

### Obstacles and barriers

Training of faculty

Culture of learning: the way faculty was taught, the way students are taught in high school, other college classes (primarily lecture based)

Resources available for specific classes (e.g. circuits)

Time needed to change course delivery

Lack of confidence in the whole technique (both the technique itself and our ability to implement it).

Need to do/experience it first to trust it.

### Overcoming barriers

Make training available

Compile best practices and resources for specific topics (e.g. circuit courses)

Gradual conversion over several semesters

Ask for mentorship from teaching academy (or similar)

Sit-in on classes that do active learning effectively on your campus

### Appeal

Addressing different learning styles

Make it more fun for students and faculty

Today's students are more interactive with their environment.

Fostering of relations among students

Peer role models

Deeper learning

## Obstacles

- Time for instructor development
- Time for topic coverage (will everything get covered?)
- Student Engagement - control of class
- Comfortable with "thinking on feet" - control

## Overcome

- Combined lecture/lab, increased time in class
- flipped class
- Students gain base understanding, may not know all of the little things, but get a strong base understanding
- Additional lecture/supplementary materials online

## Appeal?

Zoulikha - yes, but time prevents fuller implementation

Keith - yes, time issue again, but currently using guided inquiry approach

Joe - interested, beginning implement group work

- Barriers/obstacles?
  - o Time and number of topics to cover
  - o Hesitancy from some students

Students fear of failure

Logistics (classroom size, configuration)

- How can these be overcome?
  - o Ask students to try it out.
  - o Team building activities at the beginning.
  - o Include one activity per class to build confidence.
  - o Set time limit to activities.
  - o Build on complexity and speed

Make students read/learn outside of class

- Use puzzles to 'quiz' them on the assignment (DiscoveryCrosswordPuzzle)

- Why does it appeal to you or not?
  - o Students have cited team based problem solving and team discussions as one of most useful resources for learning.
  - o Students are engaged in learning and using course terminology
  - o See increase in student communication and engagement when present a more complex problem. Have been building up communication skills and competency skills, so feel confident to attempt problem.
    - Yes, address questions that come up during team discussions.
    - Yes, encourage class discussion, if student gives wrong answer, point out misconceptions, and mention.

NOTES:

Jim does active learning and converted 10 lectures to group work. Archie does peer instruction. Frank and Mike do not.

There does not need to be a big commitment to being active learning into a class. Jim spent significant time on his class but thinks upon reflection that it could be done with a lot less effort. Archie agrees: just pick an example problem and then let the students do it as an example themselves.

Archie tells his students they need to be responsible learners and will need to learn some of the material on their own. He has not received any pushback so far.

Frank asked about examples of active learning and initial start up. Archie did his development from scratch, but doesn't think there is a large entrance barrier.

Archie asked Frank why he would like to use active learning and he would like to see better student competencies after they complete the class. Jim thought students would learn more from circuits they relate to. Really likes the interactivity of walking around and listening to and helping students.

Eric Mazur, Learning Analytics software. Archie is trying to figure out how to use it. Allows students to communicate with you in the classroom via any Web enabled device.

Instructor prep and help time is a big issue.

What do we give up?

Longer class sessions help.

Group sessions take longer than we expect.

Tough for > 15 students.

Needs student commitment.

Faculty prep is best done in summer .

Hard to control the delivery of the learning activity ==> be ready to make changes on the spot

Appeal: Great for the students BUT how do we increase the efficiency of the faculty ?