



PANDEMICITY OF COVID AND CONSEQUENT ADOPTION OF ONLINE LEARNING IN INDIA

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ABSTRACT

Change with time is manner of nature, sometimes optimistic and sometimes pessimistic. In such ongoing process, global human habitation has been badly affected by pandemicity of Corona Virus Disease of 2019 or COVID-19 or simply 'covid'. This pandemicity has severely affected educational system worldwide, leading to closure of schools, colleges and universities. Because, most of the governments decided to close educational institutions, with the closure of all other settings, in an attempt to reduce the spread of covid among their citizens. Teachers had to therefore accept new pedagogical concepts and novel modes in delivery of lessons, mostly through adoption of online learning. The aspects of online learning necessitate to know e-textbooks, e-journals, online resources, mobile learning and various educational apps. Online learning has various advantages, although some barriers exist. It is now believed that online education in India is the future of educational system and learning. Various channels have been established by the Indian government to decentralize and disperse the sources and means to provide education among the learners of different corners of the vast country. The modern-day education will have to ascend many more steps in order to welcome such a sea change in our learning society. However, online learning is adopted to enhance learning process, not to replace traditional methods in acquiring education.

KEYWORDS: Covid; Digital Learning; E-Learning; Online Education; Online Learning; Pandemic Disease; Pandemicity

INTRODUCTION

In the subject 'Medicine', 'epidemiology' implies study of distribution and determinants of health-related concerns and events in specified populations¹. Epidemiology is study of morbid phenomena of infective diseases and thereafter application of the study to control the allied health problems, not only to control the diseases, but also to ultimately eradicate them². Although the term epidemiology is nowadays widely applied to cover many non-communicable diseases, such as high blood pressure, depression, obesity, etc. Most remarkably in the year 2020, global community started to face a deadly morbid situation in order to combat Corona Virus Disease 2019 (hereinafter, covid). The number of positive cases has been ever increasing worldwide, in different waves. The situation has consequently compelled us to call lockdown and closure of educational institutes throughout the world³, and countrywide in India, in order to minimize its spread⁴. We have consequently been heavily dependent on the usage of technology, for even to complete the simplest tasks. Nowadays most of us must have heard the contemporary terms like digital learning⁵, online learning, e-learning, and so on. Now we are compelled to keep apart the days of classrooms, blackboards, chalks and dusters, even the days of overhead projectors. Those days have been substituted with web-based educational possibilities which have possibly strengthened student's learning experience. Online learning is web-based learning which effectively makes use of the Information Communication Technology (ICT) to impart knowledge to the students. It is nowadays known as Smart Teaching Technique, and as such most of the schools, colleges, universities and educational institutions have gladly adopted this technique in such a situation of pandemicity of

covid.

EPIDEMIOLOGICAL PREVALENCES

Non-communicable diseases are not transmissible directly from one person to other, e.g. heart diseases, cancer, diabetes, osteoarthritis, osteoporosis, avitaminosis, cataracts, and others. Whereas, all the communicable diseases are frankly infectious diseases which commonly spread through direct or indirect transfer of bacteria, viruses or other micro-organisms from one person to another. A communicable disease may occur when an individual as a carrier of bacterium or virus touches, kisses, coughs or sneezes on someone who is not infected. Infectious diseases are always present in atmosphere. The patterns of occurrences of such diseases are sporadic, endemic, epidemic and pandemic⁶. However a particular category of prevalence may be transformed to subsequently severe category⁷.

SPORADIC DISEASE

Sporadic prevalence is observed in a disease that occurs infrequently and irregularly, and usually without geographic concentration, i.e. not scattered throughout the world. Examples of such diseases include tetanus, rabies, plague, etc.

ENDEMIC DISEASE

It is used to describe communicable diseases which are present at an apparently constant level within a community, country or geographical area, for example: Caribbean dengue; chickenpox in United Kingdom, malaria in Africa; yellow fever among Brazilians; and so on.

EPIDEMIC DISEASE

The phrase 'epidemic disease' is used to describe a situation when a disease spreads rapidly to a large number of people in a confined population over a short time period, for example, cholera, influenza, typhoid, etc. Nowadays obesity, dropsy, hyper-lipidaemia, diabetes, etc. are regrettably considered epidemic diseases, because many people are the sufferers.

PANDEMIC DISEASE

Pandemic disease is also an epidemic occurring, but occurs over a widespread area and involves multiple countries and continents, and is affecting large number of people, i.e. a substantial proportion of the population worldwide.

FEATURES OF PANDEMIC DISEASE

There are some distinct features, clearly observable in every pandemic disease. These are as the followings in brief⁸.

- Affects wider geographical area and involves many continents;
- Infects a substantial percentage of the world's population;
- Often caused by a novel infectious agent which was inactive for many years;
- Spreads quickly among humans, due to lack of immunity;
- Can cause a considerable number of deaths, higher than the occurrences of the epidemic diseases; and
- Situation leads to social disruption, economic crisis, and general hardship among people.

STAGES OF PANDEMIC DISEASE

The World Health Organization⁹ (WHO) has identified six distinct phases which consecutively occur, elevating a disease to pandemicity. WHO further mentioned that the phases are to be rightly followed before declaring a disease as pandemic. The phases are as the followings, in brief¹⁰:

Phase-1: Virus is suspected in animals, but has not affected human;

Phase-2: The virus has caused infection among people;

Phase-3: Scattered incidence of cases, not an outbreak till then;

Phase-4: Human to human transmission at increasing rate;

Phase-5: Disease is evident in more than one country; and

Phase-6: Involves at least one more country, exceeding Phase-5.

Here, 'Phase-1' represents a low risk category, whereas 'Phase-6' is a full-blown situation in any disease in its pandemicity.

PANDEMICITY OF COVID

The extended outbreak of covid was first observed in Wuhan, the capital of Hubei Province, in People's Republic of China, in December 2019¹¹. China then duly alerted the WHO on several flu-like cases in Wuhan on 31 December 2019. Then over the time, the disease migrated geographically to the most of the countries in the world. Corona virus spreads primarily through droplets of saliva or discharges from the nose, when an infected person coughs or sneezes. Therefore it affects the people staying at close distance. Covid is basically an infectious disease which is highly contagious as well as morbid. The disease is manifested in the form of a mild, moderate or severe illness. Some of the infected persons are just asymptomatic

carriers who however have the potential to be infectious to others coming in close contact. Moderate and severe cases necessitate immediate hospitalization and requires intensive therapy including ventilation. Covid has proved its distressing nature, especially for the elderly people. Because of its highly infectious nature and its spread among multiple countries with an intensified community transmission and risk of morbidity, WHO characterized covid as a pandemic disease on 11th March 2020.

PREVENTION OF COVID

Requirement of prevention compelled organizations and nations to act earnestly to aware and educate people through all sorts of social media. Followings are several measures¹²:

- **Border control:** Application of border control strategies imply restrictions on the movement of individuals, to and from affected areas;
- **Quarantine period:** It is separation of suspected individual from contact with others for a certain incubation period, i.e. time between exposure to infectious agent and onset of symptoms. Here, the incubation period of covid is on average 5-6 days, but can be as long as 14 days. Thus, quarantine should be held in a facilitated place for 14 days, from the day of last exposure to a confirmed case;
- **Isolation:** It implies separation of an individual who has been identified as infected, from contact with others. Such isolation may be held at hospitals or home, depending on severity of the case.
- **Identification of cases:** It beforehand necessitates awareness among the public about the symptoms and risk factors, thereafter to provide easy access for testing and tracking the contacts held with infected individuals.
- **Protection:** It emphasizes requirement of use of appropriate equipments and use of Personal Protective Equipment (PPE) to protect frontline health workers who cannot avoid close contact with infected individuals in hospitals and medical laboratories.
- **Social distancing:** It emphasizes lockdown, cancellation of social events, train-bus journeys, gatherings, closure of assembly halls and institutions, work from home etc.
- **Economic measures:** It is to provide relief to individuals to increase compliance with social distancing related policies. However, it does not support any sort of dole politics.
- **Health education:** This policy imparts health education among people on social distancing, use of mask and hand hygiene, i.e. requirement of frequent hand washing. These aspects are altogether to prevent the disease.

All these are expected, so as to result in flattening a graphical curve of affected cases over the time, and in reducing the number of cases requiring extensive medical care in hospitals.

COVID AND DEPENDANCE ON ONLINE LEARNING

Educational institutions throughout India were principally based on traditional methods of learning, i.e. teaching and learning in classrooms. But pandemicity of covid bestowed a challenged situation in ever dependent educational system, not only in India but also across the world and forced educators

to shift to an online mode of teaching, almost overnight¹³. Many academic institutions which were earlier reluctant to change their traditional pedagogical approach had no option but compelled to shift entirely to online teaching-learning or digital learning or digital education¹⁴. The pandemicity obligated many schools, colleges and universities to remain closed, other than partly of their administrative departments¹⁵. They discontinued in-person teaching, although there was an urgent need to protect and save the requirements of students, faculty, academic staff, community, society, and the nation as a whole. Several arguments are associated with online learning, like accessibility, affordability, flexibility, life-long learning, and so on.

ONLINE LEARNING

Online learning is any type of learning that is accompanied by ICT. It encompasses application and practice of wide spectrum of systems including blended and virtual learning. Primarily it is responsibility of teacher to get accustomed with various e-learning tools and programs before they can apply them to teach their students. Therefore, it is an enormous opportunity, not only for the learners, but also for the teachers to get accustomed and empowered with a hybrid learning system.

POSITIVE FACTORS OF ONLINE LEARNING

Some are positive factors which have been determinants or the sensational features on the matter of acceptance of online learning¹⁶. These may be mentioned as the followings¹⁷.

1. Accessibility of lesson

Online learning allows students to attend classes from any location of their choice. It also allows schools, colleges and universities to reach out to a more extensive network of students, instead of being restricted by geographical boundaries. Since online classes can be taken from home, response of students is observed more.

2. Affordability

Another advantage of online learning is reduction in financial costs. Online education is more inexpensive as compared to physical learning. It is held, because online learning eliminates the costing of learner's transportation, arrangement for meals, and most importantly requirement of accommodation outside of their home.

3. Availability of online tutorial

Students may depend on Internet for online tutorials anytime in order to fortify their study materials. Besides, e-learning has become well interactive for the purpose of comprehension of subject of study.

4. Easier preparation for examinations

Another advantage of online learning is that it helps during the preparation for examinations. Nowadays most of the students who take preparation for higher studies and examinations depend on internet to find answers to their questions.

5. Reduction of burden of paper work

Online learning dependency has led to reduction and elimination

of the burdensome paperwork which was an essential part in the earlier system. Since examinations are conducted online, teachers are not required to carry bundles of answer sheets to their home for evaluation. Results are declared very early and there is more transparency and accuracy.

6. Research work is simpler

Online learning procedure has made the research work very simpler, specifically in the field of pure science, bioscience, medical science, engineering and information technology. With information easily available on the internet, one can find required solution to any problem. The research scholars can prepare their theses or dissertation works hassle-free, i.e. without much difficulty.

BARRIERS IN ONLINE LEARNING

As with most teaching methods, online learning system also has its own set of barriers¹⁸. These barriers may be mentioned as the followings¹⁹:

1. Problem to access Internet

The first barrier in online learning is accessibility of Internet in required speed. Another barrier is digital divide existed in society, i.e. learners who belong to disadvantaged economic group cannot afford expense for costly mobile and for internet connection.

2. Inability to focus on screen

For many learners, one of the biggest problems in online learning is uneasiness to focus on the screen for a longer period of time. Visual attention on the screen causes dizziness, headache and several health issues.

3. Sense of isolation

In online classes, there are no physical interactions between students themselves. This often results in a sense of isolation among the students. Students are thus isolated from their peers who sometimes discuss different lessons on clarification.

4. Language barrier

Online learning may pose challenges to those who are proficient in other language in which information is not served, although educational institutes can reach students all over the world as long as these students understand the language.

5. Incompatibility of standards

The other important barrier is incompatibility among the standards in ICT, because online education requires same technological standard and platform in communicating contents and for interaction required among students and teachers²⁰.

6. Control over intellectual property

Another barrier is empowerment of the intellectual property²¹. A vast amount of information seems freely available on the Internet for non-commercial purposes, but a user has to go through several steps of logging-in for self identification.

7. Teachers' training

Online learning requires teachers or educators to have a

necessary training on understanding of using digital forms of learning system. However, it may not be always said in all cases. Sometimes, the educators don't even have the necessary resources, tools and training to conduct online classes.

8. Distraction

With online learning, there is also fair chance for the students to be easily distracted by social media or other sites, unless they are kept interactive, and lessons are made interesting during the classes. Sometimes, learners in a phase of passing their unspecified times may cause distraction.

ONLINE LEARNING IN INDIA

'Online learning' is new and broader technical sphere which would help any student to attain educational sources and gain information from any corner across the country. The 'new normal' practice in education in pandemicity of covid also emphasizes increased use of online learning system. It is now believed that online education in India is the future of education and learning system. Various channels have been established by the Government of India to decentralize or disperse the sources and means to provide education to the learners of different corners of the country. India has been too keen in feeling interest on the following aspects²²:

- Development of quality e-content in local languages, to address the diversity of such a multilingual country;
- Addition of skill development courses, programmes, virtual labs, virtual vocational training programmes;
- Framing of 'Guidelines for Digital Education'²³, keeping in view the digital divide in our country;
- Development of online classrooms or virtual classrooms by integrating educational systems and ICT.
- Making sure of coherent user experience by multi-mode entry in teaching-learning through mobile apps, web portals, TV channels, radios and podcasts (a portmanteau, a combination of "iPod" and "broadcast");
- To enable "anytime-anywhere" accessibility and increased penetration, whereas focus will be on increasing usage of mobile phones; and
- To empower e-learning resources, and teachers will be trained on development of their teaching skill.

NATIONAL ENDEAVOR FOR ONLINE RESOURCES

There have been different initiatives to refer to online resources as initiated by the Ministry of Human Resource Development (MHRD), Govt. of India, through a number of projects to assist students, scholars, researchers, teachers and lifelong learners in their studies. These initiatives are remarkably accelerated and enriched in such pandemicity of covid. These may be mentioned as the followings:

Websites	Resources
swayam.gov.in	Learning resources for college and university level
swayamprabha.gov.in	Educational videos for school, college and university level
ndl.iitkgp.ac.in	E-contents for school, college and university level

e-yantra.org	Laboratory practical works for college level
vlab.co.in	Laboratory practical works for school, college, university level
egyankosh.ac.in	Digital repository for college and university level
ignouonline.ac.in/gyandarshan	Audiovisual materials through TV, for college and university level
ignouonline.ac.in/Gyandhara	Study materials for college and university level
epgp.inflibnet.ac.in	E-books for college and university level
ess.inflibnet.ac.in	E-journals, E-books for college and university level
shodhganga.inflibnet.ac.in	Repository of theses for research scholars
vidwan.inflibnet.ac.in	Research databases for research scholars
sakshat.ac.in	Learning needs for all for life-long education
nlist.inflibnet.ac.in	E-journals and e-books for college and university level

UGC GUIDELINES FOR REOPENING

The University Grants Commission (UGC) being the highest authority in higher education in India pointed out some speculations for then an anticipated new normal situation on 05.11.2020. The guidance was to be continuously followed to reduce the risk of exposure of covid among all faculty members, employees, students and visitors. The particulars of the guidance were as the followings²⁴:

1. Physical distancing of at least 6 feet to be followed as far as feasible;
2. Use of face covers /masks to be made mandatory;
3. Frequent hand washing with soap (for at least 40-60 seconds) even when hands are not visibly dirty. Use of alcohol-based hand sanitizers (for at least 20 seconds) can be done wherever feasible;
4. Respiratory etiquettes are to be strictly followed. These involve strict practice of covering one's mouth and nose while coughing /sneezing with a tissue /handkerchief / flexed elbow and disposing of used tissues properly;
5. Self-monitoring of health by all and reporting of any illness at the earliest;
6. Spitting shall be strictly prohibited; and
7. Installation and use of 'Aarogya Setu App' shall be advised wherever feasible.

FUTURE OF ONLINE LEARNING IN INDIA

After a certain period of opening for physical presence at classrooms in India in the last quarter of 2021, it has been again closure of institutions, along with situation of lockdown in different sectors since the beginning of 2022, as a safety measure to reduce the spread of omicron variant of covid. The situation is recognized as pandemicity of covid in its 3rd wave. The educational institutions have been again compelled to depend on online learning system. Besides, with the passage

time, bestowing of importance on internet facility to become more affordable and accessible, there is greater acceptance of online learning among the teachers and learners. The academic industry will gradually witness additional developments in communication technologies which would offer a variety in online learning system. The commonly observable aspects are²⁵:

1. The government is taking essential steps to come up with policies that will help to improve the online education in the country. It is making proper efforts to improve the quality of digital infrastructure across the country to facilitate the use of innovative educational tools.
2. In the days to come, online education will witness significant changes in the way universities, colleges and schools provide education. We can witness numerous possibilities emerging out of online education to empower the youth of our country.
3. Advanced Learning Management System (LMS) with its right knowledge management tools will certainly assist in improving the design and delivery of educational courses being offered by the Universities and Colleges in India.
4. Digital technology is expected to gradually overcome all the language barriers. Learning materials can now be digitally produced in different regional languages. Through e-learning and mobile learning initiatives fostered by the government and private sectors, students and teachers can now be able to access resources from the vast pool of knowledge content.

To sum up, it can be said that online education is the future possibility for India that will take our country to a new pedestal of substantive socio-economic growth and prosperity.

CONCLUSION

The virulence of spread of covid is nowadays in successive waves. It is still threatening as a highly morbid disease and always becoming a burning problem for our human race. Social distancing, use of mask and practice of hand hygiene are three commonly useful measures helping us to prevent the disease. In such campaign, vaccination, identification of cases and medication are other three important aspects. Scientists have been un-reluctantly working to study this corona virus appearing in multiple mutations, so as to develop an effective treatment and to invent a powerful vaccine. The troubles of the disease are not at all over. Even the viral disease has been envisaged more morbid every now and then when multiple mutants or different variants or peculiar strains of the corona virus are detected. Therefore contemporary educators and learners are slowly but steadily moving towards online digital courses in almost every field of education. Virtual classrooms are now all set in all streams around the world, and the learners are fairly enthusiastic to be enrolled to such courses. Online teaching-learning is not only vastly advanced technological medium, but also provides the lessons to learners with a great deal of flexibility, allowing them to study at any time from any place at a convenient speed. The online learning which was introduced only a few years ago has now been warmly and graciously accepted by today's world, especially in such pandemicity of covid. A lot of advancement has been achieved in this subject

field, but still the journey is not complete and it is long way to go in forthcoming days. The modern academic system requires to ascend many more steps further to welcome such an enormous change in learning system in our society. However it is to realize that online learning is implied to enhance learning processes, not to replace the traditional methods.

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