Developing, Implementing and Assessing Large-Scale Redesign Effort at a Research University: Tales from the IMPACT Initiative at Purdue University

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Developing, Implementing and Assessing Large-Scale Redesign Effort at a Research University:

Tales from the IMPACT Initiative at Purdue University

Chantal Levesque-Bristol  Gabriela Weaver  Loran Carleton Parker
David Nelson  

Center for Instructional Excellence  Discovery Learning Research Center

Purdue University
IMPACT Goals

• Support **faculty-led** course redesign with campus-wide resources

• Refocus the **campus** culture on student-centered pedagogy and student success

• **Reflect, assess and share results** to benefit future courses and students
IMPACT Methods

- Develop a network of faculty through Faculty Learning Communities (FLC)
- Base course redesign on best practices and sound research
- Grow and sustain IMPACT by adding new IMPACT faculty fellows annually
Campus-Wide Support

- **ITAP**: Donalee Attardo & John Campbell
- **Libraries**: Tomalee Doan
- **Teaching Academy & Provost**: Frank Dooley
- **CIE**: Chantal Levesque-Bristol
- **Extended Campus**: Michael Eddy
- **Faculty**: Cliff Weil
- **DLRC**: Gabriella Weaver
IMPACT Faculty Are…

• supported by diverse course redesign teams from CIE, ITaP, Libraries, Extended Campus and DLRC

• the drivers for course redesign and curriculum change

• focusing on learning, experimenting, and implementing research-based changes in their classes
IMPACT Faculty Are…

• Ultimately Responsible for identifying the learning outcomes for their course

• There is no “one-size fits all” formula; a course redesign plan recognizes that the needs of each course may differ
Goals for Course Transformation: The Research Questions

• **(FLC):** What is the effectiveness of the professional development aspect of IMPACT and embedded support for course redesign and implementation?

• **(Classroom):** What is the effect on pedagogical approaches used?
Goals for Course Transformation: The Research Questions

- **(Student Success):** What effect do IMPACT courses have on student success and retention?

- **(Faculty):** What long-term results occur in practices by faculty, departments, institution?
Primary Obstacles to Engagement and Assessment

• Battling Intuited Faculty Measurements of Learning

• Balancing Flexibility Needs with Controlled Variables for Measurement
Our spring curriculum
FLC Curriculum

• Know Yourself, Your Students and Your Course

• Define Learning Outcomes and Measurement Tools

• Create the Active-Learning Environment
Technology Resources

- Studio @ Purdue
- Classroom Response System
- Adobe Connect
- IT Support Staff
- Advanced Classrooms
Roland G. Parrish Library of Management and Economics
KRAN 250

- Collaborative computer groups
- Multiple interactive Smart Boards and white boards with document capture capabilities
- BoilerCast audio recording
- Seats40

Hicks Undergraduate Library
B848

- Collaborative work tables
- Projectors, Smart Boards, and white boards
- Seats 117
Hicks Undergraduate Library

G980D

- Collaborative work stations
- Dynamic media projection capabilities
- Seats 72

Hicks Undergraduate Library

B853

- Collaborative work tables
- Multiple projectors
- Seats 90
Mission Statement

Our mission is to improve student competency and confidence through redesign of foundational courses by using research findings on sound student-centered teaching and learning.
Program Assessment Dimensions

Faculty Change

Student Perceptions

Student Learning and Retention
Program Assessment Dimensions

• Faculty Change
  • Persistence and breadth of change
  • Faculty views and attitudes
  • Institutional cultural change

• Student Perceptions
• Student Learning and Retention
Program Assessment Dimensions

- Faculty Change
  - Persistence and breadth of change
  - Faculty views and attitudes
  - Institutional cultural change

- Student Perceptions
  - Classroom climate
  - Impacts on them

- Student Learning and Retention
Program Assessment Dimensions

- Faculty Change
  - Persistence and breadth of change
  - Faculty views and attitudes
  - Institutional cultural change

- Student Perceptions
  - Classroom climate
  - Impacts on them

- Student Learning and Retention
  - Course grades (current and later)
  - Retention at the institution
  - Learning
Challenges

• Faculty from different disciplines
• Faculty with different goals and background
• Uniform and objective measures of classroom atmosphere
  • RTOP → CEQ
• Uniform measures of student learning
• Identifying specific outcome goals for IMPACT
Faculty Change

• Research Questions
  • What are faculty expectations for IMPACT as a professional development program? What did faculty get out of their participation in IMPACT FLC?
  • What are faculty goals for course redesigns? What redesigns did faculty implement? What were the barriers and supports during their redesign and implementation?
  • Is the transformation achieved in IMPACT transferred to other courses taught by IMPACT faculty fellows?
  • What percentage of the courses leave IMPACT with five clearly defined learning objectives and associated assessments?
  • What is the distribution of learning objectives related to each level of Bloom’s taxonomy?
  • What is the effect of IMPACT on the attitudes of administration and non IMPACT faculty with respect to teaching and learning?
Faculty Change: Interviews and Surveys with Faculty Fellows

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<td>Future</td>
<td>Survey</td>
<td>Survey with FG</td>
<td>Long. Survey</td>
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Faculty Change: Examples

- Faculty expectations
  - Open-ended survey
    - Example items:
      - How will your participation in this program affect your classroom teaching strategies?
      - Specifically, what goals do you have for implementing the instructional redesign program?
  - Individual interview protocol
    - Example questions:
      - What are your expectations for the course redesign process?
      - What are your current classroom practices?
      - What does course redesign mean to you?
Faculty Change: Examples

• Benefits of participation in the FLC
  • Open-ended survey
    • Example items:
      • What were the most useful lessons you learned from these FLC sessions for your course redesign?
      • What could make these sessions more useful for your course redesign?
  • Individual interview protocol
    • Example questions:
      • What did you learn from the IMPACT professional development experience as a whole?
      • How will your participation in the IMPACT program affect your classroom teaching strategies?
Faculty Change: Examples

• Specifics of faculty redesigns
  • Individual interviews
    • Example questions:
      • What was the specific course redesign that you implemented?
      • Was the redesign that you implemented different from the original redesign you had planned?

• Benefits and challenges of redesign
  • Individual interviews
    • Example questions:
      • What key lessons did you learn about the implementation of course redesigns in general?
      • What were the benefits? What were the challenges?
      • What did you gain from the process?
Faculty Change: Faculty Fellow Development

• Summary of preliminary results

• First cohort

• Faculty
  • Learned about several approaches to course redesign
  • Adopted new teaching strategies and recognized effective current strategies
  • Reported that their redesigns enhanced student engagement in class
Faculty Change: Faculty Practice

- What percentage of the courses leave IMPACT with five clearly defined learning outcomes and associated assessments?

- Data collection
  - Explicit learning outcomes mapped to appropriate assessments by faculty
Faculty Change: Faculty Practice

• What is the distribution of learning outcomes related to each level of Bloom’s taxonomy?
  • Data collection
    • Explicit learning outcomes mapped to the appropriate level of Bloom’s taxonomy by faculty
## Faculty Change: Faculty Practice

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Faculty Change: Non-participating Faculty

• What is the effect of IMPACT on the attitudes of administration and non IMPACT faculty with respect to teaching and learning?

• Data collection: Survey
  • Respondents: faculty in the department of IMPACT fellows who had already implemented their redesign
  • Example questions:
    • Were you previously aware of the IMPACT project?
    • How have you heard of the IMPACT project?
    • Have you considered changing your teaching practices in any way as a result of your awareness of the IMPACT project?
Student Perceptions

• Research questions

• Do students participating in IMPACT courses perceive these courses as engaging them in active learning?

• Do students participating in IMPACT courses feel an enhanced sense of confidence and competence?
Student Perceptions

• Do students participating in IMPACT courses perceive these courses as more engaging than traditional versions of the courses?

• Data collection
  • Surveys
    • Classroom Experience Questionnaire (CEQ)
      • Inspired by the Reformed Teaching Observation Protocol
      • Developed for student self-report
      • Piloted, then revised/shortened
    • Learning Climate Survey
      • Short form
      • Just began implementation
Student Perceptions: CEQ

• Classroom Experience Questionnaire Items
  • The instructor provided opportunities for students to challenge opinions expressed in class.
  • The instructor provided opportunities for students to challenge opinions expressed in class.
  • The instructor connected course content to students’ experience and knowledge.
  • The instructor asked students to explain their ideas.
  • The instructor encouraged students to participate actively in class.
  • The instructor provided opportunities for students to ask questions.
  • The instructor provided opportunities for students to process new information.
  • The instructor allowed students to answer a question or solve a problem in more than one way.
  • The instructor maintained a climate of respect within the class for what others had to say.
Student Perceptions: Learning Climate

- Learning Climate Survey
  - My instructor provides me with choices and options on how to complete the work.
  - My instructor understands my perspective.
  - My instructor encourages me to ask questions.
  - My instructor listens to how I would like to do things.
  - My instructor tries to understand how I see things before suggesting a new way to do things.
  - My instructor stimulated my interest in the subject
Student Perceptions: Classroom Environment

- Pilot results summary
  - Used comparison sections for four courses
  - Mixed results
    - Results vary by course
    - May be a result of instructor/implementation effects
- New data set should help clarify
  - Compare CEQ and LC scales
  - Collect within group data
Student Perceptions

• Do students participating in IMPACT courses feel an enhanced sense of confidence and competence?

• Methods
  • Survey
  • Competence Scale from Needs Satisfaction Survey
  • Confidence Level Survey

• First waves of data currently being collected
Student Perceptions

**Competence Scale**
- I do not feel very competent in this class.
- People in class tell me I am good at what I do.
- I have been able to learn interesting new skills in this class.
- Most days I feel a sense of accomplishment from being in this class.
- In this class I do not get much of a chance to show how capable I am.
- When I am in this class I often do not feel very capable.

**Confidence Scale**
- I feel confident in my ability to learn this material.
- I am capable of learning the material in this course.
- I am able to achieve my goals in this course.
- I feel able to meet the challenge of performing in this course.
Student Learning and Retention

- Research questions
  - Does the implementation of IMPACT courses improve course grades compared to non-IMPACT versions of the same class?
  - Does student participation in IMPACT courses improve student performance in selected future courses?
  - Does participation in IMPACT courses improve student critical thinking skills?
  - Does participation in IMPACT courses improve retention to the institution after one year?
  - Do students involved in IMPACT have better four and six year graduation rates?
  - Do students involved in IMPACT courses perform better on faculty identified measures of learning?
Student Learning and Retention

- **Data**
  - Course grades
  - One year retention
  - Four and six year graduation rates

- **Analysis strategies**
  - Comparison sections when available
  - Historical course data

**Cohort 1 results:**
- Only grades have been analyzed
- Higher grades overall
Student Learning and Retention

• Does student participation in IMPACT courses improve student performance in selected future courses?

• Data collection
  • Grade comparison between students who experienced an IMPACT course and those who did not
  • Currently working with IMPACT faculty to develop lists of relevant post-requisite courses for each IMPACT course that can help narrow this comparison
Student Learning and Retention

• Does participation in IMPACT courses improve student critical thinking skills?
  • Data collection
    • In development
    • Considering use of VALUE Rubric for Critical Thinking
Student Learning and Retention

• Do students involved in IMPACT courses perform better on faculty identified measures of learning?

• Data collection
  • Differentiated by course
  • Comparison with concurrent traditional version of course where possible
  • Comparison with baseline level of IMPACT course (pre-post design) when possible
Lessons Learned

• Both course-specific and universal student outcomes need to be measured
• Faculty participation in assessment can be challenging to attain, but is essential to measuring course-level changes
• It is possible to coordinate large-scale course reform across university colleges
Questions?

• Thank you for your attention!

• Questions for you to consider:
  • What kinds of course transformation efforts has your institution undertaken?
    • How are you assessing these efforts?
    • What are the challenges you have faced?
  • What aspects of the IMPACT effort do you find relevant to your institution’s efforts?
  • What is the IMPACT project NOT examining or assessing that we should be?