

Figure 3. Advantages about online class

About 56 % of the students are highlighting that it can be taken at any place. Also, just a mobile phone with net connectivity is enough as pointed by about 51 %. About 2 % express that it acts just as buffer in addition to class room teaching.

Note: all percentages added will not be 100 % because this is multiple check box type questions.

4)The following are the most common disadvantages of online teaching.

Figure 4. Disadvantages about online class.

About 88 % have pointed out that internet connectivity is the main problem. Nearly 67 % say audio problems. Mainly, 35 % are not having internet connectivity. 53 % are expressing that interaction with the teacher is difficult. 40 % of the students are finding difficulty in uploading pictures for the given assignment, due to slow internet speeds.

Note: all percentages added will not be 100 percent because this is multiple check box type questions.
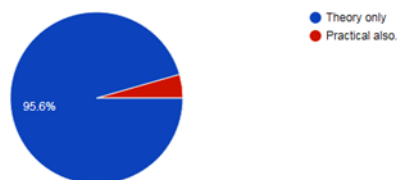
5) Online class is good for _____.

Figure 5. Suitability online class

This is extremely important result, as about 96 % have said that online class is suitable for theory and not for practical. This is further supported by the opinion to next question. Next question is about effectiveness of online classes for practical.

Result from figure-6 is the eye opener for those who want to do online classes. For practical knowledge, physical visit to the laboratory is a must, according to about 80 % of the students. Here we can give them laboratory video tutorials but still it will be less effective compared to actually seeing the equipments.

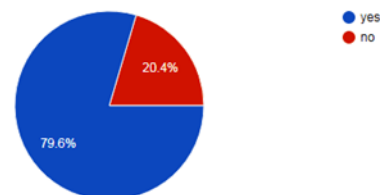6) Laboratory visit is a must for practical classes.

Figure 6.Ineffectiveness for practical classes.

7) During Covid and post Covid situation, what percentage of syllabus you want to be covered with online classes?
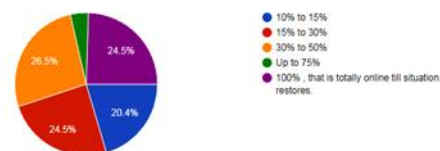

Figure 7. Modification of the syllabus.

Syllabus has to be altered to suit the online classes. About 25 % say that totally new structuring of the syllabus is required. But about 25 % each say that partial change from 10 % up to 50 % is required. The 75 % change is not supported by many students, as they have supported complete change.

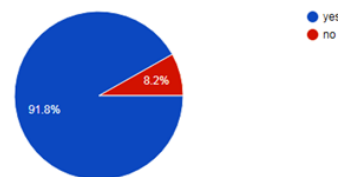8) Do you want to get promoted without examinations?

Figure 8. Promotion without examination.

About 92 % say that during COVID, they should be promoted without conducting regular class room examination, as the students are likely to be exposed to COVID. Also, in that kind of atmosphere, they cannot write the examination to the fullest of their actual ability.
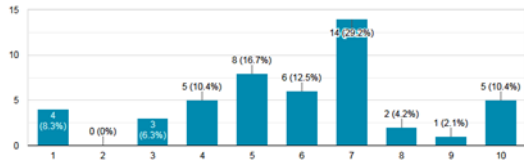

Figure 9. Effectiveness of video tutorials.

Many portions of the online classes will be supported by video tutorials in which there will be no interaction. But the student can accesses the uploaded content any number of times at any convenient time. About 30 % say that it is 70 % effective, given along with online classes.

Note: all percentages added will not be 100 % because this is multiple check box type questions.
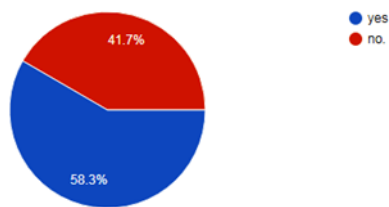

Figure 10. Change of syllabus for online class.

This is for a temporary scheduling of syllabus, for which about 59 % percent say that it is required.

This is in view that some educational institutions are planning to conduct *three slots in a day, each with four hour duration for separate batches of students*. This is to avoid crowding and to maintain social distancing among students.
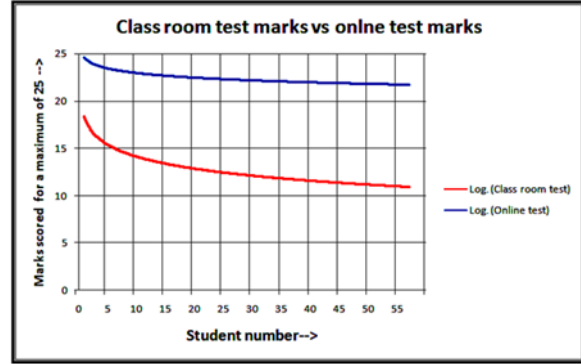

Figure 11. Marks comparison class test v/s online test.

Class room test and online tests were conducted for the same students for same subject and similar portions. Normal valuation was done for class room test and Online valuation was done for online test.

The graph shows log average of trend line of the marks rather than point to point line joining individual marks. It is very clear that performance of online test is much better compared to class room test. It also indicates that the merit ranking of the students remain same for both the tests. That is, the student who was scoring more marks still maintains the same rank but marks of each student is better compared to his/her marks of class room test.

CONCLUSION

- The important conclusions drawn from the above results and discussions are:
- If we improve net connectivity, online class is also good during or post COVID situations.
- Practical class should be done in regular laboratories only.
- All students are to be provided with net accessibility, along with better equipments.
- Students will score more marks for the same type of questions written in same duration.
- Performance of students improves significantly in online tests.

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