A Comparison of the Effects of Web-Based Learning and Traditional Instruction on Pre-Service Teachers' Self Regulated Learning and Achievement in Chemistry

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Abstract

This comparative study investigated the effects of web-based learning and traditional instruction on pre-service teachers' self-regulated learning (SRL) and achievement in Chemistry. It utilized a two group post-test quasi-experimental design. In consecutive years two different groups of pre-service teachers were taught a chemistry module using traditional face to face instruction (n=144) and web-based learning respectively (n=148). At the end of each instructional period the pre-service teachers' abilities in self-regulated learning were measured using an online self-regulated learning questionnaire. Their academic achievement was measured from scores obtained in an end of semester examination which focused on three topics covered in the module-reaction kinetics, chemical equilibria and electrochemistry. Data were analysed using correlational analyses and the t-test. The results suggest that web-based learning has more positive outcomes on both SRL and academic achievement. Recommendations for teaching chemistry to pre-service teachers are fleshed out.

Keywords

Web-based learning, pre-service teachers, chemistry, achievement, self-regulated learning.