Students Experience Of Online Teaching During Covid 19 Pandemic- A Cross Institutional Study

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Abstract
Coronavirus pandemic has its impact on human life and also medical education with its clinical training all over the world. To curb the spread of Covid-19, there was lockdown globally with principles of social distancing. All face-to-face classes were suspended and online teaching session was started. There were lot of confusion among teaching faculties and students due to the shift in mode of teaching i.e. e-learning. E-learning is a different way of teaching which is supported by digital technologies for which the definition goes like that e-learning is "the use of new multimedia technologies and the internet to improve the quality of learning by facilitating access to resources and services, as well as remote exchange and collaboration".

Lectures were delivered using e-learning strategies such as live lecture classes through zoom platforms and /or recording of narrated lecture slides using PowerPoint presentation, as well as Zoom video conferencing platform for conducting interactive large and small group classes. The students' perceptions and challenges encountered are to studied which helps the faculty, institutional organizations and universities in the betterment of conducting an e-tutorial.

Aim: To know the perspective of online teaching and learning from the student's point of view.

Materials And Methods: This cross-sectional study was conducted amongst the medical and dental students who undertook online learning process during COVID-19 pandemic. It was conducted through online survey after obtaining the clearance from institutional ethics committee.

Results: 323 students have given consent and responded to the questionnaire. Among them, 274 were medical and 49 were dental students. In the present survey, the commonest reason for which students attended the online classes was to make up the attendance – 164 out of 317 (51.73%), due to interest – 70(36.21%), some specified due to compulsion – 33(10.41%), few students also gave reasons to break the boredom – 28 (8.83%) and few others did not mention the reasons – 22(6.94%).

Conclusion: Overall the students were positive about the e-tutorial or e-learning using different online teaching platforms. The present study has highlighted that e-learning can be adopted as a useful and effective teaching tool for conducting e-tutorials in different subjects. E-learning platforms can be enhanced further to maximize students learning by including interactions using multiple choice questions and quizzes.

Keywords: E-learning, Online teaching methods, Students experience

Introduction

Globally, the educational system was immensely affected due to outbreak of novel corona virus

disease the COVID-19. This forced the shutdown of face-to-face education all over, which affected students' fraternity across the globe. The contagious nature of COVID-19 demanded forced isolation that tremendously affected personal interaction of teachers and students (1).

The education system was changed with the adoption of e-learning by which teaching was conducted from distance and on digital platforms. The overall learning experience for students was drastically changed (2).

The application of information technology in education has a varied nomenclature, for example online learning, e-learning, Web-based learning, distance learning and cyber learning. There are variety of delivery formats like self-instructional packages, web-based subjects, two-way audio or video conferencing (3). Online mode of teaching has both positive and negative effects on teaching and learning, therefore teaching and learning practices should be explored to identify what works and what does not work.

Positive effects of online learning from students' perspectives include: increased student satisfaction, motivation and problem-solving and higher order thinking skills. Online education is much discussed about its quality to be delivered, focusing on the student perspective and faculty workload.

Accrediting bodies are concerned about meeting technical standards, proof of effectiveness and consistency. Institutions care about reputation, rigor, student satisfaction, and institutional efficiency. Faculty are focused about subject coverage, student participation, faculty satisfaction, and faculty workload. Students care about learning achievement, instructor capability and responsiveness, and comfort in the learning environment (4).

This study was undertaken to know the perspective of online teaching and learning from the student's point of view and would be helpful in improving teaching skills and to the policy makers.

Materials And Methods

This cross-sectional study was conducted amongst the medical students who undertook online learning process during COVID-19 pandemic. It was conducted through online survey after obtaining the clearance from institutional ethics committee.

The Questionnaire

Study setting and participants: This was a cross-sectional study conducted among the medical and dental students across the country who undertook online learning process during COVID-19 pandemic through an online survey after obtaining clearance from the institutional ethics committee.

Study instrument: A semi-structured questionnaire was face validated by the subject experts, and content validation was done by a pilot study among ten respondents representing the medical community. Based on the inputs from the pilot study, suitable modifications were made.

The questionnaire hence finalized had 18 items categorized into four segments as mentioned below:

1. General information (05 items)
2. Technology related (04 items)
3. Content related (05 items)
4. Strengths & weaknesses (05 items)

Ethical considerations: This study was approved by the Institutional Ethics Committee of JSS Medical College, Mysuru. At the beginning of the survey, participants were briefed about the study and maintaining confidentiality. The respondents could proceed to the questionnaire only after marking their informed consent.

Data collection: A semi-structured questionnaire was designed and incorporated into Google Forms. A shareable link was generated and disseminated publicly on various social media outlets platforms, including WhatsApp, Facebook, Instagram, and Emails to all the health professions educators in the network of primary authors. The link was also shared personally to the contact lists of the investigators and research assistants. Online approaches were used to maintain social distancing and proper precaution during the pandemic for data collection. The link was active for 30 days.

Data analysis: The data was collected as a CSV file and was later coded and recorded in a Microsoft Excel sheet. The analysis was performed using SPSS-version 23 licensed to JSS Academy of Higher Education and Research, Mysuru. The categorical

data were measured in percentages and were represented using tables. The continuous variable like age was represented using mean and standard deviation. Qualitative responses collected were depicted as verbatim and prefixed categories.

Results

323 students have given consent and responded to the questionnaire. Among them, 274 were medical and 49 were dental students. In the present survey, the commonest reason for which students attended the online classes was to make up the attendance – 164 out of 317 (51.73%), due to interest – 70(36.21%), some specified due to compulsion – 33(10.41%), few students also gave reasons to break the boredom – 28 (8.83%) and few others did not mention the reasons – 22(6.94%).

Table 1: General characteristics of students.

Sl no.	Particular	Number	Percentage
1.	Gender	Male - 167	51.7
		Female - 150	46.4
		Prefer not to say - 6	1.8
2.	Course	BDS- 49	15.2
		MBBS - 274	84.2
3.	Place of stay during lockdown	Home - 312	96.6
		Hostel - 8	2.5
		Others - 3	0.9

Table 2: Number of students according to their phases.

Year	Number of students	Percentage
1st year	189	58.5
2nd year	100	30.9
3rd year & 4th year	34	10.5
Total	323	

Table 3: Details of attending online classes.

Proportion of classes attended	Number	Percentage
<30%	07	2.2
30-59%	12	3.7
60-79%	21	6.5
80% and above	283	87.6

Table 4: Opinions of students.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The classes were useful	133	30	93	51	16
The classes were interactive	94	61	107	23	38
Online classes were better than a classroom lecture	53	93	65	30	82
Teachers could convey the content as effectively as classroom lectures	93	62	86	44	38
In future I prefer online classes over classroom lectures	41	80	68	34	100
The classes stimulated my interest in the subject	96	49	112	31	35
The classes encouraged discussions and responded to questions	87	61	107	33	35
The teacher demonstrated in-depth knowledge of the subject	130	23	111	42	17
I found the classes were interesting	110	49	104	30	30

Thematic analysis of open-ended questions regarding the strengths, weaknesses, interesting and valuable.

Good about online classes as follows.

1. Convenience, Comfortable, no stress
2. I can use my iPad and make notes on it and refer to the ppt and other resources simultaneously. We have the freedom to learn the way we want.
3. No need to travel, Ability to join at any time
4. More importantly we are relaxed, not much burden since we have 2hrs of classes every day
5. We can exit if it's boring, The ease and flexibility of the classes
6. It is easier to interact with the teacher and have doubts cleared. It is also comfortable in terms of making good notes and following along with the ppt. It's also convenient to immediately complete reading a topic following the class so that makes us through with the subject
7. All classes are recorded and can be watched again
8. Pdf were given during online classes which made me correlate with text book
9. Quiz and assignments, Videos
10. Sharing PPTs directly with us, and the classes are bit slow and we can understand
11. Teacher is teaching in a friendly manner at home in spite of just completing the class as they do in normal class
12. Disturbance from the uninterested students was avoided!
13. One to one interaction and clearing doubts immediately
14. You can listen to the lectures at ease and take pictures of whatever slides you want for future reference
15. It connects everyone and helped us to cover our syllabus
16. Sometimes, In Classroom lecture a student might not ask a doubt to the faculty in front of his/her Classmates but in online classes students does ask doubts and It's good!

17. We weren't missing on the studies
18. Could manage time and effectively utilise time
19. Its helps to continue learning at the comfort of home
20. Still able to learn new topics effectively in these circumstances
21. Could concentrate better
22. It is same as the classroom lectures as there is a benefit of students doesn't distract the teachers through online class as they distract or get disturbed on classroom lectures so that the teachers are able to get that continuity of the topic is going so well.
23. Disturbance from the uninterested students was avoided!
24. The lecturer can concentrate on the teaching rather than bother about the students who try to mess up and disturb the class
25. Peaceful learning
26. It's a straight-line communication between teachers and student. Less peer distraction.

Weakness:

1. Connectivity issues
2. Difficulty with teachers
3. Initial hiccups
4. Postpone the classes and extra time is wasted
5. Attendance issues
6. Monotonous. Not interactive.
7. Learning anatomy has become very difficult without seeing the structure in real it's very difficult to visualize and follow
8. Socializing required to keep mind fresh
9. Lack of classmates next to us to share the thoughts
10. Very little practical exposure and interaction. Rush to complete portions. Connectivity problems resulting in loss for the students. Attendance on the basis of assignment submission. Increased screen time, leading to eye irritation.

What could be done to improve online classes?

1. The timings of each class can be limited to 30 mins/Shorten the duration of classes
2. The classes can be conducted a little slower as now there is time to touch all the topics in detail. However, most classes get rushed because of the one-hour time limit.
3. Include dissection class including individual table in one zoom conference
4. Would be great if we get some clinical case discussion classes as the main thing which we are missing in posting. Theory can be read by us also but the application of it and the concept building should be taught
5. Marrow or prep ladder like videos
6. Adding board teaching element and showing videos will make some topics easier to understand. Giving assignments with the lectures so that we can get more thorough with the topic. Maybe having students turn on video online and taking attendance
7. Some multiple-choice questions can be added at last
8. Practical videos based on theory concepts to be uploaded to understand the subject easy
9. Better to make recorded sessions. If not try to make diagrams and flow charts, more understandable orientable good power point presentations 3D videos, send you tube links prior to class, doubts clarifying & interactive sessions
10. Increase practical exposure through videos demonstrating experiments and discussing with the help of real specimen and slides rather than diagrams. Plan and divide the portions and avoid rushing through them. Assign sometime during the class for attendance. Teachers need to familiarize themselves with the use of the video conferencing apps and hence increase interaction with the students. Send recorded videos instead of online classes

11. More pictorial and in depth
12. Better to provide prerecorded lectures and make them to ask doubts in social media groups.
13. I think ppt presentation would be more simplified rather than bulk of information being presented in one slide which makes reading info on ppt more difficult
14. Conduction of doubt sessions where only students with doubts can join and ask teachers.
15. Better interactive software application.
16. Improve connectivity & technical quality
17. Attendance should not be a factor forcing students to attend.

Table 5: Rating of experience of online classes.

Row Labels	Count of Overall, how do you rate your experience of online classes?
Bad	58
Excellent	28
Good	145
Very good	88
(blank)	
Grand Total	**319**

Table 6: Attentiveness of students throughout the class.

Row Labels	Count of According to you what proportion of students are attentive throughout class
<25%	52
>75%	68
25-49%	74
50-74%	121
(blank)	
Grand Total	**315**

Table 7: Unusual activities of participants in the online classes.

Row Labels	Count of How often did you notice unusual activities of other participants in the online classes
Always	32
Never	55
Sometimes	227
Grand Total	**314**

Table 8: Students opinion on Online classes breaking the monotony of lockdown.

Row Labels	Count of Online classes helped in breaking monotony of lockdown
Agree	140
Disagree	26
Neutral	70
Strongly agree	54
Strongly disagree	24
Grand Total	**314**

Discussion

The World Health Organization declared the pandemic of the novel coronavirus disease SARS-CoV2 infection earlier in the year 2020 and it became a major public health challenge worldwide. The control of infection with physical or social distancing became a crucial measure to prevent the virus from further spreading and to help control the pandemic situation. The policy of compulsory physical or social distancing was implemented in many countries, resulting in nationwide shutdown of educational institutions. With this policy, academic institutions were compelled to make appropriate and timely modification so as to continue to deliver medical education (5).

The modification that the current COVID-19 pandemic caused was to shift teaching mode from face-to-face classes to online mode of teaching in educational institutions. Initially there was a confused environment among universities, faculties and also students. Students were regarded as an axis around which the teaching-learning methods context revolved (6).

Going back through the history of online teaching, it was started as massive open online courses (MOOCs) initiative in the year 2007. These courses included combination of videos, text resources and online interactions between the students and teachers. In 2011, Stanford Professor Sebastian Thrun reached a record participation of 160,000 students with his course on artificial intelligence.

Large North American universities founded MOOC platforms, such as Coursera by Stanford University and edX by Massachusetts Institute of Technology and Harvard in the recent years, MOOCs are

integrated into traditional learning concepts as one of several modules of a medical curriculum (7).

With this background, most of the higher educational institutions started with online mode of classes, so as to not to interrupt the education. Starting with online classes in any institutions or for any courses, the most valuable feedback is from the students who are the largest beneficiaries.

The students' perspectives provide us invaluable, first-hand insights into their experiences and expectations. The student perspective is especially important when new teaching methods or approaches are used and when new technologies are being introduced.

The students do not sign up for online classes solely based on perceived quality but they sign up because of convenience, flexibility at various levels and personal notions of suitability about learning. Convenience and flexibility are the biggest drive force for online classes among students (4).

Few studies based on computer-assisted learning also reports that, students feel isolated, missing social contact and feeling that they have been communicating largely with a machine rather than other human beings. The online learning process has its own advantages and disadvantages. But as the online teaching-learning is expanding worldwide, there is a timely need for evaluate its outcomes and effects (3).

Thus, it becomes necessary to inquire their views comparing offline and online teaching. It is important to evaluate undergraduate medical students' perspective about online learning and to what extent did it influence them either in positive or negative way (2).

In the present study, Feedback responses were obtained from 323 participants. All these participants were undergraduates of MBBS (84.2%) and BDS course (15.2%). During lockdown, 96.6% of the participants stayed at home and success rate of attending online classes with proportions >80% were 87.5%. Participants found the sessions to be useful, interactive, and interesting.

According to Ellaway & Masters, "e-learning encompasses a pedagogical approach that typically aspires to be flexible, engaging and learner–centered; one that encourages interaction between staff–staff, staff–student, student–student along with collaboration and communication, often asynchronously (8).

E-learning is divided into Complete or full learning, and blended or mixed-learning, depending upon the use of the method as either replacement or augmentation of the face-to-face learning. There is no physical contact of any sort in complete e-learning, whereas some contact remains in the blended type of learning. In the blended type, both the methods are used at some point of time during the whole course (9).

Positive effects of online learning from students' perspectives include increased student satisfaction, motivation, and problem-solving and higher order thinking skills. It is important to identify effective teaching practices for undergraduate health sciences students to enhance the positive outcomes of online teaching (10).

In our present study, students opined the positive feedback on online learning as – convenient, saved them from travelling, shared study materials like ppts would be revised many a times after the class, comfortable way of continuing studies, were able to join at any time of the class, interaction with teachers was good and less chance of missing classes when ill.

With all the positive feedback from the students, Online learning can be a bridge and strengthen quantity and quality of medical education. It is more convenient and adaptable (11).

The success of e-learning adoption is highly dependent on technology accessibility and having a good Internet connection. The dental and medical students who participated in this study appreciated the technology used, the ease of repeated learning with the shared ppts and study materials, could manage and effectively utilise time, helps to continue learning at the comfort of home.

Even though online learning is growing rapidly, it remains at the early stage of development (12). Students preferred to complete activities face-to-face rather than online and online learning and face-to-face activities can lead to similar levels of academic performance but they prefer discussion in person (13). Students taking the face-to-face course were

generally more satisfied with the course on several dimensions than their online counterparts (14).

Conclusion

In health professionals, online learning tools and methods are equivalent to classroom learning methods with respect to gaining the knowledge. However, it is also important to coordinate and integrate theoretical knowledge with clinical experience.

Authors Information

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