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Research

Impact of elimination of learner-centered assignments on students' performance in and evaluation of a drug information and literature evaluation course ☆

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Abstract

Objectives: In Fall 2012, select assignments, designed to enhance learning, were eliminated in a "Drug Information and Literature Evaluation" course. The purpose of this study was to determine the effect of eliminated out-of-class assignments on academic performance and course evaluations.
Methods: Third-year students enrolled during 2011–2012 were included. Student demographics, course evaluations, and grades were compared.
Results: A total of 273 dual campus students enrolled in 2011 and 2012 were included. There were no differences between classes based on demographics or grade point average. The 2012 students (with decreased assignments) had lower final exam scores ($p = 0.0171$) and course grades ($p < 0.0001$) than the 2011 students. For Memphis, course evaluations were lower in 2012 ($p < 0.0001$), including lower ratings for achievement of course objectives ($p < 0.0001$) and course elements ($p = 0.0041$). There were no differences in academic performance by campus or course evaluations for Knoxville.
Conclusion: Decreasing out-of-class assignments, which allow students to practice learning independently, may have a negative impact on students' academic performance and overall course satisfaction.
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Keywords: Assignments; Academic performance; Pharmacy education; Course evaluations

Introduction

There has been a wealth of literature published that indicate traditional teaching methods often fail to produce the desired learning outcomes.[1,2] In many areas of higher education, including health professions, there has been a shift from an instruction-centered method to a learning-centered method of teaching.[3,4] Traditional instruction-centered methods focus on teaching, imparting skills, facts, and lessons to students with the hope that the student will retain what is relayed to them. In contrast, learning-centered methods focus on the students' needs, interests,

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and abilities to allow learning to occur. This shift in teaching methods allows students to take a more active role in the learning process and increases individual student responsibility.[2,5]

Harpe and Phipps[2] evaluated student pharmacists' perceptions of a course change in which a learning-centered teaching approach was implemented. With the new course strategy consisting of optional assignments and self-reflection, students had decreased stress, more opportunities to demonstrate learning, more control of their learning environment, and an overall positive experience.[2] A later study compared a learning-centered approach to an instruction-centered approach in a statistics course for second- and third-year student pharmacists.[6] In the learning-centered group, students attended lectures and had input for grading and attendance policies. Additionally, the academic performance of students in this group was measured through exams and optional homework assignments. Students in the instruction-centered group attended lectures and their academic performance was measured through exams. Data from this study showed that students in the learning-centered group had a greater increase in statistical knowledge and had a more positive perception of the course.[6]

A very important component of the learning-centered teaching style is the method of student assessment (i.e., exams and assignments). One study that compared student evaluations of teacher effectiveness in a marketing class with no homework and a class with homework showed that grades and evaluations of teacher effectiveness were higher in the class with homework.[7] Assignments improved grades and perception of the course and allowed students to practice and demonstrate application of the course material. Although homework assignments increase instructor workload, they also provide more feedback allowing students to improve.

Consistent with the shift toward the learning-centered teaching style, the "Drug Information and Literature Evaluation" course at the University of Tennessee Health Science Center College of Pharmacy has been taught for the last two years in a manner designed to actively engage students in their own learning. Third-year student pharmacists are enrolled in a one-semester, learning-centered Drug Information and Literature Evaluation course. The course is designed to introduce and develop students' skills in independent literature searching, critical literature evaluation, and communication of health information. During this required three credit hour course, students on two campuses view pre-recorded, online lectures prior to attending synchronous active learning recitations using team-based learning. During recitations, multiple-choice quizzes were administered at the beginning of class as individual readiness assurance tests (IRATs) and team readiness assurance tests (TRATs) as formal assessments of students' basic understanding of the subject material from corresponding online lectures and required reading materials. After the TRATs, students remained within their assigned teams to complete an application-based team assignment with a course instructor present on each campus. Team assignments were focused on searching the medical literature, answering drug information questions, and literature evaluation. The team assignment was subsequently reviewed by an instructor with the entire class. The students' knowledge and mastery of course materials are assessed through recitations, out-of-class assignments, journal club presentations, and midterm and final exams.

There are no publications in the pharmacy education literature that assess the number of learning-centered assignments with student performance and evaluation of teacher effectiveness. In Fall 2012, the "Drug Information and Literature Evaluation" course was modified by eliminating three of six out-of-class assignments secondary to reallocation of faculty workload. The purpose of this study is to determine the effect of eliminated assignments on students' academic achievement and course evaluations.

Materials and methods

Both course offerings were taught using synchronous distance learning technology on the Memphis and Knoxville campuses at the University of Tennessee Health Science Center College of Pharmacy. The course is co-coordinated by two faculty members, one on each campus. The course was redesigned for Fall 2012 secondary to reallocate of faculty workload. The redesign included removing three (of six) previously required learner-centered out-of-class assignments: an individual literature search and summary of a clinical trial, a group assignment using tertiary literature to answer drug information questions, and an individual assignment that required students to answer a clinically controversial question. These assignments were designed to enhance student learning by allowing the students to practice skills outside of class that would be used in recitations, on exams, and in future practice. The course has been taught using distance learning and co-course coordinators (one on each campus) for six years. In its current form, the course has been in existence for two years and has had a recitation component for active learning activities for seven years. Eight active learning sessions were presented in 2011 and 2012. All other course components, including faculty involved in the course, were identical between Fall 2011 and Fall 2012, with the exception of slight changes in the weighted percentages of assignments. In Fall 2011, the final exam was worth 15% of the final grade and assignments were 25% compared with 2012 where assignments and the final exam were each worth 20%. For both course offerings, the midterm exam was worth 15% of the final grade, recitation quizzes were 25%, and a group journal club presentation was 20%.

Third-year students enrolled during 2011 and 2012 academic cycles at two sites were included. Student demographics, course evaluations, and grades were compared. Students' knowledge and understanding of the material were evaluated with a midterm and comprehensive final exam,