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Annual IMPACT Report 2014: A report by the IMPACT Data Collection and Analysis Team, Executive Summary

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“The IMPACT program is a large collaborative initiative, involving multiple key partners across campus.”

PURDUE IS A LEADER IN INTERDISCIPLINARY COURSE REDESIGN at a research intensive university. Currently, 120 courses have been redesigned at Purdue. It is IMPACT’s goal to work with faculty teaching foundational courses that are part of the new core curriculum, while maintaining a transformation rate of 60 courses per year over the next 3 years.
“THE OVERARCHING PURPOSE OF IMPACT IS TO ACHIEVE A GREATER STUDENT-CENTERED LEARNING ENVIRONMENT BY INCORPORATING ACTIVE AND COLLABORATIVE LEARNING AS WELL AS OTHER STUDENT-CENTERED TEACHING AND LEARNING PRACTICES AND TECHNOLOGIES INTO LARGE-ENROLLMENT FOUNDATIONAL COURSES.”

THERE IS STRONG EVIDENCE THAT STUDENT-CENTERED TEACHING LEADS TO IMPROVEMENTS IN STUDENTS’ ABILITIES TO SOLVE PROBLEMS AND UNDERSTAND CONCEPTS.”

The creation of a student-centered learning environment fosters student engagement and student competence, as well as increased attainment of course-specific learning outcomes, completion, retention, and graduation rates. Student-centered approaches, such as those utilizing collaborative learning, or active learning in general, enhance learning to a greater degree than purely face-to-face instruction (Prince, 2004; Weimer, 2013). As defined in Michael (2006), active learning is a “process of having students engage in some activity that forces them to reflect upon ideas and how they are using those ideas.” IMPACT is guided by a strong theoretical framework, which has been validated and used in several research projects over the past 40 years. Self-determination theory (Deci & Ryan, 1985) is a motivational theory that posits the existence of three basic psychological needs, which when fulfilled, contribute to the creation of a student-centered, autonomy-supportive learning environment.
IMPACT FACULTY FELLOWS come from a variety of disciplines university-wide. The course redesign plan recognizes that the needs of faculty and students in each course may differ. Every redesign is tailored to the needs of the faculty member, students, and the course. To accomplish the goals of the redesign, each faculty fellow works closely with a support team with expertise in pedagogy, instructional technology, and information literacy.

The following observations were made:

- Through the FLC and associated support teams, instructors gain practical, useful, research-based active-learning pedagogical techniques that they incorporate into their IMPACT redesigned course and other courses they teach.
- The FLC process gives instructors the opportunity to reflect upon their teaching practice and improves instructor satisfaction with their teaching.
- Instructors perceive IMPACT as having a significant effect on student engagement and critical thinking skills.
- Several key barriers to sustainability have been identified: cultural expectations of teaching and learning processes and roles among students and faculty, lack of institutional incentives for faculty practicing innovative teaching, and lack of resources to support new pedagogies.

The IMPACT faculty fellows often integrate technology into their course redesigns in order to foster student engagement, motivation, and active learning. These technologies tend to support student learning and create student-centered learning environments.
As DFW rates decrease, a lower proportion of students fail or withdraw from the courses. When it comes to creating a student-centered learning environment, our findings suggest that “how” the redesign is delivered is more important that the type of redesign used. Results indicate that both the supplemental and replacement model can foster equivalent level of student-centered learning. More data are needed for online courses in order to substantiate that conclusion.

STUDENT PERCEPTIONS & LEARNING

A STUDENT-CENTERED LEARNING CLIMATE IS SIGNIFICANTLY ASSOCIATED WITH GREATER PERCEPTIONS OF AUTONOMY, COMPETENCE, AND CONNECTEDNESS, AS WELL AS HIGHER LEVELS OF SELF-REGULATION (SELF-DETERMINED MOTIVATION). IN ADDITION, WHEN STUDENTS PERCEIVE THE LEARNING ENVIRONMENT TO BE STUDENT-CENTERED, THEY ALSO REPORT GREATER KNOWLEDGE TRANSFER, LEARNING GAINS, AND GREATER PERFORMANCE IN THE COURSE. STUDENTS ALSO RATE THE COURSE AND THE INSTRUCTOR MORE FAVORABLY IN A STUDENT-CENTERED ENVIRONMENT.
STUDENT SUCCESS AND RETENTION

Increases in student retention were observed for select IMPACT courses in the colleges of Sciences, Technology, Engineering, Health and Human Sciences, Agriculture, and Liberal Arts in Fall 2011, Spring 2012, Fall 2012, and Spring 2013.

The most positive results are obtained for the courses in the Spring 2013 cohort, where an overall increase in 1-year retention was observed. In the majority of these courses, the increase was at least 2%.

In light of IMPACT’s overarching goal to work with faculty to create student-centered learning environments, and the positive influence of a student-centered learning environment on student outcomes, future work could examine the effect of redesigns on DFW rates, course GPA, and retention to the university, as a function of student-centeredness.

In addition, more work needs to be done in order to identify what factors or redesign elements are most closely associated with the creation of a student-centered learning environment.

Finally, other motivational constructs part of self-determination theory are currently being explored to more fully understand the effect of the IMPACT program on student learning and success.