From Classroom Teaching to Online Learning Amidst Covid-19- A Review

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Abstract: **The outburst of COVID-19 pandemic across the world has affected the human lives in many ways. The education sector has also been affected by this pandemic which has changed the ways of teaching. It has forced the education system to move from conventional classroom teaching to online education overnight. Initially online teaching was started as a temporary solution against COVID-19 situation but with the surge in coronavirus cases and entrance of different COVID waves, has made it mandatory to continue the learning process through digital medium. This paper aims at providing an insight into how online teaching has affected faculties and students by pointing out positive and negative consequences of online education and their perception towards this new mechanism. The current research work also examines some of the measures taken by Indian Government to promote online learning. Lastly, the study suggests some recommendations that can help in improving the effectiveness and quality of this new way of learning in long run.**

Keywords: **COVID-19, education system, lockdown period, online teaching, online learning.**

1. Introduction

Novel Coronavirus, reported as a dangerous and threatening disease by World Health Organization on January 30, 2020. It is also known as COVID–19 pandemic or Coronavirus Disease which was declared as a pandemic on March 1, 2020 (Cucinotta & Vanelli, 2020). This pandemic has directly affected the health sector of countries disastrously around the globe. It has also affected the education sector massively across the counties especially in a country like India where substantial education was dependent on traditional methods of classroom learning. India has experienced months of lockdown since last year and some parts of the countries are still facing partial or full lockdown as per the situation in their respective states. In India, mostly school and colleges are closed since March, 2020 with the beginning of lockdown across the entire country. To break the chain of this virus, countries were forced to shut their school, colleges, and different education institutions which stopped the learning process for a while at that time. But since the consequences of this pandemic was not going to disappear in the short run, it was not ideal to interrupt the entire learning process for a long term so a mechanism was applied overnight termed as 'Online Teaching'.

The concept of online teaching is not new but its utilization to such an extent is a latest development especially in a country like India where conventional classroom teaching was at the center of education system. Online teaching is the delivery of instruction using different web-based technologies, from the Internet or an intranet and other communication technologies that enable students to participate in learning activities beyond the campus. Online teaching refers to refers to imparting knowledge and information through digital medium. The teaching or dissemination of information takes place over internet i.e., having an internet connectivity is a pre requisite for online learning. The main advantage of this form of teaching is that a teacher/faculty can give lessons/lectures from anywhere and students can join this process from any geographical area. It means physical infrastructure of school and college is not necessary to impart knowledge.

Online teaching is the process of educating others on virtual platforms. This type of teaching involves live classes, video conferencing, webinars, and other online tools. The online applications are developed and designed to facilitate easy learning and better understanding. Online teaching is a student-centric methodology that increases students' interest and participation levels in virtual classrooms where teachers use digital resources to share with their students and are accessible to so many people. It provides a lot of freedom to individuals to learn, teach, and develop skills at their own pace. This type of teaching supports one-on-one basis interaction with the students.

Initially the Government and policymakers somehow, succeeded in continuing the learning process via online mechanism with schools and colleges being shut due to lockdown across the country. But with decline in the number of COVID cases, some restrictions were taken back by the government and opened the doors of few educational institutions only for limited students. But still substantial teaching has been taking place online. In fact, with a sudden surge in the COVID cases again together with development of second and third waves of coronavirus, the education institutes that were reopened for limited students have closed again and different exams are being cancelled to prevent the spread of this virus in its subsequent waves.

In present scenario, the entire education system has been

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shifted from classroom teaching to online teaching where teachers have forced to try different methods of online teaching most of which they never used, be it live online classes, recorded audio lectures or hand written notes in more detailed manner (for practical subjects). They have to face a camera, are required to prepare written notes well in advance for each topic, taking online classes in a noisy home environment and simultaneously handling household chores. The students have also faced many challenges with a sudden change in the way of teaching where they have to spend long hours on screen, trying to understand the concept without having face-to-face interaction with their teachers. Many students from different states of India are facing lot of challenges just to attend these online classes due to lack of proper internet connectivity, lack of digital gadgets and other socio-economic issues. Thus, this pandemic has not only posed challenges for the students but the faculties and educators have also suffered a lot. The measures that have been taken by the concerned authorities to ensure continuous teaching seems insufficient specially for under-privileged students and educators. It is also a debatable question whether this online method of teaching will ensure quality teaching-learning process for coming years as well since the need of the hour is having online education for students. It is also important to evaluate whether the existing temporary solution of online education will prove successful in long term as we cannot think about offline classes due to corona virus, at least for few more years.

Online teaching is not a new mechanism to impart knowledge, but its implementation in the context of COVID-19 pandemic has left many questions unanswered. The challenges that are being faced by its participants requires the Government and the education system to redesign the structure for imparting knowledge through virtual means that can ensure quality and effective learning among students at minimum possible cost and without facing any challenges from teacher's end. Thus, this paper makes a conceptual contribution in evaluating online teaching process by summarizing its positive as well as negative consequences while evaluating the perception of educators and students towards online teaching.

2. Research Objectives

1. To conduct a descriptive study on the implementation of online teaching and learning process by highlighting the challenges faced by students and teachers.
2. To identify the perception of teachers and students towards this newly adopted platform for education over digital platforms.
3. To assess the measures taken by Government to promote online teaching-learning process.
4. To assess the positive and negative consequences of online teaching system in the context of COVID-19 pandemic.
5. To provide suggestions/ recommendations to improve the effectiveness and quality of learning in future.

3. Review of Literature

According to Tanhan, 2020, COVID-19 pandemic did not only affect college students but also primary, middle and high school students, parents, teachers, academics, and especially people with special needs in different ways. Due to the transition to distance education, teachers and academicians could not determine the method they need to adopt, and thus limited to one-on-one interaction with the students that is making education complicated during this health crisis. This process has been more difficult for people with socioeconomic deprivilege (Tanhan, 2020; Tanhan et al., 2020) because some researchers found that even during normal times people who were deprivileged, were not served well (Emir Öksüz& Brubaker, 2020; Tanhan & Francisco, 2019). On the one hand, online education (distance education, open education) is convenient for the students and academics (Allen et al., 2002; Tanhan, 2020), while leading to certain difficulties and disadvantages at the same time (Tanhan, 2020).

D. Vlachopoulos (2020), focused on four pillars to ascertain where online education stands in this crisis. The four pillars were policymaking, access to resources, training opportunities and ongoing evaluation and monitoring. He identified online teaching as a unique solution to fill the gap that exists between students and educational institutions in convention classroom teaching. Although this untested mechanism of teaching provides numbers of benefits to students and faculty as learning and teaching can take place from any location but it also imposes certain barriers that can mitigate the effective learning process. One of those barriers is the lack of availability of reliable and trustworthy network and resources to all the students and educators.

They suggested that proper validated framework for different level of education need to be developed, the required methodologies and ethical practices to attain desired goals should be clearly defined by the policymakers and government in order to have an effective and consistent learning in such difficult time. All the educators and students including vulnerable groups should have access to required resources (in terms of hardware and software). These participants should be given systematic training and ultimately evaluation and monitoring of the entire process is necessary as it will identify the quality of learning among students and will provide feedback for further improvements in teaching methodologies. In the absence of these pillars, online learning could turn out into ineffective learning model.

Wei Bao focused on a case study of Peking University from China and concluded their study by suggesting five principles of high – impact teaching practice to effectively deliver large - scale online education. The first is the principle of appropriate relevance which means that the quantity, difficulty, and length of teaching content should match with the academic readiness and online learning behavior characteristics of students. Second, the principle of effective delivery. Due to students' characteristics of low concentration in online learning, it is essential to adjust the teaching speed in order to ensure the effective delivery of teaching information. Third, the principle of sufficient support. Faculty and teaching assistants need to

provide students with timely feedback, including online video tutoring and email guidance after class. Fourth, the principle of high-quality participation. It is necessary to adopt some measures to improve the degree and depth of students' class participation. Last, the principle of contingency plan preparation. In view of the extraordinarily large scale of online education, it is necessary to make contingency plans in advance for addressing possible problems such as the traffic overload issue of the online education platform.

Online teaching platforms should be used precisely in order to handle post pandemic situation in context of education. A hybrid mode of online and offline learning process would be required to overcome the challenges faced by students such as laboratory visit & work, hands-on-experience, quality teaching, peer tutoring and research & innovation. The biggest issue faced by teachers and students was stable network connectivity during online classes because if the videos and audios of the students were kept off, only then the connection remains stable otherwise it gets disconnected and teaching students while keeping their videos off, does not ensure active learning from their end. Other challenges include essential resources to join online classes, lack of motivation due to absence of immediate feedback (for both teachers and students), issues regarding laboratory activities for research scholars, lack of conducing learning environment due to household chores specially for female students and decision regarding teaching pattern as teachers were not able to judge the mindset of students if their video is kept off. (Mishra, L., Gupta, T., & Shree, A., 2020).

In a study conducted in Mizoram University of India by Mishra et al., 2020, the perception of teachers and students were studied. According to the teachers, faculties would be more inclined and motivated towards this new platform if they can be convinced that online teaching process is more beneficial in terms of its advantages. Self-motivation could work but it will happen gradually. The teachers also highlighted some teaching skills and techniques that are required to impart knowledge on digital platforms which includes excellent domain knowledge, proficient computer knowledge, communication skills, clarity of expression, emotionally connect with the students, ability to resolve small issues during and after the online classes. They also stressed upon some additional skills to manage online teaching such as virtual classroom experience, patience, empathy, care for students, excellent presentation skill with addressing to the point of a given topic, proper handling of teaching-learning tools available with user-friendly features etc.

As far as the perception of students is concerned, they also stressed upon some issues of online teaching that causes lack of interest and attention during their classes through virtual means. Although they mentioned that online teaching has helped them to complete their syllabus or curriculum by providing an alternate solution to offline classes which are not possible in present situation. They preferred when teachers share video lectures for concept clarity as they can be seen again if required, for clearing doubts and recognized Google Classroom as simplest and appropriate way to interact with their teachers. But they also highlighted learning process through smartphones and computers as major setback for them and felt requirement of

some soft skills specially listening skills. They also commented upon the data usage to attend online classes that impose a hurdle if they exhaust the daily maximum limit of their data plan. They suggested that teachers should make learning experience more personalized by enlighten the environment and should try to work on their teaching speed keeping in mind the level of individual capacity of students.

Government's initiatives towards online teaching-learning process

- The Indian National Commission for Cooperation has been working with UNESCO (INCCU) for promoting online education through various online educational platforms in the wake of COVID-19 pandemic. The Ministry of Human Resource Development is providing rich variety of online study material through Television and Radio to the students who live in remote areas

- *Diksha:* It is online platform launched in 2017 by Ministry of Education specially for the teachers from class 1 to 12 that provides more than 80,000 e-content items such as e-books, training courses, lesson videos etc. in multiple Indian languages. The students can also access these study materials by visiting official website.

- *e-Pathshala*: A mobile based app designed by National Council for Educational Research and Training and has audios, videos, e-books and flip books up to class 12.

- *National Repository of Open Educational Resources (NROER)*: A portal equipped with best quality informational content on diverse topics in multiple languages a total of 14527 files including 401 collections, 2779 documents, 1345 interactive, 1664 audios, 2586 images and 6153 videos on different languages.

- *Study Webs of Active Learning for Young Aspiring Minds (SWAYAM)*: It was launched in 2017 under the "Digital India" campaign to disseminate free online study material to the students of school and college (both undergraduate and post-graduate students) in different subjects such as humanities, law, management and social sciences. The access to digital material has been increased three times during the lock down phase.

- *Swayam prabha*: It is providing study material on 24×7 basis at both school and higher education level through 32 DTH TV channels. It can be access through DD free Dish set top box and antenna across the country.

- *Virtual Labs*: Virtual laboratories are also being provided to the students from science and engineering streams at both under graduation and post-graduation level. More than 700 web experiments and lab facilities are provided under the supervision of experienced faculties.

- *National Digital Library*: It consists of repository of

academic content on wide subjects from different disciplines that can be access by students as well as researchers.

- *e-ShodhSindhu*: It provides access to more than 10,000 peer- reviewed journals, bibliographies and citations to its member institutions.
- *National Programme on Technology Enhanced Learning (NPTEL)*: The National Programme on Technology Enhanced Learning was launched by different IIT's and Indian Institute of Science (Bangalore) in 2003 with an objective to provide online courses on engineering and core science subjects.

4. Methodology

The current research work uses secondary analysis to provide an insight about online teaching-learning process during health crisis. The information has been taken from published papers, websites, online journals, blogs, articles, and online reports on the subject matter. This study provides conceptual understanding of online teaching process and perception of students and teachers regarding the same. It has also highlighted various issues and challenges faced by faculties and students. This paper has also provided positive and negative consequences of shifting to digital platform for teaching purpose and the Government's initiatives that has been taken to make online teaching more effective. Lastly, it has made conclusion by suggesting few suggestions that can help in quality teaching-learning in long term.

5. Positive Consequences of Online Teaching

- *Safety of individuals*: Online teaching provides safety to students and teachers from this dangerous virus and also prevent the chances of spreading this virus to mass population by inhibiting individuals to their homes. As the numbers of students across any country lies in millions, it could be one of the best solutions to break the chain of this virus as this virus is expected to sustain in the environment for coming years as well.
- *Access to variety of study material*: Due to transition from face-to-face teaching to online learning, variety of study material is available to the students which was not available earlier. For instance, earlier students had access to physical books only by their respective school, college or institute. Only limited amount of digital study materials had been provided by their institutes. But now digital study material is being provided to them due to lockdown conditions.
- *Flexible teaching*: learning schedule/Ease of teaching and learning: online teaching provides great amount of flexibility to both teachers and students community. The teachers can take their classes from their homes at their preferred time or they can even provide pre-recorded lectures to their students. Similarly, students can attend their classes without being rushing to reach their schools and colleges at early timings. So, it saves

considerable amount of time that they usually invest in up-down to school/college to their homes.
- *Increased revenue to education institutes in form of increased intake of students under different course*: This pandemic has not only developed online education but also started online admission process across different universities and under different courses that has resulted in increased numbers of admissions as now physical infrastructure is not required to adjust the increased capacity of students. More students are now applying to various universities that earlier were out of their reach due to lack of funds or financial constraints.
- *Congenial environment of virtual classes:* In online classes, students find it easy to interact with the teacher, putting forward their thoughts and sharing their doubts in online classes or virtual class groups which were not the case with many students. In traditional classroom teaching, many students found it difficult to even raise their doubts in front of their classmates due to uncomfortable or intimidating environment and lack of confidence. But this pandemic has made possible students' one-to-one interaction with teachers over WhatsApp groups, chat messages during online education system. Thus, online teaching can foster better class participation.
- *Affordable education*: Online learning is far more affordable from students' point of view as it reduces financial cost in terms of transportation or commuting cost to and from school/colleges, amount that they used to spend on their meals in canteens and on their rented flats/houses or hostels fees. For instance, a student residing in Kerala can attend classes of one of the famous colleges of Delhi University without shifting to Delhi, so in this way students can save considerable amount of money which they would have been spending if offline classes were taking place.
- *Convenience to revisit the concepts*: Among different online teaching methods many educators/teachers provide recorded lectures, power-point presentation, hand written notes in detailed manner to provide complete academic support to those unprivileged students who are not able to attend online live classes due to technological or socio-economic issues so all the students can revisit the concepts later on at any time of their convenience or in case they face some query or doubt. Thus provides an opportunity to improve quality learning among students.
- *Improved attendance and concentration of students*: Due to all the advantages that online teaching is providing during this pandemic, increased numbers of students attending classes can be seen. Not all the students prefer to sit in offline classes of long hours that seems a hindrance in front of their concentration capacity on the subject matter, hence online teaching can improve concentration capacity of the students.

- *Beyond traditional teaching style*: Before this pandemic, most of the teacher, educators or faculties in India were limited to traditional methods of teaching such as use of black /white boards, projectors and books. Only few of them had tried latest and new methods of teaching to support their lectures such as Power-point presentations, suggestive videos from online resources, quizzes, Google forms for evaluation purpose etc. Most of the teachers were reluctant to adopt technological advancement in educating their students. So, this pandemic has forced the teacher fraternity to think beyond traditional methods of teaching, trying and exploring new platforms and adopting best method keeping in mind the interest of students and their own comfort.

- *Reduced academic pressure*: The introduction of online methods for evaluating performance of students such as Open Book Examination(OBE) in India, has reduced academic pressure of students across the country since offline examination are not possible for millions of students as it can increase the chances of spreading the virus. The students can give their exams sitting at their homes, referring books for assistance to solve assignments without having an anxiety and fear of offline exams.

6. Negative Consequences of Online Teaching

- *Increased screen time*: Online teaching and learning require teachers and students to spend long hours in front of laptops, computers and mobile phones. They have to continuously look at the screen of the electronic devices without taking a break in between academic sessions. This increased screen time can affect their mental health negatively.

- *Lack of discipline*: As classes are being taken online where students keep their camera and mic off unless instructed by the teacher to turn them on, discipline in virtual classes cannot be assured. Teachers cannot find out whether students are paying attention to the classes or not, are they sitting properly and giving due attention to what is being discussed and taught in virtual classes. For instance, students might join the class for the sake of attendance, doing other things while keeping their camera and mic off in online live class.

- *Online Misbehavior by students*: There is no doubt that all the teachers across the globe are giving their cent-percent to adopt latest technologies to ensure continuity of education for millions of students and also battling with this health crisis, but sometime during online classes these dedicated teachers have to face misbehavior by some outsiders or by the students themselves. Many teachers don't even know how to tackle such a situation in a live online class. They have no idea how to trace the culprit and how to avoid occurrence of such situations in future. They just simply remove those outsiders/students from the class.

- *Challenge to make online teaching interesting*: All the teachers are facing a series of challenges amidst this pandemic. From health crisis to sudden adoption of technology, from facing camera to making live online classes more interesting to ensure active participation of the students, have imposed a great disadvantage for educators. If they will simply tell the concept during classes, students will not attend their classes as they can access other online study resources, this can ultimately demotivate the teachers and the task of teaching rather a passive process.

- *Lack of required technical resources:* Another negative consequence of online teaching is the lack of required technical resources such as a laptop, computer or mobile phone, reliable, secured and strong internet connectivity. In a country like India where many students belong to socially and economically unprivileged family, do not have proper facility of internet and computer, online teaching cannot be as effective as offline teaching. This can prevent millions of students from the basic right of education. Not only students are facing this issue, many teachers also do not have latest and expensive gadgets to support their teaching. For instance, for teaching practical subject like mathematics, statistics, accountancy, it is very difficult to teach these kinds of subjects without using a digital pen and latest laptop. Using handwritten notes will not be much effective. But all the teachers cannot afford these expensive gadgets when many of their family members have lost their jobs and are facing financial crisis as well.

- *Lack of training to teachers*: Not all the teachers are technology savvy who can easily adopt digital medium of teaching during this health crisis. In order to have effective and quality learning, teachers need to be trained and accustomed to ICT based tools of education. Most of the senior teachers never faced a camera, used laptop/computers and virtual whiteboard in their entire teaching career. They did not even know how to create classes on Google classroom, how to schedule online classes on zoom or any other platform. Though some of the young teachers have used these digital platforms earlier but not to such an extensive level.

- *Excess of information (Infodemic):* The pandemic has brought an excessive amount of information to the students which might create a sense of confusion or make it difficult for them to analyses and access only correct and reliable information. The term 'Infodemic' was used by WHO which refers to excess of information (mostly false) about the COVID-19.

- *Feeling of isolation*: As classes are being held online since last year, students are managing everything in just one room. Though they are getting support of their families but they have not met their classmates, friends

for last one year. They have experienced fear of Covid virus, stress of job loss of their parents, anxiety of staying all time at home due to strict lockdown across country. Now they cannot share their experience personally with their friends, missing that friendly environment of schools/colleges, hangouts with classmates. All this has made them feel isolated, putting mental stress and negatively affecting their level of motivation. They can be seen asking their teachers as to when the things will normalize and schools/colleges will reopen after this pandemic.

- *Physiological and mental health of the students*: One of the biggest challenges to government and policymakers is to ensure physiological and mental well-being of the students as online teaching and this pandemic has changed their day-to-day activities drastically. They are continuously interacting in a virtual environment without touch of physical environment, taking bad sitting postures in live classes, mental stress of continuous semesters without having breaks in academic calendar's, substantial changes in sleeping patterns and eating habits.

- *Secure online assessment method to avoid unethical academic practices:* Having secure assessment techniques to evaluate the performances of the students online is very critical. There are great chances of students adopting unethical academic practices like cheating in Open Book Examination (OBE), copying assignments from online resources, circulating solutions in their online class groups are some of the examples. It is very difficult for the teachers to differentiate between a copied and an original answer while evaluating their papers only. Neither they can deduct marks on the probability of cheating nor can they award higher marks even in a genuine case.

- *Ensuring quality of learning in long term*: As India has witnessed second wave of Coronavirus right after the beginning of vaccination programs across the country, the situation has worsened than last year and scientists are expecting third wave to hit India around August 2021. It seems that schools and colleges are not going to reopen soon and online teaching will continue for a longer period. So, ensuring a better quality of learning in the long term is biggest task for the policymakers. Some of the students might finish their courses online without even visiting their institutions, performing practical at labs, without experiencing an exposure of different societies of their college which may harm the quality of their knowledge, skill and learning.

7. Suggestions for Improved Quality of Learning on Future

- Since students spends long hours in watching screens of laptop and mobile phones simultaneously handing household chores without meeting their classmates, friends which causes pressure on their mental health.

The students have not met their classmates since March 2020 as lockdown prohibit opening of school, colleges and social gatherings are also restricted. In the absence of social association and psychological pressure of classes, exams with continuously changing academic calendars, mental health of students is being negatively affected. Therefore, counselling should be provided to them by making it a part of formal education system with active participation of educational institutions.

- To decide about the teaching style, pattern and speed of imparting knowledge, a feedback form should be circulated regularly among students so that their feedback can be taken and proper remedial actions can be taken from teachers end. This can help in improving the quality of online learning and it also increases the confidence of students in educational institutions who consider their feedback highly important while redesigning the structure of in current situation.

- Active participation of Government is necessary to ensure continuous and stable network connectivity to each and every student specially for those students who belongs to low-income,   under-privileged background and are located in remote areas where joining a class is itself a tedious task.

- Technical training to the teaching fraternity could increase the chances of using latest and innovative techniques to teach the students. It would also enable educators in making online teaching more interesting, keeping their students up-to-date with latest advancement in this field.

- A combination of online and offline teaching-learning could help in sustaining learnt concepts for longer duration as after opening of educational institutions even on 50 percent capacity, classroom teaching together with online learning would be best option to continue the education process.

- The teachers and parents can also play a crucial role in guiding children in the wake of this pandemic. The parents can provide them emotional support by supervising whether their children are giving due attention and time to their studies without feeling any psychological pressure. The role of teacher is not limited to be a mentor of their students but they should also motivate students to ensure their active participation in interactive teaching-learning process. The communication between parents and educational institutions has become more important during these difficult times and this fact has also been noticed in the policy of OECD in response of COVID-19 according to which education systems should also aim to strengthen school-parent engagement in order to provide appropriate information and guidance to parents on effective practices for supporting their children's learning.

8. Conclusion

The COVID-19 has not only affected the global health but has also affected the education system of the countries. It has forced countries to face a transition from offline classroom to virtual classes overnight. The teachers and students have faced a lot of challenges to cope up with this new way of teaching-learning process at such an extensive level. These challenges include lack of necessary technical resources, increased screen time, negative impact on their mental health, overload of information for the students and challenge for the teachers to make online curriculum more interesting. Despite of these challenges, online teaching has proved beneficial for the students as they can continue their studies without putting them in the danger of being affected by coronavirus by avoiding offline classroom teaching. But these advantages are spread un-evenly across the country as students from remote areas cannot access online teaching due to various reasons. Therefore, the Government should take strong measures to overcome these challenges so that online teaching facility could be reached to each and every student, only then online learning process would be effective.

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