A Digital Transformation in Teaching and Learning (T&L) Platform: A COVID-19 Perspective

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Abstract
During the pandemic situation by the severe spread of COVID-19, it is important to know that all the study resources are still available for each student. Lucky for us, more institutions are quickly moving these study resources online, including hosting more online classes. As most of the countries go on Lockdown, in-person classes are being cancelled to avoid the spread of COVID-19, and students are required to stay home and move towards digital learning platforms available for online learning. Online Teaching and Learning (OTL) platforms are a great resource for learning new career skills from the comfort of your own home and pretty much anywhere in the world. All you need is your laptop or phone with internet connectivity, and you are ready to learn. Our paper covers all-immersive electronic learning models (Web-enabled, and based on software) in which the content is, however, a fact represented using multimedia and hypermedia for its advantages and disadvantages.

Keywords: COVID-19, digital transformation, web-enabled interactive models, e-learning, online teaching and learning tools, virtual classroom

INTRODUCTION
Director-General World Health Organisation (WHO), on 30th January 2020, stated, "As per the advice of International Health Regulations (IHR) Emergency Committee the outbreak of novel coronavirus (2019-nCoV) lead to a Public Health Emergency of International Concern (PHEIC)". Nine thousand seven hundred twenty confirmed cases and 213 deaths have been reported in China on 31st January 2020. The epicentre of the outbreak was initially in Wuhan City, Hubei province, but was rapidly extended not only to China country but also outside China in 19 countries with a total of 106 confirmed cases. They were found most with the travel history of China.On 30th January 2020, India has confirmed its first case in Kerala. After that, most of the steps taken by Central as well as State governments to control the virus. 22nd March 2020, Hon'ble PM of India Mr. Narendra Modi called for "Janta Curfew." That time India having 360 cases confirmed in a total of 23 states with seven death. All the commercial activity has been abandoned till 31st March 2020 except essential services such as hospitals, telecom, pharmacy, provision stores by exercising the powers under section 6(2)(i) of the Disaster Management Act, 2005, issued an order for State/UTs prescribing Lockdown (restrictive access due to security measures) for restricting COVID-19 epidemic in the country 21 days with from 25th March 2020 which is also known as Lockdown 1.0. Due to this pandemic and Lockdown, all the activity, including education services, has been closed in Lockdown 1.0. With the increasing cases, Lockdown was extended till 31st May 2020 in different phases like Lockdown 2, Lockdown 3, and Lockdown 4. The education sector has also shut down temporarily. But COVID 19 has presented challenges and opportunities both (Usak, 2020; Yan, 2020). The major challenges are:

- Students can not have access to the school and their teachers because of their own alienation and social gap patterns for instructional consultation.
- Government to find innovative alternatives for continuing the education of students away from schools and colleges.

The opportunity provided by COVID19 is:
Research has indicated that COVID-19 could be a gateway to digital learning that would include the use of the OTL platform in India (Mulenga & Marban, 2020).

E-learning (Toquero, 2020) has emerged as an innovative option in the current COVID-19 era and beyond due to the increase in the need for learning models for institutions like schools, colleges (Bao, 2020; Basilaia, 2020; Naciri et al., 2020). Thus, the introduction of the E-learning and smart revision portal will lead to opportunities for the use of mobile devices like smartphones and tablets in accessing lessons. The central, as well as the state-level government, have encouraged and provided support for online education. Various schools and colleges in the country are now providing online classes to help and support students to continue their educations from the comfort and ease of their homes. Online learning is an umbrella term under which various online classes, webinars, virtual programs which are further expended to web meeting (Sun & Chen, 2016). The meaning of e-learning is to facilitate the usage of the network for providing proper interaction, facilitation, and delivery. The various mediums of e-learning are as follows:

- Distributed learning: It means usage of various multimedia methodology for teaching purpose
- Distance learning: It means teaching is conducted by correspondence without the need for school and college.

The term CBT in e-learning stands for Computer-Based Training, which is provided over the computer. It is:

- Computer-based: It means teaching is conducted over an online medium such as laptops, smartphones, etc.
- Synchronous /Asynchronous: Communication between presenters and students can be a single way or duplex.
- Instructor-based: The teaching methodology is totally dependent on the choice of instructor.

### Webinar

"Interactions made possible by the Internet have caused us to re-examine our concept of community: It is now possible for individuals physically separated by continents and oceans to come together and 'sit around the electronic campfire' to discuss topics that bind them together as a community" (Tavani, 2004, p. 286). The term webinar originates from the word "web-seminar." Web-seminar stands for the conference, meeting, or training done utilizing the Internet. The main idea behind this is to connect the people who are geographically remote from each by just clicking a link which is provided by the person who has scheduled the meeting and joins an online venue to connect like a classroom (Cook, 2019). Webinar provider facilitated recording, sound, and image connectivity. The presenter during webinar used any software provided in the market, which is user friendly and effective. This software has various interactive options, like Question & Answer section, polls, and chat room (discussion forum) for the participants to share their ideas and quarries. The presenter can share the required information to the participants and use the whiteboard as a writing area. The main objective of the webinar is to bring people together for:

- Information sharing,
- Lecture, update, or discussion, on some common topics.

The majority of the organizations state that webinars are the most important part of their marketing techniques during this lockdown period. The formats for
webinar-session delivery are as follows:
- Presenter vs. Multiple participants (from one site)
- Presenter vs. Multiple participants (from multiple sites)
- Multiple participants from one site vs. multiple participants (from one or multiple sites)

**Virtual Classroom**

A virtual classroom is a place where people meet live to learn different things by allowing people of different locations to interact with each other and the help and engage in various learning activities. The "Virtual classroom" simulates the classroom environment (participants can communicate, see, download, and upload the Teaching Learning Material (TLM)) (Anand, 2019). The virtual classroom also includes slides for a presentation, chatbox for sharing text, web camera for view, and whiteboard for writing. Webinars and virtual classrooms are the emerging technology which uses very frequently in this pandemic period. There are various software available that is user-friendly, free/economical, with low memory capacity, and easy to learn. Some of the webinar & virtual classroom (not limited to) software are as follow:

- **VEDAMO:** A virtual classroom and learning management system for a successful online tutorial.
- **BigBlueButton:** It is a free software web conferencing system for GNU/Linux servers.
- **WebinarJam:** It is a cloud-based broadcasting technology.
- **Demio:** It provides a simple, no-download webinar platform.
- **Adobe Connect:** It is a software for
  i. Remote training
  ii. Web conferencing
  iii. Presentation and desktop sharing.
- **Zoho Meeting:** It is a secure online meeting platform and webinar solution.
- **Cisco Webex:** It is a web conferencing and videoconferencing application.
- **Zoom:** This platform provides
  i. Videotelephony and online chat services (using a cloud-based peer-to-peer software platform)
  ii. Teleconferencing, telecommuting, distance education, and social relations.
- **Google Classroom:** Google has developed a free web service known as Google classroom. It is used in schools to simplify creating, distributing, and grading assignments.
- **Google Meet and Jamboard:** The video communication service made by google is google meet. It is a replacement for Google Hangouts, and Jamboard is an interactive whiteboard developed by google.

**System Design and Modelling of Virtual Classroom**

The design of the system is described using data flow diagrams (DFD). The user validation module is illustrated in Fig 1, where the users are at the top in the hierarchy, and the remaining three different categories of the user (i.e., system administrator, lecturer, and student) are all the same-level process.
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The DFD showing the information exchange between the lecturer and user module is illustrated in Figure 2.

The DFD illustrating information exchange at the student user level is shown in Figure 3. The diagram contains:
Technology that fuels apps like Google Meet, Google Handout, Facebook Messenger

The answer is "WebRTC," a Real-time communication for the web; it is a free open-source project, which is basically a collection of APIs (Application Programming Interfaces) that allows direct inter-browser communication. In simple words, you do not need a server here to communicate with the other client. The direct communication between browsers facilitates a real-time exchange of information with ultra-low latency or ultra-low delay. If we try to use servers for such information exchange, there will be a noticeable delay. Though small but they are sufficient to derail concepts like online classrooms, multiplayer gaming, video calling, voice calls, etc. WebRTC constantly sends data; it does not worry about whether the other client is receiving the entire data or not, which means that there could be some data loss too. Hence this can be used for things like video chatting where you can lose a few frames without being noticed. The issue occurs in the case of file sharing, where even a little loss of data could be troublesome (MyOwnConference, 2019).

Types of APIs

There are mainly three types of APIs which are as follow:

- Media Stream
- RTCPeerConnection
- RTCDataChannel

Media Stream

It helps in accessing the webcam and audio of the system. This is done using the getUserMedia () method of a navigator. When we call the getUserMedia () method, the permission pop up appears on the screen asking for the camera and microphone access explicitly. The method takes three parameters, out of one, which are constraints. This parameter controls the content of the media stream, i.e., media type, resolution, frame rate, etc. There are different
constraint objects for different resolutions; therefore, the resolution that appears on the screen depends on the constraint object being passes as the parameter (Bruce, 2017).

**RTCPeerConnection**

It is all about making a connection to the peer. The captured media stream of audio and video from getUserMedia () is sent to the other client, who receives it as a new media stream on their peer connection, which can be viewed on their video element. Both the clients get their data using the getUserMedia () method, which they further forward it to the other one with the help of this connection (Agarana, 2016).

*How is this connection created?*

We use abstract signalling, to set up a peer-to-peer connection, clients need to exchange session description objects. After they do so, direct communication is possible. Note that we do need servers to do this task initially. The two servers are Session Traversal Utilities for NAT (STUN), and Traversal Using Relays around NAT (TURN). Before going into detail about them, we will learn about Network address translation (NAT).

**NAT:** In an organization where there is an innumerable number of devices that use the Internet, it does not have a public IP address. Private IP addresses are assigned to each of them, which means they cannot access the Internet. The Internet can only be accessed by devices with public IP addresses. The router has a connection to the Internet with a public IP. The NAT in the router helps a device on the internal network to use the public IP address to access the Internet.

![Fig 4: RTCPeerConnection working](image)

**STUN Server:** Like NAT, in the case of peer-to-peer connection, the two browsers cannot communicate with each other unless they possess public IP addresses. The client can ask STUN servers their public IP addresses, and after receiving them, one of the clients conduct an attempt to set up the connection. If everything goes right, the information can be exchanged directly. A Server will not be needed anymore.

**TURN Server:** The addresses acquired by the STUN server may not be put into use by all the clients. In such cases of peer-to-peer communication failure, the TURN server provides a cloud fallback. It ensures that the peer call works in all environments. The only problem here is the operational cost. It takes resources into use and hence advised to use only when there are no options left.
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Internet Communications Engine (ICE) Framework: What if we create a way that uses the STUN server for every call that it can handle and uses the TURN server for remaining calls. Thus, we can say that the ICE framework finds the most suitable path for each call.

RTCDataChannel
It is a bi-directional communication of data between peers with no noticeable delays or low latency. There are two modes, Reliable and Unreliable. Reliable mode guarantees the correct sequence of data with no loss. At the same time, Unreliable mode's only objective is to send data as fast as possible without worrying about little data loss that occurs on the way (What Is a Webinar, 2020).

```javascript
var clientConnection = new RTCClientConnection();
var informationChannel = clientConnection.createDataChannel("my channel", {reliable: true});
```

In the first line, we set up a peer-to-peer connection, and after that, we use `createDataChannel()` method to create an RTCDataChannel for letting the media streams to flow both the directions without further much ado. The reliability is passed as true, which means the data transfer is reliable, but with noticeable delays, when passed false, the data transfer is unreliable with low latency. To send any data to the other client, you just need to call the `send()` method that sends data across the data channel to the remote peer.

Other API's used for meetings during COVID19
WEBEX Meet
The foundation of the Webex application, at the time of its possession by cisco, was MediaTone network. Shaun Bryant, a Webex chief architect, had designed this network along with the help of Zaid Ali, sir, a network architect. Webex meets originally named as cisco Webex is a collection of instruments created for personal and corporate collaborations. Webex is delivered as a Software as a service (SaaS) through the web; we do know that SaaS can be very helpful, especially when you have such a large amount of media exchanges going on. SaaS troubleshoots problems of purchasing servers, maintenance management, support, etc. It reduces the workload and so the investment. It makes Webex highly scalable, so even if tomorrow we see an escalation in the number of users, there will not be a need to worry. The working will remain well ordered. Organizations can easily dilate web usage to other people, locations without a lot to do. The Cisco collaboration cloud is a purpose-oriented worldwide carrier-grade network, a network with infrastructure that has very high reliability, is meant to convey only Webex media streams? The cloud provides us fault-tolerant, smooth and scalable service. It also provides safety, security, and speed over any sort of communications. If we talk about security, there are excellent encryption options that Webex provides. Encryption of every type of media occurs during communication. We also have ended to End (E2E) encryption options available when we need to have a high level of security. Note that in case of E2E encryption, the media is not even decrypted by the Webex servers that is why end to end. In case of normal communication, when a client sends media streams to another client, they first go to the Server. The decryption of media streams takes place after they travel through the Server's firewall and is re-encrypted before sending it to the other client.

Tech stack:
The many technologies on which Webex is built are Lodash, Webpack, Amazon Web Services (AWS), Amazon CloudFront, Amazon s3 (Amazon
simple storage service), Tiger Prism (Business Intelligence for unified communication)

**Lodash:** It is a utility module that establishes a collection of methods that executes common functions that are reusable. It helps programmers write short and maintainable Javascript code.

**AWS:** A leading, highly secure cloud service platform. It contains a vast collection of servers and a large storage capacity. Cisco and AWS collaboration, makes it possible for developers to now develop new applications faster. They can now develop in the cloud and deploy it in the AWS or in the local servers.

**Amazon Cloudfront:** It is a Content Delivery Network (CDN) service that aids Webex. CDN is a content delivery network that accelerates internet content delivery. Let us say there is a site whose Server is in India. Now, if somebody from Australia tries to access this site, it will take too long to bear. CDN solves this problem; see whenever there is a request to access this site, the content is first fetched by the CDN service and distributed all around the world. So, when next time a person from Australia tries to access the content, it is delivered to him from the nearest Server (Ahrens et al., 2016). Now Amazon Cloudfront is a worldwide network of data centers and is integrated with AWS. Its infrastructure and process provide a wide range of standards that checks the transfer of highly sensitive data. Amazon Cloudfront CDN service helps Webex exchange information worldwide. 10s of millions of users now reach out to the data in almost no time.

**Zoom**

It is a video communications company that provides services like video conferencing and online chat services. It is a SaaS that comes up with a smooth, free platform for virtual collaboration. People use it for various purposes like online classes, distance education, video chats, and telework. Zoom, just like Webex meet, and others have cloud-based computing as its backbone for offering such services to its users. As per the reports of CNBC, Zoom had 17 data centers by 18th March 2020. Zoom has also integrated with two leading cloud service providers, i.e., AWS and Microsoft Azure, to boost up its capacity. Zoom also provides facilities like Recording session screen sharing and whiteboard sharing facilities (Lee, 2017). The most interesting part is that Zoom can also directly be used from our own websites. Zoom APIs and software development kit (SDK) can be used for integrating Zoom into the websites, which means now we can have Zoom meetings using our own site. You do not need to switch to the Zoom app or to their website. The Representational State Transfer (REST) APIs and JavaScript (JS) APIs are the ones that help us integrate Zoom into our website, whereas Mobile SDK helps to enable Zoom into our mobile apps, i.e., for Android and iOS devices for now. We can manage user meetings and reports. We can also create or delete users as well as meetings. It also provides us the feature of making reports on those. Although we can use Zoom directly from our site, there will always appear a Zoom logo on the top left corner for branding purposes. We cannot remove this logo anyhow.

**REST APIs**

It allows us to create any sort of web application having any of the operations like create, delete, update, or retrieve. REST recommends us to use a specific HyperText Transfer Protocol (HTTP) method for servers’ calls. In Zoom, our browser interacts with servers using HTTP post calls, and this happens in
cases like filling out a form and clicking the submit button, creating a user, creating a meeting or a report, etc. That kind thing travels to our Web servers, which further create an API call to the Zoom server. The returned information will traverse back from the Zoom server to our Web front end (Ferriman, 2019).

**Fig 5: REST APIs Zoom Server**

**JS APIs**

It is very similar to the REST APIs; the right-hand side (see fig. 9) is almost the same as the REST APIs ZOOM server (see fig. 8). The only difference is that now we will be making a JS call first, which will do the remaining work.

**Fig 6: JS APIs ZOOM Server**

**Advantage of T&L**

With the fast-growing development of internet and the world wide web (www) education system is hugely benefitted and in this pandemic situation webinars and e-learning are making a huge impact on educations to help faculty and student both to make communication and complete their study work in time and making available all study resources needed. Coursera, Massive Open Online Courses (MOOC), edX, Udemy, Unacademy, Byju's, and MITx are the popular Online Education Initiatives that provide online courses for different levels and fields, which can be used by students and faculty to enhance their skills. The prime intension is to let the online learning (e-learning) experience more flexible, simulating, and easy usage at different places and people by utilizing facilities provided by the Internet. The students or participants can, first, freely navigate inside the virtual classroom environment, and second, Improve the resources of information. Students can ask questions and give answers through a chat window. In a chat window or discussion forum, students can interact in real-time with the instructor and other participants. It also improves the skills of using technology in the right way to save time and perform their task by using limited resources. The major advantages of educational resources, existing educational structures, and the educational system are explained below:

- Educational resources → Do cost-effectiveness
- Existing educational structures → Improves quality
- Educational system → Enhances the capacity

The availability of the OTL platform helps many universities to complete their sessions within a specified time so that it does not make much effect for upcoming sessions (Lee, 2017). Another feature of online teaching software is, the sharing of screen and application, which facilitates the participants or students to see anything that the presenter has currently displayed on the screen. It allows conducting polls and surveys. For future use, the
presentations can be recorded. It enables to display of Multimedia files, Digital Video Camera, and Full Motion Webcam. So, we can say that a few notable advantages are:

- The online teaching can be conducted in real-time
- The teaching session can be recorded from any point.
- The class size can be decided upon the need.

Disadvantage of T&L

Interaction between the participants and the presenter

- The teacher is little more than a voice from the other side; hence the instructor cannot judge the level of understanding among students.
- When it comes to reinforcing the subjects, it is not very successful because it puts the restriction on the potential to acquire and refine new skills.
- If different students have different learning style (which generally happens), then the teacher cannot gauge the different learning styles of people, and hence they all cannot be addressed properly.
- Brainstorming as well as sharing of thoughts are particularly minimal.

Internet Connectivity Disruptions

The online teaching relies on the effectiveness of internet connectivity and reliability. If people are in an area that experiences poor internet connection or disruptions in the network, then this mode of learning and communication are not appropriate because the quality of the class will not be up to the mark due to poor connectivity people find the loss in audio, video distortion and lags in the transmission.

Security

It is the primary aspect of the user because they are afraid during sign-in on any digital platform that their information is not leaked, for example, recently, there is news of selling the information of the users who are using Zoom platform (Tripathi, 2020).

How long should the Session Run

It depends on the software which we are going to use some of them allow 2 to 4 hour lecture while some allow 15 to 30 minutes. Hence making a choice for the user is difficult.

Future Implication of T&L

A report released by KPMG India and Google (KPGM, 2017) states that the online education market in India can have a growth of eight times in the three years, i.e., from USD 247 million in 2016 to USD 1.96 billion in 2021. India has displayed a great zeal towards online education with the collaboration with emerging technologies in recent times. Many students and working professionals have enhanced their skills by joining various e-learning platforms in the last years. According to reports, India is at a native state of development in online education and is visualizing different Undergraduate and Post Graduate e-learning courses are utilizing this platform very effectively. Post-graduation courses dominate the demand for online education in comparison to graduation and diploma courses. Figure 10 depicts the course-wise preferences of online higher education by the users, whereas figure 11 gives view courses opted by tier 1 and tier 2 city's students and working professionals.
As we can observe from the above analysis, the future of online teaching is very emerging and convincing. So, it is expected that (a) the quality of OTL will increase, but the duration of the session can decrease, (b) OTL is for both students and faculty, (c) in future OTL will become automated, (d) the lecture conducted on OTL platform, can stream live or upload the pre-recorded videos on YouTube so that those who are not attending the lecture can avail the benefits, (e) the teaching knowledge and ability of the teacher will be more focussed than the content of the lecture, (f) the security issues related to information leakage will be resolved with the time, (g) the OTL system will become compatible for poor internet connection area.

CONCLUSION AND DISCUSSION

During the pandemic situation in COVID-19, it has been deduced that various educational studies that have observed challenges have also got numerous opportunities for developing innovative approaches using technology that can be adopted by educational and training institutes across the world far in education. T&L platform plays a vital role in the education sector to complete their courses in time and enhance the skills of the students. As technology is increasing day by day and the Internet providing companies making their efforts to provide a good internet facility all over the country, the use of webinars and online study will significantly increase. This pandemic situation can make a revolution to the e-learning industry in the country. "Distance learning courses . . . offer learners a wide range of choices so that they can find the right mix of interaction and learning style to enhance their individual capacity to learn or be trained". Few decisions need to be taken while using OTL:

**Step 1:** Deciding that live online session is right for your needs (Cook, 2019).

**Step 2:** Deciding the number of people using the T&L platform. There is webinar-style learning session methodology, where the group of participants is quite big, and the presenter not focusing on every individual. Whereas on another side, there is classroom-style learning, where the teacher can observe the activity of each child. "To build a successful community, you'll want to set up gathering places that reinforce your purpose and meet the needs of your target audience" (Kim, 2000, p. 27).

**Step 3:** Depending on the choice of group size, you have options to choose the T&L platform. "If asynchronous meeting or seminar is being conducted, the
group should be small enough to allow for full participation and to prevent
information overload. Asynchronous groups, however, can be much larger
[depending] on the skill of the instructor as facilitator" (Palloff and Pratt, 1999,
p. 55).

Online learning is a fantastic alternative for students as well as faculties
learning as it is generally focussed on critical thinking and creation. It is hard to
say which tool or software is best among all of them, but they can be used
according to the need and requirements of the teacher. Thus, researchers
should study the role of a variety of technological tools which has an important
role in upholding the needed social interaction for the enhancement of the
learning community.

References
1. Ahrens, A., Zaščerinska, J., Melnikova, J., Ramar, H., Clipa, O., & Andreeva, N.
(2015). Use of Webinars in Higher Education: A Comparative Study of
Educators' Experience. In III International Scientific Practical Conference
"Trends in Science and Studies under Conditions of Globalisation" Scientific
of Peking University. Human Behavior and Emerging Technologies.
https://doi.org/10.1002/hbe2.191
during a SARS-CoV-2 Coronavirus (COVID-19) Pandemic in Georgia.
5. Bruce, E., (2017). Advantages and Disadvantages of Webcasting, webinars,
Retrieved 20:23, 21st February, 2020, from https://elearningindustry.com/live-
online-learning-webinar-vs-virtual-classroom/amp
23rd December, 2019, from https://www.learndash.com/characteristics-of-a-
virtual-classroom/
Successful Online Communities, Peachpit Press, Berkeley, California.
2020, from https://assets.kpmg/content/dam/kpmg/in/pdf/2017/05/Online-
Education-in-India-2021.pdf
09:44, 05th March, 2020, from https://www.eztalks.com/webinars/benefits-of-
webinars-for-online-education.html
Learning in Mathematics Education?. Contemporary Educational Technology,
12(2), ep269. https://doi.org/10.30935/cedtech/7949
ep20016. https://doi.org/10.29333/aquademia/8227

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