

05 Active learning research and environments

Wednesday, June 15, 2016 12:25 PM

Today:

Review of yesterday's minute paper
Research on active engagement techniques
Active learning environments
Constructive criticism and mindsets
Practice 'microteaching'
Choose elective topics

Learned:

- clickers, peer learning (9)
- formative assessment (4)
- categories of assessments
- active learning
- idea: have students write exam questions

Questions:

- how to align assessment to learning objectives
- how to write a good concept question (2)

- how develop a whole lesson
- wish had finished microteaching before so could think about specifics

- how use clicker data over the years to improve

- how address high level and low level students (2)
- how address Bloom taxonomy: less coverage higher up?

- how not to waste too much time
- how much time for students to discuss, vs giving them the answer
- how efficient are assessment-based methods vs traditional?

Comparing Active Learning and Traditional Methods

Discuss:

There are lots of courses being taught using active learning methods and traditional methods. How could you compare the effectiveness of these courses?

Note: If you have read about this, you can choose to enlighten or to listen.

Ideas for Comparison

Clicker: Predict Results

Answer without discussing:

- A. traditional results are superior, but active learning shows promising trend
- B. data too scattered to show much
- C. there is no clear difference
- D. small advantage for active learning
- E. large advantage for active learning

Clicker: Predict Results (2)

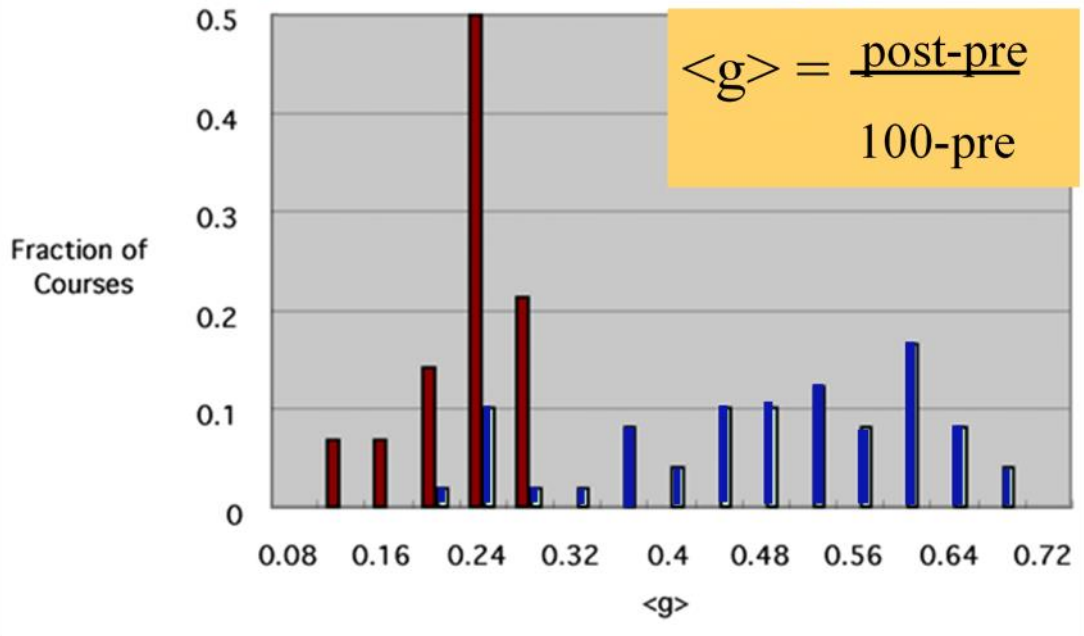
Answer after discussing:

- A. traditional results are superior, but active learning shows promising trend
- B. data too scattered to show much
- C. there is no clear difference
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Lead discussion to 'Need a metric. Force Concept Inventory, for example.' Then from raw scores to normalized gains. Those who did prereadings will have advantage. What did Hake consider 'active'?

Back to the FCI

red = trad, blue = interactive engagement



R. Hake, "...A six-thousand-student survey..." AJP 66, 64-74 ('98).

Other challenges/problems. See <http://www.cwsei.ubc.ca/resources/clickers.htm>

Active Learning Classrooms

Clayton Lewis

STRIPE

Discuss

- Does the seating arrangement in this room matter to teaching and learning, or not?

A) Yes

B) No

Arranging seats
Enhancing your learning?

A) Yes

B) Maybe

C) Thanks but no

International Interest

- <http://flexspace.org/>
- www.mcgill.ca/tls/spaces/tlswg/principles
- <https://cceeevents.umn.edu/national-forum-on-active-learning-classrooms>

Highlights

- Core idea: make it easy to divide a large class into small discussion groups
 - Round tables
- Enhancements include means of sharing work and ideas:
 - white boards
 - shared computer displays
 - fancy sound systems
 - etc etc