

Implications of Online Education in COVID-19 Pandemic- A Review

Arpita (Banerjee) Mukherjee
Faculty, Department of Botany
Dum Dum Motijheel College, Kolkata India.
E-mail: arpita.mukherjee82@gmail.com

Abstract

The Corona virus 2019 disease (COVID-19), caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), was a novel disease first reported in Wuhan, China. It was causing pneumonia like symptoms in patients. Within a period of three months, it took the shape of a pandemic affecting almost all the countries of the world. Many drastic measures were taken by the governments to restrain the spread of this highly contagious disease. Some of them were suspension of domestic and international travel, maintaining social distancing, imposing lockdown, etc. These measures affected almost all the sections of the society. One of the worst hit was the education sector. With schools, colleges and all the institutes of higher education under closure, both students and teachers were in a state of complete dilemma as to what the subsequent measures should be. After much deliberation, the MHRD (Ministry of Human Resource and Development) advised the schools and colleges to adopt an online method of teaching. The introduction of e-learning methodologies had both positive and negative implications. On one hand, it was hugely appreciated and adopted by many schools, colleges and institutes, so that students face no hindrance to learning in this pandemic situation. But, on the other hand, it was criticized, as there is a massive divide between the accessibility of digital facilities in the rural and urban population, and it was speculated that many rural students will miss out if studies are continued on online platforms. The present review tries to focus on both positives and negatives imposed by lockdown, leading to changes in teaching methodologies and introduction of e-learning to the masses. Also, it highlights the efforts needed to be put forward to make learning accessible and bring out a solution for ensuring e-learning for everyone and bridge the gap in the digital divide.

Keywords: Coronavirus, digital divide, e- learning, lockdown, pandemic, SARS CoV-2.

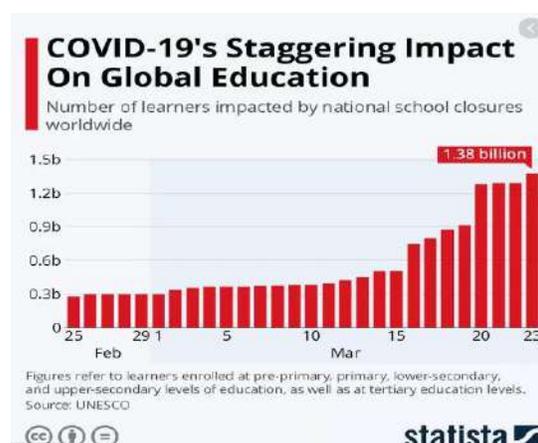
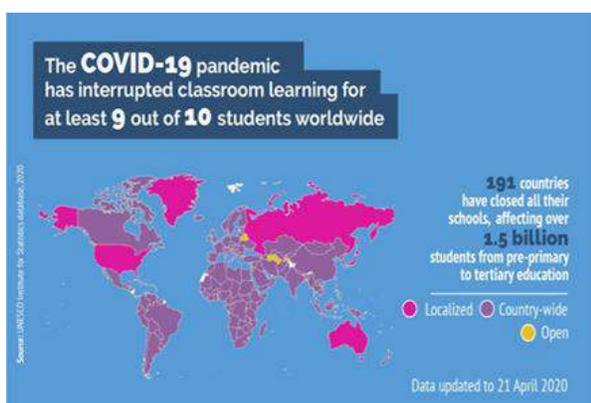
Introduction

In January 2020, Chinese authorities announced that a new type of Coronavirus (Coronavirus - nCoV) had been isolated, which was causing pneumonia like symptoms in human patients (Zhou, 2020). The virus causing the disease was named as Novel Coronavirus by WHO (World Health Organisation) on 12th January 2020 and COVID-19 on 11th February, 2020 (WHO, February 2020). The WHO declared it a pandemic on 11th March, 2020 (WHO, March 2020). With the disease escalating its reach day by day, it soon became a major health crisis of our time and was regarded as a public health emergency of international concern. From that time, till date, the situation has not shown much of an improvement. Due to its highly contagious nature, countries started introducing different policies like suspension of national and international travel, social distancing, self-quarantine and lockdown (Dunford, 2020). The lockdown imposed affected the entire education sector, from primary schools to universities and research institutes. Regular classes stopped in between the session of January - May. It was estimated by UNESCO that the lockdown affected almost 1.38 billion learners in about 138 countries of the world representing more than 3 out of 4 children and youth worldwide during the month of March 2020, which rose to around 1.5 billion by April 2020. (UNESCO 2020) (Figure 1a and 1b). In India, it was estimated that around 321 million learners were away from school due to the pandemic (Sukumar, 2020). Since, as months progressed, there was no solution to stop the outbreak, it led to rethinking, re-planning and

altering the offline method of learning to an online method. The Ministry of Human Resource and Development (MHRD) instructed all schools and colleges to initiate this endeavour and also provided many online aids to help the process.

Online education is generally conducted in two ways. In the first method, pre-recorded classes are made available to public through different forums. These are referred to as MOOCs (Massive Open Online Classes), which enables open access to wide number of students. The second method is conducting live classes through various online platforms. But it has its limitation, as it requires high speed internet access and knowledge of handling of the online tools, by both teachers and students alike. As online classes started taking shape in various educational institutions, many facets of e-learning came into picture. On one hand, the teachers hurriedly started adapting to the new platform of teaching which they were not fully accustomed to; while students were left clinging to their mobile phones and laptops for hours together. There was confusion and uncertainty in many aspects. Hence, there were both pros and cons with regard to the online or e-learning methods, and the present review tries to focus on some aspects of both.

Figure 1 a and b: Showing the approximate number of students impacted worldwide during the period of March to April due to lockdown



a. (Source: <https://www.weforum.org/agenda/2020/04/coronavirus-education-global-covid19-online-digital-learning/>)

b. Positive outcomes of online pedagogy

One of the major positives which emerged from the online method of teaching was that teachers got an opportunity to diversify and improvise. The inclusion of vivid photographs, illustrations and videos provided to the students had a positive reinforcement, compared to the traditional method of teaching. The sessions could easily be recorded and referred to whenever required. Many digital platforms were created for the faculties, to ensure that they can handle the change with ease. The Ministry of Human Resource, along with NCERT and Department of Technical Education started many initiatives such as e-PG Pathshala (providing an array of e content in many disciplines for the students), Swayam (Study Webs of Active-Learning for Young Aspiring Minds), DIKSHA, NROER and many others (India Today, 2020). These are connected to other national coordinators such as AICTE, NCERT, IGNOU, UGC, NIOS, IIMB, CEC etc. for delivering updated and excellent quality content to the aspirants without any fee or with a very minimal annual fee. Hence, the students are now enriched with many more avenues as compared to the classroom teaching.

Another relieving advantage of online mode of teaching was its flexibility on delivery and timing. Both students and teachers were able to communicate with each other from the safety and comfort of their homes at their desirable times. Therefore, the students and teachers could easily interact while exercising social distancing, which is the need of the hour. A number of students also find substantial savings on fuel costs with no commute for classes. Also, this flexibility of timings enables the students to go through the

online material at their own pace and this, gives them opportunity to plan the study time around the rest of the day (Jung, 2020).

Again, since the data of every student is digitally traceable, there are analytical tools to provide detailed records of each and every student. The teachers can easily conduct tests and quizzes in technologically enabled classes and quickly access the results from them. This is a time saver compared to manually checking of the student's performances. Hence, it helps the teachers to identify the learning patterns of every student and customize lectures and classes according to their individual needs, and provides scope for quicker, more personalised feedback via elements like instant grading or 24-hour marking tools (Li, 2020). This is something that is difficult to undertake considering the class sizes of students in traditional courses.

Though the trend of the shift to online methodology of learning has already been in a constant rise for the past few years (Figure 2); there have been reports of sharp increase in the online methodologies of teaching and students enrolling for different online classes in the midst of the COVID-19 pandemic. Some of these classes are being offered free of cost and hence the students get a good opportunity to diversify their knowledge without facing financial burden (Jung, 2020). Many educators believe that online learning can be an effective tool in combating the rising cost of post secondary education by distributing the cost of a single class over a much larger number of students compared to the traditional method of teaching (Nguyen, 2015). On one hand, the dependency on technology has increased massively; on the other hand, one is benefitted by the use of these new technologies which were previously unknown.

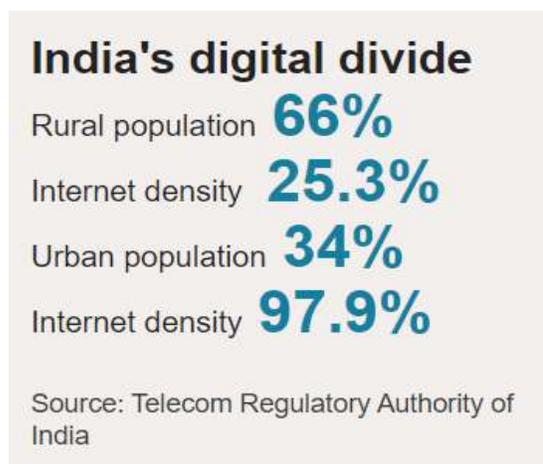


Figure 2: Approximate percentage depicting the digital divide in Urban and Rural population in India.

(Source: <https://www.youthkiawaaz.com/2020/04/why-accessing-online-education-for-all-is-still-a-dream-for-many/>)

Negative outcomes of online pedagogy

One of the major problems of online education in India is that, India being a country with a population of almost 135 crores, there is a massive divide between the accessibility of digital facilities in the rural and urban population. A survey done in 2018 indicates that 30% of our population lags on basic literacy and thrice that for digital literacy (Sengupta, 2018). Though Indian government launched Digital India Campaign in 2015 to empower every citizen with digital awareness. However improper infrastructure, bandwidth unavailability and lack of personal computer penetration etc are the few challenges which is causing a digital divide (Figure 2). Hence, Only a handful of private schools and colleges could effectively adapt to the online method of teaching. The classes were introduced from the month of March 2020 by them. On the other hand, the low income group private schools and most government schools and colleges were completely shut down for not having any access to e-learning methods. Another major setback for the students living in rural areas was that apart from being cut off from the opportunity of learning, they no longer had access to the healthy mid-day meals. Hence, they were subjected to both economic and social distress.

UNESCO meanwhile had advised the use of television broadcasts and community radios to lessen the digital gap in the existing situation. Back in India too, the Indian Government instructed many institutes to start making recorded lessons available to the students by DTH methods. Under the directives of MHRD, NIOS (The National Institute of Open Schooling) started unique methods to ensure learning to every part to the country, even to the places which lacks internet services. Swayamprabha is a DTH channel which

provides pre-recorded video lectures to the students who do not have internet facility (MHRD, 2020). Also, live sessions are held through Skype in association with KVS, NVS and CBSE & NCERT through Swayam Prabha DTH channels. But, though the initiation of the programs has started, yet it is still unclear whether these programs are reaching the target audience or not.

An added hurdle faced by the teachers was that they had no clarity about the tools and technologies to use for accessing the online platform. No prior training, insufficient bandwidth, and little preparation initially led to a poor user experience. This initially created much confusion and anxiety among both students and teachers. The biggest problem was that there was not enough time to do the training, that a teacher needed to understand how to teach online. The digital tools were remodelled and a number of virtual training programs were held. It was advised that schools use platforms that teachers and students are already familiar with, so they don't strain or over burden the students with new technologies which would be difficult for the students to understand and adapt (Adams, 2020). Though most schools and colleges have since adapted to the online platforms, yet the road ahead is long.

Another major concern among the parents of school going children is the increase in the screen time due to the online classes. There have been reports that students have started having eyesight problems due to constantly being glued to computers or mobile phones. Paediatricians are of the opinion that spending too much time in front of computer and phone screens can cause watering or dryness of eyes and also headache in some children (Varghese, 2020). The blue light emitted by these devices can also effect the sleep cycle in the children. Though most of the schools are providing breaks among the classes, yet the parents of younger children are concerned that is over exposure may impair their social and communication skills. Not only children, teachers too are facing similar issues due to the continuous online classes throughout the week. On 16th of July, MHRD has proposed some guidelines for online classes under "Pragyata". They have proposed that duration of classes for pre primary should not be more than 30 min, for classes 1-8 two sessions of 45min and 9-12, four sessions of 45 min. If this schedule is followed by all schools, it will undeniably be a good step to check the screen time for the school going children.

The conduction and regulation of various examinations too are a major challenge for all the education institutes. Many experts are of the opinion that even if the examinations are conducted, it is not possible to maintain the same standard of invigilation through this procedure. Hence it will encourage malpractice among the students and the quality would be compromised in the online examinations. An exam system should have the facility for proper encryption of exam questions. Where encryption levels are not adequate, unauthorized access to the exam system could lead to compromise of exam standards, leakage of data and falsified manipulations (Sharma, 2014).

A rise in the cases of cyber-bullying, misbehaviour, sexual harassment and abuse has also increased in the realm of online classes. There has been reports that outsiders make their entry into the virtual classes and abuse the faculty, or share obscene materials. Several teachers under Delhi University colleges said they were abused and harassed by some attendees during the online classes (Iftikhar, 2020). This is a matter of major concern.

The lockdown situation has significantly disrupted the higher education sector too. In India, it is estimated that total enrolments in higher education every year are nearly 37.4 million (Kumar, 2020). Also a large number of Indian students are enrolled in universities abroad such as US, UK, Australia etc. for higher education or research purposes. The pandemic has left many students in uncertainty as to the next course of action. Most of the students who were displaced far from their families, but within the same country, have returned home. However, in the case of students abroad, the situation remains highly variable. With tens of thousands stranded in different countries waiting for on-site activities to resume or because they are unable to return to their countries due to the government imposing ban on international travel and closure of airports and borders, the future of these students remains insecure. Many educational institutes did converge to e-learning methods, but hands-on training programs were hugely affected. If the situation persists, then there will be a decline in the demand for international higher education.

Conclusion

Needless to say, the present pandemic has transformed the century old "chalk and board" method of learning to a more technologically driven one. Though there can be no replacement of direct human interactions for learning, the e-learning methodologies are proving to be the best option currently available with us. This learning methodology has tremendous potential, and in future, might bring revolution in the way of acquiring knowledge. To ensure that quality education is provided to every child, customized teaching modules are needed to be built in accordance with the proper channel of communication. Better opportunity must be created for all to access online libraries and journals. Both teachers and students should be able to access information about how to make use of the necessary technology for online lessons. Hence, now it is the responsibility of the policymakers to bring out feasible solutions for ensuring e-learning for everyone, and bridge the gap in the digital divide. It is said that in crisis, there is also an opportunity. Perhaps in this crisis of global pandemic there is an opportunity for pedagogical review so that it favours every learner.

References

- Adams, C. (2020). Coronavirus 'confusion': Teachers had little training for how to do online classes. The Hechinger Reports <https://www.usatoday.com/story/news/education/2020/04/17/coronavirus-teachers-online-class-school-closures/2972529001/>
- Dunford, D., Dale, B., Stylianou, N., Lowther, E., *et al.* (2020). Coronavirus: The world in lockdown in maps and charts. BBC News. <https://www.bbc.com/news/world-52103747>. <https://www.newindianexpress.com/cities/kochi/2020/jun/13/eyestrain-from-digital-classes-a-major-health-concern-for-students-2155908.html>
- Iftikhar, F. (2020). DU teachers complain of harassment, abusive posts during online classes. Hindustan Times. <https://www.hindustantimes.com/delhi-news/du-teachers-complain-of-harassment-abusive-posts-during-online-classes/story-cLVokQNgV0yNG2M67bC4EL.html>
- India Today Web Desk. (March 2020). <https://www.indiatoday.in/education-today/featurephilia/story/ugc-students-teachers-utilise-time-online-learning-1660021-2020-03-26>
- Jung, I., Rha, I. (August 2020). Effectiveness and Cost-Effectiveness of Online Education: A Review of the Literature. 40(4) 57-60.
- Kumar, DNS. (2020). Impact of COVID-19 on Higher Education. Higher Education Digest. <https://www.highereducationdigest.com/impact-of-covid-19-on-higher-education/>
- Li, C., Lalani, F. (2020). The COVID-19 pandemic has changed education forever. This is how. World Economic Forum. <https://www.weforum.org/agenda/2020/04/coronavirus-education-global-covid19-online-digital-learning/>
- Ministry of Human Resource and Development. (2020). <https://pib.gov.in/PressReleasePage.aspx?PRID=1614299>
- Nguyen, T. (2015). The Effectiveness of Online Learning: Beyond No Significant Difference and Future Horizons. Journal of Online Teaching and learning, 11(2), 309-319.
- Sengupta, M., Krishnakumar, P. (2018). A look at India's deep digital literacy divide and why it needs to be bridged. Financial Express <https://www.financialexpress.com/education-2/a-look-at-indias-deep-digital-literacy-divide-and-why-it-needs-to-be-bridged/1323822/>
- Sharma, I.; Singhal, A. (2014). Research on Online Examination System. International Journal of Engineering Technology, Management and Applied Sciences. 2(3), 2349-4476.
- Sukumar, T. (2020). Lockdown has put 321 million Indian children away from school, widened learning gaps. LiveMint. <https://www.livemint.com/news/india/lockdown-has-put-321-million-indian-children-out-of-school-widened-learning-gaps-11590137598404.html>

- UNESCO Dashboard. (March 2020). <https://en.unesco.org/news/137-billion-students-now-home-covid-19-school-closures-expand-ministers-scale-multimedia>
- UNESCO source for statistical database. (2020). <https://en.unesco.org/news/startling-digital-divides-distance-learning-emerge>
- Varghese, A.S. (2020). Eyestrain from digital classes a major health concern for students. The New Indian Express, June 2020.
- WHO. (2020). WHO Director-General's remarks at the media briefing on 2019-nCoV on 11 March 2020. <https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020>
- WHO. (2020). WHO Director-General's remarks at the media briefing on 2019-nCoV on 11 February 2020. <https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020>
- Zhou, P. *et al.* (2020). A pneumonia outbreak associated with a new coronavirus of probable bat origin. *Nature*, 579(7798): 270–273. doi: 10.1038/s41586-020-2012-7