Effect of Seating Arrangement on Class Engagement in Team-based Learning: A Quasi-Experimental study

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Abstract

This study investigated the effects of seating distance and orientation on engagement in novice and experienced learners in a large classroom explicitly designed for team-based learning (TBL). The goal was to find out what affects TBL engagement, in order to improve its implementation.

Seating arrangement and engagement

Existing literature suggests that semicircular classroom designs allow for more comfortable engagement between students and tutors which led to better learning for students compared to traditional row and column classroom organisation.

Team based learning

TBL use is increasingly popular in medical education, with positive outcomes in many areas. It works by increasing students’ cognitive engagement via participation, discussion and processing of information, which subsequently affects achievement.

A TBL session comprises 3 phases: preparation, readiness assurance, and application exercise phase. This study was conducted at Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore, which uses TBL as its main pedagogical method for the first 2 years of medical undergraduate learning.

In this study, we aimed to investigate 2 factors associated with seating arrangement:

1. The effects of seating distance from the tutor on class engagement in TBL.
2. If the direction students are facing affects class engagement in TBL.

The hypotheses are (1) sitting nearer to the tutor results in higher engagement and (2) sitting with their front-facing the tutor results in higher engagement.

Methods

Study design

Students were assigned to teams of 5–7. The classroom design includes a circular layout, six big screens around the periphery of the room and chairs with wheels around fixed tables. Tutors were situated in front. Engagement was assessed at two points: ‘Burning Questions’ and ‘Application Exercise’ phase. The intervention involved rearranging the students’ seating layout and collecting data before and after this swap (Fig 2).

Participants

One hundred and fifty-first-year and 138 second-year undergraduate medical students were recruited with 85 and 75 responses collected respectively.

Assessing Cognitive Engagement

TBL engagement was evaluated using two self-reporting instruments. Firstly, the Situational Cognitive Engagement Measure (SCEM) is a 5-point Likert scale 4-question survey that captures cognitive engagement of the ongoing activity at that instance.

Secondly, the Classroom Engagement Survey (CES) is a 5-point Likert scale 8-question survey retrospectively assesses overall engagement of the class.

Discussion (2)

Practical Implications

While students displayed a preference to sit nearer or face the tutor, they can overcome such physical inconveniences and feel similarly engaged at their less ideal spot.

1. Medical students generally have higher motivation levels, allowing them to adapt to different seating arrangements.
2. Tutors are relatively less involved in the learning experience, hence, distance from them plays a less significant role in learning.
3. Well-designed learning spaces allow students to fully utilise their environment and assists them in adapting to less preferred seating arrangements.

Limitations

1. All TBL sessions differ in characteristics such as topic, length, student fatigue and tutor variation.
2. TBL population consists of student populations other than medical students which this study is based upon.
3. No control group where students did not change seats.
4. Less survey responses after the swap which may affect reliability of study results.

Discussion

Overall, student engagement was not significantly affected by seating distance nor orientation with respect to the tutor.

Novice students displayed a stronger preference to sit nearer to the tutor compared to experienced students. This can be attributed to novice students being inexperienced with the TBL pedagogy, thus any significant change from prior experiences will influence how they pay attention in class. Increased exposure to TBL allows experienced students to acquire skills which compensate for any minor disturbances in their learning environment.

Both groups preferred to sit with their front-facing the tutor.