

**TITLE:**

Integrating communication, clinical reasoning and hands-on skills in a large classroom setting using concepts from laboratory settings and team-based learning models.

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**ABSTRACT:** 300 word limit (when applicable, please include: purpose & background, methods, results, conclusions/discussion)

**Purpose and background:** Team-based learning (TBL) is used to transform large, often passive, classroom settings into active experiences in which students apply recently-learned concepts. In contrast, laboratories are used for hands-on skills acquisition/exploration, e.g., anatomy labs. Both have the advantage of allowing students to engage with one another and to receive immediate feedback from the instructor. Typically TBL and hands-on laboratories are separate experiences utilized for separate goals: knowledge application versus skills acquisition. The purpose of this experiment was to combine the two environments using technology and low-fidelity models to create a realistic clinical encounter that challenged students' clinical reasoning and technical skills.

**Methods:** Second year students in a core clinical sciences course participated in the experiences known as "Diagnostic Challenges" (DCs). Regularly-scheduled lecture time was repurposed into two 2-hour case sessions with half the class (~75 students) attending at a time. Self-selected teams of four progressed through several phases of each DC: the client interview, diagnostic/therapeutic selection, explanation segment, and hands-on phases. The diagnostic phase was implemented in Canvas, CSU's learning management platform, to allow students to progress within the cases independently. The hands-on phase for one of the DCs incorporated hand-made, low fidelity models for esophageal feeding tube placement. Students were asked to complete a survey on their attitudes toward the DCs after the semester's end.

**Results:** Survey questions explored students' assessment of how the DCs enhanced their abilities to integrate and apply knowledge using a 5-point scale. Data is currently being collected and will be available in June.

**Conclusions:** Large classrooms can be successfully converted into an environment where both clinical reasoning skills and manual skills are integrated. Integrative experiences are well-received and can utilize pre-existing learning management platforms and incorporate low-fidelity models without using dedicated lab space.