

**REALLY GOOD STUFF**

# Modified team-based learning to promote collaboration in an online prematriculation course

## 1 | WHAT PROBLEMS WERE ADDRESSED?

After two summers of pandemic-necessitated shift to virtual learning in our prematriculation course (PMC) offered to incoming medical and pharmacy students, we saw a need to move away from passive and isolating pre-recorded lectures. We sought a virtual format that encouraged active learning and built collaboration amongst prematriculation students.

## 2 | WHAT WAS TRIED?

Team-based learning (TBL) was introduced into our online seven-week PMC as the pedagogical approach to learning biomedical sciences, replacing an entirely lecture-based format. The communications platform Zoom and the TBL platform InteDashboard were used. Three modifications to traditional TBL readiness assurance tests (RATs) were made to promote problem-solving and collaboration: (1) The RATs were created at an application-level difficulty, (2) extra time and an open-note policy were created for RATs, and (3) the individual RAT (IRAT) did not count towards the grade. Each week, the students engaged in a three-part cycle, with two TBL days, followed by an individual closed-note quiz of equivalent difficulty. The first day of the cycle began with students each completing an intentionally difficult 10–12 items IRAT featuring clinical and experimental scenarios presented as vignettes. The students then collaborated to complete a team readiness assurance test (TRAT) covering the same items. On the second day of TBL, students engaged in shared, open-note application exercises, with tasks of increased difficulty and virtual gallery walks in which students appraised the work of their classmates. During both TBL days, the instructor was able to virtually sit-in with each team while they were in their Zoom breakout rooms and monitor their progress. Although IRATs did not count towards the students' grades, each TRAT contributed 2%, each application exercise contributed 1%, and each quiz contributed 5%.

## 3 | WHAT LESSONS WERE LEARNED?

The TBL model of the PMC was associated with higher student evaluations. Facilitation of learning was rated 4.88/5 compared with an average of 4.42/5 for the previous 2 years of pre-recorded lecture format. Students ( $n = 26$ ) found the IRATs to be challenging, with a class mean

of 58.4% ( $SD = 10.9\%$ ) but performed significantly better on the TRATs with a mean of 95.5% ( $SD = 2.3\%$ ). The class showed marked improvement from the beginning of the week IRATs to the higher stakes end of week quizzes, with mean scores increasing to 81.4% ( $SD = 8.5\%$ ). Students identified the performance improvement seen on IRATs to TRATs as gratifying and confirmative of the value of collaboration. Students also reported that not counting the IRAT performance as part of the grade reduced perceived stress and encouraged participation during the TRAT. Faculty observation of the TBL sessions subjectively supported student feedback that this format encouraged collaborative sharing of knowledge and reflective discussion. Students enthusiastically shared their screens and displayed their notes and organisational study guides with each other during the TRATs and application exercises. An important lesson learned was that students embrace the challenge of solving items of high difficulty in a team setting if given adequate time to first think through the problem with zero-stakes and encouraged to use and share their learning resources with each other. This principle can be generalised to help educators creating any collaborative in-class learning activity, not limited to only TBL.

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