



## Innovative Methods of Instructional Delivery CTE Academic Excellence Workshop

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# AGENDA

- Introduction
- Integration of Teaching and Research
- The Flipped Classroom
- Active Instructional Strategies
- Concluding Thoughts
- Resources to Use
- Q and A



# Setting the Stage

“Our nation depends on helping today’s extraordinary diverse generation of students reap the benefit of their studies in college. We must make excellence inclusive and expand access to our best educational approaches to our students.”

--- Carol Geary Schneider  
President of AACU



# Introduction

- In today's classrooms, we find students with varying levels of preparation, interests, and learning styles, which require various teaching strategies to meet their needs.
- Today's session will focus on integrating teaching and research as well as innovative strategies which might be used in a student-centered environment.





# Integrating Teaching and Research

Dr. Leona Johnson

# Teaching and Research

- Are teaching and research opposing forces?
- Faculty members spend considerable time teaching and conducting research.
- There is a natural and deep connection between the processes of teaching, learning, and discovery.
- Student involvement in undergraduate research correlates positively with student retention and with their decision to attend graduate school (Weimer, 2010).
- Win/Win for Faculty and Students



# Building Your Passion for Research

- Research begins with a question.
- Cultivate your passion.
- So what are you intellectually curious about? That is where your passion lies!
- Be passionate about choosing your research projects.



# Best Practices: Integration of Teaching and Research

- Teaching as Scholarship
- Assign Research Projects as a course requirement.
- Embed Research in the Department's Course Curriculum.
- Faculty Research Mentorships
- Senior Capstones and other Mechanisms
- Research Symposiums



# Teaching as Scholarship

- Study your teaching practices.
- Use teaching “lessons learned” relative to classroom dynamics and methodologies to enhance scholarship and professional development.
- Mechanisms might include:
  - Conference Presentations**
  - Publications: The CTE Newsletter, Peer-Reviewed Journals, etc.**



# Best Practices: Assign Research Projects (Ali, 2013)

- When you first meet students, they have little or no basic scientific skills and knowledge necessary to conduct research nor do they have first-hand experience on how research is done.
- Assign research projects at the appropriate level of complexity, consistent with their academic (math, physics, computers, etc.) background and their experience.
- The research project may involve reading relevant scientific literature and conducting a web search to further their understanding of the basic concepts involved.
- Through exposition, training, and many hours of one-on-one mentoring and guidance, students gradually learn a great deal, and gain a strong sense of personal pride and ownership towards assigned projects.



# Best Practices: Embed Research in the Curriculum

- For example, the Department of Psychology has embedded research beginning with the Freshman Year in the curriculum, culminating in a final research proposal in the Senior Year.
- Students develop an individual topic to research throughout their matriculation - in combination with other course requirements which require the conduct of research.
- The culminating paper can also be used as a writing sample for graduate school applications; this gives the student a “leg-up” in acceptance.



# Best Practices: Mentorships (Ali, 2013)

- **By engaging students in research, they are:**
  - **Exposed to the excitement of research and discovery at an early stage in their academic lives;**
  - **Provided with a positive influence relative to their academic and career endeavors;**
  - **Assisted in developing a firm understanding of the underlying concepts and the relevant patterns and structures;**
  - **Engaged in learning what the possible conjectures are and how to seek possible ways to solve the research problem; and**
  - **Learning how to write reports and make presentations at conferences, win awards, and receive honors.**



# Best Practices: Mentorships

- Each Semester, Faculty Members in the Department of Psychology lead multiple research teams with students, training includes hands-on conduct of research, SPSS tutoring, etc.
- This culminates in:
  - Presentations at Conferences
  - Opportunities to network at Conferences
  - Opportunities for joint publications



# Sample - HU/Faculty Student Collaborations



# Best Practices: Senior Capstones and Other Mechanisms

- The Department of Psychology requires a finalized research proposal which is completed in the Senior Capstone Course.
- Independent Study in the Department of Psychology allows students to conduct research independently under the supervision of a faculty member.
- Other departments require a thesis as well as a thesis defense as part of their program.



# Best Practices: Research Symposia

- The School of Science, Department of Psychology, and other academic units host yearly research symposia where students get the opportunity to showcase their research.
- Students are also exposed to guest researchers in the discipline.





# Active Learning Strategies

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# Active Learning Strategies

- Flipped Classroom
  - Inverted
  - Reverse
- Questions Students Have
  - Muddiest Point
- Learning Starts With a Question
  - Think, Pair, Share





# FLIPPED CLASSROOM

# Flipped Classroom: Objectives

- Describe the flipped or inverted classroom.
- Describe the pedagogical principles that support flipping the classroom.
- Discuss “best practices” for use of the flipped classroom.
- Describe potential challenges to flipping.



Rate your knowledge of the flipped or inverted classroom technique.

1. Poor
2. Fair
3. Average
4. Good
5. Excellent

# In your opinion, how would you best describe the flipped or inverted classroom?

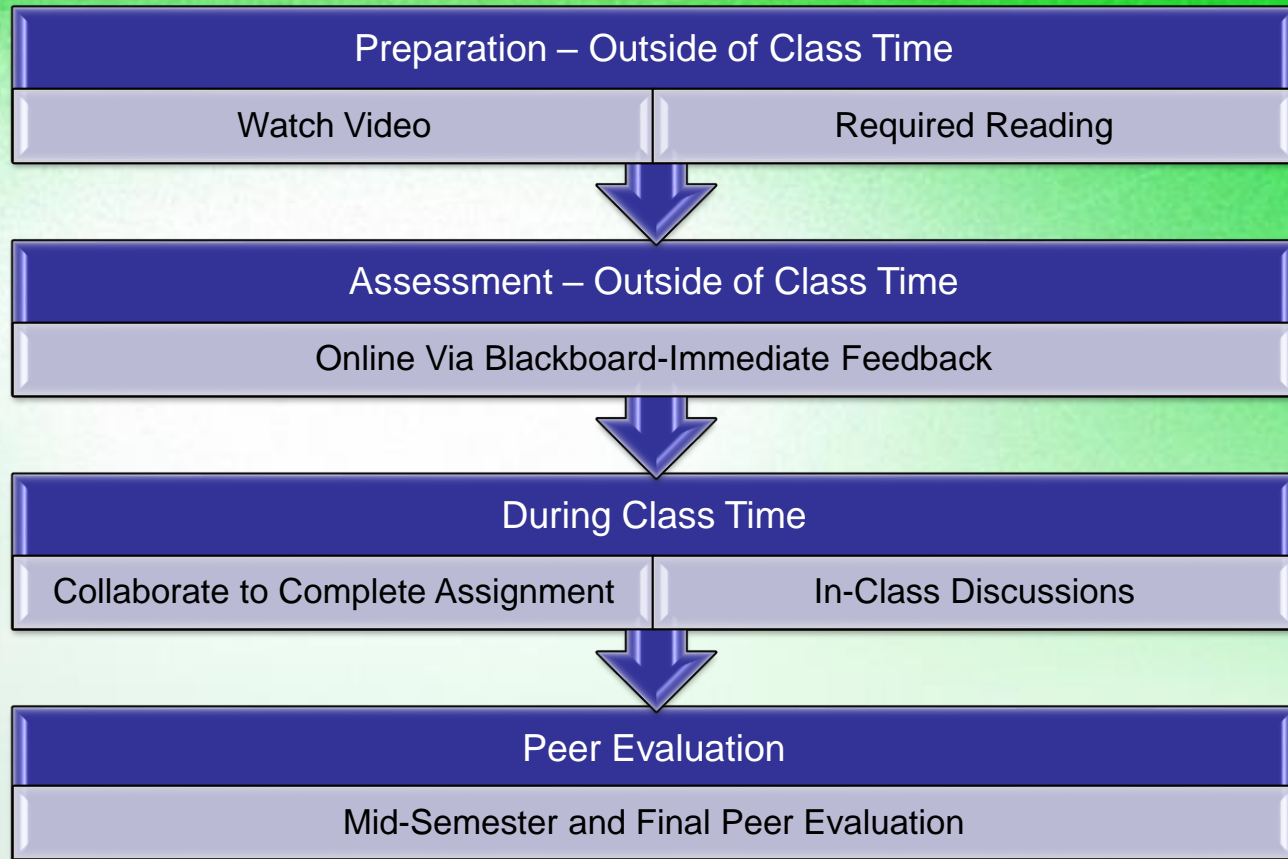
1. It is synonymous for online videos.
2. The lecture takes place out-of-classroom and classroom is reversed for activities.
3. Students spend the majority of class time watching videos.
4. It is recommended for students who miss class.

# Definition and Purpose

- Definition: The flipped classroom is a pedagogical model in which the typical lecture and homework elements of a course are reversed.
- Purpose: To redirect class time into a workshop where students can inquire about lecture content, test their skills in applying knowledge, and interact with one another in a hands-on activity.



# How does it work?



# Flipping Pedagogy

- Learners have control over their learning.
- Learners are more engaged in the classroom.
- Classroom interaction is increased.
- Real-time feedback for real-time remediation.
- Instructors can provide assignments that test student's ability to critically think.
  - Bloom's Taxonomy – Creating, Evaluating, Analyzing, Applying...



# Best Practices - Design

- The flipped design can be used for an entire course or for select lectures.
- Pre-class assessments are necessary for students to be properly prepared.
- Peer evaluation should be utilized to hold students accountable for in-class participation and group work.



# Best Practices – Recorded Lectures

- Clear learning objectives provided at the start of each lecture.
- Lectures should be 15 minutes or less.
- Lectures should be embedded with questions or other active learning prompts.



# Best Practices - Classroom

- Develop specific assignments for each classroom flip.
- Students should work in groups.



# Flipped Classroom: Challenges

## Instructor Challenges

- An effective flip requires careful preparation.
  - Recorded lectures require effort and time.
- Out-of-class and in-class elements must be aligned.

## Student Challenges

- Complaints about loss of face-to-face lectures.
- Students may feel it is fine to miss class.
- Equipment issues.



# Take a minute to reflect...

- What are the benefits of using this technique?
- How might you incorporate this technique into your classes?
- What are the challenges that you might foresee with this technique?





Muddiest Point Technique

# QUESTIONS STUDENTS HAVE

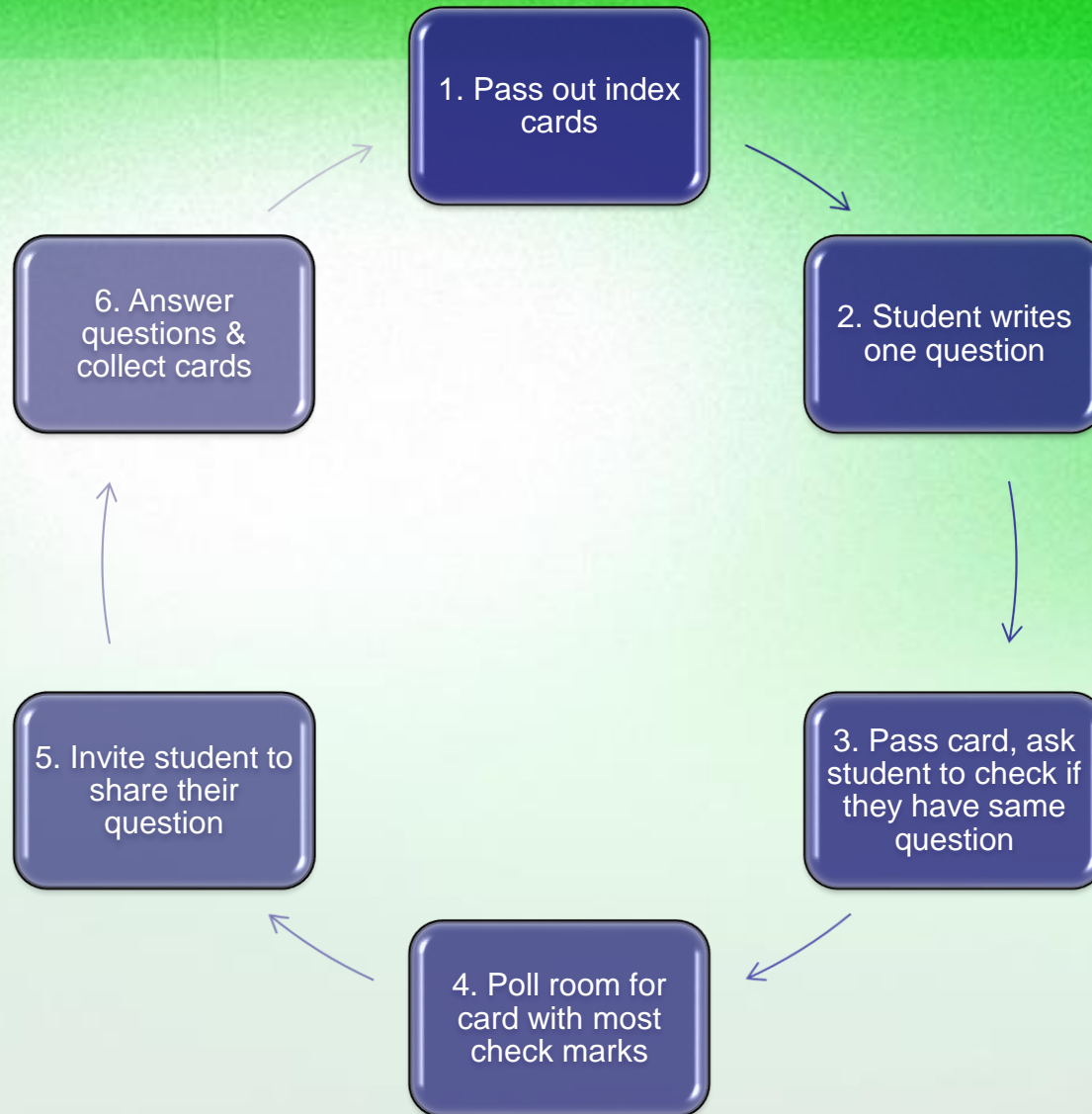
# Questions Students Have

## Muddiest Point Technique

- Definition: The Muddiest Point helps assess where students are having difficulties. The technique consists of asking students to jot down a quick response to one question: “What was the muddiest point in [the lecture, discussion, homework assignment, film, etc.]?” The term “muddiest” means “most unclear” or “most confusing.”



# Procedure





Think, Pair, Share

# LEARNING STARTS WITH A QUESTION

# Learning Starts with a Question

- Distribute a handout or diagram without details.
- Have students study the handout either individually or with a peer, they should:
  - try to make sense of handout
  - identify what they do not understand
  - write down questions they have about the diagram
- Reconvene class and have the student share their questions, you can do one of the following:
  - answer the questions
  - or listen to each question and then teach a preset lesson, making sure to answer the questions



# References

- Silberman, M. (1996) Active learning:101 strategies to teach any subject. Needham Heights Massachusetts: Allyn & Bacon.
- Westrick, S. (2013) Flipping the Pharmacy Classroom [PDF Document]. Obtained from the American Association of Colleges of Pharmacy website.
- Educause (2012) 7 Things You Should Know about Flipped Classrooms [PDF Document]. <http://www.educause.edu/library/resources/7-things-you-should-know-about-flipped-classrooms>



# Concluding Thoughts

- Teaching is both an opportunity and a challenge.
- The more we know about the implications of teaching pedagogy, the more we can develop productive solutions to maximize academic achievement - and prepare our students for a future in a global society.



# Thank You!!

- Q and A Period



# Resources To Consult: Just A Few

- Faculty Focus: [www.facultyfocus.com](http://www.facultyfocus.com); Sign up for their free newsletter!
- First Move (Chess as a teaching tool): [www.af4c.org](http://www.af4c.org)
- Brain Research – Dana Foundation: [www.dana.org](http://www.dana.org)
- Learning and the Brain Society: [www.edupt.com](http://www.edupt.com)
- Creative Problem Solving Institute:  
[www.creativeeducationfoundation.org](http://www.creativeeducationfoundation.org)
- Michael Michalko: [www.creativethinking.net](http://www.creativethinking.net)
- Educause (2012) 7 Things You Should Know about Flipped Classrooms [PDF Document].  
<http://www.educause.edu/library/resources/7-things-you-should-know-about-flipped-classrooms>

