



Short Communication

Pharmacy students' perception of learning and satisfaction with various active learning exercises

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Abstract

Objective: To evaluate pharmacy students' perceptions of learning and satisfaction related to eight active learning exercises.

Methods: Eight active learning exercises were implemented in class recitation sessions. Students completed anonymous surveys in an introductory session to identify interests, goals, strengths, and weaknesses, as well as at the course's end to assess perceptions of learning and satisfaction with each active learning exercise.

Results: All students ($n = 76$) responded to both surveys. Students consistently ranked exercises, in which they created, answered, rated, and commented on multiple-choice questions (PeerWise) or answered factual questions in a Jeopardy™-like format highest both for accomplishment of their learning goals and for satisfaction or enjoyment. Comments supported data from the rankings.

Conclusions: Students, overall, enjoyed the variety of active learning exercises. Active learning exercises such as PeerWise™ and Jeopardy™ appeared to be particularly effective in fostering student learning, satisfaction, and interest in further engagement.

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Introduction

The Accreditation Council for Pharmacy Education (ACPE) recommends that curricula emphasize active learning pedagogy, skill development, and the application of knowledge and skills to therapeutic decision-making.¹ Active learning techniques have been encouraged and embraced in pharmacy education to engage students in their learning processes.^{2–13}

However, fostering active learning exercises in a relatively large classroom setting poses several challenges to

pharmacy educators. Active learning exercises need to be carefully structured to capture students' interest and engage them sufficiently to promote acquisition as well as application of knowledge to problems and issues likely to be encountered in the profession. Exercises must be presented in a meaningful context to empower students to perform as health care professionals and enhance their interest in a learning environment.^{12,13} Therefore, understanding student perceptions of learning and satisfaction is integral to selection and implementation of exercises that promote student engagement and performance.

The University of North Texas System College of Pharmacy implemented a 12-week recitation course with the purpose of integrating pharmacotherapy concepts into active learning application exercises. This pilot study evaluates pharmacy students' perceptions of learning and satisfaction with eight active learning exercises.

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Methods

Participants included 76 second-year pharmacy students enrolled in PHAR 7136 in the fall 2014 semester. Students met once a week for two hours for a total of 12 sessions. Each of the seven faculty members facilitated at least one recitation session related to the topic or disease state he/she covered in the didactic portion of the pharmacotherapy module.

Class design

Students were assigned reading and provided with learning objectives at least one week prior to the active learning sessions. The pre-class reading assignments often included literature articles, textbook sections, and/or instructor-prepared handouts. The learning objectives were clear and concise objectives written by the lead instructor to prepare students for the recitation session. The learning objectives and reading assignments aligned or were the same as the learning objectives and reading assignments of the respective didactic lecture.

At the start of each class, students completed a five question individual readiness assessment test (iRAT) to assess their preparation for class. iRATs were collected and then the same test was distributed to the teams and each team was given time to discuss and select the best answers for the group readiness assessment test (gRAT). After completion, gRATs were collected and the instructor transitioned into a discussion of the assessment tests. The two readiness assessment tests and discussion took approximately 30 minutes to complete. Both iRATs and gRATs were given on scantron and graded.

Students then worked in an assigned team on an active learning exercise related to a certain topic or disease state for the remainder of the class. Each of 11 teams consisting of six to seven students worked together in all sessions. Table describes each active learning exercise, the topic(s) covered, and hours dedicated to each topic in didactic lectures. The educational games were based on available evidence on active learning strategies.¹⁴ Each active learning exercise took place either immediately or at least a day after completion of the didactic lecture on the respective topic. Each type of exercise was used in only one class session with the exception of case-based exercises, which were used in four class sessions. Each active learning exercise took approximately 90 minutes to complete. All active learning exercises were completed in class. No outside classroom activities were assigned to the students with the exception of preparatory learning objectives and reading assignments. Educational games, teach-back method, counseling, and PeerWise were graded based on completion and participation. Case-based exercises and clinical protocol were graded on appropriateness and/or correctness. Faculty spent five hours on average preparing for the readiness assessment tests, discussion, and active

learning exercise. Students completed pre- and post-assessment surveys at the initial session and final session of the course, respectively.

Pre-assessment

Students completed a pencil-and-paper, free-form survey in the first class session. The survey identified students' short-term and long-term career goals, semester goals, specific interests in the pharmacy field, and areas of weakness and strength. The course director and faculty then created and adapted active learning exercises based on self-reported student interests and goals. To encourage survey completion, students were given bonus points that comprised <1% of the total course points.

Post-assessment

A post-assessment survey consisted of open- and close-ended questions on students' perception of the active learning exercises and solicited suggestions for future classes. The post-assessment survey was administered via an e-mailed internet link (Qualtrics™, Provo, UT, version 5/2015). The following three variables were constructed from the post-assessment survey items: student learning, student satisfaction, and interest in continuing participation.

Student learning

Three survey questions assessed student learning by asking students to assign each exercise scores on a scale of 1–100 based on their perceived (a) level of competence, (b) extent of increased understanding, and (c) effort expended with each exercise.

Student satisfaction

Three survey questions assessed student satisfaction by asking students to assign each exercise a score on a scale of 1–100 based on (a) level of enjoyment experienced and (b) level of contribution to their semester goals. For the third question, students rated each exercise on the extent to which they felt very tense (rating = 1) up to very relaxed (rating = 5).

Interest in continuing participation

On one item, students also ranked each exercise based on the likelihood that they would participate in the exercise in future courses, which provided an overall perception of learning and satisfaction for each active learning exercise. Students were asked to comment on exercises they preferred to see continued or discontinued in future courses and to offer any suggestions to improve the exercises.

After student learning and student satisfaction sub-scores were calculated, all eight activities were ranked on each variable. In other words, each activity received a ranking of one to eight on learning and another ranking of one to eight on satisfaction.

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