

Challenges in handling Online Tools: An Empirical Study to offer Solutions to Teachers in administering Online Tools

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Abstract

Humankind as such went into a shift since the turn of 2020. It was a shift nobody envisioned or saw coming. It would not be an exaggeration to say this had been the most significant impact on human history on a global scale. Normal life was put on hold, and unprecedented changes were made. The impact of COVID – 19 had seen many sectors having to adapt or adjust to it. These included politics, entertainment, finance and so on. One sector that could not afford to take a break was the education sector. Both the school and college level education continued amidst the lockdowns and containments. However, what had changed was the mode of learning. Classrooms and blackboards had been replaced by online platforms and lectures. Having said this, an important factor to consider was the teaching-learning process itself. Both the teaching and student fraternity had to cope with this change and were responsible for playing their part in making this online mode effective in spite of the practical and technical difficulties that were prone to occur. So this paper delves deep into the situation of the online mode of education, its effectiveness or the ineffectiveness therein. The challenges faced by the teachers who had conducted online classes during the lockdown period were considered for this study. 30 teachers were identified, and they were given a questionnaire containing 15 questions. The objective of the questions was to examine the challenges faced by the teachers and the approaches they adopted to solve the issues. The faculty members who participated in the study include both engineering faculty who already had the required technical expertise and non-technical faculty members from Science and Humanities departments. The results showed that ninety percent of the teachers were able to overcome the challenges. The study also presented an analysis of the approaches taken by the teachers to handle the situations.

Keywords: COVID–19, global scale, impact, education, online mode, teaching-learning process.

Introduction

The global outbreak of the COVID-19 pandemic had affected the normal life of people in almost all countries. The governments had cautioned the general public to take preventative measures. The preventive measures included hand washing, wearing face masks, physical distancing, and avoiding mass gatherings. Nationwide curfew (lockdown) had been implemented, and people were instructed to stay home to flatten the curve and control the transmission of the disease.

The economic and social disruption caused by the COVID-19 pandemic was devastating. Tens of millions of people were at risk of falling into extreme poverty, while the count of under-

nourished people, later estimated to be nearly 690 million, could have increased by up to 132 million by the end of that year. Millions of enterprises faced existential threat. Almost half of the world's 3.3 billion global workforces were at risk of being robbed of their livelihoods. The pandemic has had a negative and adverse impact on the entire food system and had exposed its fragility. Border closures, trade restrictions, and confinement measures had been preventing farmers from getting to markets, including buying inputs and selling their produce, and agricultural workers from harvesting crops, thus toppling domestic and international food supply chains and reducing access to healthy, safe, and diverse diets.

The impact of COVID – 19 had seen many sectors having to adapt or adjust to it. These include politics, entertainment, finance and so on. One sector that could not afford to take a break was the education sector. Even though thousands of schools, colleges and universities had to discontinue face-to-face teaching, there arose a pressing need to innovate and implement alternative educational strategies to move on. The COVID-19 pandemic had, thus, opened up an opportunity to explore digital learning.

Coming to the educational landscape globally, UNESCO figures said 1,379,344,914 students, or 80% of the world's learners, were being kept out of educational institutions by country-wide closures. In some ways, another 284 million learners were affected by localized closures, like those seen in a few states in the United States of America. 138 governments had ordered the country-wide closure of their schools and universities.

The below table would give a clear picture of the educational landscape of a few countries during the start of the pandemic, and it would also put into perspective the impact of the pandemic on the education sector. This include both school education and college education. It also shows how different countries dealt with the situation differently based on their economic status and available resources and facilities.

Countries	Number of learners enrolled from pre-primary to upper-secondary education	Number of learners enrolled in education programs	Additional Information
India	286,376,216	34,337,594	On 16 March, India declared a countrywide lock- down of schools and colleges. On 19 March, the University Grants Commission asked universities to postpone exams until March 31. The board exams conducted by CBSE and ICSE boards were postponed until March 31 at first and then later until July 1.
USA	25,017,635	1,625,578	E-learning has been promoted
Dubai	1,170,565	191,794	On March 3, the government announced that all private and public schools and colleges will close for four weeks from

			Sunday March 8 and the students will study at home for the second two weeks. Then on March 30th, they announced that the e-learning programme would continue until the end of the year.
Bangladesh	36,786,304	3,150,539	Schools were closed.
Indonesia	60,228,569	8,037,218	Schools and universities were closed. Students studied from home with online educational applications, such as Google Classroom. Minister of Education and Culture of Indonesia, Nadiem Makarim launched an academic TV block on TVRI and had prepared for the scenario to study online until the end of the year.

Following the above table, let us look into the scene of the education landscape during the pandemic.

In Dubai, in response to COVID-19 health and safety risks, 191 national governments shut their schools by mid-April 2020. The challenges that this put forward to school systems, students, parents, teachers and administrators were unprecedented. Early research put light on the fact that students were not uniformly affected by the current situation, depending on social factors. This was the case in the United Kingdom too. Prior to the pandemic, online platforms had already been initiated and put well into action in 60 percent of private and 37 percent of state schools in affluent UK areas, but only in 23 percent of schools in underprivileged areas (Sutton Trust, Apr'20). This posed a practical problem to deal with.

In The United States Of America, SARS-CoV-2, the virus causing Covid-19, was totally new. In the early spread of the virus, there were no effective treatments, partly due to high death tolls in New York, New Jersey and other north-eastern states. The closure of schools, added to the associated public health and economic crises, and had posed major challenges for the students and the teachers. The public education system had not been built or set up to cope with a situation like that. The Education Department of The United States of America lacked the structures to continue with effective teaching and learning during such a shutdown and to provide the safe net support that many children received in school.

In India, the impact of COVID-19 on the education sector was huge. It had brought a lot of challenges yet different opportunities at the same time. The Government of India and the stakeholders of education explored the possibility of Open and Distance Learning (ODL) by proposing various approaches to digital technologies in dealing with the crisis caused by COVID-19. India was not ready and equipped to provide education to all corners of the nation via digital platforms. There were

student groups who were not privileged, like the others, who would suffer from it. These were the situations that the education sector faced in a few countries.

This study highlights the merits and demerits of online teaching infrastructure, the limited exposure of teachers to online teaching methodologies, the non-conducive environment of learning at home and effective assessment strategies. This article evaluates the impacts of the COVID-19 pandemic on the teaching and learning process and explores the opportunities for online education during the pandemic.

Pedagogy for online education

Online education became the solution for the unprecedented pandemic, even though it had posed a lot of challenges to teachers and students. It was entirely a new experience for both the teachers and students who had transited from the face-to-face teaching-learning process to the online teaching-learning process. It had demanded a lot of adaptation to various online platforms which the teachers were really not prepared for. E-learning tools had played a crucial role during pandemic, helping colleges to facilitate student learning during lockdowns. Students who had a fixed mind set found it challenging to adapt and adjust, whereas open-minded students quickly adapted to the new learning environment. There was no one standard methodology for online learning as there were varieties of subjects with varying needs. The different age groups of students required different approaches to online learning. Online learning had given great freedom to physically challenged students to participate in the virtual environment which required limited movement of the students.

As colleges were closed due to the lockdown, students, parents and teachers felt the dreadful effect of COVID-19. Many students were subjected to psychological and emotional distress that had led to poor academic performance. The best practices for online education were yet to be explored.

Teachers identified appropriate e-learning tools depending upon one's expertise and exposure to Information and Communication Technology (ICT). Some online platforms used so far included Microsoft Teams, Google Classroom and Blackboard, which allowed the teachers to create course content using Word, PDF, PPT, audio, videos and so on. The tracking of students' learning and assessment were done using quizzes and assignments.

Challenges in teaching and learning

There were some technical glitches that were faced by both the teachers and students while using the online educational tools. Some of the challenges are summarized below:

Even in the 21st century, many countries had issues with internet connection and access to digital devices. In India, during the pandemic, economically backward children could not afford online learning devices such as smartphones and laptops.

Self-motivated students and students with stable financial backgrounds were unaffected in their learning as they needed no supervision and guidance whereas the vulnerable group of students who were slow in learning faced a lot of difficulties.

Student assessments were carried out online. Many educational institutions did not have proper facilities to check malpractices, mainly due to a lack of infrastructure and a huge student population. Various state-level and national-level board exams and various entrance examinations were postponed across India due to the national lockdown.

The majority of the students were from rural villages where parents were mostly illiterate farmers. Students were engaged in assisting their parents in farm activities and household chores.

Online video classes consumed more data packages. The data package was comparatively high against the average income of the farming community. Though pre-recorded videos addressed this issue, it restricted interactions with teachers and peers. It was challenging to design a proper system to fit the learning needs and convenience of all the students.

Survey

The challenges faced by the teachers who had been conducting online classes for the past one and a half-years were considered for this study. 30 teachers were identified and they were given a questionnaire containing 15 questions. The objective of the questions was to examine the challenges faced by the teachers and the approaches they adopted to solve the issues. The faculty members who

participated in the study included both engineering faculty who already had the required technical expertise and non-technical faculty members from Science and Humanities departments. These faculty members were given the survey web link using the Google Forms tool which allowed them to easily and comfortably complete the questionnaire. All the faculty members were informed of the purpose of the study and the importance of their participation in taking the survey. The concerns and doubts of faculty members were also explained and resolved. The estimated time to complete the questionnaire was around 15 minutes.

A deeper look at a few of the questions asked in the questionnaire will help in having a holistic understanding of the study.

One of the questions asked in the questionnaire was 'To what extent do you consider that the measures taken by your college during the COVID-19 pandemic to ensure the continuity of the educational process (teaching-learning-assessment) online were sufficient and effective?' The teachers had to choose from the options 'to a very large extent', 'to a small extent', 'to a very small extent', 'totally inefficient' and 'no opinion'.

'How do you appreciate the online teaching-learning-assessment experience during the COVID-19 pandemic?' was another question asked. The teachers who took the survey had to grade the efficiency of the assessment under the criteria of availability of high speed internet connection, availability of online tools (smartphone/tablet/laptop/computer), efficiency of online platforms (Microsoft Teams), interaction and collaboration with fellow teachers (in preparing course content, conducting seminars/laboratories), interaction and counselling with students 1-1, feedback from students (online learning), quality of online course material, motivation to learn and assessment/examination. They had to choose the answer from the options, 'very good', 'good', 'neutral', 'bad' and 'very bad'.

Another question asked was 'What is your opinion on the online education considering the experience during COVID-19?' The survey participants had to choose from 'very good', 'good', 'neutral', 'bad' and 'very bad'.

Results

After carrying out the survey, the reliability and validity of the questionnaire were studied. The results showed that ninety percent of the teachers could overcome the challenges. The study also presented an analysis of the approaches taken up by the teachers to handle the situations. Looking at the sample questions that are given in this paper, a clear interpretation about the research can be obtained.

For the question 'To what extent do you consider that the measures taken by your college during the COVID-19 pandemic to ensure the continuity of the educational process (teaching-learning-assessment) online were sufficient and effective?', the responses were, 11 people chose 'to a very large extent', 19 people chose 'to a large extent', 7 people chose 'to a small extent' and 3 people chose 'to a very small extent'. The rest of the options remained not chosen. This went to show that most of the educational institutions were able to continue teaching and cope with the necessity of the situation the pandemic threw at the education sector.

For the next question 'How do you appreciate the online teaching-learning-assessment experience during the COVID-19 pandemic?', it had criteria with which the efficiency is graded with the options chosen by the teachers. Availability of high speed internet connection had 15 people saying it was very good, 20 people saying good and 4 saying neutral. Just one person said it was bad. Availability of online tools (smartphone/tablet/laptop/computer) was answered with 11 'very good', 18 'good', 7 'neutral' and 4 'bad'. The next criteria, efficiency of online platforms (Microsoft Teams) was answered with 21 people saying it was very good, 12 people saying it was good and 7 people saying that the experience was neutral. Interaction and collaboration with fellow teachers (in preparing course content, conducting seminars/laboratories) received mostly positive remarks with 15 people saying it was very good and 19 people saying it was good. The remaining 6 people took the neutral stance in it. Interaction and counseling with students 1-1 had mixed responses with 9 people finding enough time to interact one on one with the students and had very good remarks regarding

this. 13 people said good, 9 people said they were neutral about this, 6 people said bad and 3 people said very bad.

For the criteria 'feedback from students (online learning)', the response was mostly positive. 13 people said it was very good, 19 people said it was good, 7 people said it was neutral and 1 person said it was bad. For the criteria 'quality of online course material', 15 people rated 'very good', 19 people 'good', 4 people 'neutral' and 2 'bad'. 'Motivation to learn' received 10 'very good', 18 'good', 6 'neutral', 4 'bad' and 2 'very bad'. Perhaps, the online classes needed more motivation for a few students. If one thing online classes made it easy, it was the assessments. For the criteria assessment/examination, 19 people said that it was very good, 14 people said that it was good and the remaining 7 called it neutral.

The last sample is the question, 'What is your opinion on online education considering the experience during COVID-19?' Even though this was an unprecedented event and most people had to face such a situation for the first time in their lives, most of the teachers who took the survey said they felt positive about the online education experience. 9 people said they felt very good about it, 17 people felt it was good, 13 people felt the online teaching experience was neutral and one person from the 40 felt the experience was bad. There were no takers for the option 'very bad'.

So, looking at these sample questions here, it is evident that from the group of 40 teachers, most of them were able to put up with the demands and challenges thrown at them by online teaching. Most of them were able to continue teaching, handle classes and carry on with giving assignments and assessing the students staying at home. It also goes to show that most of these members of the teaching fraternity had an individual computer or a laptop with an internet connection of sufficient bandwidth to handle classes, have video sessions, play content during classes and give assessments and make assessments from home. But there were a few who found it difficult to cope with the physical, economic and technical demand. There were also a few who had not been exposed or introduced to these technical gadgets and the necessities it threw at them. These few needed help from their technically sound colleagues or from their management. So for the most part, the responses to the questionnaire were positive.

Opportunities for Teaching and Learning

Even though there had been some challenges for teachers, educational institutions and the government regarding online education, several opportunities were created owing to the COVID-19 pandemic.

Learning from home required parents to support the students' learning academically and economically. Students with disabilities needed special attention and additional support during the pandemic.

The usage of social media and various platforms like WhatsApp and Telegram were explored and tried not only for sharing instructions, but also for teaching and learning. This could be further explored even after regular teaching resumes as these communication platforms provided additional resources to the teachers.

Teachers were motivated to develop creative initiatives that enabled them to overcome the shortcomings and limitations of online education. Teachers were actively collaborating with one another locally to improve online teaching methodology. Online education had provided the opportunity to teach and learn in creative ways unlike the teaching and learning experiences in the normal classroom setting.

Conclusion and Suggestion

The study on the impact of the COVID-19 pandemic on teaching and learning across the world concluded that, although various studies have been carried out to find a suitable pedagogy and online platform for different levels of higher education, it needed to be explored further.

Accessibility and affordability of internet bandwidth were relatively low and also the data packages were costly in comparison to the income of the people in many developing countries. Further exploration of finding effective pedagogy for online teaching and learning was an area for research. Finding appropriate developing tools for assessments was another area of study as well.

Making online teaching creative and interactive through user-friendly tools was also another area of research that needed development. These kinds of studies would prepare the education system for such uncertainties in the future.

The COVID-19 pandemic had given an opportunity to the teachers and students to use different online educational tools. Even after the COVID-19 pandemic, when the normal classes resume, teachers and students should be encouraged to continue using online tools to enhance the teaching and learning process.

Questionnaire

1. To what extent do you consider that the measures taken by your college during the COVID-19 pandemic to ensure the continuity of the educational process (teaching-learning-assessment)online were sufficient and effective:

To a very large extent	To a large extent	To a small extent	To a very small extent	Totally inefficient	No opinion

2. How do you appreciate the online teaching-learning-assessment experience during the COVID-19 pandemic?

	Very good	Good	Neutral	Bad	Very bad
Availability of high-speed internet connection					
Availability of online tools (smartphone/tablet/laptop/computer)					
The efficiency of online platforms (Microsoft Teams)					
Interaction and collaboration with fellow teachers (in preparing course content, conducting seminars/laboratories)					
Interaction and counseling with students 1-1					
Feedback from students (online learning)					
Quality of online course material					
Motivation to learn					
Assessment/examination					

3. What do you think about combining traditional (face-to-face) education with online education?

Very good	Good	Neutral	Bad	Very bad

4. What would be the advantages of combining face-to-face education with online education?

(Please select the best alternatives)

- a) More flexibility – self-paced learning
- b) Face-to-face communication and teacher-student interaction;
- c) Face-to-face communication and interaction with colleagues;
- d) Less time in front of the screen, more physical activities;
- e) Ability to perform practical applications;
- f) Improving mental health and well-being;
- g) Opportunity to better support students from disadvantaged groups;
- h) Better monitoring of the learning progress of students;
- i) Integration of innovative practices in the teaching-learning process;

- j) More diversified forms of assessment/examination;
 - k) Other (please specify)
6. What would be the disadvantages of combining face-to-face education with online education?
(please select the relevant alternatives)
- a) Difficulty for students to adapt to this way of learning;
 - b) Difficulty for teachers to adapt to this way of teaching/assessment;
 - c) Increasing the teachers' workload;
 - d) Students without access to appropriate digital technologies are excluded from the teaching-learning process;
 - e) Difficulties/challenges in ensuring information security;
 - f) Other (please specify)

7. What is your opinion on the online education considering the experience during the COVID-19?

Very good	Good	Neutral	Bad	Very bad

8. What would be the main advantages of online education in the future?

(Please select up to 3 options)

- a) Greater flexibility in the teaching-learning process;
- b) Innovative and creative ways of teaching;
- c) Innovative teaching - learning tools and materials;
- d) Easier communication and interaction with teachers and colleagues;
- e) Improved digital skills for students;
- f) Innovative ways of assessing students and providing adequate feedback;
- g) No opinion;
- h) Others (please state below)

9. What would be the main disadvantages of online education in the future?

(please select up to 3 options)

- a) Need for good Internet connection and adequate tools for students;
- b) Poor quality or hard to use online platforms;
- c) Inability to carry out practical laboratories;
- d) Difficulties in assessing students and providing adequate feedback;
- e) Deterioration of mental health;
- f) Inability to meet teachers, institution's management, colleagues;
- g) Less face-to-face communication and interaction;
- h) More distractions for students at home;
- i) Lack of motivation;
- j) No opinion;
- k) Others (please state below)

10. What makes the online learning resources and content useful?

- a) Relevant and qualitative;
- b) Interactive, easy to use;
- c) Appropriate for the development of students'
- d) No opinion;
- e) Other (please state below)

11. Do you think online assessments can be a genuine evaluation of a student's performance?
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12. In your opinion, what are the advantages of online assessment/examination?
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13. In your opinion, what are the disadvantages of online assessment/examination?

14. How did you feel using the different platforms, software and tools during online classes?

Very good	Good	Neutral	Bad	Very bad

15. Would you continue using these online tools and platforms even after regular classes resume? Why?

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