



# Experiences of learning in online mode during COVID-19 lockdown and needs for Computing For Sustainable Development

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## Abstract

Although online learning is not new to the country like India, its potentials were well explored during COVID19 pandemic lockdown. Most institutions and associated teachers made a deliberate effort to learn using the online mode and teach in the students associated with them. A survey form was floated across the country to know the experiences of the learners from the place of lockdown to gain insight into the preparedness of the country as digital India. Education as we all believe is the life line that can sustain development. Computer Science can play a pivotal role in enhancing the learning experience to gain knowledge and skill to be more employable and contributing in National development. The study of the sixty response received online through Google forms revealed the gaps and difficulties experienced by the learner of all age groups majority of them being in the age group of 20-25 years. The pilot study found that 80% could take online learning while rest 20% missed classes, which is of great concern. majority of the learners were from rural areas followed by semi-urban and urban areas. The learners compared their experiences of online and offline learning with respect to availability of facilities available at their home, the internet speed, application used and desired, Their preferred way of online learning. The paper further discusses on the efforts that might help in sustaining development.

**Key words:** Computing needs, online learning, offline learning,

## Introduction

The world economic forum (2020) reported that COVID 19 has resulted in shutdown of the schools affecting over 1.2 billion children out of the classroom. In India, the colleges and Universities have been strictly following the lockdown as a result education has dramatically changed with the rise of e learning and teaching being undertaken on digital platforms. COVID 19 rates of infections are different countries.

In India too the rate of infection are recurring and recently the third phase of its infection are suspected. While in some counties like Denmark, it is reported that children are returning to schools while in some countries children are responding to teachers call online. Financial express (2020) reported that the COVID19 pandemic has forced educational institutions world wide to adopt the online mode of teaching in an effort to ensure continued learning. This calls for a survey of the country to examine the experiences of online and offline education.

## Review of Literature

The Kripal (2020) reported that of study of IIT colleges and remarked that Indian teachers are used to chalk-and-talk teaching, which is a practical way of communicating concepts, clarifying doubts – system that has worked for ages for all subjects. Students too are accustomed to follow teacher as they teach on board. The system included the bustle and playfulness of students and interaction with teachers and peer that keep them engaged and relaxed. In a study with English teaching at professional institute the students revealed that they have missed the face-to-face interaction and clarification of doubts. Teachers informed that looking at students enables teachers to use their non-verbal responses to change towards what's of interest to them. Teachers remarked that it is difficult to speak to camera in the absence of students even suggesting to drop minor courses and focus on major courses in engineering. Dhawan (2020) studied the Edtech Stratups during pandemic and natural disasters and suggested how to deal with challenges associated with online learning. Muna et al. (2020) revealed that in Indonesia around 68 million students from pre-school to higher education levels had to shift to online learning. Student shared that they get more homework than learning materials. The study found that moving to online classes also created additional burden for teachers as they have to incorporate technology in their learning methods, a skill not many people possess. Another challenges for online learning lack of internet access, poor quality of teacher's capacity and student-parent readiness.

## Methodology

The study was conducted in India in the month from August – September 2020 when the Country was in the process of unlocking down, although the educational institutions still were in lockdown condition and the educational Institutions were expected to manage the teaching of their students maintaining social distance. Online teaching using available technologies was found to be the immediate option to which corporate seems to be much familiar than the teacher and the students. But as they say "Life must go on", therefore, the educational institution from primary schools through colleges and Universities across the country made an attempt to learn the use of technologies and continue to teach students in online mode. The Google form was prepared to elicit information regarding online teaching that occurred during lockdown due to COVID19 threat (April-September 2020). The link of Survey Form was shared and floated to Universities across the country and also through scientists of different educational institutes/universities. Students from educational institutes of Andhra Pradesh, Delhi, Gurajat, Himachal Pradesh, Rajasthan and Uttar Pradesh participated and total of sixty eight responses were obtained. The responses were consolidated and analyzed and the findings are presented below.

**Profile of the respondents of the study:**

Age group of the family members who were undertook online learning is presented in Table 1 which reveals that majority of them were in the age group of 20-25 years,

Table 1: Persons who undertook online courses during COVID19 lockdown -Age wise

S.No.	Age group (in years)	No. of persons	Percentage
1	3-5	2	2.2
	5-10	4	4.39
	10-15	12	13.19
	15-20	25	27.47
	20-25	43	47.25
	25-30	3	3.3
	30-35	0	0
	35-40	2	2.2
		91	100

The table revealed that majority of persons who were taking online courses during the COVID19 Lockdown were between 20-25 years (47.25%), followed by 15-20 years (27.47%) and 10-15 years (13.19%). There were a few respondents in the age of 5-10 years (4.39%), 25-30 years (3.3%), 3-5 and 35-40 years (2.2% each).

**Other profile attributes:**

The study found that 60 % respondents were females rest (40%) were male; Majority were unmarried (97%) and a few (3%) were married. Learners were residing in rural areas (61.8%), urban areas (29.4%) and a few were located in semi-urban areas. The majority of respondent reported that their economic condition was average (60.3%), below average (19%) and poor economic condition (8.8%). The economic condition of only 12 per cent students was above average.

The education being taken by the respondents is presented Table 2.

Table 2: Education being undertaken by respondents

S.No.	Education being undertaken	Percentage
1	Schooling upto 10 class	1.5
	Under graduation	78
	Post Graduation	19
	Online courses from different sites	1.5
	Total	100

Table 2 highlighted that the study was undertaken by mostly Undergraduate college students (78%) and Postgraduate students (19%). Only a few learners (1.5%) from school got included in the study. Only 1.5% students reported that they had undergone online courses from different sites.

**Experience of learning online during Lockdown**

Table 3: Experience of learning online and offline

	Quality of experience reported	During offline	During online
1.	Very Poor	4 (5.88)	12 (17.7)
2.	Poor	4 (5.88)	6 (8.80)
3.	Average	11 (16.17)	29 (42.6)
4.	Good	23 (33.8)	15 (22.1)
5.	Very good	26 (38.2)	6 (8.80)
	Total	68 (100)	68 (100)

Figure in parenthesis is percentage

Table 3 presents the quality of experience of online learning during lockdown of COVID19 threat. It was found that majority of respondent found very good (38.2%) or good (33.8%). The experience of offline learning for 16.17% was average. Only for rest the experience for was poor or very poor. With respect to online mode of teacher-student learning it was 42.6% found the experience average, while 22.1% found the quality of online learning good. The online learning experience of 17.7% students was very poor while 8.8 % found it poor. Only a few (8.8%) reported that the quality of online experience was very good. Thus, mixed reactions were reported by the college students mostly from the agricultural universities.

Further, it was found that In classroom teaching during that took place during pre COVID 19 period, was majority felt that there use to be effective interaction between teacher and student in institutional classroom. There was face to face interaction between teacher and student and it was possible to interact with respective professor directly. The interaction between students and teacher was better in Classroom Teaching was better on direct Interaction/exposure with teachers allowed best coordination and develop student –teacher relationship them a because they had good environment to focusing on study. They could also see the facial expressions of teachers and students. Overall they found institutional classroom teaching very impactful.

so most of them opined that offline/institutional classes were better than online learning platform. It was better as offline classes allowed them more time with their teacher.

The next reason given in favour of institutional learning was Good understanding. The study revealed that students preferred institutional learning as it allows them eye-to-eye and interaction during learning with teachers resulting in good understandings. They reported that interactive sessions during live classes in offline system were more and better understandable and there was clarity in the subject.

The third popular reason to vote for classroom teaching was Doubt clearance. Students can ask the questions with teacher easily and they we can ask as many questions we want and that too more frequently. Doubt clearance in institutional /classroom teaching was the on-the-spot clearance of with the teachers and students. It allowed them more time for problem solving and obtain explanation immediately.

Another concern informed by student was their practicals. The students realized that some practical parts of study can only learned during offline classes such as field experiments, institutional visits, visit to workshops and working on specialized equipments and learning to handle them. Their visit to laboratories or practical site which gives them practical knowledge and they learn a lot by seeing things like crops, animals, or for an agriculture engineering student we need to see the things and machine. More practical experience can be gained as in practical classes the students were taken to the labs and farm and were allowed to learn by doing. There used to be practical demonstrations and they could practice the skills by their own.

Other good thing about institutional/offline teaching was that the teachers made offline classroom interesting as the way of teaching of each teacher was different. They used different teaching aids and methods like Projector teaching, Smart classes, Ppt presentation, Interactive learning etc. they also missed the peer interactions in and outside the classes, group discussion that enabled them learn and absorbed what was discussed and learnt. The also missed the regular time schedules followed in offline learning and funny moments and enjoyment in the class. A few also shared that classroom learning presented Competitiveness that encouraged them to development the ability to speak from stage - and helped them in Personality development.

Students also found offline learning more comfortable and non distracting. Thus, they could be more attentive and focused in the education. The students felt that they were more disciplined, confident and freely with education. Students also revealed the feature of formal classroom setting which they did not like which were the distractions by other students of the class, the marking of attendance, some classes required them to wake up early. They also feared of getting scolded by their teachers in offline learning. Some shared that their classmates create unfavourable conditions that was not congenial for studying in classroom setting. Students also shared their experience of long hours of teaching without any breaks which made the learning boring and monotonous. The students felt a waste of time in formal classroom setting when there was no class scheduled and there was not enough time to go to their rooms. They find more restrictions and sometimes boring.

With respect to online teaching students appreciated the feature of flexibility. They had the option of attending the classes from home or any place. Online education allowed the sick students who cannot attend regular classes. Flexibility in use of materials shared online that allows students to record, listen or read any time, anywhere and more times even in the comfort zone of their beds. Saves time as there is no dictation of the notes and most of all it was the best option to continue study in the COVID19 pandemic situation. Although online education was appreciated by most students yet the felt that the mode has potential and more technologies could be blended and used. A few also reported that they were more punctual, there were no lengthy classes, no early hours waking up and getting scolded. Many students were concerned about the practical training and exposure they had in the formal classes especially when the equipments are not with them most practical were instructional. At the same time were many students who did not like this mode of learning as the weak internet in their area kept them tensed about their classes to the extent that they could not attend any classes mostly experienced by students located in villages. Students also shared at some teacher only sent them pdf materials and were upset about it. No eye contact resulted in less understanding, less seriousness about the study and low attentiveness were other prominent concern of the student with respect to online learning.

#### Devices used for online learning

The study found that for 95.6 % individuals they owned the mobiles for their use while rest 4.4% had to depend upon other for their online learning. 61.1% borrowed mobile phones from family members, Missed the classes and asked friends later (22.2%) and 16.7 per cent missed classes and did not attend them.

**Table 4: Type of mobiles phones available with students**

S.No.	Owner of mobile	Percentage
1.	Android mobile phones	94.1
2.	QWERTY or conventional	2.9
3.	Basic cellphone	11.8
4.	Desktop with WI-FI compatible	4.4
5.	Desktop without Wi-Fi compatible	0
6.	Laptop with Wi-Fi	7.4
7.	Laptop without Wi-Fi	4.4
8.	Laptop with web camera	11.8

It is worthy to note from table 4 that 94.1% students had android phones that enabled them online education. Some students had laptop with web camera (11.8%), Desktop with Wi-Fi compatible (4.4%), laptop without Wi-Fi (4.4%). The study also revealed that there were 11.8% students who had basic cell phones, which is of a great concern as these students are often the ones who face difficulty in online learning due limited facility available on their device. Scientists in computer sciences need to intervene in the matter and design or re model the basic phone to enable the students to access online learning.

### Various app and functions used in their devices

S.No.	App used on mobile	Percentage
1.	Phones	97.6
2.	SMS	57.4
3.	Google Chrome	80.9
4.	Browser	45.6
5.	Games	13.2
6.	Watch movies	13.2
7.	Whats app	79.4
8.	Attend google classroom	67.6
9.	Camera	61.8
10.	Facebook	35.3
11.	Online shopping	27.9
12.	Instragram	44.1
13.	Translate	35.3
14.	Scanner	35.3
15.	Zoom and other apps	66.2
16.	PDF reader	66.2
17.	Recharge	38.2
18.	Photos and videos	20.6
19.	Calclator	51.5
20.	E mail	70.6
21.	Google Map	55.9
22.	You tube	70.6
23.	Drive	54.4
24.	Share it etc	22.1
25.	Notes	45.6
26.	Reminders	25.0
27.	Music and flashlight	1.5
28.	PUBG Photoshop	1.5
29.	Upssc apps, exercise app	1.5

Table 4 brings forth the percentage of students who used the apps. It was revealed that phone was the most used app in the mobiles (97.6%), followed by google chrome (80.9%), Whats App (79.4%), e mail (70.6%), you tube (70.6%), Google classroom (67.6%), Zoom and other meeting platform app (66.2%) and pdf reader app (66.2%). Camera was used by 61% students, SMS (57.4%), Google Maps (55.9%), Drive (54.4%), Calculator (51.5%), Browser (45.6%), Instagram (44.1%), Notes (45.6%). The other apps that were used by the students were Recharge related apps (38.2%), Translate (35.3%), Scanner (35.3%), Facebook (35.3%), Online shopping (27.9%), Reminders related app (25%), File sharing Apps (22.1%), Photos and videos (20.6%), Games (13.2%), watching and movies (13.2%). A few reported that they used applications like Music and flashlight, Photoshop and other utility apps (1.5 % each).

Most students were satisfied with the application available on phone but there were some who wanted more. They wanted applications that would read books and materials for them and write sentences on their mobiles and laptops. Other wished for ppt functional on their mobile phones. Experiential Learning apps, e course finder, video editing apps on laptops and mobiles. Educational App where there will be contents related to different educational fields was also desired by the students. The study, thus, revealed that there is lot of scope for engineers of the subject to bridge the gap of supply of the services through application and relook to their designs so that students can get the best and optimal benefits from it.

### Summary and Conclusion

It can therefore be concluded that online and offline education have their own advantage and disadvantage that facilitate or restrict learning. While main reason for not appreciating online learning was the network issues faced by the students, and limitation in their mobile phones that are not compatible to online education that is mostly android based. India, today, is hunger to learn and equip themselves for the new conditions and technologies that are user friendly to all age groups as learning is not just young generation between 20-30 years but also for persons between the age of 35-40 years. Efforts are needed to include internet signal detector and interface facility for advocating "Education for All" and also minimize migration of village resident in pursuit of providing education to for their children. Capacity building of the teachers and students is equally needed to optimally use the various technologies in the interested of sustained learning rather than experimenting with limited knowledge and skill in handling them. The study also revealed that the students are not aware of some of the tools desired by them is already available in the market but the tools if included in the package shall really be helpful. Welfare agencies should also consider availability of devices for areas where internet is stable so that students can sustain development for themselves and the country especially that has aroused due to COVID19 pandemic. The efforts shall be worthwhile even post pandemic as the older and younger generation shall be ready for blended education. More extensive and intensive study needs to be done separately for school and higher education system as online teaching and blended teaching is the future of education.

### Referances

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