

Asynchronous faculty evaluation using videos for remote learning exercises

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1 | PROBLEM

The continuity of clinical education for dental students has become problematic while dental schools are trying to balance the important task of safeguarding the health of students, faculty, staff and patients during the coronavirus disease 2019 (COVID-19) pandemic. A significant challenge is reduced time available for technical skill learning, which is a key component of the dental curriculum.

Remote learning has been implemented throughout the dental school curriculum due to social distancing and as a result of decreasing in-person activities. With the decrease in faculty student interactions, innovative ways to provide faculty feedback for hands-on clinical skills needs to be explored.

2 | SOLUTION

A 4-week Virtual Clinic (VC) rotation was developed to facilitate hands-on learning remotely from the school pre-clinic laboratories. Students were provided a Remote Operating Kit (ROK) consisting of a portable electric handpiece, diamond burs, typodont teeth, and ring light for their iPad. Students recorded videos of the assigned all-ceramic preparations using the provided iPad and ring light. Small group synchronous Zoom sessions were held once a week during which students shared their videos of their preparations and received real-time faculty feedback and a review of preparation criteria. Students were assigned additional preparation exercises for independent practice. The students recorded videos of their independent preparation exercises and uploaded them to an online platform

(Canvas) for asynchronous faculty evaluation using a published rubric.

3 | RESULTS

Asynchronous learning (ALN) in conjunction with skillful pedagogy provides an effective learning environment and is more effective than traditional lecture.^{1,2,3} Students were very experienced in faculty directly assessing and scoring their preparations during their previous preclinic courses by physically submitting the typodont for evaluation. The first group of students were queried about using recorded videos to evaluate their preparations. Although 82% of the students felt the iPad would be sufficient to record videos of the preps for discussion and feedback, only 59% felt the videos may be sufficient for grading. It seemed students were concerned their video recording skills might impact the evaluation of their preparations. A specific video template was developed to ensure students recorded specific angles of viewing of the preparations in each video. All 5 faculty in the Virtual Clinic agreed videos would be sufficient to evaluate preparations with the ability to magnify and visualize the preparation from different views (Figure 1).

Faculty noted a significant improvement in students' preparations submitted for final assessment compared to the first videos submitted for the faculty feedback sessions. Although there were no student videos submitted that were unable to be assessed and evaluated, there were occasions that specific requested views of the preparations were missing from the videos. It was anticipated that there would be student problems with management of the videos



FIGURE 1 Magnified image of student's ceramic onlay preparation for asynchronous evaluation

from recording through uploading. Realizing this, students were asked to only use their iPads for the video recording, and there were very few instances of students struggling to upload their recorded videos; those that did were easily remedied.

Students had completed similar all-ceramic preparation exercises in previous years during an advanced restorative course. As an added incentive, students earning A or A- on the exercises did not have to take the final exam. From 2015 to 2019, an average of 49.2% of students received A, 23.3% received A-, and 14.7% received B+ grades on the exercises. During the first 2 cohorts of the Virtual Clinic rotation, 53.8% of students received A, 24.4% received A-,

and 9.0% received B+ grades on the exercises. Early data indicate that students do at least as well with remote learning and asynchronous evaluation by faculty as in traditionally taught courses.

CONFLICT OF INTEREST

None.

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