

ROLE OF SCIENCE & TECHNOLOGY DURING COVID-19 PANDEMIC

DR. HEMANT SHARMA

Department of Botany, Dayanand PG College, Hisar
Email: hemantbotany@gmail.com

ABSTRACT

COVID-19 Pandemic has paralyzed the whole world. Loss of millions of precious lives, economic stagnation and diminishing cultural values. Because of this pandemic, the world has facing lockdown. People have got loneliness, boredom, mental discomfort and uncertainty from this unusual Pandemic. But, during these adverse conditions of COVID-19 (lockdown), Science & Technology has proved to be a boon for the people. Whether it is in the form of a television for a person to emerge from boredom or in the form of mobile and computer. During this social distancing situation, Science & Technology is creating social connectivity, where people are able to connect due to various social networking platforms such as Google, Whatsapp, Facebook and Twitter etc. In this lockdown where all the schools and colleges are closed, yet most of the students are able to study online while sitting at their home due to various platforms of technology. There are many online reading aid platforms like E-pathshala, Swayam, Diksha, NROER, ELIS PORTAL etc. which are totally free for the study. Further, the trend of 'work from home' has increased in the world today just because of availability of online meeting Apps such as Zoom, Google Meet, Microsoft Teams etc. which provide people the facility of online meetings. All these Apps are also being used by Schools and Colleges for online study of their students. Science & Technology also contributed in the field of medicine to defeat the Corona virus, whether it is a testing kit (RT PCR or Antigen test), PPET kit or ventilator or a vaccine. Today, the lives of people from the corona all over the world are being protected by the vaccine, and this vaccine has also been made possible only by the tireless diligence of scientists through science and technology.

Key words: COVID-19, Pandemic, Science, Technology.

INTRODUCTION

COVID-19 Pandemic has paralyzed the whole world. Loss of millions of precious lives, economic stagnation and diminishing cultural values. Because of this pandemic, the world has faced lockdown. People have got loneliness, boredom, mental discomfort and uncertainty from this lockdown. The recent outbreak of new variant of corona virus (in the second wave of this pandemic), is spreading rapidly throughout the India. This new variant of corona- virus is decreasing the oxygen level in the lungs of various infected people. Therefore, the loss of millions of precious lives is due to lack of oxygen. All the hospitals were filled. Beds were not left empty for the treatment of corona patients. Therefore, in second wave of corona pandemic India is again facing lockdown. Now, only vaccination, mask, social & physical distancing are the only ways to avoid this new variant of Corona virus.

But, during this adverse condition of COVID-19 and off course lockdown, Science & Technology proved to be a boon for the people. Whether it is in the form of a television for a person to emerge from boredom, where the Ramayana serial broken all the records in 2020. Or in the form of mobile and computer, laptop, where suddenly the use of internet data erupted. During this social distancing situation, Science & Technology is creating social connectivity, where people are able to connect due to various social networking platforms such as Whatsapp, Facebook and Twitter etc. During lockdown where all the schools and colleges are closed. Due to various platforms of technology, now, most of the students are able to study online while sitting at their home. There are many online reading aid platforms like E-pathshala, Swayam, Diksha, NROER, ELIS PORTAL etc. which are totally free for the study. Further, the trend of 'work from home' has increased in the country today just because of availability of online meeting Apps such as Zoom, Google Meet, Microsoft Teams etc. which provide people the facility of online meetings, while all government and private offices are closed. All these Apps are also being used by Schools and Colleges for online study of their students. Today, officials and students are able to connect with online Webinars by sitting at our home, just because of advancement of Science & Technology.

Proceedings of DHE approved One Day National Seminar on Role of Digitization during COVID-19

Science & Technology also contributed in the field of medicine to defeat the Corona virus, whether it is a testing kit, PPET kit or ventilator or a vaccine. Today, the lives of people from the corona all over the world are being protected by the vaccine, and this vaccine has also been made possible only by the tireless diligence of scientists through science and technology.

METHODOLOGY

Some journals and e-contents relating to technologies in COVID pandemic or lockdown are studied to find out the possible role of science & technology for the benefits of people during this unfavourable period of global pandemics. Also I thoroughly studied various important internet sites to identify research literature that has used digital technology in education, healthcare, social media platforms and other areas. I studied various reports of using digital media and technology by people during COVID-19 pandemic. I compared the information on various parameters. Therefore, I prepared graphs on different parameters of various digital technologies used in India.

ROLE OF SCIENCE & TECHNOLOGY

During this adverse condition of COVID-19 and off course lockdown, Science & Technology proved to be a boon for the people. Here are some study reports to find out the possible role of science & technology for the benefits of people:

A. Science & Technology in Education

During the period of lockdown all the schools, colleges and universities across the world have been shut down due to the COVID-19 pandemic. These institutions are doing their best to ensure that there is less academic loss of students. These Institutions are using online platform to uploading the study material online and getting virtual classes through video calls so that to minimize loss of students. So, where the schools and colleges are closed, yet most of the students are able to study online while sitting at their home due to various platforms of technology. There are many online reading aid platforms which are totally free for the study. In India, The Ministry of Human Resource Development (MHRD) has provided various platforms for the students to keep their mind ticking during the lockdown (Table 1).

Table: 1. Online E-learning platforms provided by MHRD for students and teachers in India.

E-learning Platforms	Facilities provided by E-learning Platforms
The SWAYAM Moocs courses	Web based multi-media courses designed especially for students in the higher education
E-PG Pathshala	Another platform on which e-books upto PG level can be accessed.
DIKSHA (Digital Infrastructure for Knowledge Sharing)	Have thousands of curriculum -linked content in 15 languages. Educational material include informative videos, activities, lesson plans, worksheets, quizzes, experiential content and interactive games are available for learning.
National Digital Library of India	An integration platform for schools, colleges, universities, lecturers, teachers, students, differently-abled pupils for learning. Website: https://ndl.iitkgp.ac.in/
UMANG mobile app	Contains more than one crore e-books, audios and videos on all subjects for primary and secondary school students. This app offers the option of e-pathshala where students can access books and study material of NCERT. UMANG App can be downloaded free from app stores of Android, iOS and Windows.
CBSE PODCAST	CBSE launched a podcast app 'CBSE-Shiksha Vani', which is available on Play Store for Android phone users.
IIT Pal	Students who are interested in getting online coaching for IIT entrance exams can access lectures on Physics, Chemistry, Mathematics and Biology on the official website of National Testing Agency. Website: https://nta.ac.in/LecturesContent .

e-Shodh Sindhu	Provides access to more than 15,000 crores, peer-reviewed journals and more.
E-Classes On Swayam Prabha DTH Channels	MHRD has come up with e-classes on Swayam Prabha DTH channels for school students to make sure they remain connected to studies even when they are in self isolation.

B. Science & Technology in Public-Health

Science & Technology also contributed in the field of medicine to defeat the Corona virus, whether it is a testing kit, PPET kit or ventilator or a vaccine. Today, the lives of people from the corona all over the world are being protected by the vaccine, and this vaccine has also been made possible only by the tireless diligence of scientists through science and technology.

a. Technology in tracing of corona virus

Science & Technology is playing a critical role against the spread of the corona virus including case identification and contact tracing. Technology is helping government and health officials monitor active cases, recoveries, and quarantined citizens.

From contact tracing to patient monitoring, here are apps being used in India (Table 2):

1. **Aarogya Setu** became the **world's fastest contact tracing app**. It has been [developed by the National Informatics Centre](#) under the **Ministry of Electronics and Information Technology**, and is available in **11 languages**. Aarogya Setu uses a smart phone's Bluetooth and GPS systems to **alert** users when they come within six feet of COVID-19 patients. The app gets **instructions from the Ministry of Health** on how to self-isolate and the course of action required when person develop symptoms of corona virus.

Table: 2. COVID contact tracing apps used in India.

COVID contact tracing App	Developed by
Aarogya Setu	<u>National Informatics Centre</u> under the Ministry of Electronics and Information Technology, Central Government
COVA Punjab	Government of Punjab
Maha Kavach	Maharashtra State Innovation Society and the National Health Authority
GoK Direct Kerala	Government of Kerala
Quarantine Monitor	Tamil Nadu e -Governance Agency
Quarantine Watch	Revenue Department of the Government of Karnataka
Test Yourself app	Governments of Goa and Puducherry

b. Technology of vaccination App against corona virus

1. **Co-WIN App** for Covid-19 vaccine registration. You can log into the Co-WIN portal using the link www.cowin.gov.in and click on the "Register/Sign In yourself" tab to register for COVID-19 vaccination.

c. Technology for testing of corona virus

1. **RT-PCR Test** is a method of testing that is used to directly detect the presence of the virus in the sample. The test detects the virus's RNA, which is the genetic material of the virus. It is based on PCR. PCR is a technique

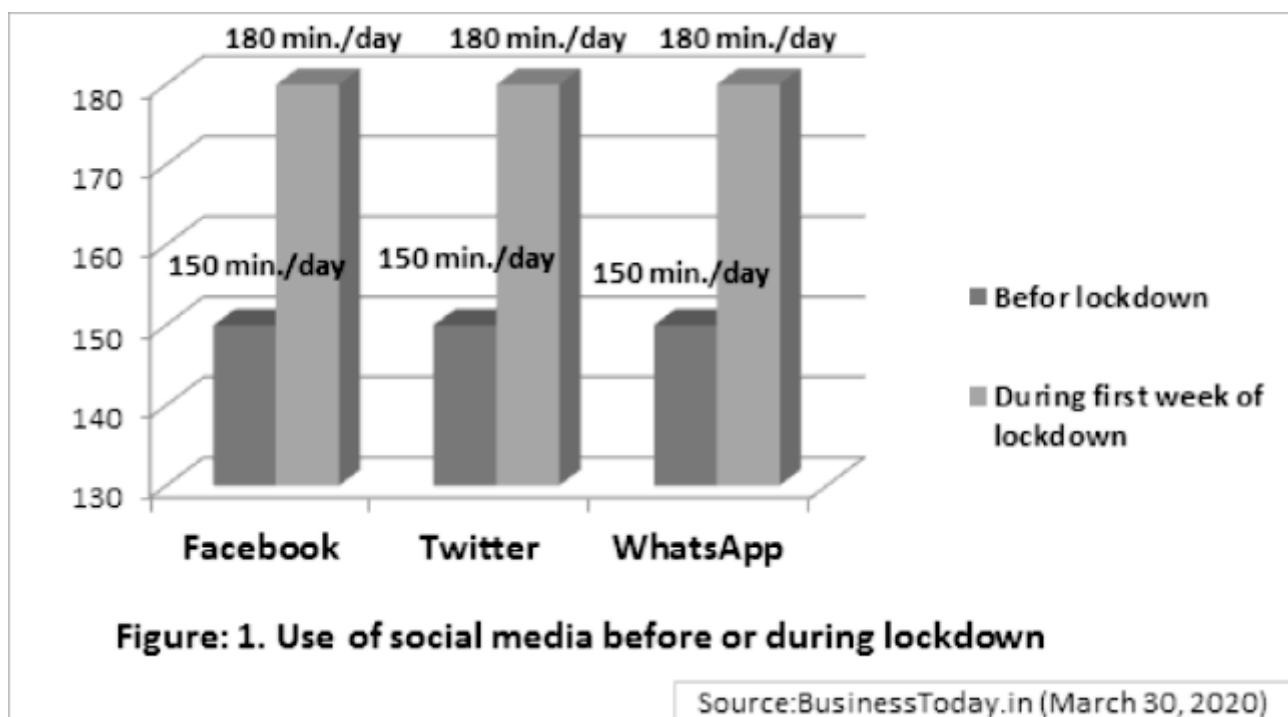
Proceedings of DHE approved One Day National Seminar on Role of Digitization during COVID-19

used in the lab to make millions of copies of a particular section of DNA. It uses a quantitative PCR instrument (a machine that amplifies and detects DNA).

2. **Antigen Test** is done through a kit that detects proteins that are parts of the corona virus.
3. **Rapid Antibody Test** detects the antibody produced by the body in response to the virus through a kit.

C. Science & Technology in Social Media

The [COVID-19 pandemic](#) has affected the usage of [social media](#) by the world's general population, celebrities, world leaders, and professionals. [Social networking services](#) have been used to spread information. They are frequently using Messaging and video call services. As India fights the second wave of COVID-19, hospital beds, oxygen supplies, blood plasma, and medicines are running scarce. So, several people are taking to social media by posting urgent requirements on Whatsapp, Twitter, Facebook and Instagram. Users are flooding these platforms with appeals for urgent needs of bed or oxygen etc. through posts, re-tweets, shares and story uploads to help distressed citizens in several cities across the country. According to a survey in **BusinessToday.in**¹ (March 30, 2020), in the first week of lockdown, Indians spent more than four hours every day on social media. This is an 87 per cent increase from a week before lockdown. Before the lockdown, social media usage was on average 150 minutes per day. However, in the first week of lockdown, the figures jumped to 280 minutes per day (Figure 1). The survey added that 75 per cent people were spending more time on Facebook, Twitter and WhatsApp compared to the week before.



D. Science & Technology in Online Meeting (Online video conferencing tools)

An online meeting, also called virtual conferencing, is a method of communication that allows for multiple people to meet and interact in the same space without physically being present. The Covid-19 pandemic has been a great catalyst for the increase in the use of virtual meeting platforms. During the time of lockdown and social distancing, there was naturally a boom in the popularity of online video conferencing tools which provide people the facility of online meetings, while all government and private offices are closed. Further, the trend of 'work from home' has increased in the country today just because of availability of online meeting apps. All these apps are also being used by Schools, Colleges and Universities for online study of their students. Many educators are using video conferencing technology to stay connected with students from a distance to attend online classes. Some of the most commonly used online video conferencing tools are Google Meet, Zoom meeting and Microsoft Teams which are popular because they are free and easy to use.

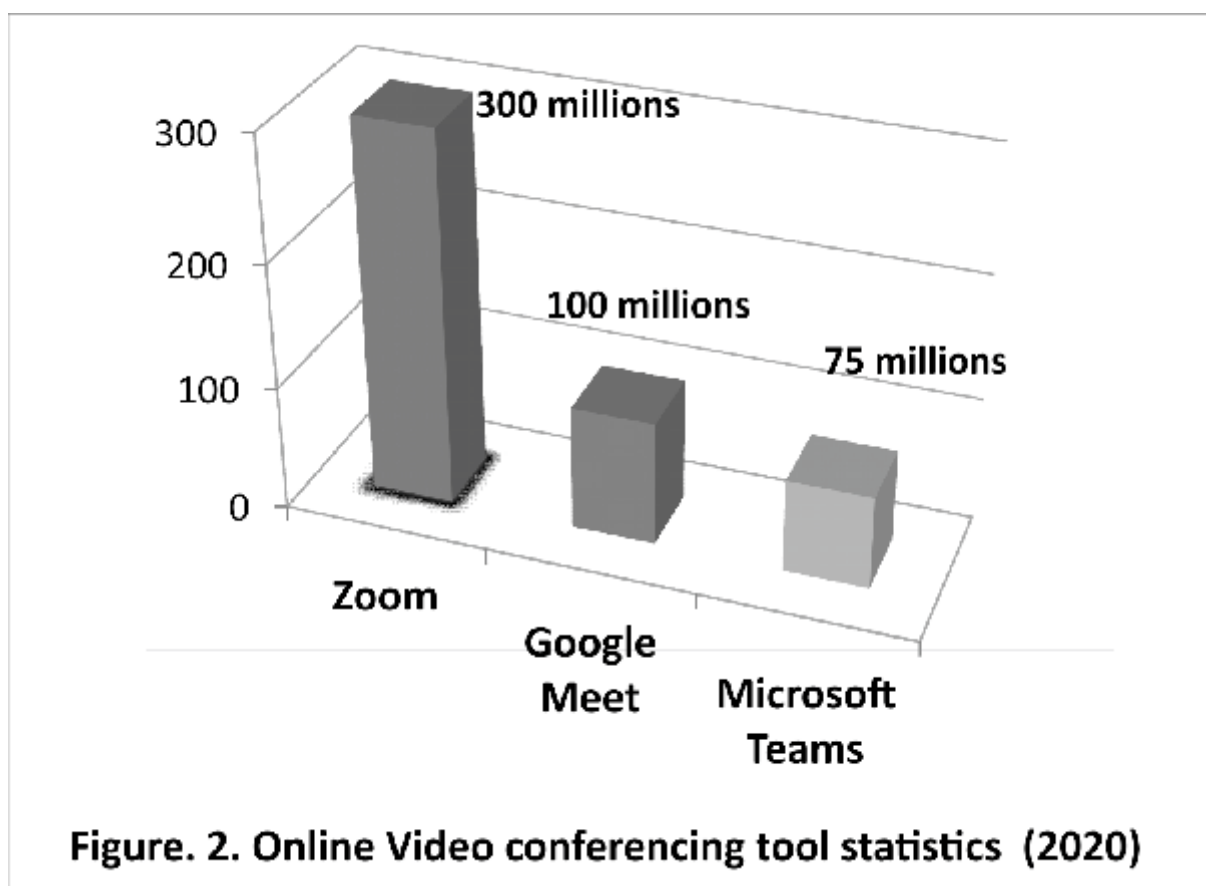
Proceedings of DHE approved One Day National Seminar on Role of Digitization during COVID-19

Google Meet It is Google's video conferencing app. It can handle up to 250 people in an online meeting, depending on the subscription.

Zoom It is one of the most commonly used video conferencing tools, due to its easy-to-use functioning and good video and audio quality. Zoom allows a maximum of 100 participants (including the host) per meeting up to 40-minute duration with free of charge. But can add up to 500 participants by purchasing its subscription.

Microsoft Teams It is part of Microsoft Office 365 bundle. There are both free and paid plans that allow a Microsoft customer to host meetings with up to 250 participants and record them as well. Microsoft Teams doesn't have any duration limitation for meetings.

As per Video conferencing statistics for the year 2020 (remote work, webinars etc.) (Figure 2): Zoom had over 300 million meeting participants per day in 2020 (Source: [Business of apps](#)³). Google Meet had over 100 million daily meeting participants in 2020 (Source: [The Verge](#)³). Microsoft Teams had 75 million active daily users in 2020 (Source: [Windows Central](#)⁴) (Figure 2).

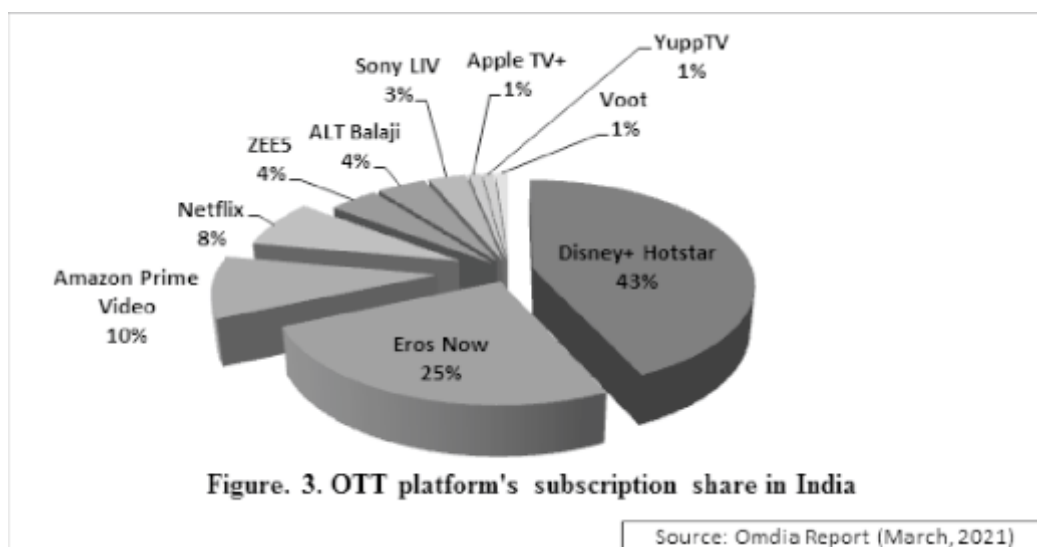


E. Science & Technology in Entertainment and Media

The COVID-19 pandemic has changed the way of people consume media and entertainment. Due to strict national lockdowns around the world people have been forced to stay at home, Traditional source of entertainment and media services such as television and newspapers have been side-lined. In contrast, in India, people spent their time in online services like Hotstar, Amazon Prime and Netflix. Similarly, YouTube subscribers have been increased in the country. Similarly, OTT (Over The Top) platforms have become a relief for those who have made huge investments in the film industry. Movies have been streamed on OTT medium by film makers since the outbreak of the Covid-19 pandemic last year. OTT platforms are gaining acceptance among viewers in the country. Making use of the situation, several new OTT platform companies came into existence, and spread their footprint across India. Earlier, the OTT platforms were limited to cities. However, now it is available in every corner of villages. And the results are there for everyone to see. When people were restricted to their homes, they had no way to watch movies at theatres; naturally they moved towards Hotstar, Amazon Prime, Netflix, Disney+ and Zee etc. According to **Omdia**⁵ (March, 2021), Online Video Market and

Proceedings of DHE approved One Day National Seminar on Role of Digitization during COVID-19

Consumer Trends Report, Netflix and Disney+ Hotstar accounted for 50% of all subscribers in India in 2020 (Figure 3). Online video subscriptions revenue grew by 142% in India in 2020 primarily due to global COVID-19 pandemic.



CONCLUSION

During this adverse condition of COVID-19 (lockdown), Science & Technology proved to be a boon for the people. During this social distancing situation, Science & Technology is creating social connectivity, where people are able to connect due to various social networking platforms. Due to various platforms of technology, now, most of the students are able to study online while sitting at their home. The lives of people from the corona all over the world are being protected by the vaccine, and this vaccine has also been made possible only by the tireless diligence of scientists through science and technology.

REFERENCES

1. Business Today, in (March 30, 2020) <https://www.businesstoday.in/technology/news/coronavirus>
2. Business of apps (2020) <https://www.businessofapps.com/data/zoom-statistics/>
3. [The Verge](https://www.theverge.com/2020/4/28/21240434/google-meet) (2020) <https://www.theverge.com/2020/4/28/21240434/google-meet>
4. [Windows Central](https://www.windowscentral.com/microsoft-teams) (2020) <https://www.windowscentral.com/microsoft-teams>
5. Omdia (March, 2021) <https://omdia.tech.informa.com/pr/2021-mar/>