



## STUDENT PREFERENCES VS ACADEMIC PERFORMANCE IN ONLINE AND FACE TO FACE LEARNING IN BASIC MEDICAL SCIENCES: PERCEPTION VS REALITY

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### ABSTRACT

**Background:** The COVID-19 pandemic necessitated a rapid transition from traditional classroom teaching to online learning, profoundly impacting medical and dental education. This shift raised concerns regarding its effectiveness compared to conventional face-to-face modalities.

**Objective:** To compare student perceptions of online versus face-to-face teaching and to evaluate their academic performance under both modalities.

**Methods:** A cross-sectional study was conducted among 100 preclinical BDS students. Data were collected using a validated questionnaire assessing preferences, satisfaction, and challenges related to online learning. Academic performance was compared using results from two consecutive terms: the first taught online during the pandemic and the second delivered on campus. Statistical analysis was performed using SPSS 23, with Chi-square tests applied; a p-value  $\leq 0.05$  was considered significant.

**Results:** A significant association was observed between academic performance and teaching modality ( $p = 0.012$ ). The pass rate was higher among students taught face-to-face (9.2%) compared to those taught online (3.4%). Questionnaire responses revealed that most students preferred traditional on-campus classes, citing teacher presence, structured interaction, and reduced distractions as key benefits. Online classes were perceived as less personalized and more challenging in terms of engagement.

**Conclusion:** Face-to-face teaching was found to be more effective in terms of both student performance and satisfaction. While online learning offers flexibility, its limitations necessitate

careful integration. A blended approach may provide the most balanced and sustainable model for future dental education.

**Keywords:** Online learning, Face-to-face teaching, Student perception, Academic performance, Dental education

## INTRODUCTION

Covid 19 outbreak was largely reported close to December 2019, the outburst of the novel coronavirus pandemic made the situation challenging around the globe affecting almost all aspects including education<sup>1</sup>. Technology turned out to be most important ally to defend everyone, especially those participating in the educational system and presenting the possibility of didactic approach replacement. A good alternative to face-to-face learning emerged as distant/online learning.<sup>2</sup> The Internet (Zoom, Google classroom, Class marker, Edmodo, etc) became the main tool used. In this era, e-learning became an imperative substitute for reforming the entire traditional style of teaching.<sup>3</sup> Tutors and learners needed to alter their behaviors, style, mode of delivery and assessment process, etc. This modification carried numerous benefits, but also led to stress, anxiety, and frustration for all stakeholders.<sup>4</sup>

There are some concerns at this time. Have the advantages of e-learning, which may spark a revolution in education, being acknowledged if we were able to quickly replace face to face instructions with it?<sup>5</sup> What are the drawbacks and downsides of this type of education in comparison to in-person instruction?<sup>6</sup> Even though e-learning was introduced few decades ago, only now, during the 2020 pandemic, it appeared that the world has acknowledged the importance of e-learning for a longer or shorter period, drilling this new reality.<sup>7</sup> More and more studies are being conducted in this field of research, as it has become more and more investigative and creative for worldwide researchers.<sup>8</sup> The preference for and/or the inevitability of e-learning has considered the oxymoron between this form of education and the face-to-face one.<sup>9</sup>

Along with student's perspective, the question arises out the effectiveness of online vs. face-to-face outcome.<sup>10</sup> Using a single indicator, we can see if student performance was affected by this drastic change in teaching mode. Present study will compare online and F2F teaching by the results of term exams taught online and face to face. Through these comparisons, we can determine whether which one teaching modality was better than the other. This study can guide us with new measures to determine if students can perform better in one environment over another. To rationalize this strategy, particularly one executed in our institute, innovative and effective interventions were to be done. These would lead to improve the quality and sustainability of education standards.

The present study was also aimed to bridge this chasm and was centered on the pupils' viewpoints. The results of this study can serve as a backbone for future in teaching by giving different ideas based upon both the student's perspective and final outcome-results obtained.

## METHODOLOGY

For initial part of our research, a pre-structured questionnaire-based study was conducted through Google form after obtaining written consent from the students.

The questionnaire used in our study, was developed by Vala et al.<sup>11</sup> in which evaluation of e-learning classes in medical students during COVID 19 pandemic was studied.

We included 23 questions with multiple choice answers regarding online teaching and online assessment. Questions were related to their theory lecture classes, practical classes, their dependence, and preference for it and overall satisfaction of the students. Each question on the questionnaire required the dental students to choose an answer, including whether they preferred traditional, online, or both types of instruction.<sup>2</sup> (See annexure A and B)

For 2<sup>nd</sup> part of our research the study participants included 1<sup>st</sup> year and 2<sup>nd</sup>-year dental students. There were total 100 BDS students which attended online courses and face to face courses in each term respectively and were assessed after the end of term. The first term was taught **online** during COVID-

19 pandemic shutdown. For the 2<sup>nd</sup> term **face to face** sessions were conducted in college campus. In both terms, test was conducted face to face. The overall test scores of the both term tests for preclinical years were compared.

SPSS 23 was used for statistical analysis. All nominal data was presented as frequency and percentage. The numeric data was presented as mean and standard deviation. P value less than equal to 0.05 was considered significant. Chi square test was used to find the association between academic performance of students (fail/pass) and the modality of teaching (online/campus based)

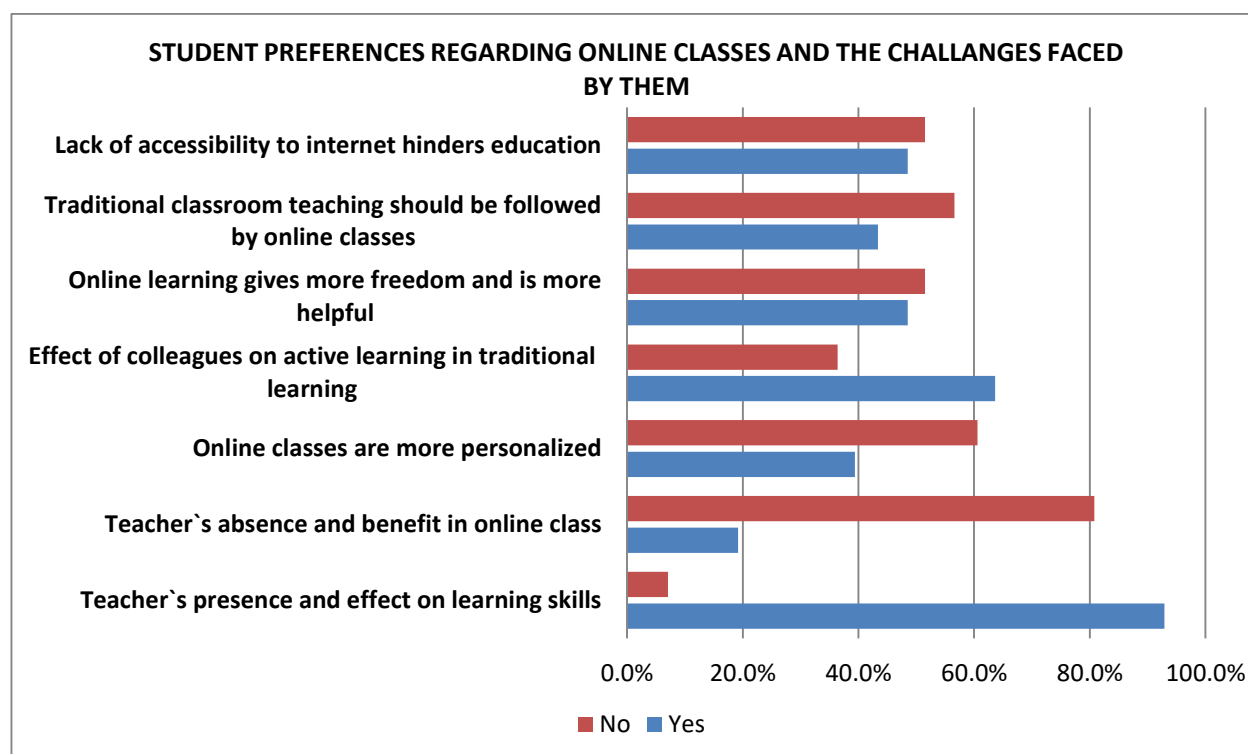
## RESULTS:

Table 1 shows a statistically significant association between academic performance of students and modality of teaching ( $p=0.012$ ). It was evident that a higher percentage of students failed their assessments after attending the online classes as compared to traditional campus based classes as shown in table 1.

| Academic performance | Modality of teaching |                 | P Value |
|----------------------|----------------------|-----------------|---------|
|                      | Online n (%)         | On campus n (%) |         |
| <b>Fail</b>          | 96 (46.6%)           | 84 (40.8%)      | 0.012   |
| <b>Pass</b>          | 7 (3.4%)             | 19 (9.2%)       |         |

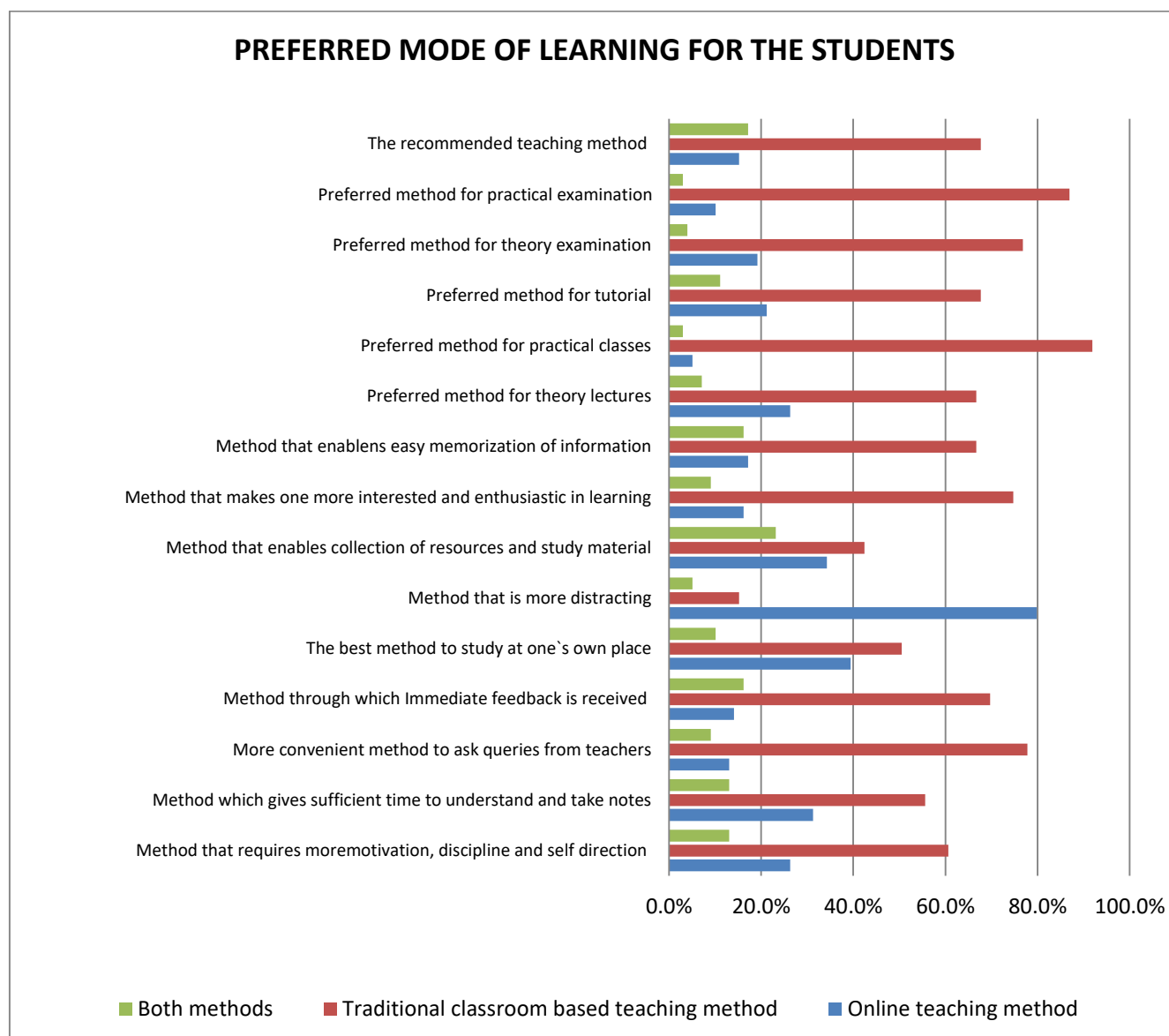
**Table 1: Association between academic performances of students in online in comparison to campus-based classes**

Table 2 shows that majority of the students were of the view that the teacher's presence has a positive effect on learning. A higher percentage of students opposed the idea of following online classes by campus-based classes. A large number of students also reported that they do not consider online classes a more personalized experience nor do they consider them more helpful as shown in table 2.



**Table 2: Student preferences regarding online classes and the challenges faced by them**

Table 3 shows the modality of teaching that is preferred by the students. It was reported that the students preferred traditional campus based classes for learning and considered the online modality to be more distracting. They also reported the traditional method to be their preferred method for lectures, practicals and tutorials as well as all sorts of assessments as shown in table 3.



**Table 3: Preferred mode of learning for the students**

### Discussion:

The study intended to evaluate the dental student's perception on online teaching-learning during the COVID-19 pandemic and to assess the total test results for subjects covered in both online and in-person sessions. This study can provide insight into the effectiveness of online vs. face-to-face teaching and guide future educational strategies.

The present study suggests that information transferred during face to face sessions improved students academic performance compared to online teaching. The pass percentage was significantly higher in the topics taught face to face. Albalushi H also found same results in his study.<sup>12</sup> Memon I et al also conducted a study to compare the results of students after online and face to face session. The results of this study are different from present study, according to Memon I et al students performed well when they were taught online. The cause of this difference may be the difference in the examination process. In present study examination was conducted face to face throughout, but in Memon I's study,

the examination was conducted online throughout the study period.<sup>13</sup> In another study conducted by Kositanurit W findings were very similar to present study and they also found better results after face to face teaching.<sup>14</sup>

Present study found that presence of a teacher had a positive effect on student learning. Mali D conducted a research and found that physical presence of a teacher can provide guidance, motivation, and support to students, helping them to stay on track and achieve their educational goals. These findings are very similar to findings in the present study.<sup>2</sup> D-Arcy C suggests that teachers can also assess students' understanding, provide feedback, and adjust their instruction to meet individual needs, as seen in the present study. Additionally, the teacher can create a positive classroom environment that fosters engagement and collaboration, which can further enhance learning, as seen in the present study and in two studies recently mentioned here.<sup>15</sup> However, it is important to note that the effect of a teacher's presence on student learning can vary depending on various factors such as teaching style, subject matter, and student population. There may not always be a positive association between the physical presence of teacher compared to the online presence of a teacher, as seen in the study conducted by Safura S et al.<sup>16</sup>

Another aspect highlighted in present study was about students preference for online and face to face sessions. It is difficult for students to decide whether online or traditional face-to-face teaching is better. It depends on various factors such as the subject matter, student population, and individual learning style. Some students think that online teaching increases flexibility, accessibility, and convenience, as well as the ability to reach a wider audience. Online teaching can also allow for more personalized learning experiences, as students can work at their own pace and access learning materials anytime and anywhere as seen in the study conducted by Halpin H.<sup>17</sup>

Bernard C also conducted a study like the present study and found student's opinion that traditional face-to-face teaching offers the opportunity for immediate interaction and feedback between teacher and students, as well as opportunities for group work and hands-on activities. This type of teaching can also create a sense of community and provide a more structured and supportive learning environment.<sup>18</sup> Ultimately, the best approach will depend on the goals and needs of both the teacher and the students. Some courses may benefit from a blend of both online and face-to-face teaching, as seen in a study conducted by Nikolopoulou K.<sup>19</sup>

In nutshell the comparison between online and traditional assessment effectiveness depends on various factors such as the purpose of the assessment, the subject matter, and the technology used.

Advantages of online assessments include convenience, cost-effectiveness, and the ability to provide immediate feedback to students. Online assessments can also be designed to be more interactive and engaging, and they can be easily administered and graded at scale.

Traditional assessments, such as written exams or hands-on projects, offer the opportunity for direct observation and evaluation of skills and knowledge. They can also provide a deeper understanding to which a student has mastered a subject and their capacity for using what they have learned.

### **Conclusion:**

In present study face to face teaching/ learning was found to be superior as compared to online methodology in all aspects measured but it is important to note that both online and traditional assessments have their strengths and weaknesses, and the most effective strategy will rely on the goals and needs of the curriculum, students and assessments. In some cases, a combination of both online and traditional assessments may be appropriate and while in others we can choose only one mode, but choice should be in a very smart and careful way.

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