Research

Team-based learning in pharmacy: The faculty experience

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Abstract

Aim: To assess faculty perceptions and experiences when implementing team-based learning (TBL) across a pharmacy curriculum.
Study design: A total of 19 faculty members participated in a series of individual semi-structured interviews that allowed freedom of discussion within a structured framework of inquiry. Data were transcribed, coded using NVivo, and analyzed to establish common themes. Participant quotations were chosen to reinforce the themes and give a voice to the participants.
Findings and discussion: The benefits of TBL were perceived to be enhanced student engagement, peer learning, increased faculty enjoyment of teaching, and student development of transferable skills. Challenges included increased initial workload, writing effective application exercises, and facilitating learner-centered classes. TBL may be useful in optimizing course content to ensure outcomes and activities focus on important concepts. Peer learning appears to benefit student learning. TBL may help equip students with valuable transferable skills. TBL requires an initial upfront investment in faculty development and time to prepare resources. A student-centered approach to learning may be daunting for faculty and require new skill sets.
Conclusions: Faculty described their support for TBL concluding that the pedagogical benefits of engaging students in active learning, the development of transferable skills for the workplace, and the personal satisfaction felt after a TBL class, outweigh the initial challenges of transitioning to TBL.
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Introduction

Team-based learning (TBL) is an instructional strategy developed by Michaelsen[1] that is being increasingly used in the delivery of Doctor of Pharmacy curricula in the United States.[2,3] The literature on this use of TBL in pharmacy curricula indicates that it is well-received by both students and faculty members.[4–6] TBL enhances class preparation as well as participation and may lead to higher levels of learning outcome achievement.[4–7] The role of the faculty

member in TBL is different from that of traditional lecture-based learning.[8] At the beginning of a TBL course, the faculty member will facilitate the formation of teams of five to seven students using a process that aims to evenly distribute specific student assets (backgrounds or skills perceived by the faculty as helpful to success with the course material), limit liabilities, and break up any pre-existing sub-groups, thus ensuring diversity across teams. TBL requires that students prepare for class by studying essential course content guided by learning objectives. Students take a readiness assurance test (RAT) at the beginning of the first class of a unit to motivate them to study the pre-class learning resources. They first do this individually and then take the same test again with their

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team. The remainder of class time in the TBL unit is devoted to application exercises followed by teams engaging in discussions to justify their answers, as well as class discussion facilitated by the faculty member.

Given that the TBL process differs significantly from traditional instructional methods (e.g., lecture-based learning), it is likely that faculty experiences with TBL will also differ. Reports on the effects of TBL on faculty workload and resources have mixed conclusions. TBL experts acknowledge that considerable faculty time and resources must be allocated for successful implementation of TBL.[9] The transition from lecture-based learning to TBL in the Pharmacotherapeutics courses at Drake University was reported as being difficult for faculty initially, which led to additional meetings among TBL faculty.[6] With time, however, several faculty came to enjoy and appreciate TBL due to improved student preparation prior to class, development of student lifelong learning skills, and development of teamwork skills. Implementation of TBL into an ambulatory care elective at the University of Tennessee resulted in minimal changes in faculty workload.[10] A pilot study at the St. Louis College of Pharmacy reported an increase in student participation along with an increase in faculty workload.[11] An article describing best practices for implementing TBL in pharmacy curricula suggested that faculty may experience unique challenges related to application exercise planning and execution.[12]

A study that examined the implementation of TBL in ten medical schools across the United States concluded that a key reason for the rapid expansion of TBL in medical education was its favorable effects on instructors.[13] Positive effects identified included the perception that students understand the larger context of the material they are learning, the increased engagement of faculty in facilitating learning, the potential of TBL for integrating materials across disciplines, and the students' transition from passive to active learners. When using TBL for teaching medical residents, TBL was reported to be an efficient model for training large groups; however, it was labor intensive for faculty when planning and developing TBL exercises.[14] A study of factors influencing TBL use in medical schools found that faculty expertise and adequate time and resources for implementation of TBL were factors that health science faculty viewed as important to the successful implementation of TBL.[15] Similar success factors were reported when implementing TBL in a pediatric clerkship.[16]

Nursing faculty reported satisfaction with and preference for TBL compared with former teaching methodologies; however, workload increased when switching from lecture-based learning to TBL.[17] Conversely, faculty in a nurse practitioner program estimated the effort required to develop the TBL curriculum did not differ significantly from that of a new lecture-based curriculum.[18] The literature on TBL in pharmacy is mostly limited to quantitative studies that measured the impact of TBL on student learning outcomes and student perceptions using end of course surveys.

Literature related to faculty experiences using qualitative methodology is lacking, particularly in a curriculum delivered mostly by TBL. Other authors have identified the need for further research on the faculty experiences of TBL.[11]

The pharmacy curriculum at Regis University commenced in 2009 and is a highly integrated program.[4,19] The curriculum has been delivered predominantly by TBL since its inception (approximately 80% of the on-campus curriculum). The majority of TBL units are developed by teams of two to three faculty formed from the pharmaceutical sciences and pharmacy practice departments and taught by these faculty teams to year groups of approximately 75 students. This environment is the context for the findings presented here and undoubtedly has an effect on them. For example, faculty perceptions of the workload of TBL may be influenced by workload perceptions of a highly integrated curriculum and the logistics of team teaching; however, it does offer a unique opportunity to study the faculty experience. An extensive TBL faculty development program was provided, initially by bringing in TBL experts from across the country, and later by developing an in-house program.

The aim of the study is to assess faculty perceptions and experiences of implementing TBL across a pharmacy curriculum (Table 1).

Study design

A literature review was completed initially to inform the study design. Qualitative research methods were chosen as they can provide a deeper understanding of faculty perceptions, gathering data by talking directly with smaller numbers of people, sacrificing some scope for depth.[20,21] Semi-structured interviews were selected since they provide structure to the discussion while allowing freedom to adapt questioning to explore further understanding of each interviewees' perspective.[22–25] An interview guide[26] covering six key areas of inquiry as outlined in Table 2 was prepared.

Table 1
Faculty demographics (at time of study)

Discipline	
Pharmacy practice	68%
Pharmaceutical sciences	32%
Number of years teaching	
0–5 years	76%
6–10 years	16%
11–15 year	8%
Experience using other methods prior to TBL	
Yes	60%
No	40%
Number of years using TBL	
Mean	2.68
Median	2