

Effect of 5E Learning Cycle and V Diagram Use in General Chemistry Laboratories on Science Teacher Candidates' Attitudes, Anxiety and Achievement

By

Orhan Ercan

Faculty of Education, Kahramanmaraş Sütçü İmam University, 46100 Kahramanmaraş, Türkiye

Abstract

The most important characteristic that distinguishes physical sciences from other disciplines of science is the emphasis on experimentation, observation and discovery. The significance of using methods that focus on this characteristic in chemistry laboratory classes is obvious. Current research was aimed to investigate the effects of teaching method implemented in General Chemistry Laboratory II class on academic achievement, attitudes towards chemistry, chemistry anxiety and attitudes towards chemistry laboratory of science teacher candidates who attended a state university. Two groups were randomly selected for this purpose. Research data were obtained through quasi-experimental method. A total of 34 students participated in the study. Paired sample t-test, independent sample t-test, one way ANOVA, MANOVA, ANCOVA and one way ANOVA for repeated measures analyses for used for data analysis. According to study results, it was identified that academic achievement of the treatment group who were taught with 5E learning cycle was significantly different compared to the comparison group who were taught with V diagram; that anxiety towards chemistry laboratory disappeared in the group taught with V diagram; that the implemented methods did not affect chemistry laboratory and chemistry lesson attitude scores based on post-test scores; that male students were more successful compared to female students in the chemistry laboratory and an inverse correlation existed between anxiety towards chemistry laboratory and attitude.

Keywords: 5E learning cycle, achievement, chemistry attitude, chemistry laboratory attitude, gender, laboratory anxiety, V diagram.