

SUPPORTING DEEP LEARNING OF STEM THROUGH PROJECT-BASED LEARNING: WHAT IS THE EVIDENCE?

MONDAY, NOVEMBER 18

3:30-4:30PM

129 DEBARTOLO HALL

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How should science learning environments be designed to focus on knowledge-in-use-standards where learners use the big ideas of science and scientific practices to make sense of phenomena and solve problems? Investigating questions that students find meaningful has long been supported as a viable learning structure. Project-based Learning (PBL) structures science learning environments around questions that engage students in collaborative inquiry. Project-based learning uses a question anchored in phenomena or problems that are meaningful to learners. This question drives student exploration and learning. The driving question focuses students planning and carrying out collaborative investigations and guides the development of artifacts, concrete representations of the results of students' investigations. Throughout PBL students collaborate and use cognitive tools in their investigations and in building artifacts. As students collaboratively pursue solutions to the driving question, they develop useable knowledge and 21st century skills necessary to solve problem, make sense of phenomena and learn more when needed. In the process of finding solution to the questions, students learn important scientific ideas and practices, and 21st century skills. Because PBL focuses on students and their interests, it is sensitive to the varied needs of diverse students with respect to culture, race, and gender.

In the presentation, Professor Krajcik will explain the features of project-based learning and show how the various features of PBL are anchored in what is known about how students learn. He will also share data from two recent efficacy studies, one at the elementary and one at the high school level that provides evidence for the use of project-based learning to support students developing understanding of disciplinary knowledge compared to more traditional approaches.



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