Common conversations about teaching and learning: Making an IMPACT

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COMMON CONVERSATIONS
ABOUT TEACHING AND
LEARNING: MAKING AN IMPACT

Clarence Maybee, Catherine Fraser Riehle, Michael Flierl
Purdue University
Three Conversations

- Campus-wide
- Faculty Learning Community (FLC)
- IMPACT Team
CAMPUS-WIDE CONVERSATION
Goals of IMPACT

- Increase student engagement, competence, and learning gains.
- Focus course redesign on research-based pedagogies.
- Refocus the campus culture on student-centered pedagogy and student success.
- Reflect, assess, and share results to benefit future courses, students, and institutional culture.
Individual Instructors to Departments

- **2012**: Instructors interested in teaching innovations
- **2013**: Instructors of core courses
- **2014**: Departmental interest in select courses
- **2015**: Departmental interest in curricular development

Evolving Interest in Participation
Supporting Curriculum Development

Purdue Polytechnic Institute

**Summer 2015**
- 6-week intensive IMPACT
- 2-week development of Polytechnic coaching model
- 2-day workshop with 35 Polytechnic faculty

**Fall 2015 – Spring 2016**
Polytechnic coaches mentor the 35 faculty
Demand for Active Learning Classrooms

- Hicks Undergraduate Library
  - Capacity: 90
- Capacity: 72
- Capacity: 126

26 Active Learning Classrooms

Spring 2016
- 41 Spaces

Fall 2017
- 73 Spaces

Wilmeth Active Learning Center
2016 IMPACT Symposium

- Presentation on creating student engagement
- Faculty-led table discussions
  - Forging tomorrow’s workforce
  - Empowering diverse learners
  - Fostering student success

Dr. George Kuh presenting at the Symposium
IMPACT Librarians

- Recognizing our own expertise
- Sharing teaching and learning innovations with Purdue Libraries faculty
- Developing new methods for information literacy instruction
FLC CONVERSATION
Goals of IMPACT

- Increase student engagement, competence, and learning gains.
- Focus course redesign on research-based pedagogies.
- Refocus the campus culture on student-centered pedagogy and student success.
- Reflect, assess, and share results to benefit future courses, students, and institutional culture.
FLC

- 13 weeks
- “Flipped”
  - LOTS vs. HOTS
- 3 Fellows + 3 Support staff/faculty
Key Deliverables

- Research Question
- Learning Outcomes and Objectives
- Assessment Map
- Learning Activities
Case #1 – Mat Sutton (IT 450)
Learning Outcomes

- **Apply** compound interest factors to establish economic equivalencies
- **Use** present worth analysis to evaluate alternatives
- **Calculate** a project’s discounted payback period
- **Use** annual worth analysis to evaluate alternatives
- **Calculate** a project’s breakeven rate of return
- **Use** rate of return to evaluate alternatives
Revised Learning Outcomes

- Apply compound interest factors to establish economic equivalencies
- Evaluate alternatives using various economic analysis methods
- Apply economic analysis concepts to personal finance situations
- Calculate tangible asset depreciation for book values and tax purposes
Case #2 – Larry DeBoer (AGEC 217) and Esteban Garcia (CGT 118)
## Final Exam/Project Assessment Template

<table>
<thead>
<tr>
<th>LO &amp; specific objective</th>
<th>Bloom's #</th>
<th>E1 Questions</th>
<th>E2 Questions</th>
<th>E3 Questions</th>
<th>% of grade</th>
<th>Lesson Plan Brief Description</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>LO1: 1. Predict market equilibrium and changes in equilibrium.</td>
<td>2</td>
<td>6, 7, 20, 28, 29, 35, 39</td>
<td>23,</td>
<td></td>
<td>3.3%</td>
<td>02 - Supply and Demand</td>
<td>Week 3</td>
</tr>
<tr>
<td>Infer whether a change in economic conditions affects the behavior of buyers or sellers.</td>
<td></td>
<td>7, 8, 12, 15, 20, 23, 35, 39</td>
<td>11, 23</td>
<td></td>
<td>6.3%</td>
<td>02 - Supply and Demand</td>
<td>Week 3</td>
</tr>
<tr>
<td>Infer whether the change affects the demand (supply) curve positively or negatively.</td>
<td>3</td>
<td>10, 21-23</td>
<td>4, 9, 30,</td>
<td>28-30,</td>
<td>4.2%</td>
<td>03 - Equilibrium, ongoing</td>
<td>Weeks 4-9</td>
</tr>
<tr>
<td>Illustrate how a shift in supply (demand) affects quantity and price in equilibrium.</td>
<td>3</td>
<td>24</td>
<td>2, 5, 8, 17, 28, 35, 39</td>
<td>14, 33,</td>
<td>4.2%</td>
<td>04 - Elasticity, ongoing</td>
<td>Weeks 5-9</td>
</tr>
<tr>
<td>LO2: 2. Identify costs and benefits involved in economic decision making.</td>
<td>4</td>
<td>14, 32</td>
<td>9, 40</td>
<td></td>
<td>1.7%</td>
<td>01 - Trade and Comparative Advantage, ongoing</td>
<td>Week 1</td>
</tr>
<tr>
<td>Identify opportunity costs when presented with a hypothetical economic agent’s choice.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>00 - The Nature and Method of Economics</td>
<td>Week 1</td>
</tr>
<tr>
<td>Identify the benefits of a hypothetical agent’s choice.</td>
<td>2</td>
<td>19</td>
<td></td>
<td></td>
<td>0.4%</td>
<td>00 - The Nature and Method of Economics</td>
<td>Week 1</td>
</tr>
<tr>
<td>Infer whether the opportunity cost (benefit) is diminishing or not.</td>
<td>2</td>
<td>21</td>
<td></td>
<td></td>
<td>0.4%</td>
<td>00 - The Nature and Method of Economics</td>
<td>Week 1</td>
</tr>
<tr>
<td>State conditions under which a hypothetical agent will rationally choose an action.</td>
<td>4</td>
<td>6, 12, 22, 26-27, 40</td>
<td>3, 40</td>
<td></td>
<td>3.8%</td>
<td>06 - Price System and Efficiency</td>
<td>Week 8</td>
</tr>
</tbody>
</table>
Reflection & Self-assessment

Project 2

In this project, I was able to:

- Compose digital images that have an adequate format, color space and resolution
- Manipulate images and digital tools to create realistic visualizations
- Demonstrate effective use of the principles of color as affected by light and shadow

Project strengths

Project weaknesses
Research Question:
- “How can I make OSHA Safety Regulations more exciting and engaging?”
<table>
<thead>
<tr>
<th>BCM 457</th>
<th>Learning Outcomes</th>
<th>Student-Centered Learning</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Safety</td>
<td>1. Create a safety plan to manage job site operations in accordance with OSHA Safety Regulations (Create)</td>
<td>Autonomy</td>
<td>Classroom Space</td>
</tr>
<tr>
<td></td>
<td>2. Evaluate and mitigate job site hazards (Evaluating)</td>
<td>Competence</td>
<td>Information Use</td>
</tr>
<tr>
<td></td>
<td>3. Determine appropriate safety equipment &amp; procedures for construction activities (Evaluate)</td>
<td>Relatedness</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Analyze the costs of accidents (Analyze)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Use key safety phrases in Spanish to communicate with Hispanic workers (Apply)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Active Learning Activities, pedagogies, and/or Educational Practices**

- **Group/Class Discussion**
  - Case studies and real group discussions
- **Reflection**
- **Challenging/Fun activities**
  - Quiz Show
  - Role Play
- **Lecture**
  - Lectures will be punctuated by small group work, quizzes, and review activities.
- **Demonstration**
  - Medical Arts with Construction Safety Equipment
- **Low-Stakes Assessments**
  - Low-stakes quiz to be taken at beginning of class.
- **Review**
  - Review will cover Learning Objectives 2-6

**Methods of Assessment**

- **Group-Project**
  - Creation of Safety Plan for given project
- **Low-Stakes Assessment**
  - Low-stakes quizzes to be taken at beginning of class.

**Student-Centered Learning**

- **Autonomy**
- **Competence**
- **Relatedness**

**Other**

- Classroom Space
- Information Use

**Other Activities**

- Students will be asked to find information outside of assigned texts/reading to research technology to improve safety.
IMPACT TEAM CONVERSATION
Primary

- Leading FLC discussions
- Monitoring progress
- Communication lead
- Biweekly reporting
- Dashboard surveys
ME
US
YOU
Emily Allen
Associate Dean
Honors College

Jerri Faris
Continuing Lecturer
Communication

Ian Kaplan
Associate Professor
Entomology
Emily Allen
Associate Dean
Honors College
Jerri Faris
Continuing Lecturer
Communication
“Got some of my best scores this semester – 4.8/4.9 on course/instructor reviews! ☺ And some quite positive written-in comments … This feels great after all the time and effort that went into learning how to teach last semester in IMPACT and the implementation this semester. Thought I’d share since you guys led me through this journey.”
“This class was excellent … It was very engaging, relevant, up-to-date, well illustrated, and organized … The subject matter alone was fascinating but what really made this class exceptional was the manner in which the subject matter was presented. This course more than any other turned my brain on and invited me to question, think critically, and grow as a scientist. This class succeeded in not only giving me useful skills, but in helping me become a more effective thinker …”

- undergraduate student, per the instructor / course evaluation
THANK YOU.