



Implementation of a team-based learning course: Work required and perceptions of the teaching team



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ABSTRACT

Background: Team-based learning was selected as a strategy to help engage pre-registration undergraduate nursing students in a second-year evidence-informed decision making course.

Objectives: To detail the preparatory work required to deliver a team-based learning course; and to explore the perceptions of the teaching team of their first experience using team-based learning.

Design: Descriptive evaluation.

Methods: Information was extracted from a checklist and process document developed by the course leader to document the work required prior to and during implementation. Members of the teaching team were interviewed by a research assistant at the end of the course using a structured interview schedule to explore perceptions of first time implementation.

Results: There were nine months between the time the decision was made to use team-based learning and the first day of the course. Approximately 60 days were needed to reconfigure the course for team-based learning delivery, develop the knowledge and expertise of the teaching team, and develop and review the resources required for the students and the teaching team. This reduced to around 12 days for the subsequent delivery. Interview data indicated that the teaching team were positive about team-based learning, felt prepared for the course delivery and did not identify any major problems during this first implementation.

Conclusions: Implementation of team-based learning required time and effort to prepare the course materials and the teaching team. The teaching team felt well prepared, were positive about using team-based learning and did not identify any major difficulties.

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1. Introduction

To ensure the design of effective health care curricula that prepare undergraduate students for the demands of professional practice, attention needs to be given to the development of critical thinking and reasoning, high level communication, and effective team working. Within nursing curricula, subjects that are research based such as evidence-informed decision making (EIDM) are sometimes not perceived as relevant to nursing by students (Aglen, 2016) and, therefore, it is essential to use teaching and learning strategies that will engage students. One such strategy is team-based learning (TBL) which was developed to help ensure the benefits of small group teaching with large groups (200+) of students. The theoretical basis of TBL is constructivism in which knowledge is viewed as a process structured by personal experiences and social interaction (Hrynchak and Batty, 2012). Chambers et al. emphasised the importance of constructivist pedagogies in enabling students to be more actively engaged in their learning, and the need to move away from teacher-centred approaches (Chambers et al., 2013).

TBL courses are divided into 'learning units' and a specific sequence of activities is followed for each 'unit': (i) out-of-class preparation with clear objectives for the students to work independently, (ii) in-class 'readiness assurance process' that consists of individual and team multiple choice question (MCQ) tests with immediate feedback to check on knowledge gained, and (iii) in-class 'application activities' in which teams work together on problems based on the subject concepts to demonstrate knowledge application (Michaelsen and Sweet, 2008). Teams of five to seven students are formed by course leaders diversified as appropriate for the course (e.g. by age, academic achievement), and which are permanent throughout a course. At the end of a TBL course, team members are required to provide feedback on each member's team performance. The emphasis of the teaching team is on facilitation and the use of probing techniques such as dialectical questioning to develop students' knowledge and understanding rather than didactic approaches (Lane, 2008).

Evaluation research has provided insight into the effectiveness of TBL as a teaching and learning strategy. Studies of medical students have demonstrated higher levels of student engagement in TBL courses compared with non-TBL methods (Hunt et al., 2003; Nieder et al., 2005; Zgheib et al., 2011). Higher exam results have been shown with TBL courses (Levine et al., 2004); and students in the lowest academic

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quartile have performed better with TBL courses than others (Chung et al., 2009; Koles et al., 2005).

The pedagogical benefits of TBL have been reported in which first year medical students indicated that the TBL activity sequence helped them structure their time, was an effective use of study time and that TBL fostered critical thinking and problem solving more than other teaching strategies they had experienced (Deardorff et al., 2010). Improvements in critical thinking were also evidenced in a study of nursing students using TBL in a second year pathophysiology course (Middleton-Green and Ashelford, 2013). Improved team working was reported in a pre-post study of second year nursing students (Park et al., 2015) adding to the evidence around the lifelong learning skills facilitated by TBL and of particular relevance to health care students where effective team working is essential to achieve high quality care.

Although the evaluation research is largely descriptive, the findings are consistent in demonstrating the effect of TBL on the development of general graduate skills such as critical thinking, professionally relevant skills such as effective team working; as well as pedagogically in preserving the benefits of small group teaching with large groups of students. In no case has there been significant negative experience of using TBL. Guidance is available about how to design and implement a TBL course (Gullo et al., 2015; Parmelee et al., 2012), but comparatively little is available about the overall time and effort required.

The aim of this study is to add to the literature on the implementation of TBL by detailing the work required to prepare a course for delivery using TBL, to explore the perceptions of the teaching team and students, as well as document student results following this first implementation. The course was EIDM delivered to second year, pre-registration nursing undergraduate students in a University in the south west of England. The data relevant to the preparatory work and the perceptions of the teaching team are presented in this paper.

2. Design and Methods

2.1. Design

A descriptive evaluation was undertaken that involved collecting process data prior to and during the course, and interviews with the teaching team following the end of the course.

2.2. Sample

Eight members of the teaching team of nine (excluding the course leader) who had been part of the total development and implementation process were invited to participate by the research assistant employed for the study. One member of the team had only been able to take part for one of the five facilitated course days and so was not included in the study. All agreed to participate and signed a written consent form. Five were female and three were male, had been teaching in higher education for over 10 years and were experienced in teaching research-related courses to pre-registration nursing students. Seven were registered nurses, four of whom had post-doctoral research experience; and one was a psychologist with post-doctoral research experience.

2.3. Data Collection and Analysis

Two sources were used: data collated by the course leader about the work required to prepare the course for delivery using TBL, and interview data from the teaching team.

(i) Work Required Prior to and During Implementation

The course leader developed a checklist of the key tasks and a process document to detail the time and stages of work required prior to and during implementation. This information was shared with a sub-group of the teaching team who helped the course leader with

the development and review of the resources and test materials. This documentary information was summarised by the course leader to highlight the work required and the associated timeframe and verified by three members of the teaching team.

(ii) Teaching Team Interviews

A research assistant undertook individual, structured interviews with the teaching team. Interviews took place on the University campus approximately one month following the end of the course, were audiotaped and lasted about 1 h. The course leader developed 17 questions on the basis of the evaluation literature and communication with TBL experts. The questions were reviewed for clarity and comprehensiveness of the TBL process by a member of the professorial team not involved with the delivery of the module, and by the member of the teaching team who was not interviewed. The questions focused on initial thoughts and preparation in advance of the course starting (three questions), facilitation (two questions), what worked and what didn't work well (four questions), contribution to the EIDM course (two questions), and general perceptions about TBL (six questions). An open ended question was included at the end of the interview to give participants an opportunity to add anything not covered by the questions asked. The interview data were first summarised by the research assistant to group quotes from each participant for each of the 17 questions. Similarities and differences between the data were then explored to ensure representation of all views. Finally the data were grouped where the questions addressed similar themes. Verbatim quotes were used to add value to the analysis ensuring all viewpoints were represented.

2.4. Ethics

Ethical committee approval was obtained from the University Faculty Ethics Committee.

3. Results

3.1. Work Required Prior to and During Implementation

Nine months were available between the teaching team making the decision to use TBL, and the first day of the course. Development activities and meetings were scheduled during this period to ensure that all work was completed at least one month in advance of the first day of the course. The work was undertaken mainly by the course leader whenever time permitted amongst other teaching-related responsibilities. Analysis of the documentation showed that the work involved two main elements: development of the knowledge and expertise of the teaching team, and development of the resources for the students. This is shown in Table 1 from which it can be seen that these activities accounted for approximately two-thirds of the total time involved. It should also be noted from the information presented in Table 1 that the time and effort was reduced by about 80% for the subsequent delivery.

- (i) Team Preparation: The course leader first experienced TBL at a conference, and this experience was further developed following attendance at TBL workshops at the TBL Collaborative conference in the United States, and in England; as well as reading key TBL texts and the TBL evaluation literature. The TBL Collaborative listserv was used to ensure contact with experts during the development process. Lessons learned were cascaded out to the teaching team as were relevant articles and texts which resulted in a degree of confidence as to how the TBL sequence of activities worked.
- (ii) Course Development: A teaching team of 10 lecturers supported by two librarians was identified all of whom had previous experience of teaching EIDM and were supportive of the change to TBL. From this team, four formed a sub-group throughout the

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