Circuits Virtual Community of Practice

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Session 7:
Making the classroom more interactive (Part 2)
May 2nd, 2013

Agenda

- Welcome and Learning Objectives ~ 5 mins
- Overview of readings on Active Learning ~ 15 mins
- Breakout Discussion: Examples of Active Learning ~ 30 mins
- Report Out: Sharing ideas and transferability ~ 25 mins
- Wrap-up & Plans for Session 8 ~ 5 mins

Session 7: Active Learning (con't)

In preparation for Session 7 (May 2nd):

- Review "Recommendations for making active learning work": http://www1.umn.edu/ohr/teachlearn/tutorials/active/recommendations/index.html
- Read and be prepared to discuss the following articles from the ASEE VCP portal
  - "Does Active Learning Work? A Review of the Research" by Michael Prince
  - Idea Paper #53: Active Learning Strategies in Face-to-Face Courses
- Post a detailed example of how you use active learning in your class (or, think of a possible implementation) in the Session 7 folder. Please **post by noon on Tuesday, April 30th**.
- Prior to the next session, review the examples posted on the portal.

Session 7: Learning Objectives

- For a specific active learning exercise (or approach), describe the key characteristics of the approach, articulate the possible impact on student learning, and identify the key resources/elements needed for successful implementation.
- Identify strategies for adapting active learning techniques and/or specific active learning exercises to your specific teaching context.

Overview of Readings: Evidence that it works (Prince)

- ***Active learning*** is an instructional method that engages students in the learning process.
- ***Collaborative learning*** is an instructional method in which students work together in groups toward a common goal.
- ***Cooperative learning*** is structured group work where students pursue common goals while being assessed individually.
- ***Problem Based Learning*** is an instructional method where relevant problems are introduced at the beginning of the instruction cycle and used to provide the context and motivation for the learning that follows.

Overview of Readings: Evidence that it works (Prince)

- To assess whether active learning "works," the broad range of outcomes should be considered:
  - factual knowledge
  - relevant skills
  - student attitudes
  - student retention
- Solid data is often not available, making comprehensive assessment difficult.

Overview of Readings: Evidence that it works (Prince)

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- Collaborative Le
- Cooperative Lea
- Problem Based L

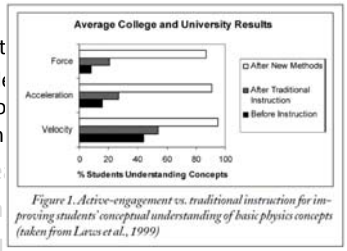

Figure 1. Active-engagement vs. traditional instruction for improving students' conceptual understanding of basic physics concepts (taken from Laws et al., 1999)

Overview of Readings: Evidence that it works (Prince)

- Active Learning
  - Activity in traditional lecture
  - Promoting student engagement
- Collaborative Learning - enhances academic achievement, student attitudes and retention when done in moderation
- Cooperative Learning
- Problem Based Learning

Overview of Readings: Evidence that it works (Prince)

- Active Learning
  - Activity in traditional lecture
  - Promoting student engagement
- Collaborative Learning
- Cooperative Learning - more effective than competition for promoting a range of positive learning outcomes (enhanced academic achievement and attitudinal outcomes) and enhances interpersonal skills.
- Problem Based Learning

Overview of Readings: Evidence that it works (Prince)

- Active Learning
  - Activity in traditional lecture
  - Promoting student engagement
- Collaborative Learning
- Cooperative Learning
- Problem Based Learning – Not always positive except in impact on attitudes. Requires skilled mentors.

Overview of Readings: Specific Strategies (Idea Paper #53)

- Laying the Groundwork
  - **Clarity**: What are your expectations for participation?
  - **Relevance**: Emphasize that active learning approaches used in class will be reflected in the tests, exams, and assignments
  - **Motivation**: Explain why you are using active learning and the benefits
  - **Climate**: Create a positive classroom climate (Ambrose et al., 2010)
    - Make uncertainty comfortable
    - Encourage multiple answers
    - Be mindful of low-ability cues
    - Use diverse examples
    - Establish and reinforce ground rules for interaction
    - Facilitate active listening
- It is critical to have a clear strategy, appropriate context, and to recognize limitations of any approach

Overview of Readings: Specific Strategies (Idea Paper #53)

- Some Approaches
  - TAPPS – Thinking Aloud Pair Problem Solving
    - Explainer & Questioner, reverse roles.
  - Three Step Interview
    - Instructor gives questions, one student interviews other, reverse
    - Two pairs join and Team of 4 shares with class
  - Think-Pair-Share
    - Short (30 sec) think time, pair, then share with group/class
    - 50% of students are actively vocalizing ideas
  - Visible Quiz
    - Signs are poor people's clickers
    - Immediately ID students who do not understand
  - Value Line
    - Line up according to opinion of answer
  - Send/Pass a Problem
    - Students/instructor writes problems
    - Each team generates solutions, ideas, etc and places them in folder, passed on to another team who does the same
    - Third team synthesizes the ideas in the folder

Overview of Readings: Making Active Learning Work (Univ. of MN)

- Challenge: Overcome student resistance
  - Clear instructions
  - Frequent implementation
  - Start small and simple
  - Explain reasons for using active learning
- Challenge: Maintain control
  - Keep it short and simple initially
  - Well-planned and executed activities
  - Have a strategy for concluding activity, refocusing
- Challenge: Manage time pressures
  - Consider learning objectives
  - Use other assignments to support/bridge gaps
  - Just because you say it, doesn't mean they learn it – avoid racing through material

Activity: Breakout Discussion

- Phase 1 (~5 minutes total)
  - Team members have 90 seconds each to present their idea:
    - **Problem**: What problem did they address?
    - **Implementation**: What was the approach?
    - **Impact**: How was student learning impacted?
- Phase 2 (~20 minutes total)
  - As a group, select one or two ideas to explore in greater detail
  - In the report out, be prepared to address:
    - **Appeal**: Why did this activity appeal to the group?
    - **Implementation**: brief description of key elements
    - **Resources**: logistics and support
    - **Impact**: Convincing evidence? Why is it worth the effort?
    - **Transferability**: How does one make it work in different contexts?

Group Reports

- Each group will report (~ 5 minutes each)
  - **Appeal**: Why did this activity appeal to the group?
  - **Implementation**: brief description of key elements
  - **Resources**: logistics and support needed for success
  - **Impact**: Convincing evidence? Why is it worth the effort?
  - **Transferability**: How does one make it work in different contexts?

Suggestion: Have individual with original idea present overview, followed by second individual discussing issues of transferability

Group order:

1. Jim, Michael G., Archie, Frank
2. Michael C., Aaron, Stella, Cecilia
3. Paul, Mohammed, Will, Miguel
4. Keith, Gloria, Joe, Zoulikha
5. Yacob, Melinda, Adrian, Jack, John

Session 8: TBD

In preparation for Session 8 (May 9th) & Session 9 (May 16th):

1. Possible topics
   1. Adoption: Commonly available resources & barriers
   2. Student Assessment
   3. Revisiting Topics – Teams, Learning Objectives, Motivation, Taxonomies
   4. Cool/Fun ideas we never got to talk about
   5. Continued VCP Collaboration
      1. Sharing content and ideas
      2. Collaborative projects/research
2. Definite topics
   1. Reflection
   2. Meeting in Atlanta in June – Report back to VCP
   3. VCP Meeting in August