“The lecture is a process whereby the lecture notes of the instructor get transferred to the notebooks of the students without passing through the brains of either.”

-Eric Mazur

THE BACKWARDS CLASSROOM: USING PEER INSTRUCTION TO FLIP THE CLASSROOM

A Teaching Strategy for Online and Hybrid Courses

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Wilmington University

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At the end of this presentation:

1. Participants will understand the concepts of Peer Instruction and how it can be used to effectively flip the classroom.

2. Participants will learn how to create a flipped classroom experience using peer instruction.

3. Practical applications and quantitative data on the outcomes of student performance will be shared.

4. Qualitative data from the faculty who participated in the peer instruction modified faculty certification course will be outlined.
Background

Cristi D. Ford, Ph.D.  
University of the District of Columbia

- Assistant Professor, Center for Academic Technology
- Faculty lead: Online Learning Academy
- Coordinates campus-wide professional development for online learning
- Works as instructional designer on other grant funded projects
- Online Faculty in Psychology

Patricia Robak, Ph.D.  
Drexel University

- Clinical Assistant Professor, Finance
- Over 10 years of Online Learning Experience including hybrid and 100% distance learning.
- Presented online, hybrid, and F2F-augmented teaching and learning initiatives and progress to Middle States Evaluation Team
Background/Interest

- Dr. Eric Mazur
- Millennial Learners
  - “Work style reflects team oriented development: collaborate to succeed”
  - “Millennials grew up on teams. They had to collaborate with others from an early age”
- UDC’s focus on deep learning
  - New Provost Ken Bain
- Drexel’s focus on experiential learning
  - Mission Statement
    LeBow College of Business integrates Drexel University's technological prominence with experience-based education to develop world-class leaders and advance knowledge through research.

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Learn Peer Instruction Using Peer Instruction to Flip the Classroom
Let’s see what you grasp about the concept of Peer Instruction
Goals of Peer Instruction

- Outside of class:
  - readings/coursework

- In class:
  - Administer concept tests that have them apply the basic information.
  - Based on the results, review topics where students demonstrate a weakness.
  - Experiential learning and critical application
## Flipped Classroom & Peer Instruction

### Similarities: Flipped & Peer Instruction

- Both focus on using outside class time to offer students the opportunity to watch lectures and activities.
- Both use the in class time to engage students in activities around the concepts using practice problems, case studies, etc.

### Differences: Flipped vs. Peer Instruction

<table>
<thead>
<tr>
<th>Peer Instruction</th>
<th>Flipped Classrooms</th>
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<tbody>
<tr>
<td>Systematically relies on the concept engagement that takes place in the classroom to be peer driven</td>
<td>Allow concept engagement to rely on the help of instructors</td>
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<tr>
<td>Peer Instruction relies on concept engagement by the creation of a ConcepTest</td>
<td>Recorded lectures drive the flipped classroom model.</td>
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Experiential Learning
Work with your peers

Experience #1 – Practice Problems

- Develop 3 different ways to administer concept tests
- Discuss ways to ensure that students do their pre-class work
Dr. Ford has been implementing the process of peer instruction successfully in her classes for 3 years and feels very good about the success of her students at mastering the coursework at levels beyond what she had experienced prior to the implementation of peer instruction. When she enters the classroom for the fall term, she notices that one of her students is disabled and must use a keyboard to communicate all his thoughts and ideas.

What issues does Dr. Ford face with respect to her ability to continue using Peer Instruction in her classroom?
Experiential Learning
Work with your peers

Experience #3 – Games

Let’s play…
<table>
<thead>
<tr>
<th>Instruction</th>
<th>Testing</th>
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<tbody>
<tr>
<td>$100</td>
<td>$100</td>
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<tr>
<td>$200</td>
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</tbody>
</table>
A: Eric Mazur
Q: Who is the creator of Peer Instruction?
A:

• Administer concept tests
• Based on the results, review topics where students demonstrate a weakness.
Q: What are the in class goals of Peer Instruction?
A: Short conceptual questions on the subject being discussed
Q: What is a concept test?
A: Multiple choice quizzes, flashcards, clickers or cell phones.
Q: What are the ways to administer concept tests?
Peer Instruction and Hybrid Courses: The Perfect Combination!

Hybrid Course

Online

Out of Class Work:

- Readings
- Lecture Videos
- Other

In Class

In Class Work:

- Concept Tests
- Review of specific lecture material
- Experiential learning activities
Implementing in Online Courses

- Online Lectures/Readings
- Concept tests -> mini assessments
- Discussion Boards
  - Pose questions or exercises specific to areas students have demonstrated weakness
  - A perfect forum for peer instruction – allows students to further their understanding of knowledge by teaching each other.
Implementation of Peer Instruction with Faculty

- At UDC Faculty are Trained to Teach and Build an Online or Hybrid Course through a 6 week course.
- Used Soft Chalk Lesson to present outside of Class Readings
  - Example of Peer Instruction Topics Included:
    - Learning Objectives
    - Andragogy & Heutagogy
    - Assessment in Online Learning
Dr. Robak has implemented peer instruction techniques in face to face, hybrid and online finance courses since 2009.

In peer instruction led courses, all content is delivered via peer instruction techniques:
- Required pre-class work (readings and online lectures)
- Daily concept test assessment
- Tailored lecture based on results of concept tests
- Daily a experiential learning and critical thinking activities
Data from the evaluation of the Online Learning Academy

Q. The use of the multiple choice concept tests and flashcards made the lectures more interesting:

- 20% responded every time
- 40% responded most of the time
- 40% responded some of the time

(Scale was never, rarely, some of the time, most, and every)
Q: Compared to a standard lecture, the use of the multiple choice question and flash cards helped m to better understand the material:

- 40% agreed strongly
- 20% agreed moderately
- 40% agreed slightly
Evaluation Data - Students

- 15% increase in students earning As
- 4% increase in students earning Fs

- Demonstrates the ownership that students take in their own learning. It does not work for students unwilling to put the effort in.
Evaluation Data - Students

- 23% increase in attendance
- Students feel more engaged in class activities, more eager to attend.
- Attendance is more critical given the expectations during the class period.
Evaluation Data - Students

- 10% increase in average grade on application activities

- In evaluation areas where students need to apply the information, a better understanding of the material led to better results on these types of assessments.
Peer Instruction

- So you have experienced and learned about peer instruction by doing peer instruction.

- Now we want to give you an opportunity to think about your own teaching.
Create A Group

- Determine a group of 2-5 people in the room with similar disciplines.
  - Use your post card to write your discipline and circle around the room to find your people 😊
  - Get the graphic organizer from the facilitator
Your ConcepTests

- Now that you have had an opportunity to create a group, we want you think about the important elements of a ConcepTest.

- We know it needs to be an opportunity for student (or the others in this workshop) to show you what we know based on what you have given us.

- Think about making sure the ConcepTest has the essential elements as documented on your guide.
NOW IT'S YOUR TURN.
Challenges

- Implementation and using information on concept tests
  - clickers
- Students with disabilities
- Others?
Testimonial: Ford Online Learning Academy

- “The multiple choice questions and flash cards gave me another interesting perspective to teaching face to face. It helped me to understand and think about the information I read and apply the information. A great technique for use in the classroom.”

- “They helped me get feedback on my mastery of the material. They gave me a break from merely reading.”
Testimonial: Robak Finance Course

- I enjoy Professor Robak's teaching style. She mixes things up with group projects and exercises and I never got bored in her class. I was able to learn many new aspects of finance. Occasionally I will have a finance course where I learn much more than in my other courses. This was one of them.

- Prof. Robak utilized the online aspect of the course very well through class discussions and online lectures. It was helpful to be able to watch the lectures anytime we wanted and Prof. Robak ensured we watched the lectures before class by quizzing us on the lecture during the following class period.
So Now What...How can you get started?

- Read Eric Mazur’s Book *Peer Instruction*
  - Focus on Chapters 2, 3, 5 & 6

- Talk to You Neighbor Blog: Great Peer Instruction networking opportunity
  - Hear what other faculty are doing and get some tips