

CIE outlines \$2.3 million DOE grant to study active learning at Purdue

Oct. 1, 2014 -- The Center for Instructional Excellence is conducting a four-year study of why active-learning strategies help student retention, success, and completion rates, with a \$2.3 million-grant to Purdue from the [U.S. Department of Education](#).

The grant is through the DOE's [First in the World Program](#), which seeks to improve postsecondary educational persistence and completion, as part of President Obama's 2020 goal to have the highest share of college graduates in the world.

The study, entitled, **Success Through Transformative Education and Active Mentoring**, is the first large-scale, controlled, scientific study to look at why active-learning models have been successful in post-secondary education. It focuses on science, technology, engineering, agriculture, and math (STEAM) courses. Researchers will look at different active-learning strategies and identify the factors that make some more successful than others.

Under the direction of Chantal Levesque-Bristol, CIE director and a professor of educational studies, the study will use a framework of [self-determination theory](#) (SDT), a theory of motivation initially developed by Edward L. Deci and Rich Ryan. (Deci can be seen discussing optimal motivation in education during his [keynote address](#) at Purdue in March 2014.)

STEAM courses with multiple sections will be selected after consulting the department, deans and faculty. The sections are equivalent at the start of the study, but then one section will become the control section and the other will become the experimental section. The experimental section will undergo a transformation, and the control section will be taught as usual. Pre- and post-test assessments, constructed by faculty and measuring faculty-identified learning outcomes, will be administered in the control and experimental sections.

In addition, a student perception survey, including the basic psychological need measure (autonomy, competence, relatedness) and motivation measures, will be administered pre and post in the control and experimental sections. Results will be compared for the control and experimental sections and examined in aggregate.

"We expect basic psychological need satisfaction and motivation to be higher in the experimental section, which in turn would impact learning outcomes and grades," Levesque-Bristol said. "We'll also look at the impact of active-learning strategies on motivation. If students are motivated and engaged they'll be retained, they will earn better grades, and they will graduate on time."

The study builds on the success transformation of 120 courses as part of the [Instruction Matters: Purdue Academic Course Transformation](#) (IMPACT) program. From a student perspective, IMPACT classes incorporate new learning strategies and technologies to make courses more "student-centered," for example, by replacing large lectures with more group work and active learning.

"We'll use the infrastructure of IMPACT - the faculty and students, the management team, the advisory board, and the professional development and assessment teams - in doing course transformation, and do it in a more intentional, rigorous and scientific manner," she said. About 300 courses are projected to be redesigned using this model by the 2016-17 academic year.

The new study will also inform Purdue's work with the [University Innovation Alliance](#), which looks at ways to enhance learning for low-income and first-generation students.

Updates on the **Success Through Transformative Education and Active Mentoring** study will be posted on the CIE website.

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