

## **ONLINE TEACHING AND ASSESSMENT MODALITIES FOR DENTISTRY IN COVID TIMES: STUDENT PERSPECTIVES**

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Bachelor of Dental Surgery (BDS) is a five-year undergraduate programme of which the first two years mainly focuses on the basic sciences and preclinical work. This is followed by incorporation and transition from theoretical and practical exercises to clinical experience which involves the effective components of learning. The course culminates with the conduct of compulsory internship in which the students are exposed to a complete clinical setup in an independent manner and allows for the holistic development of the clinical acumen and treatment delivery for oral and maxillofacial lesions.

The regulating body for the BDS programme is the Dental Council of India (DCI) and further this body is guided by the University Grants Commission (UGC), the University regulations, National Assessment and Accreditation Councils (NAAC) and other requirements for international admissions and regulations. The DCI body of members have prescribed the course syllabus and allotted a minimum number of hours of teaching for each course of Dentistry. With changing demand for the optimum course content delivery and assessment, periodic innovation in course structure is warranted. The syllabus prescribed by the DCI is converted to a curriculum in an Outcome- Based Education (OBE) format for the BDS students. The OBE is based on achieving clear measurable outcomes or goals and relies on the Bloom's taxonomy and Millers pyramid of learning taxonomy. For the holistic development of a dental graduate, the regulating bodies further require us to train students in soft skills as well as introduce newer methods of assessments.

All the above mentioned requirements were being fulfilled by meticulous planning and execution of the classes by the faculty with the students attending the classes regularly. Theory classes for the dental students was primarily classroom based teaching utilizing teaching aids like PowerPoint presentation, videos, lectures, blackboard teaching, small group discussions, case based learning etc. Practical learning included tutorials, live field teaching, video demonstrations and small group discussions. These methods involve collective discussion of clinical material, procedures, case studies, portfolio etc. on a one on one basis with face to face discussions. These modalities were usually assisted by the clinician or facilitator and they assess them formatively on a daily basis.

Prior to the introduction of the OBE curriculum the assessment was predominantly summative with three sessional examinations at regular intervals and finally a University Examination was being conducted based on which the students would qualify for the next term. The formative assessment was purely in the form of class tests, and practical evaluation recorded in the form of record book maintenance.

Introduction of the OBE curriculum opened up a plethora of teaching aids. Along with the access to various online learning management systems like Edunxt, Microsoft teams, Impartus, InPods enabled us to design, develop and deliver classes, conduct flip class rooms, ICT enabled teaching, online assessments, improve the student directed learning times, get more out of students than before in their time.

However, the outbreak of COVID 19 in the beginning of 2020, caught us off-guard and challenged the educational systems world-wide. The meticulously planned teaching learning programme derailed and we were faced with a looming question of how to maintain continuity of teaching and learning while facing the threat of extended closures. A greater challenge was the sudden need for the classroom based dental programme to be taught online. Thus the pandemic pushed the academicians to online mode of teaching with little preparedness. <sup>1</sup>

Online learning refers to a type of teaching learning process wherein the learner is at a distance from the teacher/instructor, and uses some form of technology to access learning materials and also to interact with the instructor and fellow learners. <sup>2</sup> A diverse array of requirements governs this form of teaching like access to the right resources, staff preparation, confidence, student accessibility and motivation. <sup>3</sup>

### **Part 1: The challenge for the Faculty**

Research shows that the teachers may lack the expertise to successfully integrate technology into learning process. Although the present generation of students are technophiles being confident with technology the same is not the case with the faculty. <sup>4</sup> Adequate training of the faculty for the new mode of teaching by the IT personnel would not suffice as the faculty needs to be familiar with the tools too. The process also needs the faculty to be a part throughout, planning (wherein they needed to assist in creating email ids for the staff and students to log in a common platform) implementation and evaluation.

Once this hurdle was managed sufficiently well, next came the scheduling of online classes for which organization and coordination between the students, faculty and the software firm was required. The online mode of teaching needs Pedagogical Content Knowledge (PCK) which includes technical and administrative aspects of teaching online (using platforms and familiarity of online tools for organizing work flow etc.) for which adequate training is required. <sup>1</sup> This was a challenge for faculty who rely on blackboard teaching, communication and interaction during the classes. They had to develop content suitable for online engagement. Engaging the students in a virtual classroom is quite challenging for the faculty as they do not have the visual cues as to how the students have understood a particular concept. Thus introduction of flipped classrooms with the learning material (journal articles, videos, YouTube links) being provided prior to the virtual class may promote better understanding and self –directed learning. <sup>5</sup> Technical glitches cannot be avoided for which we had to be dependent on the third party/ IT personnel for their support. There is need for development of infrastructure in the form of virtual labs, training of online content development, studios, virtual classrooms etc by the higher education institutes to deliver relevant content. <sup>6</sup>

## **Part 2: The challenge for Students**

We conducted an online survey that included I, II, III and IV year BDS students. A total of 293 students answered the survey. Students faced the network and connectivity issues with poor audio quality due to which they could not participate in the virtual classrooms. Though students agreed that online mode to promote learning during these challenging times is required, they felt that understanding the concepts was better in a class room setup. Understanding theory classes was said to be better than the practical classes. Preclinical and clinical training is of utmost importance to the dental students as that is how the students learn various manual and cognitive skills that prepare the students to enter the dental profession. However, this cannot be substituted through online teaching. Students also opined that classroom teaching cannot be replaced by online mode of teaching. The complex environment at home may lead to a lot of distractions and thus hamper the learning process. One important factor is that online learning is more of student directed learning with the onus lying completely with the students. Thus, ” how motivated the student is?”, and the time management skills play an important role in the learning process.

### **Part 3: The challenge of Assessment**

The online teaching has brought about some amount of automation for the process of assessment. Platforms like kahoot, Socrates, quizzes, zoom pool, hot potatoes, survey monkey allow us to create audio-visual content for assessment in class and out of class which can be graded. Paid platforms like Microsoft teams also allows us to integrate these quizzes which not only allows us to ask multiple choice questions but also incorporate short answers and essay questions. <sup>4, 5</sup>

Cloud computing has played a major role in bringing about this change. The students are able to write the answers offline under the supervision in the form of a live exam or in the form of an open book exam and upload a pdf of the assignments using many scanning and collating tools.

Newer modalities of assessment have to be incorporated to bring about the effective assessment.

Evidence based dentistry is an important way to learn clinically relevant scientific evidence. Research based learning system can be developed for assessment. Students may be given a list of topics/themes to discuss and they can do research and paraphrase material from the various sources. The online library database and its subscription plays an important role in this modality. Library subscriptions to various publishing houses like Elsevier, Science Direct, Wiley etc. plays an important role in hastening this process. Developing a bibliography compilation on a problem or a topic itself will be an important way to check the student's acumen in the subject.

Assessment using development of poster, collage or a mind map fosters creativity. This can be then presented in the class and later displayed on social media platforms like Facebook, Instagram, twitter for further discussion. This develops the communication, critical thinking and team work aspects of the soft skill development.

Speech and presentation can be encouraged by preparing lectures, presentation, speeches and interviews for case discussions. This not only keeps the students engaged but also hastens communication skills which is an important soft skill to be developed for the curriculum <sup>4, 5, 7,</sup>

## Summary and Conclusion

Online teaching is need of the hour in view of the COVID 19 pandemic. We need to understand that online mode of teaching is more of a student centred approach. Thus the teaching should also cater to this by incorporating innovative ways of content delivery to engage the students. Blended teaching modalities using both synchronous and asynchronous methods is of immense help not only during the COVID era but may be the way forward. <sup>4</sup> In the field of dentistry practical's and clinical training may suffer but a sound theoretical basis can be rendered to make the students clinic ready when time comes for clinical exposure. As health professionals we need to ensure that learning is unfazed even during this COVID 19 pandemic.

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