

ABSTRACT

The Effects of Teaching Strategies on Persistence, Perceptions of Course Evaluations and Student Success in Introductory Science Courses at a Community College in South Texas

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This study explored whether active learning and student-centered pedagogies such as project-based and peer-led in introductory science “gatekeeper” major courses; BIOL 1306 and CHEM 1311 had an impact on student perceptions, student persistence, and student success rates, in STEM fields at a community college in South Texas. The effects and interaction among student gender; females and males, and teaching strategies; lecture-based, project-based, and peer-led instruction on the variable of student success as measured by the BIOL 1306 and CHEM 1311 posttest while controlling for the BIOL 1306 and CHEM 1311 pretest, respectively, was analyzed through the utilization of a 2-way ANCOVA. The effects of the three teaching strategies on student perceptions was measured by the student Course Evaluation instrument in BIOL 1306 and CHEM 1311 through a MANOVA statistical method. The relationship between the three teaching strategies and student persistence in pursuing a STEM major for BIOL 1306 and CHEM 1311 students was analyzed through a binary logistic regression method. Throughout the BIOL 1306 and CHEM 1311 sections, there was no significant (1) interaction between gender and teaching strategy, (2) differences among the three teaching strategies, and (3) difference between student genders on the variable of student success as measured by the BIOL 1306 and CHEM

1311 posttest while controlling for the BIOL 1306 and CHEM 1311 pretest, respectively. There were no significance differences seen among the three teaching strategies on student perceptions as measured by the student Course Evaluation instrument within the two courses. A statistical significance was found in lecture-based and peer-led instruction within BIOL 1306, whereas project-based instruction was not a significant prediction to student persistence in pursuing a STEM major. Throughout CHEM 1311 courses, no statistical significances were found in lecture-based, project-based, and peer-led instruction.

