University of Louisville
i2a SUN Grant Funded Projects 2016

Paul Himes and Deborah Yoder-Himes
A&S Biology
Thinking Critically About Antibiotic Resistance in the Environment

The scientific and educational goals of this project focus on fostering critical thinking skills to identify environmental sources of antibiotic resistant bacteria that have the potential to cause infections in humans. As they develop their own experimental design, learners will have the opportunity to practice the elements of critical thinking as they relate to the scientific methods in a way that allows them to explore the interaction between the community and the environment as well as the potential impacts of that interaction on each. After learning relevant techniques, students will work in teams in sites throughout the community to isolate antibiotic resistant bacteria and bring them back to the lab to identify them and examine their potential for pathogenesis. This experience will serve as a pilot for a potential upper division CUE laboratory class in advanced microbiology and/or ecology, both of which are acknowledged needs in the department.

Brian Robinson, Angela Thompson, and Jacqueline McNeil
Speed Engineering Fundamentals
Enhancing Critical Thinking Through Prolonged Student Exposure, Practice, and Application of the Paul-Elder Framework

This project will encourage development of critical thinking skills through repeated exposure, practice, and application of the Paul-Elder framework in a two-course sequence for first-year engineering students. Critical thinking is already an integral component of Introduction to Engineering (ENGR 100), a one semester introductory course for engineering students. Starting in fall 2016, ENGR 100 will be replaced with a two-semester course sequence, Engineering Methods, Tools, and Practice I and II (ENGR 110 and ENGR 111, respectively), that will provide additional opportunities to enhance student experience in practicing and applying critical thinking. To address i2a outcome 1 (students will be able to think critically), this project involved the development of assignments in the second semester course to reinforce and assess critical thinking. Assessment will center on the impact the additional exposure in a second course has on students' abilities to effectively apply and recognize the vitality of the PE framework.

Montray Smith and Diane Chlebowy
Undergraduate Nursing Program
Enhancing Critical Thinking

As part of the SON i2a Implementation Plan, the goal of this project is to create an online i2a course for new SON faculty teaching in the classroom and clinical settings. The online i2a course will also be used as a refresher course for current faculty. The course will have several modules with interactive activities available for faculty in various programs on both campuses via the Blackboard course management system. The online i2a course will be accessible at any location, 24 hours a day, and 7 days a week. The objectives for this project are:

1. Create an online interactive tool for current and new faculty to further enhance student learning using the Paul-Elder Critical Thinking Framework.
2. Increase faculty knowledge about the Paul-Elder Critical Thinking Framework to facilitate the application of critical thinking skills in classroom and clinical settings.
3. Provide faculty with opportunities to apply newly acquired knowledge to modify or create new course assignments.

Shelley Thomas
Middle and Secondary Education
Developing a Shared Understanding of Classroom Communities: Critical Thinking in Clinical Teacher Preparation Settings

This project focuses on supporting first semester teacher education candidates develop a deep understanding of the complexities of diverse classroom settings in middle and high school, clinically-based, teacher education coursework. Drawing on the Intellectual Standards and Elements of Thought, we will facilitate course activities and assignments that will encourage our candidates to critically consider their own schooling experiences, beliefs about teaching and learning, and the influence of the sociocultural climate on classroom communities. Engaging school-based stakeholders in planning and enactment of course activities will assist us in targeting our instruction so candidates may safely consider and critically reflect on cultural conflicts in the classroom, racial literacy, and engaging students who are the hardest to reach and teach. Efforts will result in improved course and program experiences, contribute to relationships with school-based stakeholders, and inform research around clinically based teacher education.