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## Original Research Article

## Assessing the effectiveness of online learning in anatomy among first MBBS students during COVID-19

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## ABSTRACT

**Background:** From last few decades there are many changes are taking place in the field of medical education moving from traditional method to more towards online/ e-learning method using internet. The advent of electronic devices like mobile, i- pad, laptops and explosion of social media technology provides opportunities for learners to create their own personalised learning experience.

**Objective:** To assess the effectiveness of online learning in Anatomy among first MBBS students during COVID-19.

**Materials and Methods:** A Cross sectional study was conducted among 120 MBBS First year medical students for a period of 6 months (May 2020 to November 2020) at Chamarajanagara Institute of Medical Sciences, Chamarajanagara. Informed consent was obtained from all the students prior to the start of the study. The online classes were conducted due to covid-19 lockdown in our institution from May 2020 as per the guidelines from RGUHS.

**Results:** In the study majority of students had concentration time of 30 min (71.7%), majority of them opined that there as moderate disturbance during online class (53.3%), majority of them opined that they had moderate internet or network issues (53.3%), majority of them used mobile phone for online class (70%). In the study overall effectiveness of online teaching in anatomy among 1<sup>st</sup> year students was 61.7% and 38.3% opined that it was not effective.

**Conclusion:** The study concludes that online classes were not so effective as students encountered lot of technical problems, reduced attention span, low motivation and lesser understanding in the concepts of subject thought.

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## 1. Introduction

“The online/ e-learning can be defined as the use of electronic technology and media to deliver, support and enhance both learning and teaching and involves communication between learners and teachers utilising online content.” This is the definition described for online learning by Howlett et al.<sup>1</sup>

From last few decades there are many changes are taking place in the field of medical education moving from traditional method to more towards online/ e-learning

method using internet.

The advent of electronic devices like mobile, i- pad, laptops and explosion of social media technology provides opportunities for learners to create their own personalised learning experience.<sup>1</sup>

Many factors will influence the online teaching programme. Academic faculty therefore share a crucial role in guiding and supporting the effective use of teaching for such learning.

Usually both online and offline teaching have been widely used in higher education. Online learning does not have the time and space limitation. Therefore, evaluating the effectiveness of online teaching and learning remains

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difficult. The first step being taking the feedback from the students, for better execution.

## 2. Need for the Study

Over the last few decades there has been a shift in medical education methods from traditional system to other forms like online, distant or electronic leaning. The impact of Covid-19 pandemic everywhere has led to many changes even in medical education. In response to that many universities including our RGUHS has shifted from routine class room teaching to online teaching. The periodical reviewing of the teaching programmes at regular intervals will help in improving the teaching learning methods and improving the standard of medical education. Hence the study was undertaken.

## 3. Objective

To asses the effectiveness of online learning in Anatomy among first MBBS students during COVID-19.

## 4. Materials and Methods

A cross sectional study was conducted among 120 MBBS First year medical students for a period of 6 months (May 2020 to November 2020) at Chamarajanagara Institute of Medical Sciences, Chamarajanagara. Informed consent was obtained from all the students prior to the start of the study. The online classes were conducted due to covid-19 lockdown in our institution from May 2020 as per the guidelines from RGUHS. The study was conducted by taking feedback from the students in the form of pre-formed questionnaire regarding the online classes in Google forms for 1<sup>st</sup> year MBBS students. Questionnaire consisted of information related to difficulties encountered by students during online class and understanding of subject during online class.

### 4.1. Statistical analysis

Data was entered into Microsoft excel data sheet and was analysed using SPSS 22 version software. Categorical data was represented in the form of Frequencies and proportions.

## 5. Results

In the study majority of students had concentration time of 30 min (71.7%), majority of them opined that there as moderate disturbance during online class (53.3%), majority of them opined that they had moderate internet or network issues (53.3%), majority of them used mobile phone for online class (70%), majority of them opined that common technical errors during the class was network issues (51.7%), most common discomfort experienced by students was eye pain or visual disturbances (45%) and majority of them were able to concentrate in front of laptop

for <30 min (31.7%).

In the study majority of students opined that understanding of subjects was lesser than regular class (81.67%), majority opined that practical classes needed for better understanding along with theory classes (96.67%), attention span in majority was 15 min (61.7%), majority of students were able to follow only 25% during the PPT presentation without teacher (65%).

Only 23.33% of students were able to make notes during online classes, only 36.67% of students ere present for entire duration of online class and majority of them opined that attendance and exams were in the motivation to attend online class (56.7%).

In the study overall effectiveness of online teaching in anatomy among 1<sup>st</sup> year students was 61.7% and 38.3% opined that it was not effective due to various reasons mentioned in above tables.

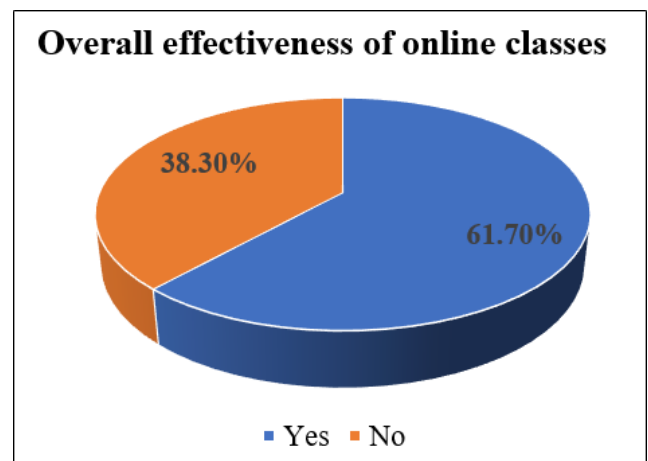


Fig. 1: Pie diagram showing overall effectiveness of online classes

## 6. Discussion

The present study was aimed to asses the effectiveness of the online teaching in the subject of anatomy. With the impact of COVID 19 throughout the globe the regular teaching learning methods were found to be unfavourable to follow along with the guidelines of the COVID 19 restrictions.

With strict rules and regulation and impact of lockdown throughout the country the whole concept of teaching methods was shifted from offline to online in order to continue the medical education of the Undergraduate students.

The overall opinion of students and faculty was that we should keep teaching the students even in this Pandemic situation with effective teaching methods. Hence the online teaching methods which was never done in most of the institutions were implemented. In the present study also the online teaching methods was introduced for the first time and it was difficult to adjust to the new teaching learning

**Table 1:** Concentration time and common issues faced by students during online class

		Count	%
Concentration time for each online class	a) 30 min	86	71.7%
	b) 40 min	21	17.5%
	c) 50 min	4	3.3%
	d) 60 min	9	7.5%
Study environment (disturbance during class) during the class hours	a) Minimum	18	15.0%
	b) Moderate	64	53.3%
	c) Tolerable	14	11.7%
	d) Maximum/couldn't con	24	20.0%
The internet/network issues during class	a) Negligible	12	10.0%
	b) Minimum	18	15.0%
	c) Moderate	64	53.3%
	d) Maximum /couldn't con	26	21.7%
The device used for the class	a) Mobile phone	84	70.0%
	b) Laptop	25	20.8%
	c) Tablet	4	3.3%
	d) Desktop	7	5.8%
Common technical errors during classes	a) Network issues	62	51.7%
	b) Audio clarity	45	37.5%
	c) Visual clarity	8	6.7%
	d) Sharing issues	5	4.2%
Discomfort experienced because of the position/gadgets during or after the online classes	a) Eye pain/visual disturb	54	45.0%
	b) Headache	48	40.0%
	c) Neck pain	12	10.0%
	d) Back pain	6	5.0%
Concentration in front of laptop in a day	<30 min	38	31.7%
	30min to 1 hr	30	25.0%
	1 to 2 hrs	22	18.3%
	2 to 3 hrs	18	15.0%
	>3 hrs	12	10.0%

**Table 2:** Understanding of subject by students during online class

		Count	%
Understanding of the subject in online class	a) More than regular class	6	5.00%
	b) Less than regular class	98	81.67%
	c) Same as that of regular	16	13.33%
Understanding the subject only with theory classes without practical classes	a) Better understanding	4	3.33%
	b) Practical classes need	116	96.67%
Attention span in the class without teacher	a) 15 min	74	61.7%
	b) 30 min	32	26.7%
	c) 45 min	10	8.3%
	d) 60 min	4	3.3%
Were you able to follow with the material presented in the power point presentation without presence of teacher?	a) Follow 25%	78	65.0%
	b) 50%	28	23.3%
	c) 75%	12	10.0%
	d) 100%	2	1.7%
Were you able to make notes during class?	a) Yes	28	23.33%
	b) No	92	76.67%
Were you present for entire class for all the online classes?	a) Yes	44	36.67%
	b) No	24	20.00%
	c) Not always	52	43.33%
Motivation to attend the online classes	a) Self	46	38.3%
	b) Parents	3	2.5%
	c) Attendance and exams	68	56.7%
	d) Others	3	2.5%

**Table 3:** Overall effectiveness of online classes as per student's opinion

		Count	%
Online Classes are effective	Yes	74	61.7%
	No	46	38.3%

methods from both the students and Teachers side.

But with months of Online teaching we were of the opinion that the students could easily adapt to the newer online teaching methods with assistance from other medical knowledge database for Pictures and Videos the online teaching method was found to effective in nearly 61.7% of the students.

The remaining students were of the opinion that online anatomy teaching is difficult to learn and other factors made them think online teaching is ineffective.

In the study done by Roy H et al.<sup>2</sup> the students were divided with respect to teaching methods of few topics to be conducted online or offline post lockdown. In another study done by Ravitheja Eluru et al.<sup>3</sup> the students preferred Classroom teaching over online teaching as they felt that theoretical nor practical aspects of anatomy could be learnt effectively online.

These difference of opinion of students on teaching methods to be followed for effective learning depends on various other factors also as mentioned in the study done by Doherty OD et al.<sup>4</sup> where lack of study materials, lack of library, network and connectivity issues were the major drawbacks along with lack of study environment in home due to personal problems in the family.

In another study done by Chang CA et al.<sup>5</sup> also opined that online teaching can be effective only if good internet service is available everywhere.

Another major drawback of the online teaching is lack of one on one student to teacher interactions, and the inability of the teacher to assess the learning ability of the students. Similar opinion was also given in the study done by Barr B et al.<sup>6</sup>

Another issue regarding the online teaching is that usage of the platform for teaching purpose, where the platform which teacher finds comfortable might not be the same for students and difference of opinion among students regarding best platform will also have an impact on learning ability of children.<sup>7</sup>

## 7. Conclusion

The study concludes that online classes were not so effective as students encountered lot of technical problems, reduced attention span, low motivation and lesser understanding in the concepts of subject thought. Hence measures must be

taken to improve online teaching of anatomy for MBBS students.

## 8. Source of Funding

None.

## 9. Conflict of Interest

The authors declare that there is no conflict of interest.

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