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Research

Impact of adapted team-based learning methods on student self-assessment of professionalism, teamwork, and skills in a self-care course

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Abstract

Objective: The purpose of this study is to assess the impact of the introduction of an adapted team-based learning (TBL) pedagogy on student professionalism, teamwork skills, and perception of learning as well as resultant course evaluations.

Design: Adapted TBL was implemented in a Patient Self-Care and Monitoring course. Following institutional review board (IRB) approval, third-year (P3) students enrolled in the course were administered a survey prior to introduction of TBL, and following the final exam. The Fall 2011 and Fall 2012 course evaluations were compared.

Results: A total of 109 (89%) and 116 (95%) students responded to the pre- and post-survey, respectively. Students responded that TBL significantly improved verbal communication and teamwork skills, his or her ability to convey ideas diplomatically. Students also felt more respected by team members than before TBL implementation. They were less likely to attend class following implementation of TBL compared to previous didactic lectures and did not feel that they learned more from TBL than from studying alone. Course evaluations were negatively impacted in some areas. Additional comments indicate that students and faculty found an increase in preparatory time for class meetings.

Conclusion: Team-based learning improves student perception of some, but not all, areas of communication, teamwork, and professionalism.

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Introduction

Team-based learning (TBL) was developed as an educational model at the University of Oklahoma in the 1970s by Larry Michealsen, a professor of business.¹ The design of TBL was created in response to growing class sizes with a

desire to still facilitate class discussion, engagement, and application of knowledge rather than relying on didactic lectures. In health care education, the first documented use of TBL occurred at Baylor Medical College through an award by the United States (US) Department of Education Fund.¹ Since then, faculty at over 50 health profession schools across the country have integrated TBL at some level within their curriculum with varying degrees of success,^{2–10} but there is still limited literature published on TBL both within health care education and pharmacy education specifically that addresses TBL effectiveness.^{8,11–13} A survey published

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recently by Allen et al.¹⁴ that studied the use of TBL in US Colleges and Schools of Pharmacy also examined commonly used measures to assess TBL effectiveness. The authors noted that course evaluations by students were the main measure used to assess TBL effectiveness (66%), while only a limited number of respondents addressed competencies such as professionalism surveys of students (4%), teamwork surveys (4%), and assessment of problem-solving skills (4%). Currently, there are only two published studies that examine these areas: a survey on teamwork perceptions by Gallegos and Peeters,¹⁶ and one by Persky,¹⁵ that measures professionalism and attitudes of team learning following implementation of TBL within a school of pharmacy pharmacokinetics course.

In the article by Persky,¹⁵ the authors utilized a survey administered pre- and post-course to examine student perception of professionalism and attitudes of team learning developed by Chisholm et al. The authors report that overall professionalism scores as a whole were improved. Specifically, students were more likely to contact appropriate individuals in a timely manner if they knew they were going to be late on an assignment, more likely to accept constructive criticism and more likely to accept a job where they felt they could make a difference even if it had lower pay. Students found teamwork to be beneficial to their education and felt that teams worked well together, that team members respected them, that peer evaluations motivated them to work harder and more collaboratively, and that teams made good decisions. Compared to all other coursework, students reported that TBL led to an improvement in their verbal and written communication skills, their ability to tackle unfamiliar problems, their ability to work with patients from diverse backgrounds, and their ability to work as a team member.¹⁵ These are all components of skills that have been listed as the top five characteristics desirable to future employers, according to a 2011 survey by the National Association of Colleges and Employers.¹⁷

Team-based learning is a model of education that utilizes both independent and team learning.^{18,19} Core concepts of TBL include independent review of material, quizzes at both the individual and team level to assess readiness and comprehension, and an application exercise to help students better integrate information. The individual tests are referred to as the Individual Readiness Assessment Test (iRAT), whereas the team test is called the Team Readiness Assessment Test (tRAT). Traditional methods of TBL require that the administered test is identical at both the individual and team level; however, some users of TBL modify concepts and administer no quiz.¹⁴ The study by Allen et al.¹⁴ found that very few institutions utilized every component of the standardized TBL method, with the higher end of utilization represented by 19% of respondents that used seven of the 12 TBL components. Most schools of pharmacy (84%) reported using at least the individual and team readiness assessment tests (iRAT and tRAT).

At Samford University School of Pharmacy, students participate in a two-semester course called Patient Self-Care and Monitoring that is team-taught. The course encompasses over-the-counter medications and patient self-care. Historically in the Self-Care course, students received material primarily through didactic lecture, sometimes with accompanying laboratory application exercises. While students have expressed satisfaction with the course, opportunities for independent learning and application of knowledge were limited. The faculty for the course identified TBL as an opportunity for the students to more actively engage in the material and to encourage independent critical thinking. In Summer 2012, faculty agreed to make the transition to using adapted TBL within the self-care course, starting in the Fall 2012 school year. Faculty teaching in the course received generalized training on TBL methods from the course coordinator, as well as individual feedback on their application exercises throughout the semester.

For the course, students were asked to prepare for each class session independently through assigned readings. Students were then individually tested using the iRAT. After successful completion of the iRAT prior to class, students attended a class session where they received the tRAT, which for this course's purposes contained higher-level questions that they worked on as a group before coming to an answer. Normally in TBL, the iRAT and tRAT questions are the same. However, for our purposes, we deemed it more appropriate to test on the knowledge level with the iRAT, and then to assess comprehension with the tRAT. Depending on the instructor, a mini-lecture that reviewed over material studied independently was given either prior to or after the tRAT. This mini-lecture was used to reinforce important concepts and to provide clinical pearls from the instructors experience and usually was no more than ten minutes in length. Following the tRAT and mini-lecture, students completed an application exercise. Application exercises could involve patient cases, patient counseling activities, role-playing activities, or other activities identified by the instructor that could help the students best apply the information to patient care. Exercises were designed to promote professionalism and teamwork by increasing collaboration on a team assignment and utilized inclusion of diverse patient scenarios to challenge the group to communicate effectively and work together to provide optimal patient care. For a visual representation of a 2-hour long course design (see the [Figure](#)).

Rationale and objectives

The purpose of this study is to assess the impact of the introduction of adapted team-based learning pedagogy on student professionalism, teamwork skills, and self-assessment. Similar to the study by Persky, professionalism, teamwork skills and perception of learning were evaluated using the Chisholm survey instrument before and after implementation. While the impact of TBL has been

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