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Implementing Inquiry Based Learning in a General Microbiology Laboratory

Candace L. Walker, Arthur L. Buikema Jr. and Ann M. Stevens

Department of Biology
Virginia Tech
Blacksburg, Virginia 24061

Abstract

In recent years, there has been an increased interest in inquiry-based learning, also known as experiential learning or problem based learning, as a more appropriate model of teaching science. The purpose of this study was to incorporate inquiry-based learning in a college sophomore General Microbiology Laboratory. The goal of this course is to introduce students to basic techniques and procedures necessary for the study of microorganisms. Students enrolled in the course come from majors that range across the life science spectrum and have completed two semesters of Principles of Biology Laboratory. One of the more challenging concepts that the students have difficulty with is serial dilutions. What is the alternative method? To look at the effect of an alternative way to approach serial dilutions, classes were randomly assigned to an experimental group or a comparison group. The experimental group was taught the concept of serial dilutions using an inquiry-based learning approach whereas the comparison group was taught using traditional teaching methods. During the spring semester, the study involved approximately 350 students. Preliminary analysis of the data indicated that the experimental group and comparison groups had similar mean scores as evaluated with a pre-quiz, mid-quiz, and post-quiz. However, the experimental group had a 16% increase in the number of students receiving perfect scores on the quiz.