Project Summary

Title: Assessment of Traditional and Technology-Based Teaching Methods Across Two Sections of Introductory Statistics
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This project was designed to compare the effectiveness of two strategies for instruction in statistics, the traditional versus one that uses instructional technologies. The "traditional" method is largely lecture-based, while the instructional technologies strategy uses computer software (Microsoft Excel and SPSS). The assessment was conducted in two sections of PSY200 (Statistics for the Behavioral and Social Sciences) offered at the Kutztown University of Pennsylvania during the fall 2008 semester, with both sections offered by the Project Director.

Student attitudes towards statistics were measured before course work began and again near the end of the semester using the Attitudes toward Statistics (ATS) scale. While students in both sections became more positive in their attitudes, those in the class that used computer software revealed a statistically significant increase over the course of the semester. In addition, student attitudes about their own performance were measured using the Assessment of Self-Efficacy Related to Statistics scale, a measure of statistics self-efficacy that reflects confidence in a subject and serves as an indicator of proficiency above and beyond performance on formal examinations. Students in both sections showed similar gains in statistics self efficacy.

Finally the two sections were compared on a short test developed by the project director that is designed to measure proficiency in representing data graphically and properly identifying measures of central tendency. For the graphing test, students in the computer-based section scored slightly higher than those in the traditional class, although the difference was not statistically significant. For the test of measures of central tendency, the computer-based class scored lower than the traditional class and the difference was statistically significant.

Overall, the results of the study were mixed. Focusing more on teaching with computers may have helped student attitudes about statistics but did not appear to significantly improve their competency in the areas measured (indeed, it may have hindered it). However, the results of this study should be interpreted cautiously given the small sample of students, the small number of assessment items, and the relatively narrow focus of outcome measures.

Additional details about the project are available from the Project Director.