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The Effects of a Networked Data Acquisition System on Student Learning in General Chemistry Laboratories

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We have recently incorporated a networked data acquisition and analysis system into in our second semester general chemistry laboratories. Our investigation team has conducted a study to evaluate the effects of the networked data acquisition system on student performance on a Beer's Law laboratory. We focused on two specific phenomena: the effect of the networked data acquisition system on 1) student learning of specific content material and 2) student comfort level with laboratory work and data analysis. The study involved a networked data acquisition group (employing a UV-Vis spectrometer and colorimeters) and a control group (employing traditional, single wavelength spectrometers). Pre- and post-assessments were performed using written surveys, one-on-one student interviews, and lab practical tasks. Results from the study indicating changes in student baseline knowledge relating to Beer's Law and student comfort level in performing measurements and analysis will be presented.

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