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Instruction Matters: Purdue Academic Course
Transformation (IMPACT)

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IMPACT Program Overview

IMPACT Management Team

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OVERVIEW OF THE IMPACT PROGRAM

Launched by the Provost's Office in December 2010, Instruction Matters: Purdue Academic Course Transformation (IMPACT) is a large collaborative initiative on the Purdue West Lafayette campus. IMPACT is an integrated campus-wide effort, presently involving multiple key partners serving multiple functions:

- Financial support from the Offices of the President and Provost.
- Support staff contributions from the Center for Instructional Excellence (CIE), Purdue Online (PO), and Purdue University Libraries and School of Information Studies (ILSIS).
- Program assessment from the Evaluation and Learning Research Center (ELRC), Institutional Data Analytics and Assessment (IDA+A), and CIE.
- Scholarship of teaching and learning from ELRC, CIE, ILSIS, and IDA+A.

In addition, the President's Office identified IMPACT as a component of the Purdue Moves initiatives, within the Transformative Education area, in the fall of 2013. IMPACT was also recognized with a \$2.3 million grant by the Department of Education to support Success through Transformative Education and Mentoring and is integrated into the Purdue Provost's Road Map for Transformative Undergraduate Education.

The overarching goal of IMPACT is to create student-centered teaching and learning environments by transforming courses using research-based practices. The creation of a student-centered, autonomy-supportive learning environment fosters student engagement and student competence, and increased attainment of course-specific learning outcomes, degree completion, retention, and graduation rates.

Specifically, the goals of the IMPACT program can be summarized as follows:

- Refocusing the campus culture on student-centered pedagogy and student success;
- Increasing student engagement, competence, and learning gains;
- Focusing course transformations on research-based pedagogies; and
- Reflecting, assessing, and sharing results to benefit future courses, students, and institutional culture.

IMPACT Faculty Fellows come from a variety of disciplines university-wide. Course transformation programs at other institutions of higher education do not typically transcend disciplines within each institution; instead, they tend to be confined to one department, especially in STEM fields with large enrollment courses. Purdue is a leader in interdisciplinary course transformation at a research-intensive university. Every semester, interested faculty submit their applications to become part of the next IMPACT cohort. The IMPACT management committee reviews individual applications and selects faculty for the IMPACT cohort. For more information about the program, and to see a list of IMPACT Faculty Fellows and courses, visit the IMPACT website (<http://www.purdue.edu/impact>).

The IMPACT management committee (composed of members from CIE, ILSIS and PO) partner with the ELRC and IDA+A to assess the IMPACT program for the purposes of: continuous program improvement, determining the success of the program at meeting its stated goals, and generating knowledge about the mechanisms and efficacy of faculty development and course transformation initiatives. IMPACT collects data from Faculty Fellows as well as students enrolled in IMPACT courses and harnesses available institutional data to answer research and evaluation questions about IMPACT's reach, effects on faculty mindsets about teaching and learning, and effects on student engagement and learning.

STUDENT MOTIVATION

The IMPACT program is guided by Self-Determination Theoryⁱ (SDT), a theory of motivation concerned with supporting our natural tendencies to behave in effective and healthy ways. SDT has been researched and practiced by a network of researchers around the world. SDT posits the existence of three basic psychological needs, which when fulfilled, contribute to the creation of a student-centered, autonomy-supportive learning environment. The basic needs are autonomy, competence, and relatedness. During the process of the

transformation, members of the support team work with Faculty Fellows to create a learning environment that will foster the satisfaction of these three basic psychological needs.

Transformations that contribute to the satisfaction of students' needs for **autonomy** focus on the provision of choices and options to students, the provision of a rationale for tasks that are not interesting and not inherently perceived as valuable, and a willingness to consider students' perspectives. The need for **competence** is satisfied when opportunities to learn and demonstrate one's skills are provided on a regular basis and in a way that allows students to receive feedback, improve their performance, and try again. In this context, scaffolding of learning experiences is very important. Course transformations foster the need for **relatedness** when students are provided opportunities to interact and learn from one another, as well as opportunities to interact with the instructor in a meaningful way. This does not mean that students need to develop a close relationship with everyone in the class, including the instructor, but it does mean that students feel they can trust the instructor to help them achieve their academic goals.

Course Transformation Process

The curriculum used as part of the IMPACT program and delivered through the Faculty Learning Communities (FLCs) can be divided into five sections. Over the semester, Faculty Fellows consider and explore the following within the context of transforming their course:

- 1) **Motivating Learners:** Where are you starting? Who are your students? How can you create a learning environment that fosters all students' psychological needs and therefore motivation to learn?
- 2) **Learning Outcomes and Objectives:** What do you want to accomplish in the course? What do you want your students to be able to do, know, and appreciate at the end of the course?
- 3) **Assessment:** What evidence do you need in order to know your students are accomplishing the course goals and student learning outcomes? What misalignment do you have between the course outcomes, objectives, and assessments?
- 4) **Learning Activities:** What student-centered strategies and activities will you use to accomplish the transformation and help you meet your course goals?
- 5) **Drawing It All Together:** How do your learning strategies connect to your assessment? How do your transformation choices foster student-centered teaching and learning for all students? Can you justify your transformation decisions to other Faculty Fellows? Can you incorporate scholarly teaching and/or inquiry that aligns with your transformation goal?

During the FLC meetings, IMPACT Faculty Fellows spend time carefully considering the pre-requisites and post-requisites for their course, reflecting on the delivery, content, and structure of their course, and learning about new pedagogies, research and motivational principles that encourage and foster student-centered teaching and learning. Specifically, Faculty Fellows explore:

- Their students' characteristics and prior knowledge.
- Student motivation principles that foster student-centered teaching and learning.
- The development of student-centered learning outcomes and objectives.
- The alignment of course learning outcomes with appropriate and authentic assessments.
- Informed learning principles that foster understanding and proficiency with information pathways.
- Research-based links between improved student learning and pedagogical approaches and theories.
- Various activities and techniques that foster student-centered learning environments.
- Innovative tools and learning technologies that foster learning through student engagement and active participation.

IMPACT Faculty Fellows, working in collaboration with their support teams, transform their courses by taking into consideration transformation elements found to foster student-centered learning environments. Each transformation meets the faculty-determined student learning outcomes and goals.

INFORMED LEARNING

Informed Learningⁱⁱ is an information literacy model presented in the IMPACT program that emphasizes the role of information use in fostering learning outcomes. Beyond information encountered via textbooks and lectures, the active learning environments that are typically a part of the courses transformationed through IMPACT often require students to use information in new ways, such as evaluating and analyzing information sources to make decisions, or solve problems. Viewing information use as an integral part of learning, Informed Learning is grounded in three principles: 1) building on learners' current experiences, 2) promoting simultaneous learning about course content and using information, and 3) enabling learners to experience both using information and subject content in new ways. During the 13-weeks of the FLC, members of the support team work with Faculty Fellows to create a learning environment in which students learn to use information as they engage with course content.

LEARNING TECHNOLOGIES

Purdue Online Teaching and Learning Technologies developed and supports a portfolio of technology tools to enhance learning and engagement in and out of the classroom. There are a variety of technologies and instructional tools one can use in order to create an engaging and collaborative learning environment. IMPACT Faculty Fellows integrate many of these technologies into their course transformations in order to foster student engagement, motivation, and active learning.

FACULTY LEARNING COMMUNITY (FLC) CURRICULUM

Organization

The FLC model used in IMPACT lies at the heart of the transformation process. The Faculty Fellows in each cohort are organized into smaller groups within the FLC, wherein they can interact with fellow instructors and their dedicated support staff.

The FLC groups consist of three to four faculty, with a corresponding number of support team members, depending on the needs and circumstances of the participating Fellows. For instance, a group may have three faculty members from different departments who all have large courses and express a desire to foster stronger student engagement, and they will work with three support team members to achieve their goals. Another example is a department may make a concerted effort to have several connected courses in one cohort, and their Fellows will comprise one group in order to maximize curricular alignment in their design.

The support team consists of individuals from the CIE, PO, and ILSIS. Each support team has one "primary" member who is responsible for arranging out-of-class meetings and coordinating faculty development and deliverables in the group. The remaining members of the team are "secondary" support members who provide both their general knowledge of transformation and expertise from their respective units. The support team works together to meet the needs of the faculty.

Deliverables and Work

The IMPACT FLC occurs over 13 sessions, each 75 minutes in length during a fall or spring semester. In order to balance the specific deliverables of the curriculum with the faculty autonomy and goal-driven approach of an FLC, there is specific work each week that the fellow is expected to complete outside of the FLC session. This work is conducted through Purdue's Learning Management System website, mirroring the type of pre-work that faculty in interactive classes may ask of their undergraduate students. Readings, videos, and resources are all

available on the course website, and Fellows have access to the site throughout and after their participation in the FLC. The pre-work averages between ½ to 1 hour weekly. Faculty Fellows also meet periodically throughout the semester with their support team members outside of the FLC. In concert with the emphasis on a dedicated and focused course design initiative, the total time commitment is 3-4 hours per week. As reflected in the faculty funding supplement, IMPACT represents a sincere time commitment during the FLC semester.

Fellows complete assignments throughout the semester depending on the particular focus for each session. However, all Fellows are asked to complete three “deliverables” that are vital to course design and assessment of the effectiveness of the transformation. These include:

1. Transformation Goal

All FLC participants submit a written goal statement concerning their transformation. The scope of the transformation goal is determined by each fellow but represents a specific improvement to the student learning they plan to enable through modification to the course. The fellow considers evidence that may be used to inform the accomplishment of the redesign goal, and working with the research team, may explore a particular query related to their goal in the semesters following the transformation. Dedicated support resources are available for research question construction, data analysis, and publication.

2. Course Outcomes for Students

Fellows submit 3-5 course-level skills or understandings that students who successfully complete the course will demonstrate. These outcomes may align with departmental or accreditation requirements and are completely at the discretion of the fellow and their department. The Fellows further explore specific learning objectives that support the course-level outcomes.ⁱⁱⁱ These outcomes are defined along a taxonomic dimension, using Bloom’s three taxonomic domains.^{iv} The transformation goal, course-level outcomes and specific learning objectives are all submitted early in the FLC and revised later after reflection.

3. Course Design Plan (CDP)

The final submission is a Course Design Plan (CDP) that maps course-level outcomes and specific learning objectives to student activities and course assessments. This plan extends to each assignment, project or even questions that the student completes, but is necessarily mapped at least to a summative project or exam. The CDP also provides space to identify how informed learning, SDT, and inclusivity are being established or used in the course.

Session Topics

The FLC session topics are:

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| Session 1: Teaching Goals | Session 8: Learning Activities I |
| Session 2: Student Characteristics | Session 9: Learning Activities II |
| Session 3: Student Motivation | Session 10: Connecting the Dots |
| Session 4: Learning Outcomes | Session 11: Redesign Decisions I |
| Session 5: Informed and Inclusive Learning Objectives | Session 12: Redesign Decisions II |
| Session 6: Assess Student Performance I | Session 13: Scholarly Practitioner and Closing the Loop |
| Session 7: Assess Student Performance II | |

Guiding Principles

While the IMPACT FLC involves the formal creation of specific documents, select principles guide the learning community. The FLC sessions are all based in Self-Determination Theory, the satisfaction of basic psychological needs, and use active learning whenever possible. Faculty control of the process and discussion is prioritized throughout the FLC.

Faculty are not required to follow any specific template for their transformation, nor are they required to integrate any specific methodologies, technologies, or course transformation models. The support teams work with each individual instructor to translate the FLC curriculum and activities to apply to the needs of the faculty member.

The Faculty Learning Community prioritizes connection among peers. To realize these connections, Fellows from previous cohorts serve as invited guests at certain sessions, providing expertise and direct experience from their transformation. They often serve as an influential voice that resonates with current IMPACT Fellows, as they can offer a candid view of the process, the benefits and potential challenges, as well as the gains of particular approaches.

Whenever possible, the FLC is held in one of Purdue's many "active learning spaces." These spaces allow for seamless transition between group or pair-based discussion to dialogues between all participants and the session facilitator. The facilitator of each session works to ensure active learning, reflection, and discussion are prioritized for the participants, modeling several of the techniques that have enabled IMPACT faculty to increase student engagement and higher order thinking in their undergraduate courses. In particular, IMPACT does not stress or prioritize any specific mode of transformation, but the curriculum features robust online resources and "pre-work" in an attempt to maximize faculty time and discussion and introduce the Fellows to methods with which they may not be familiar.

Support for course transformation does not end with the semester of the FLC. Support team members are available for consultation and assistance as needed by the Fellows. Since course design is an iterative process, support team members connect with faculty in the semesters following the FLC to gauge the comfort level of the transformation and maintain their familiarity with each course. This allows the fellow to guide the degree of interaction, while still providing a supportive relationship during the design implementation.

EXPANSION OF IMPACT

Special Projects

Prior to the COVID-19 pandemic, there was pronounced interest from Faculty Fellows participating in the FLC to further hone in on specific topic areas. The IMPACT team added three specialized projects from which Fellows could choose to participate to supplement their FLC experience: Scholarship of Teaching and Learning (SoTL) Research Project, SoTL Course Portfolio Project, and Informed Learning Project.

1. IMPACT Scholarship of Teaching & Learning (SoTL) Research Project

The IMPACT SoTL Research Project was created to facilitate IMPACT-related scholarship of teaching and learning projects, as well as improve assessment of IMPACT by collecting specific student achievement data. In addition to a small incentive, the project provides resources and support to current IMPACT Fellows to design, conduct, and disseminate a research project related to their course redesign. The project was piloted in spring 2019 with three IMPACT Fellows and had three IMPACT Fellows participate in fall 2019. Fellows have up to two years to complete their projects and present the results in a scholarly forum.

2. IMPACT SoTL Course Portfolio Project

In fall 2019 the IMPACT SoTL Course Portfolio Project was launched with two IMPACT Fellows. As a scholarship-based extension of IMPACT, Fellows collaborate with support team members to analyze an element of their transformation through a scholarly project. Fellows construct a proposal/hypothesis, collect a variety of types of data, analyze student work in new ways, and report on their findings for the broader university community. Ultimately, these publicly viewable scholarly portfolios will lead to a gallery of evidence-based practices constructed on Purdue's campus to share with other instructors at Purdue and around the world. For those interested, this will also serve as the first step toward conference presentations and formal publications as well.

3. IMPACT Informed Learning Project

The IMPACT Informed Learning Project is an opportunity for instructors to create assignments that help students use information in more purposeful ways in their courses. Instructors attend a day-long summer workshop, where they work with Libraries faculty and staff to transform an assignment that enables students to use information more effectively in their disciplines. In the academic year following the workshop, instructors implement the new assignments, and share assessment data related to student learning in the assignment with the IMPACT group. Since the launch of the IMPACT Informed Learning Project in the summer of 2019, nine instructors from a range of disciplines have redesigned and integrated assignments that teach students to use information more explicitly into their courses.

IMPACT Programs beyond the Semester-Long FLC

IMPACT Access

In order to provide an alternative to the full face-to-face IMPACT program, the IMPACT team developed IMPACT Access, a condensed, modularized faculty development program. This hybrid program shares the same goal of helping faculty create more autonomy-supportive, student-centered learning environments, but aims to provide more flexibility both in terms of time commitment and content. Faculty can complete the modules on their own time and are not required to choose a specific course to redesign. Following each topic, the Faculty Fellows meet with two facilitators in a reflection meeting to discuss the material and share ideas and challenges with other Fellows. The IMPACT Access program allows for increased flexibility while maintaining benefits of an in-person learning community.

A full pilot of the IMPACT Access hybrid program was conducted in fall 2019. Six faculty completed the five topics, each containing 3-5 modules. Fellows provided formative feedback to improve the online modules, and their feedback was mostly positive: the modules were a good use of their time and they planned to implement changes to their teaching. Fellows especially enjoyed the in-person reflection sessions, which allowed for peer feedback and the opportunity for them to reflect on their teaching. An IMPACT Access program offering was then conducted in spring 2020 with nine Faculty Fellows.

The five topics covered in IMPACT Access are:

- Topic 1: Identify Situational Factors
- Topic 2: Course Outcomes
- Topic 3: Evidence of Learning
- Topic 4: Select Teaching & Learning Activities
- Topic 5: Course Structure

IMPACT X

In mid-March 2020, the team created IMPACT X to support faculty in quickly moving courses fully online due to the COVID-19 pandemic. IMPACT X aims to provide a mechanism to move, at scale, from emergency remote instruction in spring to higher quality, more intentional remote learning experiences and online courses for summer. Using modules and elements previously generated and tested as part of the IMPACT Access program, the IMPACT team modified the content to create an even more condensed IMPACT program. This week-long program was offered to instructors starting in April 2020. IMPACT X distills elements of IMPACT into a set of modules which instructors work through asynchronously and then can receive direct feedback on their design, delivery, and implementation choices from the IMPACT team via written feedback, twice daily synchronous drop-in sessions, and discussion boards.

The following five main topics are covered in IMPACT X:

Module 1: Creating a Student-Centered Learning Environment

Module 2: Creating Learning Outcomes and Objectives

Module 3: Creating Assessments and Grading in Brightspace

Module 4: Connecting the Dots: Design and Develop in Brightspace

Module 5: Drawing it all Together: Course Delivery Structure, Schedule, and Syllabus in Brightspace

IMPACT X+

As the need to offer flexible courses that could be offered both in-person and remotely increased, the team then created IMPACT X+. This 2-week program takes the same course design elements as IMPACT X and tailors the content to apply to five specific course types that were especially challenging to conduct in a hybrid format. We gathered 15 innovative faculty instructors to collaborate with the IMPACT team in creating course design archetypes and real-world examples for large lecture, lab intensive, experiential, writing intensive, and discussion/project/team courses. Instructors choose the archetype that reflects their main course challenge and have direct support from the IMPACT team via written feedback, synchronous drop-in sessions, and discussion boards to create hybrid, resilient offerings that are flexible for face-to-face and online delivery. IMPACT X+ was first offered in June 2020. IMPACT X and X+ ran consecutive program offerings simultaneously through August 2020.

IMPACT X Access

In order to offer the content of IMPACT X and X+ to the broader instructional community, beyond the facilitated program offerings, we created IMPACT X Access. This asynchronous, online, non-facilitated resource is open to anyone at Purdue looking for support in designing a flexible, student-centered course.

ⁱ Self-Determination Theory was initially developed by Edward L. Deci and Richard M. Ryan, and has been elaborated and refined by scholars from many countries since its beginnings in 1975. More can be learned about the theory at the following website: <http://www.selfdeterminationtheory.org/>

ⁱⁱ Informed Learning was introduced by Christine S. Bruce in 2008 and has become the focus of research and practice of a growing international research community.

ⁱⁱⁱ “Outcome” and “Objective” are often used interchangeably in literature on student learning, and certain accrediting bodies prioritize one term over the other. IMPACT uses “course-level outcome” and “specific-learning objective” to differentiate the level of specificity.

^{iv} Anderson and Krathwohl’s 2000 update of Bloom’s Taxonomy is utilized in the FLC to provide greater specificity for Fellows.