

PREPARING NURSING STUDENTS TO BE COMPETENT FOR FUTURE PROFESSIONAL PRACTICE: APPLYING THE TEAM-BASED LEARNING–TEACHING STRATEGY

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Team-based learning (TBL) has been used for many years in business and science, but little research has focused on its application in nursing education. This quasi-experimental study was to apply the TBL in four nursing courses at a university in Taiwan and to evaluate its effect on students' learning outcomes and behaviors. Adult health nursing, maternal–child nursing, community health nursing, and medical–surgical nursing were the 4 designated courses for this study. Three hundred ninety-nine students in 2-year registered nurse–bachelor of science in nursing, and regular 4-year nursing programs enrolled in the designated courses were contacted. Three hundred eighty-seven students agreed to participate in the data collection. Results showed that the TBL significantly improved the learning behaviors of students in both programs, including class engagement ($p < .001$) and self-directed learning ($p < .001$). The group readiness assurance test score was significantly higher than the mean individual readiness assurance test (IRAT) score. The final examination score was significantly higher than the IRAT score, which means that TBL is effective in improving students' academic performance. The study revealed that TBL generally improves students' learning behaviors and academic performance. These learning behaviors are important and beneficial for the students' future professional development. The TBL method can be considered for broader application in nursing education. (Index words: Team-based learning; Self-directed learning; Class engagement; Collaborative learning) J Prof Nurs 30:347–356, 2014. © 2014 Elsevier Inc. All rights reserved.

HEALTH-RELATED PROFESSIONALS in academic and clinical settings expect health-related graduates to be professionally competent by the time they graduate to face the complex, fast-changing health-care environment (Sisk, 2011). Govaerts (2008) defined competence

as “individuals' ability to make deliberate choices from a repertoire of behaviors for handling situations and tasks in specific contexts of professional practice.” He asserted, “Competencies are context-dependent and always imply integration of knowledge, skills, judgment, and attitudes” (p. 42). Therefore, learning through situations and active learning are important for health professional students because active participation and engagement in class activities direct students to reflect on their understanding and incorporate new information into their personal conceptual framework, all of which promote the skills needed for lifelong learning (Ernst & Colthorpe, 2008). This belief is supported by a growing body of evidence that indicates that active learning strategies yield desirable learning outcomes, which are what learners are expected to know, understand, and be able to do after

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a completion of a process of learning. They involve an acquisition of behavioral (skills or abilities), attitudinal, and/or cognitive (knowledge acquisition) outcomes (Christophel, 1990; Council for Higher Education Accreditation, 2003).

To achieve desirable learning outcomes, it is recommended to apply teaching strategies that can promote students' learning behaviors such as teamwork, engagement in classes, cognitive thinking, and verbal and nonverbal learning behaviors. These learning behaviors can stimulate learners to immediately apply content and concepts and enhance learners' assimilation and retention of knowledge (Kelly et al., 2005; Rao & DeCarlo, 2001; Trevena & Clarke, 2002). Examples of such teaching strategies are problem-based learning and team-based learning (TBL; Beers, 2005; Michaelsen & Richards, 2005). Problem-based learning is characterized as "an instructional learner-centered approach that empowers learners to conduct research, integrate theory and practice, and apply knowledge and skills to develop a viable solution to a defined problem" (Savery, 2006, p. 12), whereas TBL is defined as an instructional strategy that is based on procedures for developing high performance-learning teams to learn and apply course concepts to solve problems (Michaelsen & Sweet, 2008). These two teaching strategies have features in common: they both involve in-class, small-group collaboration in working on challenging and decision-based assignments (Kelly et al., 2005).

However, the problem-based learning requires that schools invest in many well-trained facilities with low student-to-faculty ratios (e.g., 7:1) to promote small-group learning. Despite the benefits conferred by this pedagogic approach, it faces challenges through faculty personnel shortages and high cost of education (Searle et al., 2003). To address this deficiency with problem-based learning, educators proposed TBL as an alternative strategy for developing students' active learning. The advantages of TBL include its being a theoretically based, empirically grounded strategy that requires less faculty time and permits higher student-to-faculty ratios (e.g., up to 200:1) than is the case with most of the small-group methods currently practiced (Searle et al., 2003). Moreover, TBL is more acceptable among teachers because it is still a teacher-directed method, and it can accommodate multiple teaching styles. It allows the teacher to be an expert in the class as in traditional didactic lecturing and also to be a facilitator of discussion, as in small-group-style teaching. In addition, TBL emphasizes the cultivation of out-class automatic and independent learning behaviors and in-class engagement with a team, which will benefit the students' lifelong learning in health-care profession (Searle et al., 2003).

Despite its advantages, TBL is relatively new to health-care education, especially nursing education, although it has been used for many years in business and science (Clark, Nguyen, Bray, & Levine, 2008). Compared with TBL, problem-based learning is well known among

health-related educators. It has to involve one faculty-level instructor for each small group in the course, which decreases the potential benefits of problem-based learning. Therefore, more and more health-related educators in the United States have come to believe that traditional lectures cannot produce the competencies required of health professionals and they have switched their pedagogic strategy to TBL (Clark et al., 2008; Kelly et al., 2005).

Research Purpose

Little research has focused on the application of TBL in nursing education, especially not in Taiwan. Therefore, the purpose of this study was to introduce and apply TBL as a teaching strategy in four nursing courses at a university in Taiwan and evaluate its effects on students' learning outcomes and behaviors. Based on the spirit of TBL, the major learning outcomes and behaviors measured in this study included classroom engagement, value of teams, self-directed learning, nursing core competencies, and students' academic performance. The research questions were as follows: (a) What are the effects of TBL as a teaching strategy on students' classroom engagement, value of teams, self-directed learning ability, and perceived nursing core competencies? (b) What is the effect of TBL on students' academic performance? (c) What are the effects of TBL on classroom engagement, value of teams, self-directed learning ability, and perceived nursing core competencies according to different demographic variables (e.g., type of program, expectations regarding the final education degree, current academic achievement, motivation to practice as a clinical nurse after graduation)?

Background

Description of TBL

TBL is an instructional strategy that was developed by Michaelsen and has been popularly used in business schools since the late 1970s, and lately, it has been used in science education (Hunt, Haidet, Coverdale, & Richards, 2003). According to Michaelsen (2002), TBL strategy emphasizes students' abilities in out-class self-directed learning, in-class collaboration learning in small groups, and being able to debate areas of disagreement with faculty members by means of evidence-based arguments. The strategy comprises three phases. In Phase 1, students are assigned to groups of five to seven teammates by course faculty in a fair and equal way. Students are assigned with papers, which they are expected to have finished reading before the class begins. In Phase 2, when students come to class, they are tested on the material they have read using multiple-choice type questions—the individual readiness assurance test—with scenarios that test their ability to apply Phase 1 knowledge. After finishing the individual readiness assurance test, the team of five to seven learners then retakes the same test although in a group format—the group readiness assurance test—and they rely on group consensus to produce answers ready for immediate

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