

COVID-19 Pandemic and E-learning: Perceptions of Under Graduate Veterinary Students of Assam

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ABSTRACT

COVID-19 pandemic has affected every sphere of day-to-day life and its impact on education has been severe due to cancellation of regular classes during the lockdown enforced for restricting the spread of the virus. E-learning has come up to be the solution for continuing the education during the pandemic. Although e-learning has fantastic features it has certain limitations such as unavailability of uninterrupted internet access in the rural areas and requirement of smart phones or computer. Therefore, an online survey was conducted to understand the perceptions of under-graduate students regarding e-learning during the pandemic and to gain valuable opinions of the students to further enhance the online teaching learning process. By using a questionnaire (with a set of 26 numbers of questions) in the platform of Google form, 282 numbers of responses from under graduate students of College of Veterinary Science, Guwahati and Lakhimpur College of Veterinary Science of Assam Agricultural University were obtained. The findings of this study offer useful opinions and suggestions of under-graduate students regarding the E-learning process which will facilitate better and efficient usage of the E-learning system during the COVID-19 like pandemic.

HIGHLIGHTS

- Analysing the factors that affect the overall experience of online learning for students.
- Understanding the expectations of students for devising improvement protocols.

Keywords: COVID-19, e-learning, ICT tools, online survey

The COVID-19 pandemic has put the hustle and bustle of everyday life on pause as strict quarantine/lockdown protocols are being enforced to limit the spread of the deadly virus which has been claiming millions of lives across the world. Mankind as always has displayed extreme resilience and accepted the challenges posed by the pandemic. Every sphere of human life has seen massive transformations and the educational sector too had to adopt new methodologies powered by technological advances for the benefit of the student community (Radha *et al.* 2020).

COVID-19 pandemic is forcing the educational institutes such as Universities to shift rapidly to distance and online learning. Online learning is not new to learners, nor is distance learning. However, COVID-19 is reviving the need to explore online teaching and learning opportunities (Almaiah *et al.* 2020).

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In the wake of these, it becomes all the more important to know and understand about the experiences and expectations of the students. The present survey was therefore conducted to analyse the students' perspective, which is especially important because of the transition to novel teaching approaches.

MATERIALS AND METHODS

The under-graduate students of College of Veterinary Science, Khanapara and Lakhimpur College of Veterinary Science, North Lakhimpur of Assam Agricultural University were selected as respondents for the study. A questionnaire with 26 numbers of questions regarding e-learning during the COVID-19 pandemic was prepared as a Google form. The link was then shared with the under-graduate students. In order to garner maximum support towards the survey, the students were allowed to participate at will and the responses were made anonymous for getting honest and unbiased inputs from the students.

A total of 282 responses were recorded from the undergraduate students and the records were tabulated and statistical analysis such as descriptive and relational analysis was performed using statistical analysis tool (SPSS).

RESULTS AND DISCUSSION

1. Traditional learning and e-learning- the interface

- ❖ On being asked about their overall experience regarding online teaching in the prevailing pandemic situation, 45.4% of the respondents said it was average while 27% felt it was good (Fig. 1 a).
- ❖ In comparison to classroom learning, 47.3 % felt e-learning was more stressful.
- ❖ When asked to rate their activity during classes, 69.6% said they were active during online classes while 3.9% said that they were extremely active and 23.9% said they were inactive. However, in case of traditional classroom teaching, though an almost similar number of respondents (65.6%) said they were active but a higher percentage (30.5%) said they were extremely active and only 3.9% said they were inactive.

- ❖ Close to half of the respondents (48.7%) said that remote learning was moderately effective for them. Another 3.6% felt it was very effective in contrast to 14.7% who felt it was not at all effective (Fig. 1 b).
- ❖ In the opinion of 47.4% of the respondents, the main advantage of online learning was that they could learn at home at their own pace while 23.4% felt it was advantageous because of the comfortable and stress-free surroundings. Another 22.6% said that the continuous access to online materials was an advantage.
- ❖ Out of the respondents, 51.4% opined that e-learning was moderately effective for gaining theoretical knowledge, 12% said it was very effective and 5.8% said it was not at all effective.
- ❖ In contrast, 55.1% felt that e-learning was not at all effective for gaining practical knowledge (Fig. 1 c)

2. ICT tools/ devices

- ❖ 75.2% of the respondents had an uninterrupted access to a device for attending online classes, while 24.8% shared a device with others.
- ❖ Majority of the respondents (45.7%) said that their ability to use online or web based learning tools was average while 11% opined it was poor (Fig. 1 d).
- ❖ Only 7.4% of the respondents said that they used a Laptop for online learning while 90.8% used a smartphone. However, on being asked which device was convenient for online learning, 50% chose a laptop while 40.1% chose a smartphone.
- ❖ More than half of the respondents (56.6%) said that issues with the internet was the main disadvantage of online learning. Another 11% said that the main disadvantage was due to technical problems with the IT equipment. However, 17.1% felt it was the lack of interaction with the teachers.

3. Teaching methodologies

- ❖ The students were also asked to point out which online teaching approach adopted by the teacher was more helpful for them. Close to half of the respondents (45.5%) chose Powerpoint presentations plus interactive whiteboard, 18.1%

chose recorded videos/presentations which they could play at their own convenience, 14.4% chose Powerpoint presentations and 12.6% chose Powerpoint presentations followed by quizzes .

- ❖ The respondents felt that online practical classes could be improved by including Live demonstration (65.1%), field assignments/survey projects (16%) and interactive video (14.2%).

4. Institutional support

- ❖ On being asked about the involvement of teachers, 72.3% said that the teacher put in his/her efforts to know whether the students were able to understand the subject.
- ❖ In response to another query, 57.3% said that the teacher provided them the opportunity to contact him/her for clarification regarding the subject beyond class hours.
- ❖ Further, when asked if the teachers gave them extra help when they needed, 57.6% of the respondents replied "Always" and another 33.8% replied "Very often".
- ❖ Among the respondents, 36.7% felt that their College was very helpful in offering them the resources to learn from home while 40 % felt it was moderately helpful.

5. Evaluation procedure

- ❖ On being asked to rate the online examination process adopted by their College, 54.1% felt it was good while 16.5% felt it was excellent.
- ❖ In context of online examinations, 51.1% felt multiple choice questions evaluated a student's knowledge and understanding properly. Rest 3.6% chose short answer type, another 3.6% chose reasoning type while 37.1% chose a combination of the above question types (Fig. 1 e).

6. Future perspectives

- ❖ When asked if online examinations should replace the traditional form in future, 50.2% of the respondents replied "no never" while 31.3% felt the theory part might be considered.

- ❖ Once the pandemic is over, 59.7% of the respondents said that they will prefer traditional classroom teaching, 3.2% chose to prefer e-learning while 37.1% chose a combination of both (Fig. 1 f).

7. Relational Analysis

Statistical analysis revealed that the overall experience about online teaching was positively correlated to Uninterrupted access to a device for attending online classes, Ability of the student's use of online or web based learning tools, Effort put in by teacher for making understanding the subject, Teachers' providing opportunities for further clarification of the subject, Extra help given by the teachers, College offering resources to learn from home (Table 1).

Additionally, on further regression analysis (Table 2), it was observed that Ability of the student's use of online or web-based learning tools and Level of effectiveness of remote learning was positively and highly significantly ($P < 0.01$ with $b = 5.259^{**}$ and 5.496^{**}) affecting 'overall experience about online teaching'. In the present perspective, these two variables had played important role in influencing the 'overall experience about online teaching'.

DISCUSSION

In our study, we could find that the students found e- learning moderately effective and also cited few advantages like learning at their own pace, continuous access to learning materials etc. In another study carried out by Verma *et al.* (2020), the students expressed their preference for online classes during the pandemic. In the same way, Dhawan *et al.* (2020) opined that in natural or man-made crises like situation, the Anywhere-Anytime feature of e-learning is beneficial. Bączek *et al.* (2021) too observed that ease of access to educational materials, ability to choose the time and place to study were shown as the strongest advantages of online learning during the COVID 19 pandemic. However, Luaran *et al.* (2014) reported that though e-learning enabled learning at any place and time, it has many disadvantages viz. students require computers which have to be bought or have to be accessed at cyber cafes, which later led to reduced opportunities for face to face contact among

Table 1: Correlation analysis of the different factors affecting overall experience regarding online teaching

	1	2	3	4	5	6	7	8	9	10	11	12
1	1	0.121*	0.452**	0.555**	0.323**	0.251**	0.293**	0.384**	-0.040	0.432**	0.390**	0.323**
2	0.121*	1	0.274**	0.154*	0.068	0.035	0.077	0.066	-0.027	0.034	0.163**	0.117*
3	0.452**	0.274**	1	0.296**	0.079	0.037	0.086	0.245**	-0.076	0.200**	0.290**	0.265**
4	0.555**	0.154*	0.296**	1	0.343**	0.304**	0.325**	0.357**	-0.041	0.337**	0.347**	0.271**
5	0.323**	0.068	0.079	0.343**	1	0.534**	0.612**	0.263**	0.130*	0.185**	0.391**	0.321**
6	0.251**	0.035	0.037	0.304**	0.534**	1	0.658**	0.244**	0.057	0.162**	0.295**	0.298**
7	0.293**	0.077	0.086	0.325**	0.612**	0.658**	1	0.245**	0.079	0.194**	0.328**	0.328**
8	0.384**	0.066	0.245**	0.357**	0.263**	0.244**	0.245**	1	0.202**	0.205**	0.239**	0.234**
9	-0.040	-0.027	-0.076	-0.041	0.130*	0.057	0.079	0.202**	1	-0.095	-0.020	-0.062
10	0.432**	0.034	0.200**	0.337**	0.185**	0.162**	0.194**	0.205**	-0.095	1	0.327**	0.296**
11	0.390**	0.163**	0.290**	0.347**	0.391**	0.295**	0.328**	0.239**	-0.020	0.327**	1	0.366**
12	0.323**	0.117*	0.265**	0.271**	0.321**	0.298**	0.328**	0.234**	-0.062	0.296**	0.366**	1

1 = What is your overall experience about online teaching considering prevailing pandemic situation?

2 = Do you have uninterrupted access to a device for attending online classes?

3 = How will you rate your ability to use online or web-based learning tools?

4 = How effective has remote learning been for you?

5 = Does your teacher put in his/her effort to know whether you are able to understand the subject?

6 = Does your teacher provide you the opportunity to contact him/her for further clarifications regarding the subject beyond class hours?

7 = Does your teacher give you extra help if you need it?

8 = Rate your activity during online classes

9 = Rate your activity during traditional classroom teaching

10 = How effective is e- learning for gaining practical knowledge?

11 = How helpful your college has been in offering you the resources to learn from home?

12 = How will you rate the online examination process adopted by your college?

*, Significant at 0.05 level of probability, **, Significant at 0.01 level of probability.

Table 2: Regression analysis of overall experience about online teaching considering prevailing pandemic situation with independent variables-

Sl. No.	Independent Variable	Variable no.	Regression coefficient b value	't' value for b
1	Do you have uninterrupted access to a device for attending online classes?	X ₁	-0.035	-0.756 ^{NS}
2	How will you rate your ability to use online or web-based learning tools?	X ₂	0.270	5.259**
3	How effective has remote learning been for you?	X ₃	0.295	5.496**
4	Does your teacher put in his/her effort to know whether you are able to understand the subject?	X ₄	0.091	1.504 ^{NS}
5	Does your teacher provide you the opportunity to contact him/her for further clarifications regarding the subject beyond class hours?	X ₅	-0.009	-0.148 ^{NS}
6	Does your teacher give you extra help if you need it?	X ₆	0.020	0.301 ^{NS}
7	Rate your activity during online classes	X ₇	0.138	2.685 ^{NS}
8	Rate your activity during traditional classroom teaching	X ₈	-0.030	-0.642 ^{NS}
9	How effective is e- learning for gaining practical knowledge?	X ₉	0.203	4.077 ^{NS}

10	How helpful your college has been in offering you the resources to learn from home?	X_{10}	0.070	1.316 ^{NS}
11	How will you rate the online examination process adopted by your college?	X_{11}	-0.002	-0.045 ^{NS}

$R^2 = 0.70$, 'F' value for $R = 22.14^{**}$

*, Significant at 0.05 level of probability; **, Significant at 0.01 level of probability.

friends (Luaran *et al.* 2014). In another report, Borstorff and Lowe (2007) cited that the main objection to e-learning was the lack of face-to-face interaction among the students.

Inquiring about the disadvantages of online learning in our study, a high number of the respondents felt it was related to issues with the internet followed by technical problems with the IT equipment. Similar results were observed by Qazi *et al.* (2020) where reliable internet support, affordability of gadget and access to online learning resources during COVID 19 were significantly linked to students' satisfaction amid COVID 19 pandemic. In context of acquiring practical knowledge, more than half of the respondents in our study did not find e-learning effective. They felt that for improving online practical classes live demonstration, field assignments/survey projects and interactive video could be included. In a comparable study, Kaup *et al.* (2020) reported that technology related challenge and clinical skill training were the two paramount constraining factors related to e-learning. Dhawan *et al.* (2020) suggested that a plenty of online tools are available which are important for an effective and efficient learning environment and in order to maintain a human touch, the educators could use a combo of audio, videos, and text to reach out to their students. This would not only help in creating a collaborative and interactive learning environment but would also encourage the students to give their immediate feedback, ask queries, and thus learn interestingly. Earlier, other researchers too have commented that online programs should be creative, interactive, relevant, student-centric, and group-based (Partlow & Gibbs, 2003). Further, online teaching Institutions have to emphasize on collaborative learning, case learning, and project-based learning (Kim & Bonk, 2006).

In the presence of the right technological assets the effectiveness of was e-learning is enhanced. Digital education therefore has many challenges to overcome since less privileged students are deprived of reaping the benefits equally.

In another query regarding the kind of teaching the students would prefer after the pandemic crises is solved, 37.1% of the respondents chose a combination of traditional classroom teaching and e- learning. A similar finding was also reported by Rajab *et al.* (2020) and Shetty *et al.* (2020) where majority of the students preferred a combined approach of teaching after the pandemic for their better academic development.

The relational analysis of the data acquired in the present study revealed that an expertise of the student in use of online/web-based learning tools obviously made the experience of online teaching smooth as any constraints arising due to technical issues of online teaching would be solved immediately. In another study, Parkes *et al.* (2014) found that students were not sufficiently prepared for balancing online learning with their work, family, and social lives. Students were also found to be ill prepared for several e-learning and academic-type competencies along with a low-level preparedness concerning the usage of Learning Management Systems. Muflih *et al.* (2020) found that well preparedness to join online education and prior experience in learning significantly affected the student preparedness and attitude toward online learning. Similarly, Hergüner *et al.* (2021) observed positive correlation between online learning attitude and online learning readiness.

Initially, during the pandemic the abrupt change from classroom to online learning did not leave any room for analysing the different aspects and consequences. Therefore, at present it is imperative to observe the

minute details of this shift and how it will impact the education system worldwide in future.

CONCLUSION

The major barriers for online learning include the lack of community felt by the students, technical problems, and difficulties in understanding instructional goals (Song *et al.* 2004). Therefore, the challenge ahead for the educational institutions is not only be restricted to finding and utilizing new technology but towards reimagining education as well as guiding the students and academic staff towards digital literacy (Dhawan, 2020).

The findings of the present survey provide initial insights about how the students of the Veterinary Faculty of Assam Agricultural University feel about e-learning in the present scenario. Traditional methods such as face to face teaching, black board etc. are essential and are time-tested approaches for teaching. However, in the present situation when there is always a possibility of closure of educational institutes due to another wave of COVID-19, a combination of offline teaching with proper precautions such as social distancing, dividing the students into smaller groups etc. along with online teaching using video communication services, video recordings etc have to be used for giving the best learning experience to the students. In a nutshell, it has been observed that the e-learning can be greatly enhanced by blending various methodologies and technologies and for that purpose availability of advanced ICT tools for each and every one is a pre requisite. Although creating a e-learning favourable environment is challenging but definitely not impossible if a concerted action plan is drawn with the help of the authorities concerned.

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