

# TEACHING LEARNING METHODS' SHIFT AND ITS IMPACT DURING PANDEMIC

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**Abstract:** The entire instructive framework from rudimentary to tertiary level has been imploded during the lockdown time of the novel Covid 2019 (COVID-19) in India as well as the entire world. This investigation is a depiction of online learning modes implemented by the Thakur College of Engineering and Technology for the measurement of learning and examination assessments. It anticipates a mentally enhanced chance for additional future scholastic dynamic during any affliction. The planned motivation behind this paper looks to address the necessary essentialities of internet/online instructing in training in the midst of the pandemic and how might existing assets of instructive foundations adequately change formal schooling into online schooling with the assistance of virtual classes and other significant online devices in this constantly moving instructive scene. The paper utilizes both quantitative and subjective way to deal with study the impression of instructors and understudies on web based educating learning modes and furthermore featured the execution cycle of web based educating learning modes. The estimation of this paper is to draw an all encompassing image of progressing

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based instructing learning exercises during the lockdown time frame including building up the linkage between change the executives interaction and internet instructing learning measure in training framework in the

midst of the pandemic flare-up in order to beat the persevering scholastic aggravation and thus guarantee the resumption of instructive exercises and talks as an ordinary course of method in the schooling framework.

**Keywords:** Covid 19; Pandemic; Online Teaching; Teaching Learning Methods

## 1. INTRODUCTION

The COVID-19 has resulted in educational institutions to be shut all across the world. Globally every learner is out of the classroom and learning in a different way instead of regular chalk and board learning method. Due to this learning method used in educational institutions has changed dramatically and there is rise of e-learning, where the teaching learning process is carried on digital platforms[6]. World wide there are billions of children who are affected by the closure of educational institutions and these children are responding to their respective teachers online. From the past one year students are learning online and many of us are wondering if the online learning will persist even after the pandemic is over. There is a section of people who believe that the online learning provides poor user experience whereas the other section of people believe that this new model of learning will provide significant benefits. The integration of information technology in education sector will become a core component of teaching learning process. It is indicated that online learning has benefitted the students.

The online teaching learning process is not only affecting the students but the teachers as well. Teachers prepare the subjects and now also have to train themselves to carry out the teaching process in online method that is digital teaching process. In order to teach students on online platforms, the teachers have to create digital content.

## **2. RELATED WORK**

Since March 2020 the educational institutions were closed due to outbreak of pandemic. The teaching learning process is to be carried out on digital platforms and it was necessary to find a strategy to achieve this. In order to implement teaching learning process in online mode, it is essential to identify the platforms through which it can be achieved. Many educational institutions are using Zoom app or Google meet to conduct teaching learning process in online mode. Once the platform is selected then the process can start, but in order to conduct the lectures on the digital platforms it is necessary for the faculty to generate digital content. Digital content means creating ppt, notes, videos through which lecture can be conducted in online mode[3]. There were some teachers who could utilize the technology very easily and could make the content. There were some teachers who could not use the digital platforms and had to train themselves first and then teach the students.

## **3. PROPOSED MODEL**

The teaching learning process is to be implemented through digital platform and for that Zoom application is being used. The timetable is being followed as it is done for offline teaching method. According to the schedule the faculty and students will join the session and the lecture will be conducted. Screen share option is available through which faculty can display the slides. If the faculty wants to solve some numericals or want to draw some diagrams then whiteboard can be utilised. Evaluation of the students can be done through digital platforms as well. The students are asked to share their screen and can demonstrate the work done by them.

The faculty will be creating their e-content and that should be made available to the students. For providing the e-

content to the students one platform can be used and that is Google classroom. The faculty will upload the e-content on Google classroom and that can be accessed by the students. The faculty can give assignments to the students as well and once it is submitted by the students the faculty can assess the assignment and give grades accordingly.

## **4. CHALLENGES IN PROPOSED MODEL**

### **4.1 Student Authentication**

In academic terms, authentication is a means of ensuring that the student receiving the grade is the person doing the work. It was found that some students tried to join online class using others credential to hide their identity and for doing mischievous activity. Sometimes students use their nick names and join the online class making it difficult for identification. Students don't login with their roll no as well making authentication more difficult.

### **4.2 POOR NETWORK**

It might happen that students or the faculty may be at their native place so they faced poor network problem and because of that they often got disconnected in between the online lecture. Those residing in cities also faced the network problem. Sometimes there were issues with machines or with the internet[14].

### **4.3 Learners may feel isolated and disconnected**

When many students are present in one class it is difficult for faculty-student interaction. When online teaching is being conducted students from two divisions are merged and the total no. of students increased in one class due to this faculty is not able to have one to one interaction with the students as was possible in classroom teaching method.

### **4.4 Monitoring the Attentiveness & Concentration of the Student during the lecture**

During the online learning process it is difficult to monitor the attentiveness of each student since total number of students are more in the class. Students will feel that no one is there to watch them and they can take the advantage of it. During the lecture they may be busy with some other

activity and may not pay attention to the lecture and it is not possible for the faculty to check each and every student.

#### 4.5 Difficulty to teach mathematical subject

It is very difficult to teach subject such as Maths in online mode without face to face interaction. The numericals which are to be solved are difficult to understand because for the next step the previous step should be in front of the students. Various formulas are required for solution. It becomes difficult to solve a numerical on the white screen since the area is very small and it has to be erased to solve the next one.

#### 4.6 Online Practical Session is Monotonous

The students normally have the tendency to use and share each other's experiment write-ups and now since the teaching process is carried out in online mode the teachers are not able to monitor the students on one on one basis and there is more Possibility that the students will copy the experiment's without performing as nobody is available to monitor at home.

#### 4.7 Lack of resources

It is not possible that everyone will have devices such as laptops, desktops, internet. It may happen that there is only device in a family and now since all work is done in online mode the family members may be sharing the same device and not possible for everyone to be available online otherwise the mobile device is to be utilized but conducting lecture through mobile becomes a bit difficult.

#### 4.8 E content

In order to understand the topic it is essential to read it first, for reading purpose the content should be available. Material is available online but it becomes difficult to understand what should be referred. E-books are also available but not for every subject, the entire book is not visible, downloading is also a problem because nowadays various sign up are required. In order to study and understand contents or resources are very essential.

### SOLUTIONS FOR THE CHALLENGES FACED IN PROPOSED MODEL

#### 4.9 Student Authentication:

As per Fig 1. The authentication profiles allow hosts to restrict meeting participants and webinar attendees to logged-in users only and even further restrict it to Zoom users whose email address uses a certain domain. This can be useful if you want to restrict your participant list to verified users, or users from a certain organization.

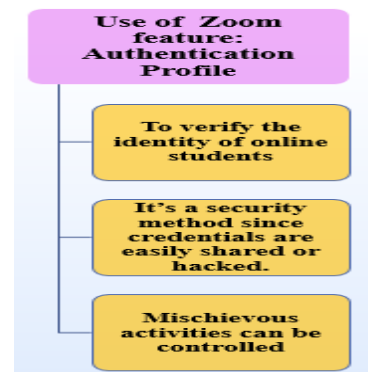


Fig 1. Student Authentication

Procedure for Student Authentication:

Only allow authenticated users to join a meeting or webinar

1. Sign in to the Zoom web portal.
2. Schedule a meeting or webinar.
3. Under Meeting Options or Webinar Options, click Only authenticated users can join.

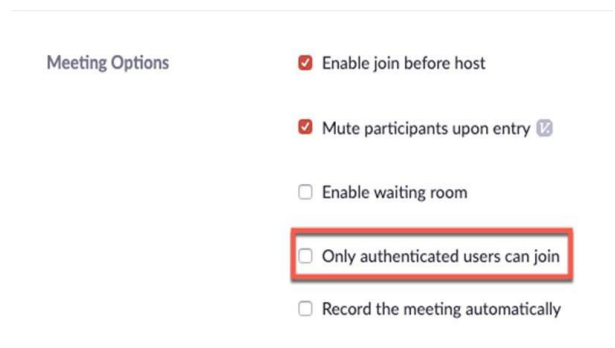


Fig 2. Option for Authentication

4. If there are multiple Authentication Profiles configured, you can choose the authentication profile from the dropdown.

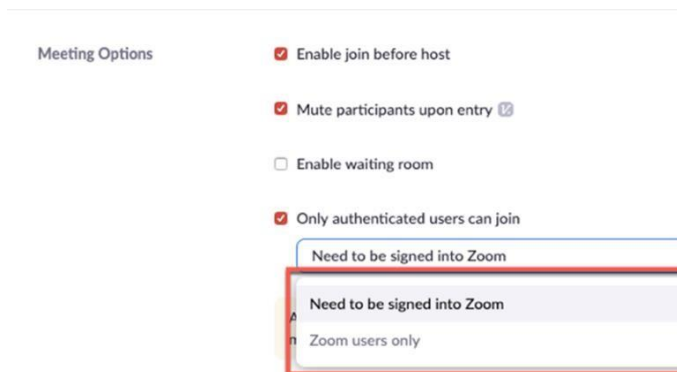


Fig 3. Selecting authenticated profile

5. If User wants Specific Domain that setting also can be done

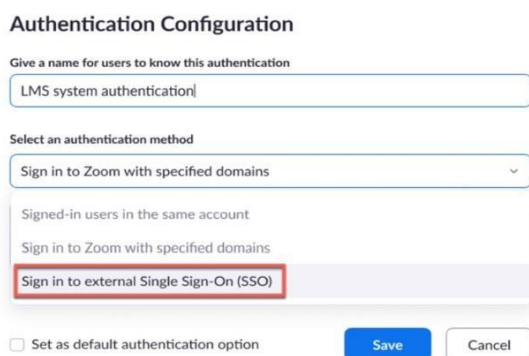


Fig 4. Domain setting

#### 4.10 Poor Network

Due to poor network connections students were missing the online lectures and were not able to learn or understand the subject efficiently. A solution for this is that they can refer recorded lectures or e-content that is prepared by faculty members or can contact faculty through whatsapp or through phone call. Website or ERP can be referred since the content is uploaded there as well as depicted in Fig 5.

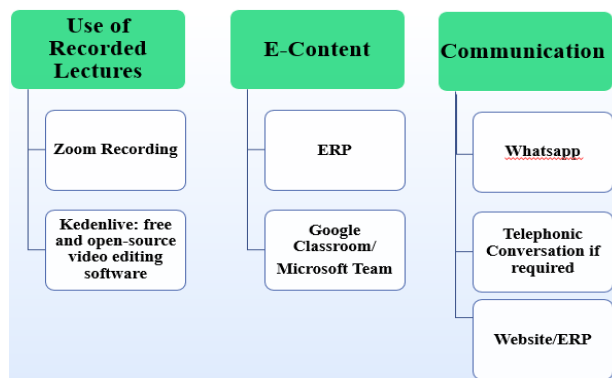


Fig 5. Sources of data availability

#### 4.11 Learners may feel isolated and disconnected

In order to make sure that all the students are attentive during the lecture various tools can be utilized by faculty members. Zoom, Google classroom, hangout are being utilized. To make sure that students understand the topic faculty can utilize polls or quizzes technique Fig 6.

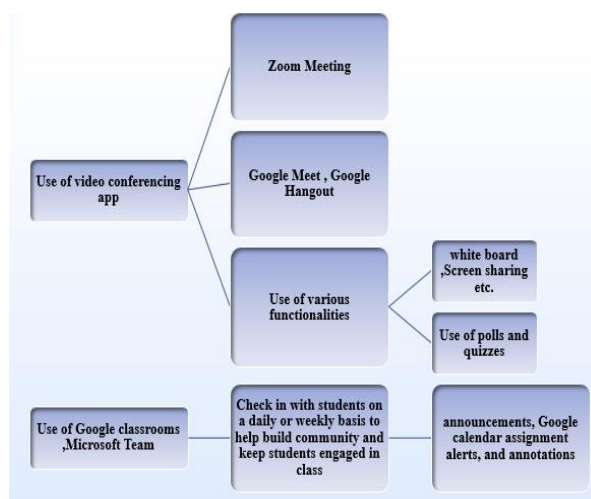


Fig 6. Student assessment

A breakout technique can be utilized where faculty can divide students into small group and can have one to one interaction with them.

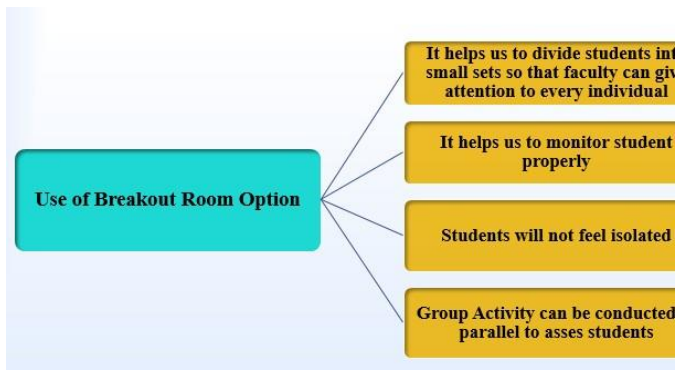


Fig 7. Student breakout

Procedure:

1) In setting go to in meeting ( Advanced) and enable breakout room

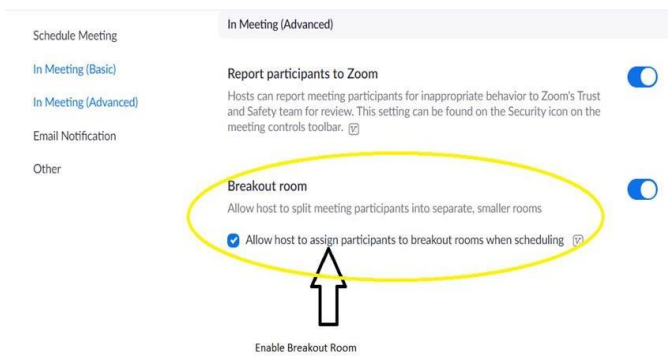


Fig 8. Student breakout option

2) Host can also pre assign the participant or when schedule a meeting or can be done when meeting is started ( both automatically and dynamically ) Fig 8.

2a) Pre assigning the participant can be done while scheduling of meeting

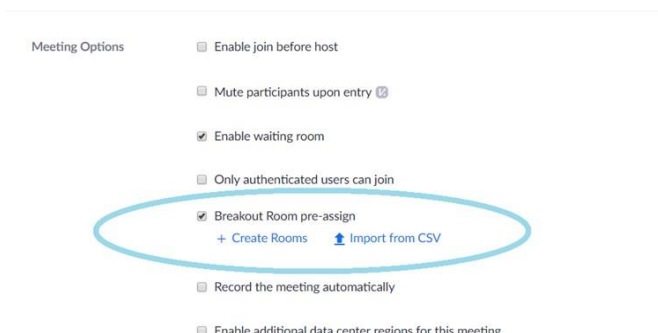
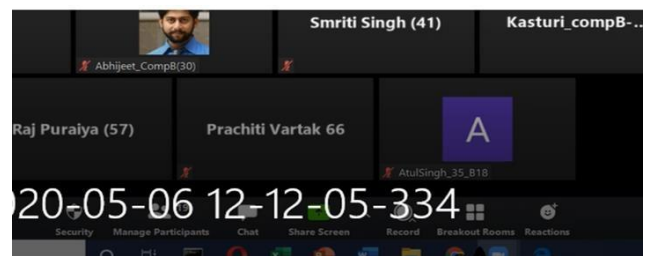


Fig 9. Breakout room pre-assign

Format for uploading CSV file:

Pre-assign Room Name	Email Address
room1	test1@xxx.com
room1	test2@xxx.com
room2	test3@xxx.com
room2	test4@xxx.com
room3	test5@xxx.com
room3	test6@xxx.com

2b) for automatically or manually assigning the room it can be done once meeting is started and host chose the option class breakout .



breakoutroom option

Fig 10. Breakout room option

#### 4.12 Monitoring the Attentiveness & Concentration of the Student during the lecture

In order to make sure that all the students are concentrating during the lecture various tools can be utilized by faculty members. Google forms can be used to take quiz, online puzzle maker tool can be used to create puzzles. To make sure that students understand the topic faculty can utilize polls or quizzes technique as per Fig 11.

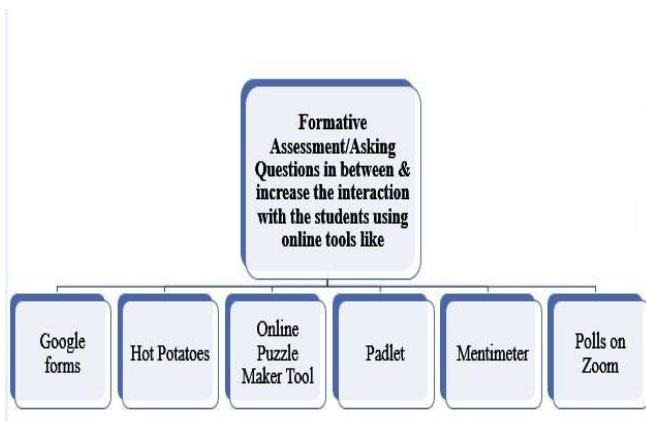


Fig 11. Student assessment techniques

#### 4.13 Difficulty to teach mathematical subject

In online teaching method it is difficult to teach mathematical subject but there are various tools through which it is possible to teach mathematics subject easily. The tools that can be used for teaching mathematical subject are:

- Virtual Whiteboard
- Digi-pad
- Pen Tablet
- Capacitive touch stylus

#### 4.14 Online Practical is Monotonous

The students normally have the tendency to use and share each others experiment write-ups and the online practical may become monotonous but there are certain tools through which this can be avoided.

There are simulators through which the experiment can be simulated. It is a software or system to provide a realistic imitation of the controls and operation. It is the recreation of a real world process in controlled environment. Users can implement the techniques learned in the virtual environment.

Different methods that can be used for conduction of practical are:

- Videos
- Simulators
- 

#### Virtual Labs

The Top Free and Open Source Simulation Software:

OpenModelica, OpenSimulator, Logisim, Opensim, GNS3, ns-3, Simul8

Apart from Simulators, virtual labs can be used. The virtual labs provide remote-access to Labs in various disciplines of Science and Engineering. This method to conduct experiments by motivating students and increase their curiosity. This would help them in learning basic and advanced concepts through remote experimentation. To provide a complete Learning Management System around the Virtual Labs where the students can utilize the various tools for learning, including additional web-resources, video-lectures, animated demonstrations and self evaluation. It allows to share costly equipment and resources, which on the other hand are available to limited number of users due to constraints on time and geographical distances.

#### 4.15 Lack of resources

All the students may not have devices such as laptops, desktops, internet. In order to solve this problem and to make sure that it does not hamper the learning process, mobile editors can be used. Coding on a mobile device lets you adopt a rapid and iterative development process where you can quickly test out ideas even when you're away from your beefy desktop. For the installation Playstore is to be utilized[10].

Some examples of free code editors for Android are:

DroidEdit, Quoda Code Editor, Codeanywhere, AIDE — Android IDE — Java, C++, CppDroid — C/C++ IDE, 920 Text Editor, WebMaster's HTML Editor Lite

#### 4.16 E content

E content is made available to students so that it becomes easy for them to understand the subject. The students need

not search here and there instead can utilize the time and study through e content. The E content is uploaded on ERP by Faculty members and it can easily be downloaded by students and similarly it is uploaded on Google classroom as well.

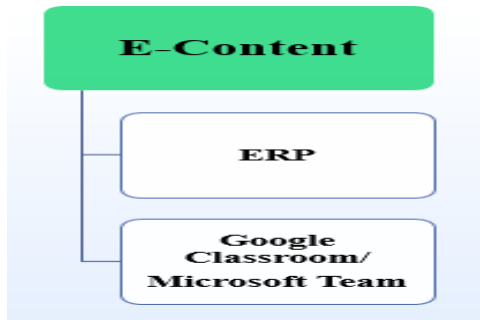


Fig 12. E-content

## 6. IMPLEMENTATION OUTCOME

The online learning process was carried out through zoom application. As we have time-table for the offline learning method, a time-table was created for the online teaching methods as well. The faculty members and the students were joining their respective sessions according to the schedule and the lectures as well as practicals were conducted. The e-content was created by the faculty and were shared with the students. The faculty uploaded the e-content on Google classroom as well as the ERP system. The practical sessions were conducted and the student had to do the implementation and upload the results. In order to evaluate the students weekly tests were conducted in form of written test or mcq. The evaluation method that was followed was graded evaluation and once the tests were over, the students were able to see their grades. The faculty were checking individual students assignment and then were giving the grades.

The impact for teaching learning can be seen in following Analysis:

Students were asked the following few questions related to the present online classes

What was the major challenges faced in attending online courses?

1 Which gadgets are used for online classes?

2 Which platform they prefer for assessment and evaluation?

3 How effective practical are in online mode?

4 How was attendance noted in the online classes?

5 What was the duration of lecture preferred by students?

## 7. Results

1. Majority of students were using mobile network as they didn't have wifi at home so major challenge was network connectivity for students of rural India.

2. Most of the students were using Mobile at the start of pandemic .However, many parents bought a laptop for study from home.

3 Students preferred online assessment and evaluation on google classroom. To add into, they had an advantage of appearing for exam from home during pandemic.

4 Practical was effectively conducted for programming language as online compilers and open source frame work was a saviour.

5 Attendance was recorded while registering for meeting of licensed zoom version. Every time student get logged out of meeting they need to re-register to enter the meeting so it was effective.

6. The lecture duration preferred was of 1 hour as the attention span was there only for that duration.

7. Many students future plan has been affected due to COVID-19

8. Many students deferred their admission abroad due to uncertainty of pandemic in foreign countries.

## **8. THE ADVANTAGES OF PROPOSED MODEL**

### **8.1 Self Learning**

Due to the implementation of proposed model, the students got more number of hours for self learning activity that is self study time. Previously the students used to point out that they don't get sufficient time for studying but now once the lectures were over they got time for studying and in order to assess their knowledge or understanding of the subject weekly tests were conducted.

### **8.2 Participation in different activities**

There are various activities in which a student can take part and enhance their knowledge and experience. When the students were asked to participate in different activities always there was a reason that there is time constraint. Now due to implementation of proposed model they have enough time and can participate in activities. The activities that are conducted are project competition, quiz competitions, coding competitions, paper presentation etc. and through this the students can improve their skill set, knowledge, and experience.

## **9. CONCLUSION AND FUTURE SCOPE**

The pandemic that started from 2020 caused by the COVID-19 disease is leaving everlasting consequences in society. It has affected various sectors including the education field. The way the teaching learning process is carried out has changed 360 degrees. Now instead of traditional face to face chalk and board method, the teaching process has to be carried out on digital platforms across the globe. The faculty as well as the students must adapt to the new evolving method. The faculty plays a crucial role, since they have to adapt to the digital platform and make the students adapt to this as well.

As we are facing the pandemic situation, how online teaching is carried out on digital platforms is described here. In this situation as the normal teaching methodology cannot be followed and it is necessary to maintain social distancing online teaching method is a boon for all. As it has pros there are cons as well and we need to adapt to both. In order to make digital learning more effective, attention is to be paid to cons as well and need to find solutions for them. The pandemic has reshaped expectancies of better education— however it's additionally created an possibility for establishments to boost up their virtual transformation. By offering extra wellness resources, profession help, and flexibility, universities can force believe and help their students' wishes within side the new normal.

## **10. REVIEWERS AND JUDGES COMMENTS**

The paper was presented and after the presentation the following questions were asked by the Reviewers and Judges:

1. Was the cloud system incorporated during practical sessions?
2. In the online mode for teaching learning process, did you come across any misconduct and how was it rectified?

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