

Real Experiences to Enhance Learning [REEL] (NSF)

Funding Agency:

National Science Foundation (NSF)

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Evaluation:

5 years

\$250,000

Ohio's Evaluation and Assessment Center for Science and Mathematics Education (E & A Center) serves as an external evaluator for the REEL project. The E & A Center will evaluate and assess how the project will reach its primary goals of (a) making the first and second year curriculum more research-based; (b) increasing retention and graduation rates in science, technology, engineering and mathematical fields; and (c) generating new knowledge in the chemical sciences through multi-site, faculty-student research projects.

The evaluation consists of a quantitative and qualitative longitudinal research study that compares student results from the new research-intensive chemistry labs against student results from more traditional labs. Data for the evaluation will be conducted with questionnaires and focus group interviews. The E & A Center will (a) work with the Principle Investigators (PI) of the project; (b) identify and/or develop instruments, methodologies, and protocols to assess project goals; and (c) ensure the validity and reliability of all the instruments. Some data from the project is collected annually while other data is collected at the beginning and end of the project.

Statistical findings thus far show the project is meeting its goals of making first and second year programs more research based. General chemistry students in labs with the REEL module reported enhanced research-oriented teaching and learning as well as student understanding with regard to the nature of science. General chemistry students in labs without the REEL module responded that they discussed the work of scientists, the history of science, and frequently studied and memorized the textbook scientific facts.

These activities demonstrate the ability of the E & A Center's personnel to work cooperatively with other agencies, institutions, and partnerships within the state.