



E-Learning: Transforming Education during Lockdown

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Abstract: Humanity has faced a serious threat from COVID-19, the most virulent coronavirus strain. It was deemed a global emergency and pandemic by the World Health Organization (WHO), impacting countries worldwide. Numerous industries have experienced significant disruptions, including business, retail, automotive, finance, and aviation. The most affected by these has been schooling, as kids' regular routines have been disrupted. But in these difficult circumstances, technology has become an indispensable lifesaver. The higher education industry has seen a new normal brought about by COVID-19, which has changed academic procedures, redefined crisis management techniques, and completely changed the online learning environment. E-learning platforms have experienced unparalleled expansion in India, for example, with a 600% increase in training in communication skills and a 280% increase in business fundamentals courses. The benefits and difficulties of e-learning, its platforms, and the lockdown are examined in this chapter.

Keywords: Covid19; E-Learning; Digital Tools; Pandemic; Lockdown.

I. INTRODUCTION

The COVID-19 pandemic is the most significant global health issue of our time and has presented the globe with its biggest obstacle since globe War II. With the exception of Antarctica, the virus has quickly spread to every continent since it was first discovered in Asia last year. The number of instances being administered is rising at an exponential rate. To date, over 3 lakh individuals have lost their lives, and the number is constantly rising. COVID-19 is more than just a health emergency. A social, political, and economic crisis has already resulted from it. Every nation hit by COVID-19 has seen a significant decline in its economy, leaving lasting damage for years to come. . Numerous short-term and probably long-term repercussions of this pandemic are changing people's lives. With 1.53 billion students out of school and 189 nationwide closures affecting 87.6% of all enrolled students worldwide, education has been severely impacted, much like many other sectors. 72% of students worldwide have been impacted by the nationwide closure. The centuries-old chalk-talk teaching method has been replaced by a technology-based approach as a result of this pandemic. to make sure that there are no breaks in education and that students have complete access to it by putting them in online courses and allowing them to communicate with mentors in a virtual classroom setting. In addition to providing educators with a new paradigm in which various high-quality courses can be created, the online environment offers previously unheard-of opportunities for those who would otherwise have limited access to education. This chapter focuses on how e-learning can be a terrific way to keep parents and their wards engaged and improve their knowledge while also improving their physiological and emotional well-being during lockdown. Fig 1 represents the different transformations of learning with time. This chapter has been divided into various sections:

Section I discusses about the brief overview of E-Learning
Section II discusses various digital tools available in education
Section III and IV discusses the pros and cons of E-Learning
Section V discusses the future of E-Learning post lockdown.

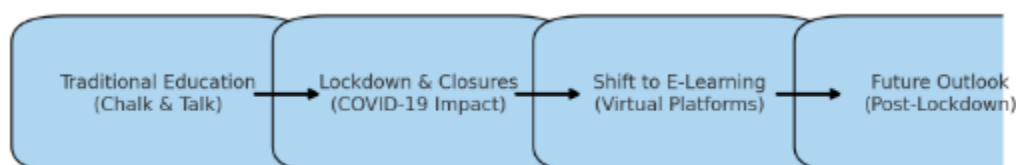


Fig. 1. Phases to E-Learning



II. E-LEARNING

There are different approaches to learning, it may be offline or online. The necessary pre requisites to learning are tutors or Educators, proper materials and right system approach. E-learning is an environment of learning in which both technology and physical works are involved. The term E-Learning was coined around 1980's and has gained much popularity in recent years as technology has improved over years and has become easily accessible. The network connectivity has been stabilised and has become efficient over years. A much proposed definition of E-Learning is delivery of instructional material using both prints and electronic media[2]. The instructional delivery comprises of instructor who is/was physically located in a distant place from the learner and guiding them with instructions at different times and situations. In other sense, E-Learning platforms provide learning experience in form of information or instruction with the help of electronic media and technology. The fig 2 represents the different characteristics of e-learning.

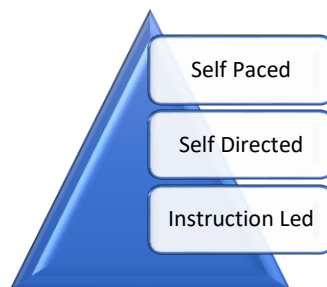


Fig. 2. Characteristics of E-Learning

The main characteristics of E-Learning are:

- (i) Self Paced: It enables the students to study online with their own pace taking their own time without fixed time slots to understand study materials from any location in the world[2].
- (ii) Self Directed: It enables the learner to be in charge of the whole learning process. The learner itself monitors, manage and motivates in the whole learning process.[2]
- (iii) Instruction Led: In this instructor guides through certain instructions controls and acts as a facilitator in the whole learning process.[2]

Rather less, that there are plethora of benefits of E-learning but it should be always kept in mind that every new technology brings with it number of pitfalls. It is also bringing detrimental effects on the young minds. So, online learning process needs proper ethics and guide is needed to help them through this process and to keep in check.

III. VARIOUS DIGITAL TOOLS USED IN E-LEARNING

Online education has not been new in India. Many government and private colleges in the country has been conducting online classes since yester years. However, Covid-19 has hastened the online education sector and mobile networks have become the preferred platform. The barrier of social distancing and lockdown has been reduced by ICT by introducing many open source digital tools and adding new courses and material to already running online tools. Online platforms doesn't only serve the purpose of educating the youth but it is also providing the opportunity for every enthusiastic academicians to enhance professionally by creating their own OER(Open Educational Resource) .[1]

Various online tools mostly used by students during lockdown have been discussed below:

A. SHAGUN ONLINE JUNCTION

It is the world's largest Integrated Online Junction for School Education. The terminology SHAGUN has been coined from two words: Shala means schools and Gunvatta means quality .The main motive is to create a platform where pupils and teachers can interact with each other and all school related information can be passed. There are the other platforms like that come under the jurisdiction of Shagun portal. It can be accessed through the website ssashagun.nic.in[8]

**A.1 National Repository Of Open Educational Resources(NROER)**

It is a platform that provides free access to e-libraries, e-books, e-courses and chance to participate in events online. This website nroer.gov.in can be accessed in both Hindi and English language. The number of registered users on the website has crossed 16000 and there are 14500 e-learning resources available on this website nroer.gov.in. [15]

A.2 DIKSHA

It is named as National Digital Infrastructure for teachers. This portal is to enhance the skills for teachers and providing them the learning materials for classes 1st to 12th. It can be used for both teachers and students. The website is diksha.gov.in. [16]

A.3 E-Pathshala

This database has been made by NCERT and is also available in different languages. The learners from class 1st to 12th can get full advantage of this digital platform to enhance their skills. The lecture notes are available in audio, video, e-books and flip books. It can be accessed through epathshala.nic.in [17].

B. SWAYAM

It is an initiative by Government of India and works to satisfy the principle of access, equity and quality. The course material is available for classes from 9th to Post graduation. It provides the lecture notes in the form of video, reading material, self assessment tests and online discussions. It has academic partnership with national agencies for the quality content to be delivered. The website to access services are www.swayam.gov.in [10]

Table1 Various Co-ordinators with Swayam[10]

Sno	Coordinators	Education Level
1	NIOS, NCERT	School
2	IGNOU, NITTTR	Out of School
3	AICTE, NPTEL, CEC, IIM-B	Under-graduate
4	UGC, AICTE, IIMB, NPTEL	Post graduation classes

C. SWAYAM PRABHA

It is a group of 32 DTH channels which telecasts high quality education content 24*7. The education content is provided by IITs, UGC, NCERT, IGNOU, CEC, NPTEL etc. The content is for school classes 9th to 12th, Undergraduate and Post Graduate classes and also for preparing for competitive exams. A new content is added everyday which is of 4 hours duration and it is broadcasted five times a day [11].

D. NPTEL

It is National Programme on Technology Enhanced learning (NPTEL) which was introduced by seven Indian Institutes of Technology and Indian Institute of Science, Bangalore. It is the largest repository which covers engineering, humanities, core science and social science subjects. It is the most accessed peer reviewed educational content in the world. This portal has already crossed 470 million views. There is a YouTube channel for NPTEL which has more than 1.5 million subscribers and 400 million views. The content is mostly in the form of video lectures. The certification courses are also available from different IITs. Now a non IITian can also become an IITian online by getting a certification of the courses. It can be accessed through website: www.nptel.ac.in [9]

E. ATAL

It is AICTE Training and Learning Academy which empowers the faculty to meet the goals of Higher Education such as quality, equity and access. It provides an ample of opportunities for training and exchange of experience like



workshops, orientation programmes, peer mentoring and faculty development programmes. The website is www.aicte-india.org>atal[14]

F. NDL

It is National Digital Library of India. It is run by MHRD. It provides the courses from school based to post graduation and PhD level. It integrates the content from different Indian Institutional databases. The database can be accessed in about 400 different languages. There are 100 plus learning resources are available. The website is www.ndl.iitkgp.ac.in[13]

G. Virtual Labs

It is an initiative by MHRD. It works under the collaboration of 12 IITs which provide online classes and study materials through virtual labs where about more than 700 experiments are designed and promoted for the aspirants. It also provides costly equipments and resources to carry out the experimentation. The website is www.vlab.co.in[12].

IV. BENEFITS OF E-LEARNING

There are numerous benefits of e-learning .Some of them are explained as below:

A. Cost Effective

Most of the courses available are free of cost and the advanced courses are charged at minimal cost. There are mainly online portals like Swayam, e-Pathshala, Shagun Online junction, NROER(National Repository of Open Educational Resources), Youtube etc are providing valuable, voluminous and easily accessible information. Furthermore, during pandemic almost all the educational institutions are providing free tutorials and lessons on the private platforms. Hence it saves much expenditure that may be involved in face to face learning.

B. Accessibility

To access the online courses there is a need of a device (Computers, Laptops, Tablets, smart phones etc.) and reliable internet connectivity. It is easily accessible and can be used at any corner of the world having a device and internet connectivity. Moreover the courses can be downloaded and can be used as a reference for further use.

C. Personalization

The learning environment, learning notes and interaction between tutors, learning peers can all be personalised on the individual wish and comfort. There are no particular dedicated timings that always need to be followed.[4]

D. Availability

The learner and tutor can interact with each other at any time 24*7 without the drawbacks of timings of day and night but on the condition that the time is suitable for both the integrators. Also this type of interaction helps in hostile ,warm and friendly relationship between both the ends.

E. .Effectiveness

According to research, the average student retain 25-60% more material when learning online compared to only 8-10% in the classrooms. It is due to the fact that students are able to learn faster in case of E-learning as it takes 40-60% less time to grasp the material than in case of physical interactions .As students learn through their own pace ,accelerating the concepts they already know and this saving valuable time.

F. Social Distancing

Amid the Corona virus spread, there needs to be precautionary measures that are to be adhered to stop the spread of this disease .For this the best viable option is E-Learning in which social distancing is maintained and student learns without physical interaction between the peers.[4]



V. CHALLENGES TO E-LEARNING

There are also shortcomings which hinders the successful working of e-learning. Some of them are explained as

A. Internet Connectivity

To participate in digital learning there is a dire need of a reliable, strong and powerful internet connections. A survey among 7600 respondents were carried by Quacquarelli Symonds (QS) which provides for the global ranking of the educational institutes. The survey pointed out that the infrastructure in terms of technology in India has not achieved a state of quality which hinders sound delivery of online classes to students across the country. Both state and private players are in race to overcome technical challenges like ensuring reliable connectivity and continuous power supply.[3]

The report pointed about the various problems faced among the respondents. The data in fig 3 reveals the various modes used for e-learning among the respondents. Whereas those used home broadband and mobile hotspots, the various problems faced have been illustrated in figure 4 and 5.[3]

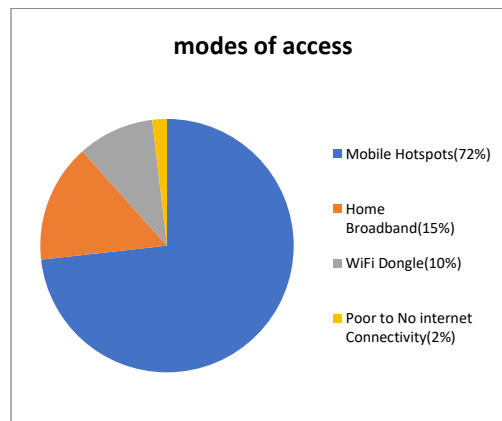


fig 3: Various modes of access

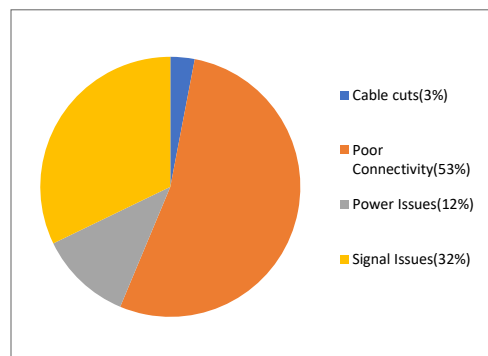


fig 4 :Various common problems faced

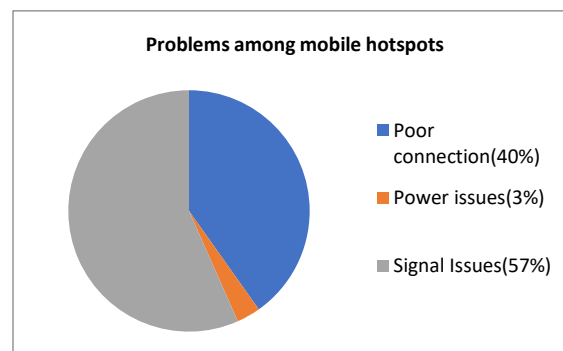


fig 5 Problems faced among using mobile hotspots



So, due to lack of proper infrastructure, a shift to a total reliance on the online platform for the delivery of lectures seems to be a distant dream.

B. .Internet Infrastructure

For e-learning we need proper devices to attend, interact and learn digital skills. The devices comprises of laptops, desktop computers, tablets, palmtops, net books, smart phones etc. The analysis by The National Statistical Organisation (NSO) 75th Round survey on 'Social Consumption of Education in 2017-18' which includes households which had students aged between 5-29 years and were currently enrolled and attending school. The survey showed that 8.3 per cent of households had computers and 21.6 per cent had internet facility. However, there are large variations between rural and urban areas . In urban areas, 20 per cent of households had computers and 39.8 per cent had access to internet . The corresponding numbers in rural areas were 4 per cent and 15 per cent respectively[5]. These figure are hindrance in the path of e-learning process.

C. Digital Skills

The Indian youth and society are also characterised by having limited to poor digital skills as only few individuals that belong to upper urban areas could use properly the computers and other networking devices. As per reports by NSO,2019 only 17.6 percent of the Indian students had knowledge of how to use computers and 18.4 percent knows how to access the internet. So, for effective deliverance of learning at home other methods needs to be investigated. And one such good alternative is Television. As almost 85% of the Indian population possess TVs.[5] This is the cost effective, efficient, most accessible option.

D. . Poor Social Interaction

With online learning the student is completely isolated from its peers, teachers and students. This low degree of social interactions can lead to various physiological, physical and mental issues. The personality development of child may be hindered. There is a dire need for guide at homes during lockdown to help them understand the lessons and to create positive, healthy and friendly atmosphere to plunge away the degree of negativity.

E. Cyber Crimes

As due to prolonged use of internet and computers, young minds can easily get distracted and could commit criminal offences. These crimes are committed with the help of computer technology(a device and a network) or smart phones. Some kind of cyber crimes are child pornography, sexting, cyber bullying ,identity theft. So due care is needed to look after the child for the material and websites being visited. It is generally recommended that a guide is must when learning online if the learner is a kid or a teenager.

VI. FUTURE OF E-LEARNING POST PANDEMIC

E-Learning after post lockdown can provide multiple benefits for both the ends of the learning process i.e. learner and teacher .They could share multiple ideas, knowledge and information gathered from different sources .The mentors can assist the students by helping them to understand the concepts without the problem of physical location. It does not only proves to be advantageous to the learners but teachers can also excel in their academic career by providing quality lectures and can gain name and fame worldwide. It is to be noted that according to research average student retains 25-60% more material when learning online as compared to 8-10% in the classrooms. Also, the time required to grasp the information is about 40-60% less than as compared to traditional classrooms .As it is believed that human brain can easily remember and relate what is seen and heard via moving pictures or videos. The visual concepts are retained by brain for longer time.. But, these results are varying with different age groups.[7] The digitization of education has a long way to go.

VII. CONCLUSION

E-Learning is not a new form of learning but it is like an old wine in a new bottle. Hence, it is highly required to establish a better and strong foundation of this type of learning environment. It is best viable option for those who lack proper education opportunities due to higher costs involved or other personal problems. It must be promoted at a higher scale by government, teachers and students but key roles of each and everyone must be defined so that its vigilant effects does not hamper its advantages. In educating the society the government and teachers must also attain



the role that quality must not be compromised. The parents must act as role models to facilitate their wards during sessions timely.

REFERENCES

- [1]. <https://www.jagranjosh.com/articles/list-of-digital-learning-platforms-for-the-students-by-mhrd-and-government-of-india-1584947155-1>
- [2]. <https://www.imphaltimes.com/guest-column/item/17423-e-learning-wave-during-covid-19-lockdown>
- [3]. <https://www.cnbc18.com/information-technology/internet-infrastructure-not-ready-for-shift-to-online-learning-due-to-lockdown-states-qs-report-5741931.htm>
- [4]. <https://english.mathrubhumi.com/features/specials/e-learning-the-best-bet-during-lockdown--1.4730381>
- [5]. <https://www.thehindubusinessline.com/opinion/is-e-learning-the-best-bet-during-lockdown/article31426331.ece>
- [6]. <https://www.heraldgoa.in/Cafe/The-COVID19-pandemic-has-changed-education-forever-This-is-how/160029>
- [7]. <https://www.weforum.org/agenda/2020/04/coronavirus-education-global-covid19-online-digital-learning/>
- [8]. <https://seshagun.gov.in/about-us>
- [9]. <https://nptel.ac.in/>
- [10]. <https://swayam.gov.in/>
- [11]. <https://www.swayamprabha.gov.in/>
- [12]. <http://www.vlab.co.in/>
- [13]. <https://ndl.iitkgp.ac.in/>
- [14]. <https://www.aicte-india.org/atal>
- [15]. <https://nroer.gov.in/welcome>