Incorporation of remote feedback in a preclinical operative dentistry course prompted by COVID-19

Luis Sensi DDS, MS, PhD | Roopwant Kaur BDS, MS

Department of General Dentistry, East Carolina University School of Dental Medicine, Greenville, North Carolina, USA

Correspondence
Luis Sensi, Department of General Dentistry, East Carolina University School of Dental Medicine, 1851 MacGregor Downs Road, Mail Stop 701, Greenville, NC 27834, USA.
Email: sensil@ecu.edu

1 | PROBLEM

The World Health Organization declared the outbreak of coronavirus a global pandemic in March 2020. The Occupational and Safety Health Administration declared dental providers at high risk. COVID-19 forced routine operations to be re-evaluated and dental educators were led to reimagine teaching delivery methods.\(^1\) While didactic courses migrated into online, off-campus, synchronous, or asynchronous types of delivery, technical hands-on courses that depended on live faculty–student interaction were left with fewer options. The need for social distancing imposed several new regulations and modifications in simulation environments that were tentatively implemented by different schools (i.e., division of class activities, the need for multiple faculty teams, the addition of a third shift to the schedules, among others).\(^2\) Upon return to in-person activities in our institution, students faced the challenge of a compressed modified curriculum further affected by imposed absenteeism. In cases of a suspicious (or confirmed) infection, waiting for test results, or actual quarantine, absent students would be at risk of significant delay in developing their hand skills and progressing through the curriculum. To avoid this delay, and by consequence future customized instruction or remediation, an alternative method of interaction was proposed for those students affected by COVID.

2 | SOLUTION

To maintain the educational continuity of students who required isolation, a remote feedback mechanism was implemented during our operative dentistry course. Self-directed exercises were designed using Apple iBooks with predefined outcomes, rubrics, and detailed step-by-step instructions including pictures and videos. Students completed these exercises during off-peak lab hours and were offered two feedback options: live faculty interaction (during an agreed-on time slot while faculty members were available remotely) or asynchronous feedback (written/pre-recorded).

For the live interactive feedback, a simple video call from a smartphone was our preferred method, even though WebEx or Microsoft Teams platforms could be used. Students and faculty could talk to each other, ask questions, and receive input just like they would in person. For the specific evaluation of the work being completed, students showcased their work and as directed by faculty, they used measuring instruments to help in the process. The use of compatible magnifying lenses proved invaluable, greatly improving the quality of the close-up video images and significantly enhancing the quality of the evaluation being conducted (Figure 1).

For asynchronous feedback, the interactions took place through recorded videos, photographs, and self-reflection reports submitted by students (Figure 2), to which faculty responded using various formats (written, video, or voice recording). For summative assessments, students turned in their work for evaluation and received feedback in a detailed recording of the faculty evaluation and rubric review. In such evaluations, a set-up including quality close-up cameras and screen capture applications is needed (Figure 3).
FIGURE 1 (A) Detailed view of a macro close-up lens adapted to a student’s iPhone. (B) Student point of view of the remote feedback live interaction depicting faculty and the students work.

FIGURE 2 An example of a self-reflection document submitted by a student.

- The lingual fossae and ridges were hard to get at the right height and location and build up. I kept trying to form/keep the fossae and had the ridges too shallow. I also didn’t release that there was supposed to be an indentation between the central ridge and the cingulum, so I had to correct that during the finishing sequence.

- Next time I will pay more attention to the height and width of the structures before trying to fine tune the details.

- Overall, I received good feedback and pointers to improve my technique.
3 | RESULTS

This novel, not previously published approach allowed the continued hand-skills development of quarantined/at-risk students without the need for direct onsite contact with faculty or classmates. The added flexibility of students being able to work during alternative hours while still getting timely feedback (instead of limiting encounters based on space, faculty availability, or curriculum schedules), makes this approach potentially useful for other educational situations.

Even though the number of students requiring remote feedback was limited, comparing their hand-skills performance to the physically present students (within the same cohort) demonstrated the benefits of this approach as no differences were noted on their formative or summative assessment passing rates. Positive feedback from surveyed students included: “although physically isolated, I still felt connected to the course and faculty,” “glad someone thought of this,” and “it was great to keep up with the lab projects even during quarantine.” Students seemed mostly appreciative and thankful as no negative feedback was received.

Faculty provided positive comments related to how well this format worked despite initial hesitation. Faculty reported joy and a sense of pride despite limitations. An interesting comment received was “This mechanism allowed a more focused 1-on-1 interaction with the students (without competing factors), as compared to when a lab session is attended in person.”

Limitations for this approach include the time needed for pictures, videos, and written feedback to be produced and exchanged between students and faculty (largely dependent on the user’s technology experience), and the lack of immediate in-person demonstration, technique correction, troubleshooting, or practical guidance. Minor obstacles encountered included the coordination of schedules between students and faculty, especially outside of normal work hours and minor connectivity issues (i.e., Internet stability and frozen video calls). Virtual feedback will not replace in-person teaching but offers a viable alternative when personal one-on-one feedback is impossible.

ORCID

Luis Sensi DDS, MS, PhD  https://orcid.org/0000-0001-8182-5837
Roopwant Kaur BDS, MS  https://orcid.org/0000-0003-0697-8977
REFERENCES

1. Iyer P, Aziz K, Ojcius DM. Impact of COVID-19 on dental education in the United States. J Dent Educ. 2020;84(6):718-722.
2. Kaur R, Frazier KB. The challenges of COVID to operative/restorative* dental education in CODE region VI—Preclinical, didactic, clinical and extramural. Annual CODE/CAMBRA Region VI Meeting: June/July 2020.

How to cite this article: Sensi L, Kaur R. Incorporation of remote feedback in a preclinical operative dentistry course prompted by COVID-19. J Dent Educ. 2022;86(Suppl. 1):776–779. https://doi.org/10.1002/jdd.12772