The Effect of Real-World Research on Students' Learning: Team-based and Project-based Learning

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Abstract:
The paper presents the results of a study assessing students' learning of the EPAS competencies taught in a BSW research class. The professor engaged students in conducting a mixed-methods research study, with students conducting interviews and surveys. Team-based learning was employed. Students' knowledge and attitudes were found to be positive.

Question
SOTL practices encourage teachers to turn a lens to our classrooms, using theories and methods from the literature to solve classroom problems. One common problem is the lack of student engagement in certain required courses, such as research. An intriguing method for developing a more interactive classroom is Team-Based Learning (TBL). Engaging undergraduates in conducting research is an increasing trend in higher education. Could the combination of the two help create more interest and learning in an undergraduate research class? The research paper examines one way SOTL inquiry transformed teaching practices, and the impact the transformation had on students' learning.

Rationale
TBL is an active learning pedagogical method which includes a specified classroom structure and experiential component. TBL supports content coverage through a team approach, frequent testing on class readings, group and class discussion, and application of knowledge (Michaelsen and Sweet, 2008). Research on TBL found students are more accountable and learn valuable team-work skills with TBL than in a traditional classroom (Michaelsen and Sweet, 2008). When used in medical school, students in the TBL classrooms significantly outperform others on exams. In addition, lower-performing students were found to benefit most (Koles, et al., 2010).

Methods
Students in an undergraduate research class were taught using TBL. Students were divided into teams responsible for completion of small research projects, while the entire class conducted interviews on the same topic. Students took unit tests based on assigned readings, discussed the readings and the test both with their team and the class at large, and applied their research knowledge in scaffolded assignments that built towards the final product. The team approach allowed for close mentoring and feedback as each task was completed. They presented their findings through a poster session and a paper.

Student learning and attitudes were evaluated using multiple measures including testing, student reflection papers, and final papers. Quantitatively, the effectiveness of the TBL method was measured on tests and papers. Qualitatively, measures included reflection papers and course evaluations.

Outcomes
This instructional method was found to provide evidence of attained knowledge and feelings of engagement. Students' scores on knowledge tests averaged 90% or better. Student reflections were strongly positive as to their perceptions of their learning and interest in the course. In addition, this method was found to improve the classroom environment. Students arrived prepared for class, the energy was high, and students were engaged. One aspect students particularly appreciated was that the research project they conducted had been approved by the institution's IRB, so it was "real" research and could be

published. A typical comment found in evaluations follows: “I think the team tests were extremely beneficial because not only does it make you retain information from the readings, it challenges you and makes you discuss.”

Reflective Critique

Since research is an important aspect of many undergraduate programs, it is crucial to find ways for students to learn and appreciate it. The growing body of literature on TBL and on engaging undergraduates in research projects provided ideas for aiding a lack of engagement in a required class. This case study of one course cannot be generalized, but may add to the body of literature in SOTL.

Koles, Paul G., Stolfi, Adrienne, Borges, Nicole J., Nelson, Stuart, Parmelee, Dean X. (2010). The impact of team-based learning on medical students' academic performance. Academic Medicine, 85(11), 1739-1745.

Michaelsen, L.K. & Sweet, M. (2008). The essential elements of team-based learning. New Directions in Teaching and Learning, 116, 7-27.