

Perception of E-learning among Medical Students of VIMS, Ballari, Karnataka: A Cross Sectional Study

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Abstract

With COVID-19 pandemic disrupting the educational system, the professional medical teaching has been shifted to online mode soon after the Government's decision to impose nation-wide lock-down.

A cross sectional study was carried out among medical undergraduate in VIMS to know their perception on e-learning. The questionnaire was administered through google forms and the results were analysed using descriptive statistics. Among 340 study subjects, the mean age was found to be 20.47 and the majority of responders were first year undergraduates. Most students depended on smartphones for attending classes. The maximum satisfaction index (55.47%) observed with more time spend on homework and the minimum (39.85%) with greater ability to concentrate in online class. On a Likert scale of perception assessment 32.9% of students disagreed with conducting online classes followed by 31.2% remained neutral. Overall experience recorded bad with 57.6%. Online learning has been the need of the hour but it should be backed up with traditional learning for effective results.

Key-words: E-learning, COVID-19 pandemic, medical undergraduate, Google forms, satisfaction index, Likert scale.

Introduction:

On March 11, 2020, the World Health Organization (WHO) declared that the COVID-19 outbreak had reached a global pandemic level^{1,2}. Educational institutes across the world have closed due to the COVID-19 pandemic jeopardizing the academic calendars³. Among those affected were medical schools and universities who were challenged to adapt by providing distance medical education opportunities¹.

Online/e-learning has been an optional and valuable tool for a long period but with the

advances in technology and easier ways to interact with telecommunication, the education system has changed drastically and there was an immense rise in online learning via various digital platforms which has proved that distance learning is a viable option at present times^{4,5,6,7,8,9}. Educational researchers and academic institutions' efforts focused on instituting effective and applicable curricula. However, medical education settings' diversity requires additional collaborative academic efforts to develop and advance the experience continuously¹.

No previous time in the history had such a vast

sudden shift to e-learning. This paradigm shift in education had grave implications for all institutions¹⁰. The online learning environment varies profoundly from the traditional classroom situation when it comes to learner's motivation, satisfaction and interaction³.

The advantages of using online learning in medical education include improved accessibility of information, ease of standardizing and updating content, cost-effectiveness, accountability, and enhancement of the learning process, wherein students are motivated to be active learners^{11,12,13}.

The major concern is about the quality of learning which is how well the content is designed and executed. The study is even more relevant considering that in India the system of online education has never been tried at this scale and this is like a massive social experiment. Educational institutions in India have also made a transition to online teaching environment soon after Union Government's decision to impose nationwide lock-down for 21 days from 25th March, 2020 which was later extended for 19 more days³. Forced to abruptly transition to an online curriculum, each medical school crafted its own guidelines on learning activities, revised assessment measures, and set promotion policies based on their affiliated university guidelines¹⁰.

For the same, online teaching program was initiated in VIMS, Ballari, for the undergraduate students. It is students whose opinion matters most in the education system.

Objective

- To know the perception of e-learning among medical undergraduate in VIMS, Ballari.

Subjects and Methods

Study design:

A descriptive cross sectional study.

Study area:

Vijayanagar Institute of Medical Sciences, Ballari, Karnataka.

Study subject:

First to final year MBBS students.

Study tool:

Web based Google forms questionnaire containing information of the student and questions regarding how online teaching affected their learning.

Study duration:

3 months.

Sampling technique:

All the responses were collected for the duration wherein the platform was kept open.

Sample size:

340 students who replied to the questionnaire.

Inclusion criteria:

- All the undergraduates

Exclusion criteria:

- Those who not willing to participate.
- Incomplete responses.

Method of collection of data:

The questionnaire was prepared and disseminated through online mode with the help of google forms and the link was shared to the study subjects. The questionnaire was kept open for responses for a duration of 10 - 15 days and each student were allowed to complete the questionnaire once voluntarily.

Statistical analysis:

The study responses were analysed using descriptive statistics.

Ethical consideration:

Ethical approval obtained from Institutional Ethical Committee.

Results

Table 1: Basic details and Take away of online class (N = 340)

Variables	Frequency	Percent
Age (years)		
18 - 20	169	49.7
21 - 23	170	50.0
24 - 28	1	0.3
Mean age : 20.47, SD: +-1.293		
Gender		
Male	194	57.1
Female	146	42.9
Year of study		
1 st yr. MBBS	116	34.1
2 nd yr. MBBS	71	20.9
3 rd yr. MBBS	81	23.8
4 th yr. MBBS	72	21.2
Place of stay		
Hostel	258	75.9
Home	82	24.1
Previous experience		
Have attended online course before	109	32.1
Have not attended online course before	231	67.9
Overall experience		
Good	40	11.8
Bad	196	57.6
Not much of a difference	104	30.6
Distractions		
Yes	265	77.9
No	29	8.5
Maybe	46	13.5
Lessons learnt should be used in future curriculum		
Yes	263	77.4
No	77	22.6

Table 1: 50% of the undergraduates belonged to the age group of 21 to 23 years and the mean age was found to be 20.47 with SD of ± 1.293 . Out of 340 students responded 57.1% were males and 42.9% belonged to females. The 1st, 2nd, 3rd and 4th year students represented 34.1%, 20.9%, 23.8%, 21.2% respectively. Among them only 32.1% had previous experience of any online course. The overall experience of the students regarding online learning remained bad with 57.6%. Almost majority (77.9%) of the students responded they had been affected by distraction during the classes. 77.4% of the students responded the lessons learnt during Covid-19 times through online teaching should be used for the future curriculum.

Table 2: Technical requirements and structure of online classes

Variables	Frequency	Percent
Device used by the students		
Smartphones	263	77.4
Tablets	42	12.4
Laptop	34	10.0
PC	1	0.3
Format of class being conducted		
Live class that can be recorded	127	37.4
Live online class	125	36.8
Recorded class that is uploaded to the college website/any other platform	88	25.9
Nature of the content		
PowerPoint presentations along with black board teaching	144	42.4
PowerPoint presentations/pdf	139	40.9
Black board teaching	46	13.5
Lecture only	11	3.2
Ofteness of the class		
As per the schedule to complete the syllabus	235	69.1
Alternative days	80	23.5
Weekly twice	13	3.8
Weekly once	12	3.5

The table 2 comprise of technical requirements and structure of online classes. Majority (77.4%) of the students used smartphones as the preferred device for classes. 7.4% of the students wanted live classes that can be recorded whereas 36.5% of the students wanted just live classes, among the students 25.9% of the students preferred recorded classes uploaded

to the college website or any other platform. 42.4% of the students wanted to included black board teaching with PowerPoint presentations. The response towards the oftenness of the class was reported as 69.1% of students wanted the classes as per the schedule to complete the syllabus were, 23.5% wanted an alternative day class.

Table 3: Perception of online learning (N = 340)

	SD	D	N	A	SA
I prefer online class as they are very structured with set due dates similar to the face to face classes	70(20.6%)	112(32.9%)	106(31.2%)	47(13.8%)	5(1.5%)
Online classes help me to comprehend the course materials compared to class room learning	67(19.7%)	138(40.6%)	101(29.7%)	27(7.9%)	7(2.1%)
Online environment makes it easier for me to communicate with the instructor than class room environment	66(19.4%)	117(34.4%)	83(24.4%)	63(18.5%)	11(3.2%)
I am more comfortable responding to the questions by messages than orally	28(8.2%)	72(21.2%)	88(25.9%)	119(35.0%)	33(9.7%)
I spent more time on my home work in comparison with regular classroom learning	27(7.9%)	91(26.8%)	137(40.3%)	71(20.9%)	14(4.1%)
Instructor understands the online environment and makes it easy for us to learn	51(15.0%)	80(23.5%)	123(36.2%)	78(22.9%)	8(2.4%)
SD - strongly disagree, D - disagree, N - neutral, A - agree, SA - strongly agree.					

Table 3 shows the Likert scale assessment, 32.9% of students disagreed that they prefer online classes than face to face classes were 31.2% remained neutral on their. 40.6% of the students disagree that the online classes helped them to comprehend the course materials compared to classroom learning. A comment on online environment makes it easier for me to communicate with instructor than classroom environment, disagreement was about 34.4%, 24.4% remained neutral and 18.5% agreed to the

comment. About 35% of students agreed that they are comfortable responding to the questions by messages than orally. 40.3% of students did not find any change in spending their time on homework, 26.8% of students agreed that they spend more time on homework. 36.2% of the students remained neutral that instructor understands the online environment and makes it easy for the students to learn, 23.5% of students agreed to the comment and 22.9% of students disagreed.

Table 4: Perception among undergraduates

Perception	Disagree	Agree	Total	
Male	108(78.8%)	29(21.2%)	137(100.0%)	Pearson Chi-Square =0.213 df = 1 P value=0.645
Female	74(76.3%)	23(23.7%)	97(100.0%)	
Total	182(77.8%)	52(22.2%)	234(100.0%)	
1 st year	66(80.5%)	16(19.5%)	82(100.0%)	Pearson Chi-Square = 1.762 ^a df = 3 P value=0.623
2 nd year	38(79.2%)	10(20.8%)	48(100.0%)	
3 rd year	44(78.6%)	12(21.4%)	56(100.0%)	
4 th year	34(70.8%)	14(29.2%)	48(100.0%)	
Total	182(77.8%)	52(22.2%)	234(100.0%)	
Attended priorly	51(70.8%)	21(29.2%)	72(100.0%)	Pearson Chi-Square =2.902 ^a df = 1 P value=0.088
Not attended priorly	131(80.9%)	31(19.1%)	162(100.0%)	
Total	182(77.8%)	52(22.2%)	234(100.0%)	

Table 4 shows perception among undergraduates, were majority of the students disagreed that online teaching has an upper hand to traditional teaching with male preponderance of 78.8%. The majority of response was obtained from first year undergraduates. Almost majority 77.8% of

undergraduates disagreed and the majority of each year was none the less disagreed. 80.5% of the first years disagreed followed by second years. Perception among who are previously familiar with online form of learning even showed that they disagree with it by 70.8%. None of these were significant.

Table 5: Evaluation and Benefits of online learning

Variables	Frequency	Percent
Quiz after each class		
Yes	274	80.6
No	66	19.4
Assignments after the class		
Yes	207	60.9
No	133	39.1
Deadline for submitting assignments		
1 week	117	34.4
2 -3 days	104	30.6
Before the next scheduled class of the subject	83	24.4
The very next day	36	10.6
Online exam to be conducted		
Yes	128	37.6
No	212	62.4
Clarification of doubts		
Live chat after the session	173	50.9
Messages to the course instructor	167	49.1
Flexible & convenient		
Yes	141	41.5
No	199	58.5
Self- discipline		
Yes	205	60.3
No	135	39.7

The table 5 shows the preferences of evaluation methods. 80.6% of the students agreed on conducting quiz after each class as a part of their evaluation. Regarding the assignments after class, 60.9% of the students were agreeing and 39.1% did not want any assignments. For the given assignments 34.4% of the students agreed that the submission deadline should be within a week time, whereas 30.6% responded the submission should be within 2 or 3 days. Among the students 62.4% did not want online exams and 37.6%

agreed on conducting online exams. For clarification of doubts 50.9% of the students agreed on having a live session after the class and 49.1% wanted to message the course instructor and clarify their doubts. 58.5% of the students responded that the online classes were not flexible and convenient for them whereas 41.5% agreed on the comment. 60.3% students agreed that much of self-discipline is needed for attending online classes.



Graph 1: Satisfaction Index of the students regarding their perception of certain characteristics of online learning

Graph: 1 depicts the satisfaction indexes of the students regarding their perception of certain characteristics that belonged to online class. The maximum satisfaction index, 55.47% was observed with more time spend on homework followed by improved self-discipline and responsibility 52.7%. The minimum satisfaction index 39.85% is found to be with greater ability to concentrate in online class.

Discussion:

The challenges bought by Covid-19 pandemic to medical education had devastating impacts on academics. In our study 50% of the students belonged to 21 to 23 years and the mean age was 20.47 years which was similar to Dutta et al study were 54% of the students belonged to the respective age group. In the same study the majority of students participated were second professional year but in case of our study

first year professional students (34.1%) responded well followed by third year (23.8%)⁴.

The International Association of Universities (IAU) - COVID-19 Global Impact Survey observed that about 90% of institutes observed major disruption or were completely closed during this pandemic and nearly two-thirds of institutes transformed their classroom teaching activities with virtual teaching via platforms such as e-Classrooms, Google meet, Zoom video communications, etc.^{4,14}. Study done among medical undergraduate students of Hamdard Institute of Medical Sciences and Research, New Delhi, India vouched that live online lectures were ranked in the first position¹⁵. In Muthuprasad T et al study majority of students chose for recorded classes which is uploaded to the website/ YouTube. In our study it is observed that most of them wanted live classes that can be recorded which would give them

flexibility and convenience in learning. Also the students voted for powerpoint presentations with blackboard teaching for the nature of video content which was even similar to the later study. Even the study conducted by N K Ibrahim et al showed that students chose blackboard and then zoom meeting for the easiness to use¹⁰.

The preferred device for online class was found to be smartphones with 77.4%, even various other studies also had the same findings^{1,3,4}. In the present study we have seen that 67.6% of the students have not attended online course before which is similar in case of Muthuprasad T et al study, were 52.77% of students did not have any prior experience³.

We have also analyzed the student's satisfaction with online classes and it was found to be bare minimum. Traditional face-to-face teaching is considered as a habitual pattern of routine learning particularly in professional courses⁴.

A rapid transition from physical to virtual classes without addressing various shortcomings related to technology/infrastructure barriers, teacher training, and student learning might result in less satisfactory outcomes. Implementation of virtual or e-learning in medical education is a strenuous task especially in low-middle-income countries like India because infrastructure and technological issues affect the transition from lecture-based teaching to self-directed online learning^{4,16,17}.

Regarding how oftenness to conduct the class the students opted to have classes as per the schedule to complete the syllabus. The study conducted by Muthuprasad T et al reported that most of them chose weekly two classes³. Our students disagreed with online classes and favoured physical classes even various other studies have also reported the same response^{1,4,13,18}.

Regarding evaluation of the classes conducted, majority of the undergraduates vouched that quiz after the class will be helpful of them to retain better knowledge which was similar to Muthuprasad T et al study. The later study also reported that most of the students felt assignments at the end of every class are necessary even our study over similar results³.

Even in countries with little digital divide, unlike

India, and has better internet connectivity has never shifted to complete online mode before this pandemic. Reasons could be varied including the advantage of face to face interactivity, immediate feedback and sense of community amongst many other. One reason could also be related to difficulty in teaching skills, as in practical classes. In the immediate future, the universities may resort to a hybrid mode³.

Conclusion

The study finds that the overall experience of online learning among students were bad and satisfaction indices were mostly below the fifty percentage.

Limitation:

The students have been suddenly exposed to this new system of learning hence comparison with traditional system cannot be made very objectively. The findings cannot be generalized because of less number of participants.

Conflict of interest: Nil.

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