

Assessment of the Influence of Online Teaching on Dental Education as Perceived by Dental Faculty: A Cross Sectional Survey

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ABSTRACT

Background: Due to imposed lockdown, the regular classes had to be suspended and online mode was adapted for delivering lectures. Understanding what is lacking in the online teaching is critical to develop programs and support mechanisms for online teachers in higher education.

Methods and material: The semi structured questionnaire were prepared which had both closed and open ended questions. The questionnaire was designed on web-based designing tool (google forms) and it was mailed to the faculty. The survey data was then analysed using Statistical packages for Social sciences (SPSS) version 23.0 (SPSS Inc., Chicago, IL, USA)

Results: The majority of faculty (74%) responded that according to them credibility of online teaching classes was at greater than 6 on a scale from 1 to 10 with 10 being the most credible. However, majority also felt some barriers being attached to online teaching classes (56%), inaccessibility of online platforms and lack of commitment in classes (67.3%) being some of the disadvantages associated with e-learning.

Conclusion: The teachers viewed online teaching more of a supplementary method to students learning. It would be beneficial if we determine preferences of dental students regarding e-learning, online applications in order to incorporate teaching methods into dental education.

Keywords: Online teaching, teachers, dental, e-learning, MOOC.

INTRODUCTION

World Health Organization declared a public health emergency of international concern over this global pneumonia (COVID-19) outbreak on 30th January 2020.¹ Due to increasing cases, as a preventive measure nationwide lockdown was imposed on 24th March 2020. And this has resulted in global impact in most of the sectors, with the education being one of severely affected sectors. Due to the lockdown

imposed, students all over the world are losing immense valuable time of their studies. The regular classes in between a running semester (Jan-May) in most of the cases, had to be suspended which led to planning and thinking about classes from offline to online mode. There was no clarity for teachers on what tools and technologies they should use. A very few teachers had experience of conducting a MOOC

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(massive open online classes). Many online platforms and universities have started sharing academic resources like conducting seminars, webinars and digital conferences. It appears that there is no dearth of such online resources of academic value. But there is a huge difference between online teaching and classroom teaching which is in real. It not only poses a significant challenge to teachers but it also seem to be a good opportunity for learning, establishing themselves in online platforms. Many universities like Harvard, Stanford have offered their MOOC (Massive open and online course) free of cost to the students. To connect with the students an ideal online course needs to be equipped with modern educational technology (Video/audio/mixed).

Engagement of students is very essential for the success of online classes. The knowledge component is easy to provide in online mode but the transfer of clinical skills through online mode is not possible. For example, conducting a lab-based experiment may not be feasible at all in any cost. While some have expressed alarm about the digital shift may leading to alienation of economically disadvantaged students as they may not have access to the technology that the digital lessons require, others say that they are scared of the potential dangers of internet exposure for the learners.

The results of this study are expected to supply implications for the improvement of the online classes not just for the dental stream under investigation but for other professions as well. It will also lead us to better understanding of the issues related to teaching and learning. Hence this study was carried out to understand the perception and experience among the dental faculty towards online teaching.

MATERIALS AND METHODS

The present study is a cross- sectional survey which was carried out among dental faculty based in Bhopal city, Madhya Pradesh in May 2020. It is a questionnaire-based study. Before the present study was started, clearance was obtained from institutional review board.

The study was carried out using an electronic survey. A validated questionnaire was prepared to

collect information regarding the understanding of online teaching among the dental faculty. It was conducted using sampling approach where in all the dental faculty who were willing to participate were included in the study while who were not willing to give consent were excluded from the study. The questionnaire was mailed to the participants and mode of data collection was a web-based designing tool (google forms). All responses were anonymous. The Purpose of the study as well as procedure to fill the forms were explained to the participants.

The questionnaire was divided into two sections which collected information as follows: Section 1 assessed the demographic details of the respondents- gender, age group, while section 2 had 18 questions which focused on gathering knowledge on faculty experience. The major part of questionnaire was composed of closed ended questions (17) and only 1 open ended question was provided to them.

For data analysis, the data was entered into excel sheet (MS office, v 2007), the survey data was then analysed using Statistical packages for Social sciences (SPSS) version 23.0 (SPSS Inc., Chicago, IL, USA). Various descriptive statistics (relative frequency) and correlation analyses, were employed for the data analysis. A qualitative content analysis was conducted for qualitative data which was gathered from the faculty responses to open-ended question in the questionnaire.

RESULTS

Findings from the analysis of qualitative and quantitative data gathered from 101 respondents in the present study are presented below:

The demographic details of 101 respondents are shown in (table 1).

The response to 15 questions is shown in (table 2) whereas the rest 4 responses have been depicted in figure format.

The majority of faculty (29%) responded that according to them credibility of online teaching classes was at point 8 on a scale from 1 to 10 with 10 being the most credible.(Figure 1). The faculty responded (54.4%) positively for online classes as a means for ensuring growth in career as well as for re-evaluation of classes in future. According to

75.2% of them online education improves cost effectiveness and 80.1% agreed that these classes are joinable at any time from any place. But 64.3% of the participants feel that online classes can never be a replacement for real classes.

Table 1: Demographic Profile.

DEMOGRAPHIC PROFILE		N (RELATIVE FREQUENCY)	%
GENDER	MALE	51	50.4%
	FEMALE	50	49.5%
AGE	21-30 YEARS	40	39.6%
	31-40 YEARS	41	40.5%
	41-50 YEARS	14	13.9%
	51-60 YEARS	06	5.9%

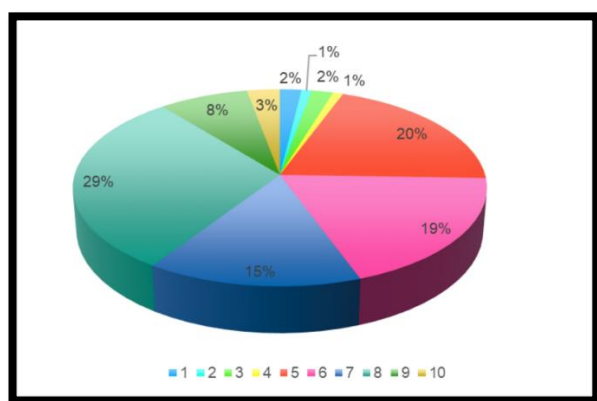


Fig 1: Credibility Of Online Teaching Classes.

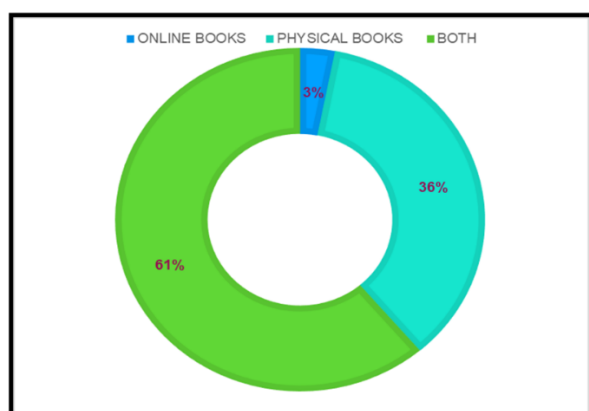


Fig 2: Preference for students by teachers in terms of reading.

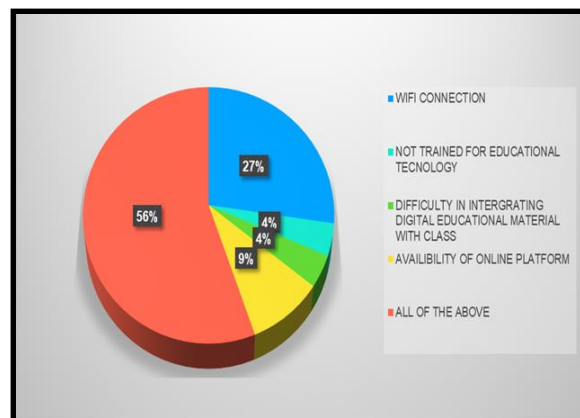


Fig 3: Biggest barriers for online classes.

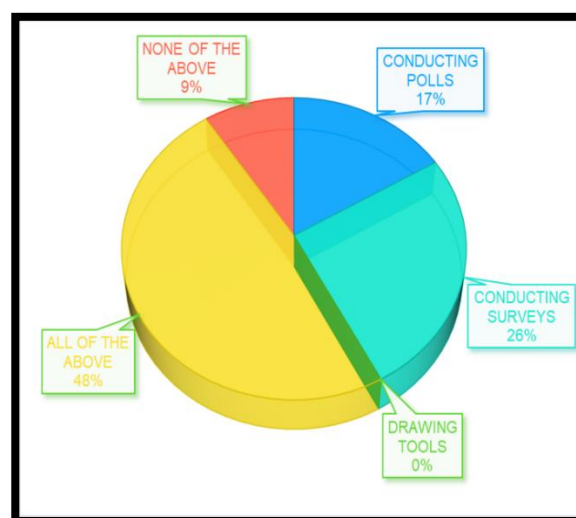


Fig 4: Methods to understand what kind of learner a student is in online class.

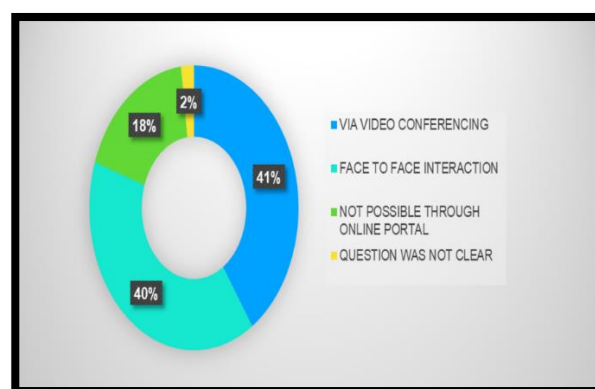


Fig 5: Preference by teachers for supporting students with emotional and behavioural disturbances in online platforms

About 61% felt that there is requirement of both physical as well as online books, in terms of reading both are essential. (Figure 2). Emergency training can be given for key target areas through online mode by 59.4% participants. Not significant difference was found when enquired about convenience and flexibility of online mode (35.6% and 32.6% agreed respectively). 47.5% responded negatively for the accessibility of online platform for all the students.

According to majority of respondents it can be made interesting for a difficult topic as well as provides for a customized learning experience. (> 50%). On observation it can be seen that 75.2 % dental faculty feels that diverse material can be provided to students through online mode. About 56% of faculty feels that factors like wi-fi connection, inadequate training, availability of online platforms as well as integration of educational material with classes are biggest barriers to online classes.(Figure 3)

Almost 82.1% faculty agrees that hybrid instructions ie face to face as well as online classes combined together will be beneficial to students. 67.1% of the participants felt that students lack commitment in classes while 13.8% disagreed to it and 18.8% were neutral. About 48% of teachers prefer to conduct surveys, polls or use different tools to understand what kind of learner a student is in online class.(Figure 4).

One question was also asked regarding how the teachers will support students with emotional and behavioural disturbances in online platforms. Around 41% prefer personally counselling them through video conferencing, 40% felt that face to face interaction is must for such students followed by 18% who think that it is not possible to support such students through online portal while 2% did not understand the question. (Figure 5)

DISCUSSION

The key areas to focus in dental lectures is to balance between the time constraints of the didactic schedule and the students educational needs.²⁻⁶ The traditional teaching classes lay emphasis on

electronic presentations, handouts and notes, while the online classes strategy mainly focuses on procedural videos, software applications, modules and flash cards.⁷⁻⁸ The “millennial generation” dental students nowadays are very much familiar with online platforms and e-learning.

Before lockdown was imposed very few faculties were utilizing online learning tools in dental schools. In our study we found that majority of participants around 64.3 % felt that online teaching classes can never be substituted for traditional method of teaching and 40% had negative response towards the flexibility of e-learning. Some of the reasons for hesitation of teachers to shift their teaching strategy to online methods must be associated with low perceived benefit, investment of time in this process, student’s usage frequency and difficulty in developing these online resources.⁹⁻¹¹ The traditional learning strategy have been supported by the past literature; however, as the new generation has become technologically oriented hence this trend has shifted, which were indicated by Browne et al.,¹² and Naser-ud-Din.¹³ Previous studies have reported that students prefer online learning due to flexibility, accessibility and timetable.¹³⁻¹⁴

The findings of this study indicated that teachers displayed a high level of satisfaction with online learning in their teaching classes. Maximum dental faculty (74%) gave a score of 6- 10 on the credibility of online teaching classes. The students have also exhibited positive attitudes toward the online learning environment in general.¹⁵ In our study we found that around 61% faculty thinks that both physical books and online resources should be blended together. It has been suggested by other studies in literature that e-learning, blended learning, virtual learning environments, mixed with a traditional strategy of teaching, could improve core knowledge and competencies among students.¹⁶⁻¹⁸ Some studies also focuses on the the fact that blended teaching supplements a traditional teaching strategy and improves the overall learning episode of students by handling differences that subsist in different learning styles among students.¹⁸

Table 2: Responses of Participants.

QUESTIONS	N (%) (N= 101)		
	AGREE	DISAGREE	NEUTRAL
1. Online education ensure growth of faculty as they can re-evaluate it in future ?	55(54.4%)	19(18.8%)	27(26.7%)
2. Online educations improves cost-effectiveness of educational resources?	76(75.2%)	12(11.8%)	13(12.8%)
3. E-learning programme is joinable at any time at any place ?	81(80.1%)	10(9.9%)	10(9.9%)
4. Are online classes a good substitute to real classes as far as teaching is concerned ?	11(10.8%)	65(64.3%)	25(24.7%)
5. Distance education provides emergency training for key target areas?	60(59.4%)	15(14.8%)	26(25.7%)
6. Is online education as easy and convenient as it seems?	36(35.6%)	32(31.6%)	33(32.6%)
7. Online education flexible or better to adapt than conventional method of education?	33(32.6%)	40(39.6%)	28(27.7%)
8. Is online education accessible to everyone?	33(32.6%)	48(47.5%)	20(19.8%)
9. Students enrolled in traditional classes receive higher grades as compared to online assignments ?	55(54.4%)	19(18.8%)	27(26.7%)
10. Online teaching can be made interesting for difficult topic?	51(50.4%)	28(27.7%)	27(26.7%)
11. Peer evaluation for promoting successful team work and skills can be done effectively through online education ?	53(52.4%)	20(19.8%)	28(27.7%)
12. Online education allows for a customized learning experiences ?	52(51.4%)	19(18.8%)	30(29.7%)
13. In online education, staff can provide diverse material ?	76(75.2%)	12(11.8%)	13(12.8%)
14. Hybrid and blended instructions results in stronger overall performance?	83(82.1%)	2(1.9%)	16(15.8%)
15. Student discussion in online classes seem to lack commitment on online classes?	68(67.3%)	14(13.8%)	19(18.8%)

Regarding the barriers for online education in our study, following factors were considered like wi-fi connection, inadequate training, availability of online platforms as well as integration of educational material wit classes. Therefore,

carefully in order to consequently to gain students' satisfaction and to produce efficient online tutorials, all of these factors should be considered.

Fitz Patrick in a study conducted in 2012 concluded the key success factors that need to be evaluated for

the quality of online education : (1) technology: availability, connectivity, and reliability; (2) human: pedagogy, attitude, and communication; (3) design: content, interface, and framework; (4) support: feedback, resources, and training; and (5) evaluation: assessment, usability, and quality.¹⁹

Majority of the faculty (>50%) also indicated that online learning could probably be more challenging than learning in traditional face-to-face classes because they feel that students lack commitment in class as they are unable to track them and also due to lack off accessibility to online platforms some students might be even missing out on their classes. It is recommended that the issues in online teaching must be explored from the student's perspective as well in order to gain in-depth understanding and also to determine key suggestions for regularity to improve the quality of online dental education.

CONCLUSION

The results of this study advocate that online mode of teaching can be used fruitfully in a dental school education to enhance students' competency, especially in the clinical syllabus. Further studies are required to fully comprehend the impact of online classes on students' accomplishments including examinations and clinical assimilation outcomes. In the literature in last 10 years, it can be noticed that e-learning has been implicated as an important supplementary tool to enhance the dental and medical education. It is critical to know dental students' inclination towards social media, and online applications in order to efficiently incorporate e-learning into dental school education. The successful implementation of virtual education and e- learning will definitely upgrade the attendance in lectures and faculty discernment to ameliorate the academic performance.

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

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