

A case report: using TBLs to create collaborative, experiential, transformative interprofessional learning (IPL) experiences for faculty and students, with relevance to COVID.

Yun Li¹, James Zhang², Ramya Varadarajan², Robby Loving², Johnny McMurray², Austin Hagen², Nick A. Sears², David Zawieja^{2,3}, Burton F. Dickey^{2,4}, Daniel Novak⁵, Ian V.J. Murray^{2,3}

Background

Team-based learning (TBL) activities are increasingly used in medical education, and are ideal for collaborative, transformative interprofessional learning (IPL) experiences for faculty and students. The EnMed respiratory course TBLs were restructured using hands-on devices to convert abstract cognitive knowledge into demonstrable observable skills. This involved collaboration between students, engineers, basic scientists, educators, and clinicians, and included skills relevant to COVID diagnosis.

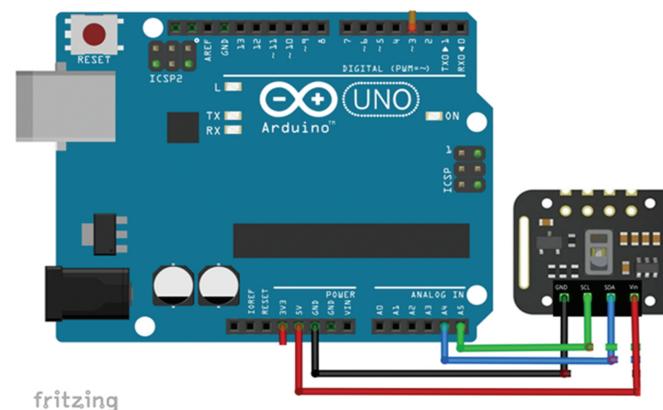
Transformative Peer Teaching

In addition to regular TBL prework, students created 3 devices (ventilator, spirometer, pulseox), reflective questions were provided to guide self-study, interaction among students via discussion boards to promote peer teaching.

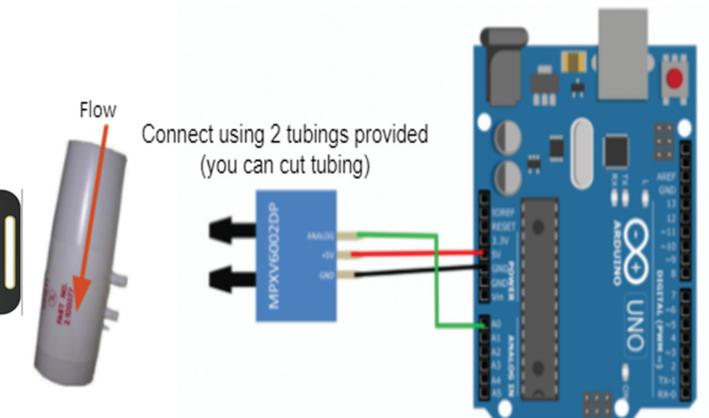
TBL 1 - Ventilator



TBL 2 - Spirometer

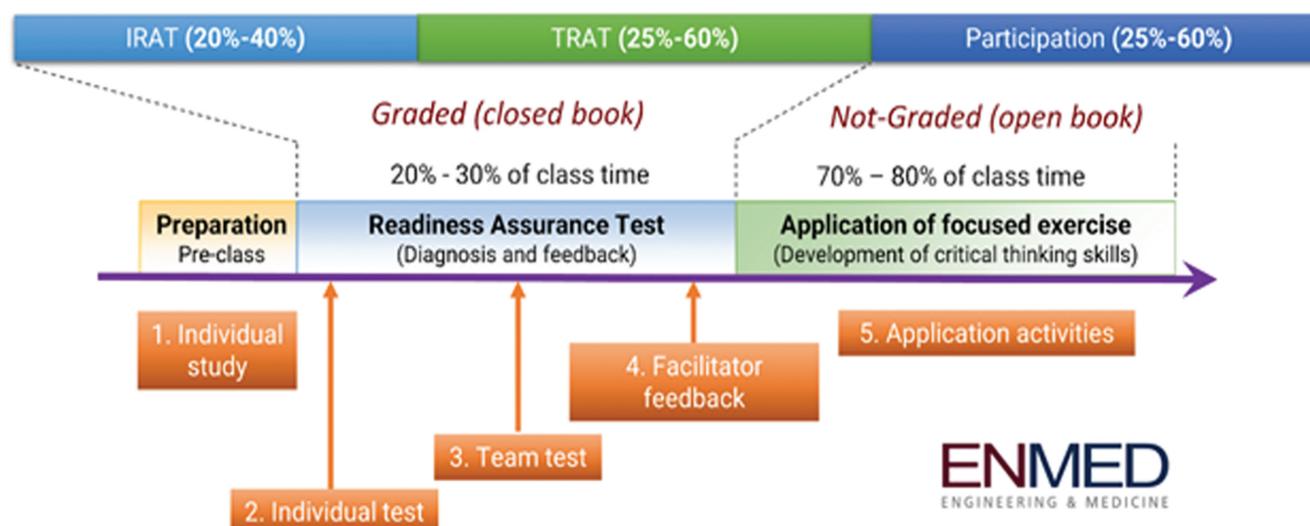


TBL 3 - Pulse Oximetry



Student satisfaction was assessed before and after the TBL changes in 2020 (n =24) and 2021 (n = 34) via a 5-point Likert scales Qualtrics survey. The survey contained 26 questions probing seven categories (2). Survey data is presented as percentage of respondents with Likert score of ≥ 4 .

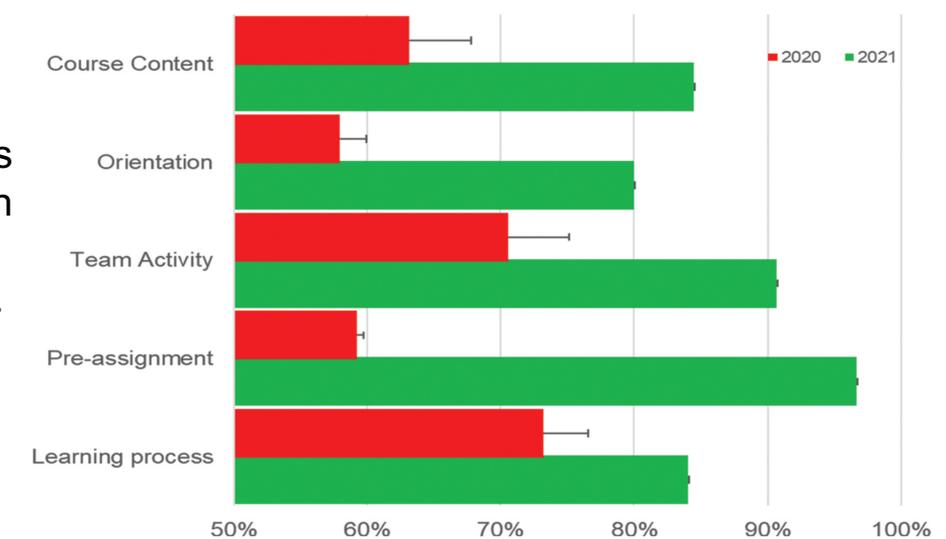
Structure of Team-based Learning in EnMed



Results

76% and 35% of the class completed the satisfaction surveys (2020 & 2021, n= 19 & 17). Student TBL student satisfaction significantly increased in three previously lower-scoring categories.

2020 vs 2021 Student TBL Satisfaction Survey



1. Office of Academic Technology, College of Medicine, Texas A&M University
 2. Engineering Medicine (EnMed), College of Medicine, Texas A&M University;
 3. Medical Physiology, College of Medicine, Texas A&M University;

4. Department of Pulmonary Medicine, Division of Internal Medicine, MD Anderson, Houston, Texas;
 5. Clinical Medical Education, Keck Medical School, University of Southern California