Authentic Discovery Projects for Introductory Statistics

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Study Abstract

Investigators designed and deployed instructional materials to facilitate Authentic Discovery projects for introductory statistics courses. Authentic Discovery refers to a learning model where students implement the scientific method: develop a hypothesis testable using survey-based inquiry, design a survey, collect and analyze data, and perform both descriptive and inferential statistics. Students completed two Authentic Discovery Projects, one utilizing t-test methods, the other using linear regression. Students made one class presentation and wrote two papers. To determine the impact on student performance and affective variables, three quantitative instruments were developed: Content Knowledge, Perceived Utility and Self-Efficacy. A quasi-experimental treatment vs. control design was utilized with four instructors at three test sites. The sites included a four-year college, a two-year college, and a high school where Advanced Placement Statistics was offered. Significant student gains were found for Self-Efficacy ($p = .03$) but not for Perceived Utility ($p = .21$). Content Knowledge gains were considered weakly significant ($p = .09$) given effect size.

Available Classroom Resources

The classroom materials developed for this National Science Foundation funded project reside at the Instructor Resources Site:

http://radar.ngcsu.edu/~rsinn/nsf/

More details about the project are available at the project website:

http://radar.ngcsu.edu/~djspence/NSF

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Note: the URL's above will be changing during Fall semester 2010. Links may become inactive.