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An insight analysis of online classes in higher education institutions during COVID-19: A case study of West Bengal

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Abstract---The education system all over the world has faced an unprecedented change from offline mode to online mode due to the outbreak of COVID-19. West Bengal, a state of India, is not an exception. Since March 2020 the educational institutions of West Bengal are trying to shift entire educational activities from offline to online mode. Initially the acceptability of online learning was very low, but with the passage of time it has been improved. Still there are many areas which need up gradation. Our aim is to review the current status of online learning in higher education institutes of West Bengal. This paper is based on a survey among the students (post-graduate & under graduate) and the faculty members from higher education institutes all over West Bengal. We are trying to identify major bottlenecks of online education which are persistent after one year. The data have been analysed considering the demographic features of the respondent. Finally, proposals are made which may be considered, while policy making for online education. The technological improvement areas have also been pointed out. Although the survey was confined to the geographical boundaries of West Bengal, but the findings may be applicable to greater areas of higher education system improvement, exceeding the geographical boundaries.

Keywords---COVID-19, higher education, online learning, survey, west Bengal.

Introduction

We are passing through such a time that the world has not seen before, the education system all over the world are facing a big challenge by the ongoing pandemic. Education system abruptly shifted from offline to online mode, at this point of time we don't even know if we can ever be back to our conventional classroom. By mid-March 2020, nearly 75 countries all over the world have announced closure of academic institutions (Muthuprasad et al., 2021). In India educational institutions are being closed since 25th March 2020 following Union government's decision to impose nationwide lockdown and particularly in West Bengal educational institutions are closed from 15 March 2020 following state governments order and since then going online was the only option to prevent higher education system from collapsing.

If we look back few years before, in pre covid times then we can see that online class or better to say faceless classes were continuously gaining popularity, as we can see the flipped classrooms are being introduced in some institutions all over the world and they are following blended mode of learning. In India, Indian Institute of Technology (IIT) Bombay has developed two platforms named Bodhee tree and SAFE tools for recorded video classes and for conducting examination respectively. Maybe in distant future online classrooms would have been a perfect substitute for traditional classroom but Covid have accelerated the process of shifting from offline learning to online learning, as it was the only ray of hope for education system to survive in Covid situation. So, at this point of time there is a lack of preparedness for this shift towards online learning. To make online classrooms effective in all senses, there is a need to identify the constraints faced by the students and also the challenges encountered by the educators to complete the syllabi in stipulated time. For the academicians in developing country like India the challenge was bit harder.

This survey is our small effort to review the effectiveness and to point out the glitches of ongoing online education system in West Bengal. Our aim is to propose a superior online classroom for future. The teachers and students both to have a better & comfortable learning experience following the new normal. This article is going to review the current situation of Higher education in West Bengal from student's & academician's perspective.

Literature Review

In India, Distance Education [DE] started in 1962 with the establishment of Correspondence Course in Delhi University (Powar, 2002). Technological growth was also improving the mode of communication between experts and learners as well as the quality of education. By the act of Parliament in 1985 India established Indira Gandhi National Open University (IGNOU). It is the world's largest open University that currently receive most of the educational activity online. For Higher Education popularity of Online Classes are increasing day by day. India has Second largest network of Online education in the world after China. The reason behind the popularity of Online education is that it not only offers traditional courses but also various need-based (vocational) courses,

awareness and training programmes are conducted by open universities (Kundu, 2014; George 2014)

Before Covid-19 online education systems are an alternative source of education but, during Covid -19 the traditional education systems have faced enforced shutdown to stop the spread of highly contagious novel Corona virus. The entire load of education system has shifted to online mode. The transformation from offline to online mode is not so easy but Indian government has started thinking gravely on this matter with emphasizing on ICT and use of online education. Due to pandemic in the new educational policy 2019 several techno-efficient steps are taken. Several existing online platforms like Study Webs of Active-Learning for Young Aspiring Minds (SWAYAM), SWAYAM PRABHA, Annual Refresher Programme in Teaching (ARPIT), e-PG Pathshala etc. run by government agencies like University Grants Commission (UGC), Ministry of Human Resource Development (MHRD) and National Council of Educational Research and Training (NCERT) are actively working in pandemic situation to fulfil the demand of learners. During the pandemic period time to time UGC has guided the Universities regarding online classes, examinations etc. According to the latest circular (July 2021) of UGC final year examination will be completed within 31st of August 2021 in offline (pen & paper)/ online/ blended mode. The admission to first year shall be completed by 30th September 2021 and classes will start as early as possible.

Since lockdown several researchers have studied the impact of online education during Covid -19 in India as well as in other countries. But in this study, we are trying to highlight the satisfaction & limitation areas according to students' and teachers' experience, since March 2020. The major objectives of our study are:

- To identify the challenges faced by students as well as teachers during online classes in West Bengal.
- To study the advantages and disadvantages of online classes over offline classes.
- To study the mindset of rural Bengal students and teachers about online classes.

Methodology

Respondents

This survey was conducted online among the students and faculty members, total 260 students from different undergraduate and postgraduate courses, and 130 faculty members, from different educational institutions of West Bengal have been participated in the survey.

Data collection procedure

The tenure of data collection was from 10th May 2021 to 18th June 2021. Two separate structured questionnaires have been prepared, one for the students and the other for the faculty members. The survey data was collected by employing

Google forms, communication with the respondents were established through verbal communication, WhatsApp and email. The Google form was disabled after 18th June 2021.

Data analysis methods

The data collected from the respondents under two broad categories the first one was about respondents' basic information like their gender, area of residence, area of educational institution, stream of education which they are attached to etc. The second category describes the details about the experience in online classes since March 2020, e.g. hurdles to overcome, perception and preferences regarding online class, effect on health etc., Microsoft Excel was used for percentage calculation and graphical analysis of the collected data. To evaluate the competency of online learning, some questions have been prepared, which were answered in a five point continuum scale, for each of the questions the consensus (Tastle and Wierman, 2007) have been calculated, to designate the degree of agreement, on a particular point, among the respondents.

Results & Discussion

Findings from the analysis of data collected from the students and academicians are presented below in tabular form and also in graphical presentation wherever applicable. Cross sectional analysis of the data has been performed according to the streams of education, the area of residence of the respondents, and location of the educational institutions of the respondents. In some particular instances the data collected from the students and the academicians have been compared. Since there are two categories of the respondents' section 4.1 represents the analysis of the data collected from the students and section 4.2 represents the analysis of the data collected from the faculty members.

Students' basic demographic features

Table 1: Demographic Details of Students (No of total respondents 260)

Demographic Features		Responses	Percentage
Gender	Female	82	31.54%
	Male	178	68.46%
Stream of Education	Science	130	50.00%
	Arts	61	23.46%
	Commerce	15	5.77%
	Other	47	18.08%
	Engineering	7	2.69%
Area of Residence	Rural	183	70.38%
	Semi Urban	36	13.85%
	Urban	41	15.77%
Area of	Rural	57	21.92%

Educational Institution	Semi Urban	118	45.38%
	Urban	85	32.69%

Table 1 describes the basic demographic features of the students participated in this survey. Total number of participants in the survey was 260 and they are mainly from colleges and Universities of south Bengal. Among them 31.54% are female and 68.46% are male. According to the stream of education classification is as follows 23.46% of the students are from science stream, 23.50% are from arts, 5.77% from commerce and 2.69% from Engineering and 18.08% from other subjects like Physical education, Bachelor of Computer Application, Bachelor of Business management etc.

Our aim was to point out if the students residing at rural areas of West Bengal are facing more difficulties when it comes about online classes, as compared to those who are residing at urban & semi urban areas, and if so, how much less privileged are those who are residing at rural areas. For this purpose, we have classified the students according to the area they are residing at; 70.38% of the respondents were from rural areas, 13.85% of them residing at semi-urban and 15.77% of them residing at urban areas of West Bengal. We have also taken in account the location of educational institution of our respondents; 21.92% of the students are from rural areas, 45.38% students are from semi-urban and 32.69% of them are from urban area colleges or universities.

Availability and preference of technical resources for online classes

Device used: According to the information we got from the students, mobile phone is the most popular device for attending online classes, 94.23% of the respondents use mobile phone for online study only 4.62 % of them use laptop and there is a nominal percentage who uses tablet and desktop (0.34% and point 0.67% respectively). The study indicates that most of the students (83.84%) have a personal device for attending online classes and rest (16.15%) uses a shared device for attending online classes (Ref. Table 2).

Source of internet: 85.71% students from urban area and 95.63% students from rural area, are dependent on mobile data pack as the source of internet, only 14.29% of urban area respondents and 4.37% of rural area respondents use Wi-Fi for online study. So, we can conclude that irrespective of the area of residence, mobile data pack is the most popular source of internet among the students. (Ref. Table 2).

Electricity: Electricity is another prime requirement for attending online classes. Only 25.97% of urban area students and 27.87% of rural area students have opined that they face electricity problem during online classes. According to our study in respect of electricity problem, there is no remarkable difference between urban and rural area response, so we can conclude here that when we taking electricity in account as a primary prerequisite for online study, the rural area students are not much deprived than urban area students; As a whole electricity problem is not being a major barrier in path of online learning (Ref. Table 2).

			Response		Percentage	
Device used for Online study						
Mobile Phone			245		94.23%	
Laptop			12		4.62%	
Tablet			1		0.38%	
Desktop			2		0.76%	
Type of Devices						
Personal			218		83.84%	
Shared			42		16.15%	
Source of internet(Analysis on the basis of area of residence of the students)						
Rural	Response	Percentage		Urban	Response	Percentage
Wi-Fi	8	4.37%		Wi-Fi	11	14.29%
Mobile data pack	175	95.63%		Mobile data pack	66	85.71%
Electricity Problem						
Rural	Response	Percentage		Urban	Response	Percentage
Yes	51	27.87%		Yes	20	25.97%
No	31	16.94%		No	12	15.58%
Someti mes	101	55.19%		Sometimes	45	58.44%

Table 2. Availability and preference of technical resourcesfor online study

General Information about online classes

Platform: This study clearly indicates that Google meet has become the most popular, reliable , secure and user-friendly platform for online classes, 98.07% of respondents have said that online classes are being conducted in Google platform, 1.53% identified Zoom platform for online classes and 0.38% have chosen other platforms in which their online classes being conducted.

Duration: 50% students have said that their online class duration is 1 hour, 23.46 % have said it is 2hours and 16.9% has said duration is 1 hour 30 min (Ref. Table 3). According to 31.15% and 41.15%, 5 minutes & 30 minutes time respectively is allotted as break between successive classes (Ref. Table 3).

Effect on health: As per Table 3, in most cases (74.23%), online classes are going on in a regular manner as offline classes as, per the requirement to complete the syllabus. This study shows most of the students 68.84% spend 2-4 hours a day in online study (ref. Table 3) and 58.46 % of the students have declared that they are not having any medical problem due to the online ongoing online classes. Only 17.69% have opined that their health is being affected by online classes and rest 23.8% are not sure about it.

Table 3. General information about online classes

	Responses	Percentage
Platform used for online classes		

Google Classroom/ Google Meet	255	98.07%
Zoom	4	1.53%
Microsoft Teams	0	0.0%
Other	1	0.38%
Duration of your online classes		
45 min	25	9.62%
1 h	130	50.0%
1hr 30 min	44	16.92%
2hr	61	23.46%
How your Teacher/Professor conduct the classes		
As per the schedule to complete the syllabus	193	74.23%
Alternate days	23	8.84%
Daily	39	15.00%
Weekly once	5	1.92%
How much time allotted as break between two online classes?		
5min	81	31.15%
10min	60	23.07%
20min	12	4.62%
30min	107	41.15%
How much time allotted in a day for online classes?		
2-4 h	179	68.84%
4-6 h	39	15.0%
6-8 h	5	1.92%
Less than 2 h	37	14.23%
Do you face any medical problem due to online classes?		
Yes	46	17.69%
No	152	58.46%
May be	62	23.84%

Comparative study of Undergraduate and Post-Graduate students' perspective on Online Classes

A comparative study has been done for some questions, between the undergraduate and post- graduate students to identify the difference of opinion, if any. It is noted that majority of the undergraduate students are from rural area whether the majority of post- graduate students are from urban area, but their opinion about different aspects of online learning are almost same as per Table 4 .

Table 4. Comparative study of Undergraduate and Post-Graduate students' perspective on OnlineClasses

Area of Educational Institution				
	URBAN	Percentage	RURAL	Percentage
UNDER GRADUATE(218)	164	75.23	54	24.77
POST GRADUATE (35)	33	94.29	2	5.71

Area of Home				
	URBAN	Percentage	RURAL	Percentage
UNDER GRADUATE(218)	53	24.31	165	75.69
POST GRADUATE (35)	21	60.00	14	40.00
Device used for Online study				
	Desktop(%)	Laptop(%)	Mobile(%)	Tablet(%)
UNDER GRADUATE(218)	0.92	3.67	94.95	0.46
POST GRADUATE (35)	0.00	11.43	88.57	0.00
Internet/Wi-Fi Connection at home is available				
	Yes	Percentage	No	Percentage
UNDER GRADUATE(218)	124	56.88	94	43.12
POST GRADUATE (35)	26	74.29	9	25.71
Do you access National Digital Library?				
	Always(%)	Never(%)	Not heard about it(%)	Sometime(%)
UNDER GRADUATE(218)	11.80	44.04	36.70	14.68
POST GRADUATE (35)	0.00	31.43	51.43	17.14
Can you access your Teachers other than time of class?				
	Always(%)	Never(%)	Not heard about it(%)	Sometime(%)
UNDER GRADUATE(218)	32.57	7.80	11.93	47.71
POST GRADUATE (35)	31.43	8.57	17.14	42.86
Way for clarifying queries				
	WhatsApp(%)	Live chat(%)	email to the course Teacher(%)	All(%)
UNDER GRADUATE(218)	23.39	28.90	2.29	25.69
POST GRADUATE (35)	34.29	17.14	2.86	45.71

Demographic details of academicians

Total 130 academicians have participated in this survey from all over West Bengal and they are from different streams of education, 55.3% of our respondents are faculty members of science 33.30% are faculty members of Arts, 6.15 % are from commerce, 3.07% from other subjects like physical education and 3.07% faculty of engineering; 39.23% of total respondents were female 60.78% were male. Majority of our respondents 66.92% were assistant professor from different colleges, designations of our respondents are displayed in Table 5; 91.52% of the faculties are from government institutions and rest 8.46% are from private institution.

Table 5. Demographic details of academicians' (No of total respondents 130)

Demographic Features		Number of occurrences	Percentage
Gender	Female	51	39.23%
	Male	79	60.78%
Designation	Professor	2	1.54%
	Associate Professor	14	10.76%
	Assistant Professor	87	66.92%
	Other	27	20.76%
	Science	72	55.38%
Stream of Education	Arts	42	32.30%
	Commerce	8	6.15%
	Other	4	3.07%
	Engineering	4	3.07%
	Rural	21	16.15%
Area of Residence	Semi Urban	37	28.46%
	Urban	72	55.38%
	Rural	34	26.15%
Area of Educational Institution	Semi Urban	40	30.76%
	Urban	56	43.07%
	Government	119	91.53%
Affiliation of University /College/Institute	Private	11	8.46%

Table 5 shows area of residence of academicians participated, and most of our respondents are resident of urban area (55.58%) ,28.46% from semi-urban area and 16.15% belongs to the rural area. As per Table 5, 43.07% faculties belong to urban area institutions, 30.76% belong to semi- urban area institutions and 26.15% rural area institutions.

Information about online classes

In this survey 93.7% of the teachers' choice is Google meet /Google classroom for their online classes and they are choice of 1.54%, 2.31% and 3.07% is Microsoft Teams, Zoom and other platforms respectively; So, we can conclude undoubtedly

that, Google Meet has become the most popular platform for online education in West Bengal, especially in higher education (Ref table 6). WhatsApp is the most popular medium among the teachers for dispensing study material to the students, next is Google classroom, thereafter email according to preference. Some other mentionable media are intuition/teacher's won website, Telegram etc. If there is a choice between online classes, live online classes and pre-recorded videos then the teachers are undoubtedly preferring live online classes and 34.6% says that live online classes may be accompanied by pre-recorded videos as per requirement and only 0.06% have said that pre-recorded videos are preferred, although 74.61% teachers have evinced that while teaching a particular topic, online mode needs much time than offline and as per 23.84% academicians there is no difference between online and offline mode while teaching a particular topic it takes the same time, and rest 28.46% have opined that online mode is taking less time while teaching a topic. 60% of the academicians are satisfied with the evaluation system adopted by their institution, while evaluating a student in online examination maybe in viva or blended mode of examination or employing Google form etc. One of the important matters revealed in this study is 81.51% faculties from government institution & 54.55% from private institution have declared that they have not got any training for conducting online classes, so there was a lack of initiative to increase the technical proficiency of the teachers. This fact is a major obstacle in successful implementation of online learning, as some faculty members, especially the senior ones may have technophobia (Ref table 6) .

Table 6 Tools and Techniques of Online Classes

	Number of occurrences	Percentage
Platform used for live online classes		
Google Classroom/ Google Meet	121	93.07%
Microsoft Team	2	1.54%
Zoom	3	2.31%
Other	4	3.07%
Which is more preferred between live on-line classes & Pre-recorded videos		
Live online classes	84	64.61%
Pre-recorded videos	1	0.76%
Both as per requirement	45	34.61%
Does not actually matter	0	0.0%
While teaching a particular topic online do you think that it takes more time than conventional classes?		
Yes	62	47.61%
No (online mode takes less time)	37	28.46%
Both are same	31	23.84%
Are you satisfied with the evaluation system adopted by your institution?		
Yes	78	60.00%
No	52	40.00%

Do you use any pre-recorded video of your own for teaching?						
				Response		Percentage
I) YES				34		26.15
II) NO				96		73.85
Government Institute teachers' response				Private Institute teachers' response		
	Response	Percentage			Response	Percentage
I) YES	29	24.37		I) YES	5	45.45
II) NO	90	75.63		II) NO	6	54.55

Effectiveness of online classes

To evaluate the competency of online learning, five questions for the students and fourteen questions for the academicians have been prepared, which have to be answered in a 5-point continuum scale (5 being most effective and 1 being the least effective). We have calculated percentage of the responses for each individual point (between 1 to 5) and also figured out consensus of each question, for both the students and the teachers, in order to designate the degree of agreement on a particular point between the respondents. Consensus have been calculated using the formula suggested by (Tastle and Wierman ,2007)

$$\text{Cons}(X)=1+\sum_{i=1}^n p_i \log_2\left\{1 - \frac{|x_i - \mu_x|}{d_x}\right\} \quad (1)$$

p_i =frequency associated with each Likert attribute x_i ;

$\mu_x = \sum_{i=1}^n p_i x_i$; mean of x ;

d_x =width of x ;

The responses along with corresponding consensus value are shown in tabular form in table 7 and 8.

Overall Students' reactions towards online learning

Our study indicates (ref. Table 7) majority of the students are evincing that effectiveness of online classes are greater than the traditional classes and also the benefits of online classes are more while compared against conventional classes. When it comes about teacher student interaction, we have received a mixed opinion; students are moderately satisfied with online platform. The students who have practical classes for their respective subjects have clearly indicated that practical classes are being hampered. The practical classes have been adversely affected during this pandemic period and it is the biggest hurdle that has to be taken care of, if the offline classes are to be suspended for longer time. Students are preferring online classes and online mode of evaluation ;majority of them have opined that online evaluation system is effective.

Table 7 Overall Students' reactions towards online learning

		UNDERGRADUATE(218)			POSTGRADUATE(35)		
	Point	Response	Percentage	Consensus	Response	Percentage	Consensus
1) Rate the effectiveness of Online classes over traditional classes	5	35	15.98	0.53	1	2.86	0.66
	4	55	25.11		6	17.14	
	3	77	35.16		19	54.29	
	2	18	8.22		4	11.43	
	1	34.	15.35		5	14.29	
2) Rate the Student teacher interaction in online classes	5	50	22.83	0.50	4	11.43	0.56
	4	60	27.40		10	28.57	
	3	55	25.11		12	34.29	
	2	28	13.79		4	11.43	
	1	25	11.42		5	14.29	
3) Rate the effectiveness of Practical classes in online mode	5	29	13.24	0.28	2	5.71	0.28
	4	29	13.24		1	2.86	
	3	36	16.44		10	28.57	
	2	34	15.53		4	11.43	
	1	90	41.10		18	51.43	
4) Rate the benefits Online classes	5	31	14.16	0.55	1	2.86	0.62
	4	69	31.51		11	31.43	
	3	63	28.77		14	40.00	
	2	28	12.79		4	11.43	
	1	27	12.33		5	14.29	
5)Rate the effectiveness of evaluation system in online mode	5	36	16.44	0.58	5	14.29	0.52
	4	61	27.85		19	54.29	
	3	77	35.16		9	25.71	
	2	24	10.96		2	5.71	
	1	20	9.13		4	11.43	

Teachers' reactions towards online classes

Majority of the teachers are enjoying online classes and they also feel that students are comfortable enough to ask questions and clear their doubts during online classes but on the contrary majority of them feels that in online mode it is much difficult to draw learners' attention as compared to offline classes. There are difficulties while conducting practical classes and there is a need to upgrade the existing simulation software; the simulation software which are available presently are not meeting the expectation in many cases. We have received mixed opinion while asked the teachers that if they are comfortable enough to take online classes for the same hours a day as offline classes. There is a mixed opinion also about keeping videos on, of both the teachers and the students, from the

teacher's perspective, keeping videos on, somewhat brings the feeling of offline classes and they get to see each other, but from home in environment it is not always be comfortable for everyone to keep videos on, as many of the students may not have separate place or room for attending classes. Teachers are preferring that there should be provision of recording live classes for the convenience of the students who have not been able to attend live class due to some technical issue or some other reason. Teachers are also recommending that online assignment on a particular topic after teaching is much more effective and easier to measure Learner's understanding as compared to the offline mode. There is another issue for which we have received a mixed opinion and that is about the white e-white boards available, teachers who need to do a lot of board work are not comfortable with e-white boards, it is a hurdle of online classes. A portion of the teachers are not comfortable to evaluate answer scripts digitally and the second problem is that the students are not being honest while taking and online assessment according to the majority of the teachers.

Table 8 Teachers' reactions towardsonlineclasses

	Point	Response	Percentage	Consensus
Do you enjoy teaching online?	5	23	17.83	0.59
	4	34	26.36	
	3	46	35.66	
	2	18	13.95	
	1	8	6.20	
Do you feel that students are comfortable enough to ask questions during online classes?	5	20	15.50	0.55
	4	33	25.58	
	3	42	32.56	
	2	20	15.50	
	1	15	11.63	
Do you think it is difficult to draw learner's attention during online lectures?	5	19	14.62	0.52
	4	34	26.15	
	3	33	25.38	
	2	27	20.77	
	1	17	13.08	
Do you feel comfortable to take online classes for same hours a day as offline classes?	5	24	18.46	0.42
	4	22	16.92	
	3	31	23.85	
	2	21	16.15	
	1	32	24.62	
Do you face difficulties while conducting practical classes?	5	21	29.58	0.42
	4	14	19.72	
	3	15	21.13	
	2	11	15.49	
	1	10	14.08	

According to your opinion the simulation software available currently are sufficient to conduct practical classes for the subject you teach?	5	4	5.56	0.55
	4	11	15.28	
	3	23	31.94	
	2	17	23.61	
	1	17	23.61	
Do you think that while taking online classes videos of students & teacher should always be on?	5	41	31.54	0.42
	4	21	16.15	
	3	32	24.62	
	2	18	13.85	
	1	18	13.85	
Do you think that online classes should always have the provision of recording?	5	40	30.77	0.48
	4	29	22.31	
	3	30	23.08	
	2	20	15.38	
	1	11	8.46	
Do you think that an online assignment on a particular topic after teaching is more effective & easier to measure learner's understanding?	5	42	32.31	0.58
	4	37	28.46	
	3	35	26.92	
	2	10	7.69	
	1	6	4.62	
Do you use e-white boards (e.g., Jam Board) comfortably?	5	16	12.31	0.44
	4	28	21.54	
	3	30	23.08	
	2	21	16.15	
	1	35	26.92	
Are you facing difficulties while evaluating answer scripts digitally?	5	15	11.54	0.52
	4	38	29.23	
	3	35	26.92	
	2	18	13.85	
	1	24	18.46	

Conclusion

Before covid times online learning was on the fringe of education system but covid has promoted it to be the lone mode of education. According to our study, currently the basic infrastructure needed (electricity, device, reasonable internet connection etc.) are not being big hurdle in the path of online learning, according to learners. Sometimes classes are missed due to internet connectivity or other problems, it can be solved by recording the live classes and preserving it for a limited time, the students who have missed the live class can access it in future with permission from the educator.

The next point to be considered is that majority of the students are dependent on mobile data pack as the solo source internet, so there should be some economic mobile data schemes for the learners. This is a much-needed initiative to be taken

by Government and educational Institutions for online education to be affordable by all the learners. There is lack of awareness among the students about the different existing online platforms like SWAYAM, SWAYAM PRABHA, national digital library etc.. There should be awareness programs for the students, so they can have the full utilization of the available free online resources.

Consensus is a measurement of agreement between the group of respondents for a particular topic. If the calculated consensus is more than 0.5 then the opinion of the respondents is clearly pointing to a particular direction either towards agreement or disagreement. It is evident that students are preferring online over conventional classes in every aspect except only one, they are facing problems regarding practical classes. It is clear that teachers are enjoying online teaching. According to the teachers students are comfortable enough to ask questions during online classes. Another aspect which teachers are preferring in online platform is that online assignments, as these are more effective & easier to measure learners understanding. But the challenges are to draw learners' and the other difficulty is the simulation tools available for practical is not sufficient presently. Also, the evaluation of handwritten answer scripts digitally is difficult. The major issue worth mentioning is that majority of the teachers have not received any training to conduct online classes, hands on training programs would be appreciable, to make online teaching delightful, overcoming technophobia. The challenge often faced by the educators is to draw learner's attention during online class. This issue may be addressed by using or designing edutainment software, also small quiz sessions during lectures are suggested.

Conducting practical classes is the major hindrance in path of successful online learning, especially for some subjects. There is an urgent requirement of properly designed subject specific simulation software ;which can somewhat solve the issue regarding practical classes, if online learning is prolonged further. Board work in online platforms is not very smooth yet, this is another which issue calls for attention. For conducting online evaluation, in cheat free environment, properly designed surveillance software is another technical issue to be resolved. Technology is the only tool to overcome the hurdles of online learning in future we will be working on an electronic board that will help teachers in hassle free board work.

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Conflicts of interest

The authors have no conflicts of interest to declare.

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