Testing the Effectiveness of Team-Based Learning (TBL) in Promoting Student’s Academic Functioning in a General Education Course: A Pilot Study in Hong Kong

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Keywords: Team-based learning, higher education, academic functioning, Chinese students

Abstract. General education (GE) in higher education plays a pivotal role in cultivating students’ whole person development. Given its important role, it is worthwhile for educators to make use of evidence-based approaches to facilitate and promote students’ educational outcomes through GE. Team-based Learning (TBL) is one of those approaches that has been widely tested in the disciplines of business, health care and sciences in Western cultures. However, the effectiveness of TBL has not been tested in GE courses in higher education. By using this innovative teaching approach, this study aimed to promote university students’ academic functioning. A quasi-experimental design was employed. Qualitative results supported the effectiveness of TBL in promoting students’ academic functioning in terms of quality of learning, critical thinking abilities, and professional development compared to those of students in the control class. Implications of TBL to other courses in higher education are discussed.

Introduction

Team-based learning (TBL) is an innovative pedagogy first implemented in business school by Dr. Larry Michaelsen in 1979, who experimented with given-and-take discussions about discipline-related problems in large classes (Sweet & Michaelsen, 2012). It is ‘an exemplary structure for a flipped classroom’ to enhance student positive learning outcomes (Jakobsen & Knetemann, 2017, p. 179). To date, TBL has been implemented into a wide range of disciplines such as business, health care and sciences in western context. The meta-analysis conducted by Liu and Beaujean (2017) based on 38 publications revealed that TBL exerted positive effect on student academic outcomes. However, the strongest generalizations of TBL were found among students in health education (Liu & Beaujean, 2017; see River, Currie, Crawford, Bethavas, & Randall, 2016 for a systematic review). Up to now, a limited number of studies have extended TBL to the field of psychology (e.g., Thomas & McPherson, 2011; Travis, Hudson, Henricks-Lepp, Street, & Weidenbenner, 2016). Based on existing literature, however, TBL has not yet been implemented and evaluated in the field of General Education (GE). Given the contributing role of GE in fostering students’ whole person development (e.g., academic and psychological functioning, lifelong learning capabilities), the research team took the initiative to extend TBL to GE through a GE breath course. A mixed method was adopted in this pilot study in Hong Kong. Given a small size of the targeted class, we focus more on using a qualitative approach to collect data to reveal the effectiveness of TBL. In this brief report, qualitative data were analyzed and elaborated in relation to the key research purpose of this study. The following paragraph briefly introduces essential phases in the TBL sequence.

TBL has a fixed sequence of learning elements: (1) Pre-class preparations. Before class begins, students expose to course content by reading assigned readings; (2) Readiness assurance process. Students take individual and team test, called iRAT and tRAT, over their understanding of...
pre-assigned readings. Test is followed by student written appeal and teacher mini-lectures; (3) Application exercise. The majority of class time is spent on engaging students in real-life, discipline-related practice: making decisions, evaluating cases and solving problems (see Figure 1).

![Figure 1. Team-based learning phases (adapted from Michaelsen & Sweet, 2011).](image)

The Present Study

Methods

The study was conducted in a tertiary educational institution in Hong Kong. All participants were year 2 and year 1 undergraduate students taking a three-credit bearing GE course entitled ‘Natural Hazards and Post-Disaster Recovery.’ Students who enrolled in semester two 2016/2017 (around 38 students) were treated with TBL pedagogical approach in four consecutive units. Qualitatively, ten participants in this experimental class were invited to participate in semi-structured interview. For qualitative data, initial codes were developed based on these themes identified through literature review on TBL. Moving forward, these themes were categorized into three major themes to indicate the effectiveness of TBL in promoting students’ quality of learning, capabilities of critical thinking and professional development (three important indicators of adaptive functioning) in this study.

Results

After iterative examination of raw data, three major themes were identified, namely course satisfaction, improvement in critical thinking, professional development.

**Team impact on quality of learning.** A major finding from analyzing the interview data was that team impact on student quality of learning was reflected by individual preparedness and peer instruction in TBL. Some representative reflections from interviewed students were listed below.

Teams held me accountable to pre-class preparations. If I did not preview before class meets, it is hard for me to engage in team discussions about assigned readings.

Our group members have different levels of studying, that is the source of progress. The high achievement students can support low achievement students or students with low learning motivations.

**Team impact on critical thinking.** When we asked students the questions ‘Can you figure out some skills you think you have already developed after TBL course?’ One of the most frequent answers was that they sensed that their critical thinking ability has been greatly improved. The reason was outlined as below:

My team members always posed different perspectives to the same problems. It inspired me to consider whether my answer is not the solely correct answer and if there are some other options.

**Team impact on professional development.** Students mentioned that TBL contributed a lot for their professional development. The reasons they gave were summarized as: (1) it cultivated their communication skills which were perceived being important for further career development; (2) it nurtured their independent studying skills as they had to read assigned readings before class meet. This skills was seen as lifelong skills by students. Representative comment was outlined as below:
Quiz usually aims to test concepts whereas application exercises in TBL require students’ reflections, creativity and critical thinking. The most impressive part is doing the role play [an application exercise in Unit 3]. In practice, we need to know how to comfort affected people in disasters. TBL guides us to learn and practice through role-playing.

Discussion

The aim of the present study was to test the effectiveness of TBL in promoting students’ academic functioning in a GE course. The qualitative data suggest that this innovative pedagogy hold tremendous potentials in promoting students’ academic functioning through nurturing their capabilities in critical thinking and professional development. These outcomes are also essential components of the intended learning outcomes GE (i.e., knowledge, application, judgements, expression and awareness).

It should be noted that although we also collected quantitative data in this study, the small sample size limits us to elaborate more about the relationships between the three factors that we used to define academic functioning in this study. As such, we focused on presenting the qualitative part of this study instead of presenting limited findings of the quantitative part to understand more about the relationships between the three aspects (quality of learning, capabilities in critical thinking and professional development) of adaptive academic functioning for pre-service teachers. In sum, this paper has described and evaluated evidence-based practices for implementing TBL as an innovative pedagogical approach in a GE course in Hong Kong. This qualitative study extends previous studies on TBL (see Liu & Beaujean, 2017, for an insightful review) to GE. Given the role of GE in cultivating students’ whole person development, also given the effectiveness of TBL in promoting students’ positive learning outcomes, further integration and implementation of TBL in GE and other courses to enhance student learning is worthwhile to test. This pilot study shed some light on the effectiveness of TBL in a GE course in Hong Kong.

References


