



# EMBRACING TECHNOLOGY AMID NATIONAL LOCKDOWN DUE TO COVID-19 PANDEMIC FOR LEARNING: AN OVERVIEW OF VIDEO CONFERENCING APPLICATIONS

<sup>1</sup>Saima Khanam, <sup>2</sup>Firdaus Chaudhary, <sup>3</sup>Noreen Jaral

<sup>1</sup>Senior Research Fellow, <sup>2</sup>Senior Research Fellow, <sup>3</sup>Research Scholar

<sup>1</sup>Department of Education,

<sup>1</sup>Aligarh Muslim University, Aligarh, India

**Abstract:** The novel coronavirus (also known as COVID-19) emerged and spread rapidly across the globe. The outbreak has disrupted the whole system of education, leading to the closing down of educational institutions to curb the spread of the pandemic. However, educational institutions across the country have embraced technology to ensure that learning would not be distorted much. The main focus of the present paper is to know how educators and learners are embracing technology amid National Lockdown for Learning. It also aimed to know how various video conferencing applications i.e., Zoom, Google Meet, Cisco WebEx, and Microsoft Teams, are being utilized for knowledge transfer and how they differ from one another.

**Index Terms - COVID-19 Pandemic, Learning, Technology, Video Conferencing Applications.**

## I. INTRODUCTION

The novel coronavirus (also known as COVID-19) emerged and spread rapidly across the world. The outbreak has disrupted the whole system of education, leading to the closing down of educational institutions to contain the spread of the pandemic. However, Educational institutions across the country have embraced technology to deliver core curricula, engage students, and conduct online assessments. The pandemic has lifted the importance of technology in learning. Both teachers and students at all levels of education have experienced the pandemic's ripple effects. Academic sessions were disrupted which shocked the students and teachers as the educational institutions were getting ready for end-of-term examinations and the commencement of a new semester. Universities around the globe are seeking for solutions to handle and adapt to academic changes as a result of the pandemic [1].

Technology is no longer a choice; it has become a necessity now. Teachers should adapt to online teaching, requiring them to employ diverse digital tools and resources to incorporate new ways of teaching and learning. The prevailing situation requires confidence for effective online teaching and learning together with proper knowledge and skills [2]. Teachers have embraced technology to stay in touch with their students while staying indoors to avoid the COVID-19 outbreak. Students have also demonstrated a desire to learn and remain engaged by using popular videoconferencing applications. Educational institutions have adopted a number of e-learning platforms. including, Zoom, Google Meet (hangout), Skype, Cisco WebEx Meetings, Google classroom, Microsoft Teams, Adobe captivate, and amongst others, to ensure continuity and smooth functioning of the teaching-learning process [3].

### 1.1. Video Conferencing applications

Video Conferencing applications can be defined as technological tools facilitating virtual face-to-face interaction between two or more participants regardless of their geographical location with the help of the internet. It allows users to communicate, collaborate and share text and audio-visual files.

### 1.2. Technology for learning

There are massive benefits that can be derived from the effective use of technology amid lockdown. These include better content delivery, remote learning, better accessibility, quality content delivery, virtual interaction among students and teachers, and others.

The pandemic has made video conferencing applications necessary for online learning. It is a key component of how students and teachers can stay connected during the lockdown. Universities are now implementing numerous virtual learning technologies, such as virtual classrooms, live online classes, web conferencing, flipped learning, screen sharing, online assignments, and exams, to ensure smooth functioning of the teaching and learning process.

## II. OBJECTIVES OF THE STUDY

- A. To know about the ways how learners and educators are embracing technology amid National Lockdown due to the COVID-19 Pandemic for learning.
- B. To know about various Video Conferencing Applications i.e., Zoom, Google Meet, Cisco WebEx, and Microsoft Teams being utilized for learning.
- C. To get a comparative overview of the above-mentioned Video Conferencing Applications.

## III. LITERATURE REVIEW

COVID-19 is having a terrible impact on practically every pursuit of life. Its advent and spread induce confusion, anxiety, and terror among individuals [4]. Countries around the globe have come together to prevent the occurrence of this highly contagious disease by enforcing the lockdown, social/physical isolation, and restricting face-to-face teaching-learning [5]. The pandemic has disrupted the whole system of education, leading to the temporary closure of educational institutions. However, institutions across the world have embraced technology to ensure that learning would not be distorted. The educational administrations at all levels have opted for online learning as a substitute to restart the teaching-learning process [6]. Colleges and institutions changed in some way as a result, moving toward online education [7]. However, making the transition from face-to-face instruction to entirely online instruction has not been simple [8]. During the nationwide lockdown, educational institutions have devised ways to use Information and Communication Technology (ICT) tools to support learning. ICT tools can be a source of innovative teaching techniques [9]. There is immense opportunity for students and teachers to leverage the potential of ICT to raise the quality of teaching and learning. It offers chances for more adaptability, interaction, and accessibility. The virtual learning platform has completely transformed how learners and educators engage themselves in the teaching-learning process, amid COVID-19 pandemic [10]. E-learning has recently grown popular among the student fraternity, particularly during the lockdown period. It is now a requirement in practically all educational institutions worldwide due to the pandemic [11].

### 3.1. RESEARCH GAP

There are several studies available on how teachers and learners are Embracing Technology amid Lockdown due to COVID-19 outbreak for Learning. But only a few studies are there that f on the use of Video Conferencing Applications, i.e., Zoom, Google Meet (hangout), Cisco WebEx Meetings, Microsoft Teams, and their comparative overview specifically. Thus, an attempt has been made in the present study to carry out a comparative overview of Video Conferencing Applications mentioned in the paper.

## IV. METHODOLOGY

The present study follows qualitative method of research study. The researcher has gone through various studies related to the use of technology in learning during COVID-19 pandemic and various video conferencing tools used in learning.

## V. INTERPRETATION AND DISCUSSION

The present study about Embracing Technology amid National Lockdown due to COVID-19 Pandemic for Learning with an overview of Video Conferencing Applications has been carried out by the researcher. The description of various Video Conferencing Applications is given here.

### 5.1 Zoom

Zoom is one of the most popular video conferencing applications that works for Android, iOS, PC, and Mac. It was founded in 2011 by Eric Yuan and launched in January 2013. It claimed one million participants by May 2013. It is easy to install and free to use. One can join a Zoom meeting without creating an account. The app supports HD video and audio, collaboration tools such as screen sharing and connotation, and the option to record meetings and generate transcripts. One can also enable various backgrounds on the Zoom meeting and tweak audio controls. A single zoom video conference can include up to 1000 individuals, and 49 videos can be displayed on the screen at the same time. Free as well as paid versions are available.

The app mainly caters to business purposes. It was never a consumer video conferencing app. It is critical to consider the security risks that have emerged since its increasing popularity during the coronavirus pandemic. Experts are more concerned about security features and come up with waiting room options to avoid Zoom-Bombing, where uninvited attendees are reported to have taken over a meeting and shared objectionable content. One can join a zoom meeting by clicking on the link provided by the host or through a meeting code and password. Participants can choose to enable or disable their video and mute or unmute the mic by using buttons on the screen. There is an option to communicate via chat if the mic and camera are off.

### 5.2 Google Meet (Hangouts)

Google Meet (earlier called Hangouts) is a cloud-based video conferencing platform, which is one of the best platforms to host webinars or meetings. It provides easy access to all document services such as calendars, Docs, Sheets, Slides, etc. Various options are available like chat, screen share, images, video, and location, which makes it easy to use. It can be integrated with Google G Suite and can support up to 250 participants per call as well as live streaming for up to 100,000 spectators. Free access to numerous video conferencing programs for schools and organizations was just enabled till September 30. Google Meet offers a consistent and reliable video experience. It also limits outside attendees from attending meetings after 15 minutes have passed. When you set up a meeting, you get a URL, a dial-in phone number, and a pin that you can immediately share with participants. Meetings held can be recorded and broadcasted afterward on Google Drive.

### 5.3 Cisco WebEx Meetings

Cisco WebEx Meetings is an easy-to-use HD video conferencing platform that simply works with almost any device, MAC, PC, Android, iPhone, Web-browsers, and even dial-in via a telephone number. Various features of WebEx include screen sharing, attendees list, chat functionality, muting of participants, application sharing, instant messaging collaboration, voice and video call recording, multimedia content sharing, meeting recording and replay, administrative controls, end-to-end encryption, password-protected meetings, etc. It has both free and paid options for users. Participants can join a meeting without signing in or having a WebEx account. It limits participant allowance at the time of the meeting or video conferencing. It is for up to six participants at a time. The host can invite up to 100 people to a meeting. Computer audio sharing is not possible in the Cisco WebEx Meetings.

### 5.4 Microsoft Teams

It is a chat-based application that allows teams to collaborate and share information. It was introduced in November 2016 by Microsoft. It is a basic tool that allows communication with the team via text, audio, or video. Document collaboration, team chat, one-on-one chat, and other capabilities are available. It provides a shared workspace for Microsoft Office products such as Word, Excel, PowerPoint, OneNote, SharePoint, and others. It is fully linked with numerous other Office 365 services, including Skype, SharePoint, and Exchange. It is a convenient, user-friendly, and reliable app that supports up to 250 people on a video call and simultaneously presents live to up to 10,000 people (including screen sharing and call recording). Various options such as Activity, chat, team, assignments, calendar, calls, and files are available. It is a safe and secure app, quite popular in workplaces. Microsoft has lifted limitations on the free version in March allowing businesses and schools to use it freely, they provide a 6-month free trial. External guests can be invited to attend a meeting and gain access to previous meeting recordings. Students can ask questions to teachers in a private chat and can also make class groups. It has been observed that the app works better on PC than on mobile.

An attempt has been made by the researcher to assess how various video conferencing applications are different from one another which has been presented here in a tabular form.

Table 1: Comparative Overview of Zoom, Google Meet, Cisco WebEx and Microsoft Teams

	<b>Zoom</b>	<b>Google Meet</b>	<b>Cisco WebEx</b>	<b>Microsoft Teams</b>
<b>Description</b>	Video conferencing application	cloud-based video conferencing platform	HD video conferencing application	chat-based collaboration tool
<b>Compatibility</b>	Android, iOS, PC and Mac	Android, Windows and iOS	Android, MAC, PC and iOS	Android, PC and iOS
<b>Whether Free or Paid</b>	Free as well as paid versions	Free till September 30, 2020	both free and paid	Free for 6 months
<b>Ratings*</b>	4.4 stars	4.5 stars	4 stars	4.3 stars
<b>Signing in</b>	No need to sign in	need a Google account	No need to sign in	Need to sign in
<b>Meeting time limit</b>	40 minutes for free users	60 minutes (unlimited till Sept. 30)	50 minutes	4 hours
<b>Participants limit</b>	100	250	100	300
<b>Functioning</b>	The meeting can be joined through a link or meeting code and password. Participants can enable or disable their video and mic	Setting up a meeting generates a URL.	Computer audio sharing is not possible in Cisco Webex	The host has to create a team before the meeting started. The host can mute or unmute the audio and video of the participants.

\*Google play store

## V. CONCLUSION

Online learning is the ideal way to keep learners and instructors engaged and safe throughout the lockdown period by maintaining social distance. To continue educational activities across the country, the Indian government has launched several online learning portals. However, sufficient steps must be taken to train all education stakeholders on online learning platforms. To support online learning, the government should implement a policy of providing free internet and digital devices to all learners [12]. Educators should use technology to engage students academically, as mandated by India's Ministry of Human Resource Development (MHRD). They should also actively participate in expanding their knowledge by producing research papers, attending webinars, and so on. [13]. Online learning has proved to be beneficial in these days of crisis when conventional learning cannot take place due to the pandemic. It cannot be clearly said which video conferencing application is best to use as each one has its pros and cons. Zoom and Google Meet are used by most educational institutions. Zoom can be used for a meeting organized for a smaller group of participants and informal video chats of a shorter time duration while Google Meet is a good option for a longer meeting of more than 100 participants. If the number of participants will be more than 250, Microsoft Teams will serve the purpose.

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