

Authentic Discovery Projects in Statistics

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Abstract

We report the activities and findings of a 3-year project, “Authentic, Career-Specific, Discovery Learning Projects in Introductory Statistics,” funded by the National Science Foundation. The project scope includes: 1) development of teaching materials for using discovery learning projects to teach statistics; 2) training secondary teachers to use the materials developed; 3) evaluation of student outcomes, in both content knowledge and attitudes toward statistics; and 4) extending and refining teacher training.

With input from an interdisciplinary team of instructors, materials were developed to assist the teacher in facilitating collaborative discovery projects using linear regression techniques and comparison techniques with appropriate t-tests. Web-based student and instructor guides authored to facilitate these projects are now available online.

Five pilot instructors used the materials in their classes. Data collected from the instructors included qualitative data about teacher experiences and observations while employing the materials, as well as quantitative data about student performance and attitudes. These findings were used to inform a one-day teacher training workshop on effective use of statistics projects with the materials developed.

Preliminary data analysis suggests that students in classes using the discovery projects achieve higher content knowledge and stronger perceived usefulness of statistics than do their traditional class counterparts.