



## Original Research Article

# Paradigm shift in teaching-learning from classroom to virtual mode – Challenges and opportunities

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### ABSTRACT

**Introduction:** Since the unprecedented declaration of lockdown there has been a paradigm shift in medical education from chalk and board to virtual mode imposing both challenges and opportunities to faculty and students alike. As guest lecture is an innovative way of pedagogy we addressed them through an online talk to analyse the preferences towards sudden change in medical education.

**Materials and Methods:** Students and faculty were addressed about the paradigm shift in teaching learning methods through an online guest lecture and the attendees answered a feedback questionnaire on different Teaching Learning methods. Based on responses to the questions results were plotted in Microsoft Excel and completed questionnaires were analyzed for statistics.

**Results:** 90% of students and 100% of faculty found online guest lecture interesting and opined positively about having more online lectures in academic year. As far as teaching learning method is concerned both faculty and as students preferred offline/ traditional/ classroom teaching.

**Conclusion:** Online guest lecture offers more opportunities than challenges for both faculty and students. Arranging online guest lectures is economical, cost effective, has ease of attending from place of convenience provided robust internet connection is ensured, eliminates travel time as well as reduces the programme budget. Hence more number of virtual guest lectures can be arranged in an academic year for benefit of medical undergraduates. It is a novel platform for student teacher interaction and arrangement of more and more online guest lectures from eminent speakers excelling in various superspecialities should be encouraged.

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## 1. Introduction

December 2019 has been the dawn of a highly infectious pandemic. This has led to changes in work culture, study culture and overall lifestyle worldwide. The contagious nature of the disease made the conduction of classroom/traditional teaching learning method carry a infection risk for the students and the faculty aswell. Hence there was a sudden shift to online teaching learning method. Though

the transition was brought to immediate effect, various challenges and opportunities have accompanied it. As guest lecture is a unique mode of teaching learning process, whereby students get an opportunity to learn from a competent eminent orator excelled in their respective fields, the challenges and opportunities in online shift of teaching-learning were addressed through a guest lecture and the feedback was assessed. Herein we have tried to analyse their preferences and tendencies towards the change in teaching-learning process through an online guest lecture.

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## 2. Objectives

Inviting Guest Lecturers to deliver a talk on their topic of expertise is a unique teaching learning method. This study aimed to determine the preference of first year MBBS students as well as faculty towards online guest lecture programme and to assess challenges and opportunities in online teaching learning method.

## 3. Materials and Methods

The cross-sectional non interventional study was conducted in Department of Physiology, Dr. D Y Patil Medical College, Hospital and Research Centre, Pimpri, Pune after the approval of the Institutional Ethics Committee.

Students and faculty were addressed about the paradigm shift in teaching learning methods through an online guest lecture. Students and faculty attending the online guest lecture answered a feedback questionnaire based on different Teaching Learning methods. Based on the responses to the questions results will be plotted in Microsoft Excel. Only completed questionnaires were analyzed for statistics.

### 3.1. Statistical analysis

All the obtained data were compiled and tabulated systematically in Microsoft Excel Spreadsheet and subjected to statistical analysis using WINPEPI software (version 2.62 copyright © J. H. Abramson, 2004-2013) Descriptive statistics was employed in terms of percentages and exact 95% confidence interval (95% C.I) Mid-P was calculated.

## 4. Results

**Table 1:**

1	Was the programme interesting?	Yes (95% CI)	No (95% CI)	Cannot say (95% CI)
Faculty		100% (0.6877 to 1.0000)	-	-
Students		89.5% (0.8043 to 0.9531)	4.47% (0.0115 to 0.1170)	5.97% (0.0193 to 0.1377)

100% of faculty and 89.5% of students found the online guest lecture interesting, gave a positive feedback about the arrangement, conduction and interaction during the online guest lecture.

62.5% of faculty felt offline/ traditional/ classroom teaching learning method is better than online method with respect to more ease of conduction, more interaction with students as well as a easy method of getting feedback from the students as far as understanding the topic is concerned.

**Table 2:**

2	Is online teaching better than offline/ traditional / classroom teaching learning method ?	Yes(95% CI)	No(95% CI)	Cannot say (95% CI)
Faculty		-	62.5% (0.2780 to 0.8944)	37.5% (0.1056 to 0.7220)
Students		7.46% (0.0279 to 0.1576)	79.1% (0.6816 to 0.8758)	13.43% (0.0675 to 0.2322)

Students also preferred classroom teaching than online teaching with regards to clarity of concepts, understanding various physiological mechanisms and problem solving.

**Table 3:**

3	Would you like to have more Online guest lecture in academic year?	Yes(95% CI)	No(95% CI)	Cannot say (95% CI)
Faculty		75% (0.3883 to 0.9557)	25% (0.0443 to 0.6117)	-
Students		77.6% (0.6649 to 0.8639)	11.9% (0.0570 to 0.2141)	10.4% (0.0469 to 0.1957)

75% of faculty and 77.6% of students opined positively about more online guest lectures in an academic year and suggested the following topics for guest lecture: ECG, Hypoxia, Central Nervous System, Dialysis, aviation physiology, exercise physiology, sports physiology.

**Table 4:**

4	Do you feel stimulated to read the topic after an online lecture is delivered?	Yes(95% CI)	No(95% CI)	Cannot say (95% CI)
Faculty		75% (0.3883 to 0.9557)	-	25% (0.0443 to 0.6117)
Students		55.2% (0.4322 to 0.6679)	17.9% (0.1008 to 0.2846)	26.8% (0.1730 to 0.3840)

75% of faculty and 55.2% of students felt stimulated to read a topic after an online lecture is delivered. 17.9% of students gave a negative feedback and 26.8% students

couldn't opine about being stimulated to read the topic after online lecture is delivered.

**Table 5:**

5	Should online teaching learning programme be continued at the higher level of education?	Yes(95% CI)	No(95% CI)	Cannot say (95% CI)
Faculty		37.5% (0.1056 to 0.7220)	37.5% (0.1056 to 0.7220)	25% (0.0443 to 0.6117)
Students		29.8% (0.1983 to 0.4158)	64.1% (0.5220 to 0.7495)	5.97% (0.0193 to 0.1377)

64.1% of students didn't want online teaching to be continued at higher level of education, 29.8% opined positively and 5.97% couldn't opine about it.

There was a mixed response from the faculty with 37.5% opining positively and 37.5% opining negatively about continuing online teaching programme at higher level of education. 5.97% of faculty couldn't opine about it.

**Table 6:**

6	Online teaching learning has more:	Challenges (95% CI)	Opportunities (95% CI)	Both (95% CI)	Cannot say (95% CI)
Faculty		14.2% (0.0063 to 0.4803)	-	87.5% (0.5197 to 0.9937)	-
Students		49.2% (0.3744 to 0.6113)	7.46% (0.0279 to 0.1576)	29.8% (0.1983 to 0.4158)	13.4% (0.0675 to 0.2322)

87.5% faculty experienced both challenges and opportunities in online teaching in contrast to 14.2% who opined about more challenges than opportunities in online teaching learning.

49.2% students faced challenges, 7.46% faced opportunities, 29.8% opined both, 13.4% opined – cannot say in the questionnaire.

For theory lectures, 62.5% of faculty preferred classroom teaching whereas 37.5% preferred both classroom and online teaching combine i.e. a blended approach towards teaching.

Students on the other hand preferred classroom teaching (71.6%) over online teaching (4.47%) and blended teaching (23.8%).

Online teaching made clinical practicals difficult to demonstrate for teachers, and difficult to learn for the

**Table 7:**

7	Which teaching method you prefer for theory/ lecture ?	Online (95% CI)	Classroom (95% CI)	Both / blended (95% CI)	Cannot say (95% CI)
Faculty		-	62.5% (0.2780 to 0.8944)	37.5% (0.1056 to 0.7220)	-
Students		4.47% (0.0115 to 0.1170)	71.6% (0.6000 to 0.8144)	23.8% (0.1482 to 0.3515)	-

**Table 8:**

8	Which teaching method you prefer for practical ?	Online (95% CI)	Classroom (95% CI)	Both / blended (95% CI)	Cannot say (95% CI)
Faculty		-	100% (0.6877 to 1.0000)	-	-
Students		-	92.5% (0.8424 to 0.9721)	7.46% (0.0279 to 0.1576)	-

students as this involved demonstration and inculcation of motor skill in the student. For instance : demonstration of power of flexors of elbow joint or demonstration of recording blood pressure in a subject for example can be better explained/ demonstrated to the students in an offline method also providing opportunity for detection and correction of motor skill error of the student. 100% of faculty and 92.5% students showed preference to a classroom method for practicals.

**Table 9:**

9	Which teaching learning method do you prefer overall ?	Online (95% CI)	Classroom (95% CI)	Both / blended (95% CI)	Cannot say (95% CI)
Faculty		-	62.5% (0.2780 to 0.8944)	37.5% (0.1056 to 0.7220)	-
Students		2.9% (0.0050 to 0.0951)	79.1% (0.6816 to 0.8758)	17.9% (0.1008 to 0.2846)	-

Overall preference of both the faculty as well as students was towards a classroom / chalk and board teaching method.

## 5. Discussion

The online guest lecture feedback was assessed by a structured questionnaire and analysed. 90% of students and 100% of faculty found the online guest lecture interesting and opined positively about having more online guest lectures in academic year. As the topic was on online teaching learning method the challenges and opportunities encountered during this sudden transition were addressed. Due to sudden declaration of lockdown, there was resistance initially to shift from chalk and board to virtual mode of teaching followed by a uncertainty of how long the situation is going to prevail. A strong preclinical foundation is required before a medical undergraduate student ventures into clinical streams but due to paradigm shift of teaching maximum brunt was faced by preclinical subjects. Faculty had to struggle with the best suited medium / platform (CISCO WEBEX/ GOOGLE MEET/ ZOOM), lack of real life verbal and nonverbal communication which affected the rapport building with students adversely. Conducting online assessment/ exam and preparing teaching modules was also a challenge for many faculty. For students there was transition from campus medical school to adaptability home learning/ isolation. Many students faced with lack of concentration, disturbances by family matters, loss of access to dissection, physiology/ biochemistry labs, equipments, models etc. both faculty as well as students have faced network disturbances before and during conduction of lecture and felt the need for a robust IT support during the process. All these issues increase the responsibility of government, medical institutions to make compatible online platform available and the need for medical educators to undergo technology training, acquire new skills, create new content and virtual cases, overcome technical problems and keep students engaged in an online lecture/ practical. Studies on Online Medical education in India have taken account of different challenges and the probable solutions in the age of COVID-19 as well.<sup>1</sup> Similar study carried out in UK has acknowledged the continuation of medical education in unprecedented times because of the online/ virtual mode of education with an emphasis on further incorporation of online teaching method into traditional medical education.<sup>2</sup> Findings on implementation of online teaching in medical education carried in Marrakesh, Morocco recommend institutionalization of virtual learning with more interaction in addition to the in-person courses.<sup>3</sup> A similar cross-sectional survey was carried out on medical students across 13 medical schools in Libya where they found only 21.1% agreed that e-learning could be used for clinical aspects, as compared with 54.8% who disagreed with this statement and 24% who were neutral and the need of virtual clinical experience to be followed by hands-on experience.<sup>4</sup>

Competency based Medical Education emphasizes on patient centered teaching methodology and also focuses on

enhancing communication skills of medical undergraduates in process of creation of trained health manpower of the country.

Guest lecture is a unique way of communicating with the students in which a eminent speaker is called upon to deliver a certain topic of his expertise. Topics involving various mechanisms or integrated topics like ECG, Hypoxia, Central Nervous System, Dialysis, aviation physiology, exercise physiology, sports physiology are a good choice for the lecture.

In our study the guest lecture was found interesting by both students and faculty. Since the unprecedented COVID-19 pandemic there was a abrupt lockdown to curb transmission of the highly contagious infection resulting in closure of educational institutes and sudden transition from classroom teaching to online teaching exposing students and faculty to various challenges and opportunities. As faculty and students were stake holders in this process, we chose this topic for guest lecture and this led to an interactive session as reflected in the question and answer series and both faculty and students could relate to it.

The lecture addressed the pros and cons of online learning, the effects of this sudden change and the new normal in medical education. Importance of online parent teacher meeting and online mentorship was also highlighted. In order to increase student engagement discussion of case based scenarios or problem based learning as well as usage of educational games (Kahoot!) during online teaching session was addressed. To increase online peer interaction virtual curricular, extracurricular activities should be encouraged.

Our study found that Arranging online guest lectures is economical, cost effective, has the ease of attending from place of convenience provided robust internet connection is ensured, eliminates the travel time as well as reduces the programme budget. Hence more number of virtual guest lectures can be arranged in an academic year for the benefit of medical undergraduates. It also carries a benefit of faculty exchange programme across the nation for exchange of intellectual property. A study on use of guest speakers in nursing education has highlighted the ability of guest speakers to promote better teaching outcomes and Involving guest speakers promotes reciprocal benefits, where guest speakers, students, and professors have dual roles and contribute to and gain from each other.<sup>5</sup> A study by Alebaikan, R.A. carried out on among graduate students specialized in Curriculum and Instruction of Computer Science has taken cognizance of flexibility and accessibility of an online guest lecture; on the other hand, they found that a face-to-face guest lecture facilitated better interaction and discussion.<sup>6</sup>

## 6. Conclusion

Online guest lecture offers more opportunities than challenges for both faculty and students as well. Arranging online guest lectures is economical, cost effective, has the ease of attending from place of convenience provided robust internet connection is ensured, eliminates the travel time as well as reduces the programme budget. Hence more number of virtual guest lectures can be arranged in an academic year for the benefit of medical undergraduates. It also carries a benefit of faculty exchange programme across the nation for exchange of intellectual property. It is a novel platform for student teacher interaction and arrangement of more and more guest lectures from eminent speakers excelling in various superspecialities/ fields should be encouraged.

## 7. Source of Funding

None.

## 8. Conflict of Interest

The authors declare no conflict of interest.

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