

## An Opinion Study about Online Learning Method Conducted during COVID-19 Pandemic among Agricultural Students

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### ABSTRACT

Online learning is an educational process which takes place over the internet as a form of distance education where the learners and the instructors are not in the same place. Due to COVID-19 pandemic circumstances, online learning played an indispensable role in education programs, where most of the educational institute shifted towards online learning platform to up keep the academic activities. For a developing country like India, the use of ICT in education process still poses many challenges and it is not clear about its effectiveness. The research study focuses on agricultural students' opinion about online learning method which was conducted using social distancing during COVID-19 pandemic situation. For the purpose, an online survey was conducted among 60 randomly selected undergraduate students who had attended the online classes. The results indicated that majority of the students (91.70 %) preferred to use smart phone for online learning. Most of them viewed that live classes with quiz at the end of each class helps in effective learning. Majority of the students opined that more interaction during online classes makes it interesting, whereas network connectivity related issues in rural areas makes it a challenge for students to make use of online learning initiatives. However, in agricultural education system, many courses are practical oriented, conducting practical classes in online mode may not be possible. Hence, there is a need to device a hybrid mode of learning. The results of the study can be helpful in making online learning more effective.

*Keywords:* Online education, Opinion study, COVID-19 pandemic, Preferences

ONLINE learning is an educational process which takes place over the Internet as a form of distance education where the learners and the instructors are not in the same place. In the wake of COVID-19 pandemic, the Government of India imposed a nation-wide lockdown on 25<sup>th</sup> March 2020 to control the spread of the disease and lockdown continued for months. Lockdown and staying home strategies have been put in place as the needed action to flatten the curve and control the transmission of the disease (Sintema, 2020). Most of the educational institutes made transition from classroom education to digital online education through the use of online educational platforms like Google Classroom, Microsoft Teams, Zoom, Cisco WebEx, Google Meet, Skype etc. An unexpected shift from face-to-face classroom learning to online created some difficulties among students and teachers. With the increase in use of online modalities during COVID-19, it is necessary to

assess their effectiveness with regards to teaching and learning from various stakeholders (Schwartz *et al.*, 2020). Assessing student readiness for online learning is an issue facing many education and training providers as more learning opportunities are made available online in varying formats (Smith, 2005).

Communication in e-learning is considered to be an important concept and divided into three categories *viz.*, learner–instructor, learner–learner, and learner–content interactions (Moore, 1989). Satisfaction and retention in e-learning can be accomplished with the coordination of online resources, activities and communication tools in online courses. Inadequate interaction in e-learning leads to ineffective learning, and this may lead to lack of retentions and dropouts of online learners (Anderson, 2003). The Ministry of Human Resources Development and its associated institutions have also promoted digital education with

equity and developed online resources during the COVID-19 pandemic situation (Anonymous, 2020). In this backdrop, a study was conducted to identify the opinion about online learning method conducted during covid-19 pandemic among agricultural students with the following specific objectives:

1. To identify the preferences of students for the online classes
2. To analyze the perception of students towards online learning
3. To find out the factors influencing success and failure of online classes and
4. To know the benefits and problems faced by the students in online learning

#### MATERIAL AND METHODS

Ex-post facto research design was used in this study by considering the objective and type of information needed. Agricultural graduates were chosen as the respondents for this study. Agriculture is the most diverse subject that includes subjects ranging from life sciences to social sciences where students work from lab to land. The participants were 60 randomly selected undergraduate students from second year, third year and final year since they had attended the online classes. About 20 students from each year was selected randomly. Among them, 34 were boys and 26 were girls. The data were collected through online survey by using a well-structured interview schedule. Pre-testing was done with ten students who had attended the online classes and their feedback was considered for designing the final questionnaire. The link for Google form was sent to the students through WhatsApp and e-mail. Data were collected on demographic features, followed by learners' preferences, perception, factors influencing online learning, benefits and constraints. The analysis was carried out by applying statistical tools such as frequency, percentage analysis, cumulative frequency and garret ranking technique.

## RESULTS AND DISCUSSION

### Demographic Details of Respondents

The data regarding the demographic variables (gender and native place) of the respondents are presented in Table 1.

TABLE 1  
Demographic details of respondents  
(n = 60)

Characteristic	Category	Respondents	
		Frequency	Per cent
Gender	Female	34	56.70
	Male	26	43.30
Native place	Rural	23	38.30
	Semi-urban	15	25.00
	Urban	22	36.70

From Table 1, it is evident that more than half of the respondents were female students (56.70 %) and the remaining respondents were male students (43.30 %). A larger number of the respondents were from rural area (38.30 %) whereas other major group of the respondents belonging to urban area (36.70 %) and only one-fourth of the respondents were from semi urban area (25.00 %). Similar findings were reported by Muthuprasad *et al.* (2021)

### Basic Information Regarding Online Classes

The basic information regarding online classes of the respondents are presented in Table 2.

From Table 2, it is apparent that majority of the respondents (61.67 %) attend online classes and 38.33 per cent did not attend online classes prior to the online learning followed during COVID-19 pandemic. Whereas most of them (95.00 %) suggested the education institute to provide assignments and reading materials as well as to concise the curriculum (75.00 %) to cope up with the situation. The reasons behind the responses may be the impotence to focus on curriculum due to the pandemic fear or technological constraints faced during online learning. The constraints faced by the students are analyzed in later part.

TABLE 2  
Demographic details of respondents  
(n = 60)

Characteristic	Category	Respondents	
		Frequency	Per cent
Earlier experience with online course	Yes	37	61.67
	No	23	38.33
Education institute have to provided assignments and reading materials during COVID-19 situation	Yes	57	95.00
	No	3	5.00
Education institute have to concise the curriculum	Yes	45	75.00
	No	15	25.00

### Technical Modalities for Online Learning of The Respondents

The information related to the technical modalities for online learning of the respondents are presented in Table 3.

It could be inferred from the results depicted in Table 3 that majority of the respondents used WhatsApp (85.00 %) and email (80.00 %) as best way for communicating class updates, while most of the respondents used Smartphones (91.70 %) followed by laptop (65.00 %) which was felt compatible for attending online classes. A vast majority of the respondents preferred power point presentations (95.00 %) , more than half of the respondents (51.70 %) preferred oral presentation of the content and only a few respondents (10.00 %) preferred whiteboard mode of teaching for online classes. Majority of the respondents used mobile data pack (90.00 %) as source of internet, while the remaining (10.00 %) used Wi-Fi connection. A larger proportion of the respondents preferred live classes (80.00 %) as it gives synchronised learning experience, whereas nearly half of the respondents (45.00 %) preferred sending of reading materials, 28.30 per cent preferred live classes which can be recorded because it gives flexibility in learning, and only a few respondents (8.30 %)

TABLE 3  
Technical necessity for online learning  
of the respondents  
(n = 60)

Characteristic	Category	Respondents	
		Frequency	Per cent
Way of communication used for communicating class updates	Posting in university websites	2	3.30
	Text messages	9	15.00
	E-mail	48	80.00
	WhatsApp	51	85.00
Device used for online classes	Others	7	11.70
	Laptop	39	65.00
	Desktop	2	3.30
	Smartphone	55	91.70
Mode of teaching preferred for online classes	Tablet	2	3.30
	Power point presentation	57	95.00
	Whiteboard	10	6.70
Source of internet used	Oral presentation	31	51.70
	Mobile data pack	54	90.00
	Wi-Fi	6	10.00
Preferred format of online class	Live class	48	80.00
	Live classes that can be recorded	17	28.30
	Pre recorded video class	5	8.30
Nature of course material preferred for reading	Sending reading materials	27	45.00
	Reading material	13	21.70
	Video content	3	5.00
	Both	44	73.30

\* Multiple responses were obtained

preferred pre-recorded video classes as the format of online class. As for the nature of course material preferred for reading, majority of them (73.30 %) preferred sending reading materials supplemented with video content for quick understanding, 21.70 per cent preferred reading material alone and only a few respondents (5.00 %) preferred video content alone as course material for their online classes.

### Repetition and Length of Online Classes for Online Learning

The data related to the repetition and length of online classes for online learning preferred by the respondents are presented in Table 4.

TABLE 4  
Recurrence and span of online classes  
for online learning  
(n = 60)

Characteristic	Category	Respondents	
		Frequency	Per cent
Anticipated frequency of classes conducted by the course teacher	According to the time table	37	61.70
	Daily	4	6.70
	Alternate days	15	25.00
	Weekly twice	4	6.70
Duration like to spend in a day for an online class (per class)	30 minutes	11	18.34
	1 hour to 45 minutes	47	78.33
	> 1 hour	2	3.33
Duration of break preferred between two online classes	< 10 minutes	3	5.00
	10 minutes	3	5.00
	15 minutes	31	51.70
	> 15 minutes	23	38.30
Total duration like to spend in a day for online classes	< 2 hours	10	16.70
	2 to 4 hours	34	56.70
	4 to 6 hours	16	26.70

\* Multiple responses were obtained

The results in Table 4 revealed that more than half of the respondents (61.70 %) expected the course teachers to conduct the classes according to the timetable whereas one-fourth (25.00 %) of the respondents expected on alternate days, 6.70 per cent each expected daily classes as well as weekly two classes by the course teacher. Regarding the preferable duration for an online class, 18.34 per cent preferred 30 minutes, 78.30 per cent preferred one hour to 45 minutes and only 3.30 per cent preferred more than an hour. The respondents needed a break for 15 minutes between two online classes (51.70 %) while 38.30 per cent needed more than 15 minutes,

5.00 per cent each needed less than 10 minutes and 10 minutes as break and would like to spend 2 to 4 hours a day for online classes (56.70 %) to enhance the productivity of learning.

### Addressing Queries and Assessment for Online Class

Table 5 presents the data on the information regarding addressing queries, plans and models for assessment of online learning as preferred by the respondents.

TABLE 5  
Addressing queries, plan and models for  
assessment of online learning  
(n = 60)

Characteristic	Category	Respondents	
		Frequency	Per cent
Ways liked to use for explaining questions	Email	27	45.00
	Live chat	41	68.30
	Platform for queries	19	31.70
	Tele communication	11	18.30
	Others	1	1.70
Anticipated time preferred for explaining the questions by the instructors	Within few hours	10	16.70
	Within a day	20	33.33
	Within next class	20	33.33
	Within 2-3 days	5	8.30
Preference to attend quiz at the end of each class	Yes	56	93.30
	No	4	6.70
Preference to have assignments at the end of each class	Yes	42	70.00
	No	18	30.00
Deadline for presenting the assignments	1 day	2	3.30
	2 - 3 days	8	13.30
	1 week	36	60.00
	Prior to next class	14	23.30
Preference to attend online exams	Yes	54	90.00
	No	6	10.00
Preference in the nature of online assignment	Objective	30	50.00
	Subjective	2	3.40
	Both	28	46.70

\* Multiple responses

Majority of the respondents (68.30 %) preferred live chat for addressing their queries spontaneously, whereas one-third of the respondents (33.33 % each) wishes their queries much be cleared within a day and by next class for better understanding of the classes. Majority of the respondents liked to have quiz (93.30 %) and assignments (70.00 %) at the end of each class for enhancing their learning experience with a week (60.00 %) as deadline for presenting the assignments which they felt as adequate time to complete. As high as 90.00 per cent of the respondents liked to have online examination, whereas the nature of the online assessment was preferred by half of the respondents was objective type (50.00 %) which can be attended even through mobile phones. Less than half of the respondents preferred both objective and subjective type online assessment (46.70 %) whereas less number of respondents preferred subjective type of online assessments (3.40 %) as it requires more time.

### Perception of Students Towards Online Learning

Table 6 presents the information with respect to the students perception towards online learning.

The results in Table 6 reveals that more than half of the respondents (56.66 %) agreed that online courses are moderately structured in comparison with face-to-face courses, 52.50 per cent accepted that online classes are moderately effective in comprehending the course material and 43.84 per cent opined that the online environment makes communication moderately easier. Whereas, 40.83 per cent opined that it is less effective. In case of responding to questions comfortably, 35.83 per cent of the respondents perceived that online classes are moderately effective, whereas 35.00 per cent of the respondents perceived online classes are less effective. Regarding technical skills, 47.50 per cent agreed that online classes are much more effective in improving their technical abilities. Online classes are opined as moderately effective for spending time on home work by 56.66 per cent of the respondents in comparison with classroom learning. In case of the instructors' ability to comprehend the virtual climate and make

TABLE 6  
Students perception towards online learning  
(n = 60)

Statements	Less effective (%)	Moderately effective (%)	Much more effective (%)
Online courses are well structured with set due dates similar to face-to-face courses	36.67	56.66	6.67
Online classes help me comprehend the course materials compared to classroom learning	37.50	52.50	10.00
Online environment makes it easier for me to communicate with my instructor than classroom environment	40.83	43.84	15.32
I am more comfortable responding to questions by email than orally	35.00	35.83	29.17
My technical skills (email/internet apps) has increased after attending online classes	14.17	38.33	47.50
I spend more time on my homework / assignment in comparison with regular classroom learning	26.67	56.66	16.67
Instructor comprehend the online climate and makes it simple to learn through continuums	24.70	52.00	23.30

the platform simpler to learn 52.00 per cent agreed online classes are moderately effective in contrast with face-face classes.

### Friedman Rank Test Analysis

In order to check the presence of pattern in data, Friedman test was applied. The positioning given by the respondents can be random without any pattern and just contrasting them dependent on mean position can be erroneous. In this way, mean positions can measure up solely after ensuring that there is a pattern in the evaluations given by the respondents. The analysis uncovered that there is a pattern in the data as the friedman test statistics turned out to be significant. Mean value for every statement was

utilized to rank the statements related to the perceived effectiveness of online classes in examination with classroom teaching. The results of the friedman analysis was presented in the Table 7.

Friedman rank test mean rank results mentioned in the Table 7, shows that improvement in technical skills; instructors ability to comprehend the virtual climate and making the platform simpler to learn and spending more time on assignments in comparison to classroom environment were ranked first, second and third, respectively whereas, fourth rank was given for comfortable responding to questions through email than orally, fifth rank for comprehending the course material, sixth rank for making the environment easier to communicate with instructors and last rank was given in case of online courses structured with set due dates similar to face-to-face courses. Friedman rank test analysis reveals that the differences were

TABLE 7  
Friedman rank test

Statements	Mean Rank	Rank given
Technical skills (usage of email/internet apps) has increased after attending online classes	5.33	1
Instructors' ability to comprehend the virtual climate and make the platform simpler to learn	4.23	2
Spending more time on assignments in comparison with regular classroom learning	4.06	3
More comfortable responding to questions by email than orally.	4.02	4
Online classes help me comprehend the course materials compared to classroom learning	3.52	5
Online environment makes it easier for me to communicate with my instructor than classroom environment	3.48	6
Online courses are well structured with set due dates similar to face-to-face courses	3.35	7

highly significant with the chi-square value 41.67 at 6 degrees of freedom.

### Factors Influencing Online Learning

Factors influencing the success and failure of online learning are presented in the Table 8 and 9.

From Table 8, it could be inferred that flexibility of online learning that is learning can takes place from anywhere and at anytime was the majorly (95.00 %) agreed statement followed by which basic knowledge of computer and internet (90.00 %), accessible and understandable content (83.33 %), relevancy of content (80.00 %); three-fourth of the respondents (75.00 %) agreed with the statements interactive content as well as user friendly software/hardware as factor for success of online class. 71.67 per cent of the respondents agreed that motivation which is self-learning interest; 61.67 per cent of the respondents

TABLE 8  
Factors influencing the success of online classes  
(n = 60)

Factors	Respondents	
	Yes (%)	No (%)
Accessible and understandable content	83.33	16.67
Interactive content	75.00	25.00
Flexibility (Study anywhere at any time)	95.00	5.00
Relevancy of content	80.00	20.00
Basic knowledge of computer & internet	90.00	10.00
User friendly Software / Hardware	75.00	25.00
Communication skills	61.67	38.33
Motivation (Self-learning interest)	71.67	28.33
Focus (Ability to avoid distractions)	50.00	50.00
Clarity in audio/video	53.33	46.67

agreed that communication skills as factor for success. It is also evident that there is a partial agreement with the statements that clarity in audio/video which is used for online learning (53.33 %) and ability to avoid distractions (50.00 %) also opinioned as the factors which influence the success of online classes.

TABLE 9

Factors influencing the failure of online classes  
(n = 60)

Factors	Respondents	
	Yes (%)	No (%)
Interactive content	75.00	25.00
Digital divide	95.00	5.00
Non- recordable videos	73.33	26.67
Technical issues	95.00	5.00
Virtual presence only	76.67	23.33
Noise	81.67	18.33
Poor learning skills	80.00	20.00
No follow-up	76.67	23.33
Feedback/queries unanswered	60.00	40.00
Unmotivated	78.33	21.67
Strain due to harmful radiations	88.33	11.67

From Table 9, it is evident that digital divide the gap between those who can access and those who cannot access the digital e-resource as well as technical issues faced while attending the online classes (95.00 %) are the major constrains which inherent factors that influence failure of online classes followed by which strains due to harmful radiations by using gadgets for online classes (88.33 %), noise the unwanted disturbances / information's which is transferred along with the communicated message from the instructors (81.67 %), poor learning skills (80.00 %), unmotivated nature of learners towards online classes (78.33 %), no regular follow-up by students and instructors as well as no face to face interaction between learners and instructors (76.67 %), online classes that cannot be recorded or downloaded (73.33 %) and feedback/ queries which is felt unanswered for a period of time being are opinioned as the factors which influence the failure of online classes.

### Benefits of Online Learning

The data regarding the benefits of online learning were analyzed using Garret ranking technique and the results are presented in Table 10.

From Table 10, the study results shows that the statement adaptability and comfort to use was

TABLE 10

Benefits of online learning  
(n = 60)

Benefits	Total Score	No. of respondents	Average score	Rank
Adaptability and comfort to use	3914	60	65.23	1
Efficient way for delivering lessons	3732	60	62.20	2
Self-discipline and responsibility	3711	60	61.85	3
Affordability	3702	60	61.70	4
More interaction and greater ability to concentrate	3606	60	60.10	5
Suits a variety of learning styles	3460	60	57.67	6

positioned as the significant advantages of the online learning. Henceforth, adaptability and comfort are significant drivers behind the interest for online training. Effective way for delivering lessons, self- discipline and responsibility, affordability, more interaction and greater ability to concentrate and suits a variety of learning styles were positioned two, three, four, five and six, respectively.

### Problems in Online Learning

The data regarding the problems in online learning were analyzed using Garret ranking technique and the results are presented in Table 11.

From Table 11, the study results shows that lack of connectivity such as network problem, data speed etc. was the major hindrance in online learning. The results shows that digital divide and lack of equity in access to the internet being a major issue to large number of students particularly for the students from remote areas the situation was even worse. Followed by which lack of devices, poor learning environment, inability to focus on screens, little/ no face to face interaction and fear of using new technologies were positioned two, three, four, five and six respectively.

With endeavours to prevent the spread of corona virus, education system are changing from face-to-face to

TABLE 11  
Problems in online learning  
(n = 60)

Problems	Total score	No. of respondents	Average score	Rank
Lack of connectivity (Network, data speed etc)	4082	60	68.03	1
Lack of device	3635	60	60.58	2
Poor learning environment	3586	60	59.77	3
Inability to focus on screens	3450	60	57.50	4
Little / no face to face interaction	3444	60	57.40	5
Technophobia (Fear of new technology)	3316	60	55.27	6

online which was becoming the primary framework of instruction as it is essential to follow isolation and social distancing. Many educational institutes and universities are shifting towards online platform to follow up with the designed curriculum. The results of the study indicates that majority of the students showed a positive opinion towards online classes in the wake of corona. The online learning was discovered to be worthwhile as it gave adaptability further more comfort for the students. Students opinioned to send reading materials supplemented with video content as course material for their online classes and to concise the curriculum. They also indicated the requirement for interactive sessions with quizzes and assignments at the end of each class to upgrade the learning experience. However, most students also revealed that online classes could be more difficult than conventional classroom learning because of technological constrains, inability to handle Information and Communication Technologies effectively, improper follow-up and delayed feedback. The usage of online learning platforms like Google classroom, Microsoft teams etc is radically changing the way by which education has been traditionally delivered. It is conceivable that when

the COVID-19 pandemic settles down, there is a continued increase in education systems using online platforms for study aids as it can be used in hybrid mode with regular classes. The findings of the study can be helpful in making online learning more effective by understanding the opinion of students.

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