DELAWARE GK-12: INTEGRATING RESEARCH INTO SCIENCE CLASSROOMS IN VO-TECH HIGH SCHOOLS

Project Description

The University of Delaware and the New Castle County Vocational Technical School District have initiated a GK-12 partnership in which nine UD graduate students in the sciences are selected annually to serve as Fellows. Fellows are paired with high school science teachers, and they work together to integrate research components into the high school curriculum. Fellows engage in research experiences focused on understanding and reflecting on current issues in science education while specifically addressing critical issues in teaching science in vocational-technical high schools. Following year-long activities are introduced to innovative learning strategies including problem-based learning (PBL) and project-based learning. This approach allows for the development of science standards and that support student learning through inquiry. Typically, Delaware GK-12 Fellows have completed qualifying coursework and exams and identified research advisors and dissertation topics. With their doctoral research work established, Fellows integrate their research experiences into the high school curriculum, teaching courses and conducting research with high school students. Fellows provide on-going feedback to their teachers, and their research projects provide real-world research data and insight to their high school students. Fellows also have numerous opportunities to develop their ability to disseminate scientific understandings to audiences with diverse backgrounds and learning needs. Development of PBL activities includes an ongoing component where Fellows have the opportunity to develop their research work with their teachers and disseminate their work to audiences of high school teachers and university researchers. Fellows use their research experiences to develop the abilities of their students to develop their understanding of how science is done, to learn new scientific methods, and to use those methods to develop their own scientific knowledge. Fellows also provide a support system for their teachers, offering ongoing feedback on their high school science classes.

Funding Agency - National Science Foundation, Division of Graduate Education

Graduate Teaching Fellows in K-12 Education (GK-12)

Follow this is a graduate student in the Department of Chemistry and Biochemistry at University of Delaware, Newark, DE 19716. His research is specifically focused on developing methods for the analysis of metabolites in tissue samples from plants and animals. His work is significantly contributing to the field of metabolomics, which is the study of the complete set of metabolites present in an organism. His research is expected to have a significant impact on the understanding of metabolic pathways in both plants and animals.

Project Evaluation

The overall evaluation includes external and internal evaluation, the Evaluation and Assessment Center for Mathematics and Science Education (GK-12 Center) in Delaware as the external evaluator, and the Delaware GK-12 Center as the internal evaluator. The external evaluator will assess the progress in the various science disciplines. It is vital for the effective dissemination of research findings and to ensure that the research is being used to improve science education. The internal evaluator will also receive regular reports conducted as part of internal evaluations.

http://www.udel.edu/GK-12/