

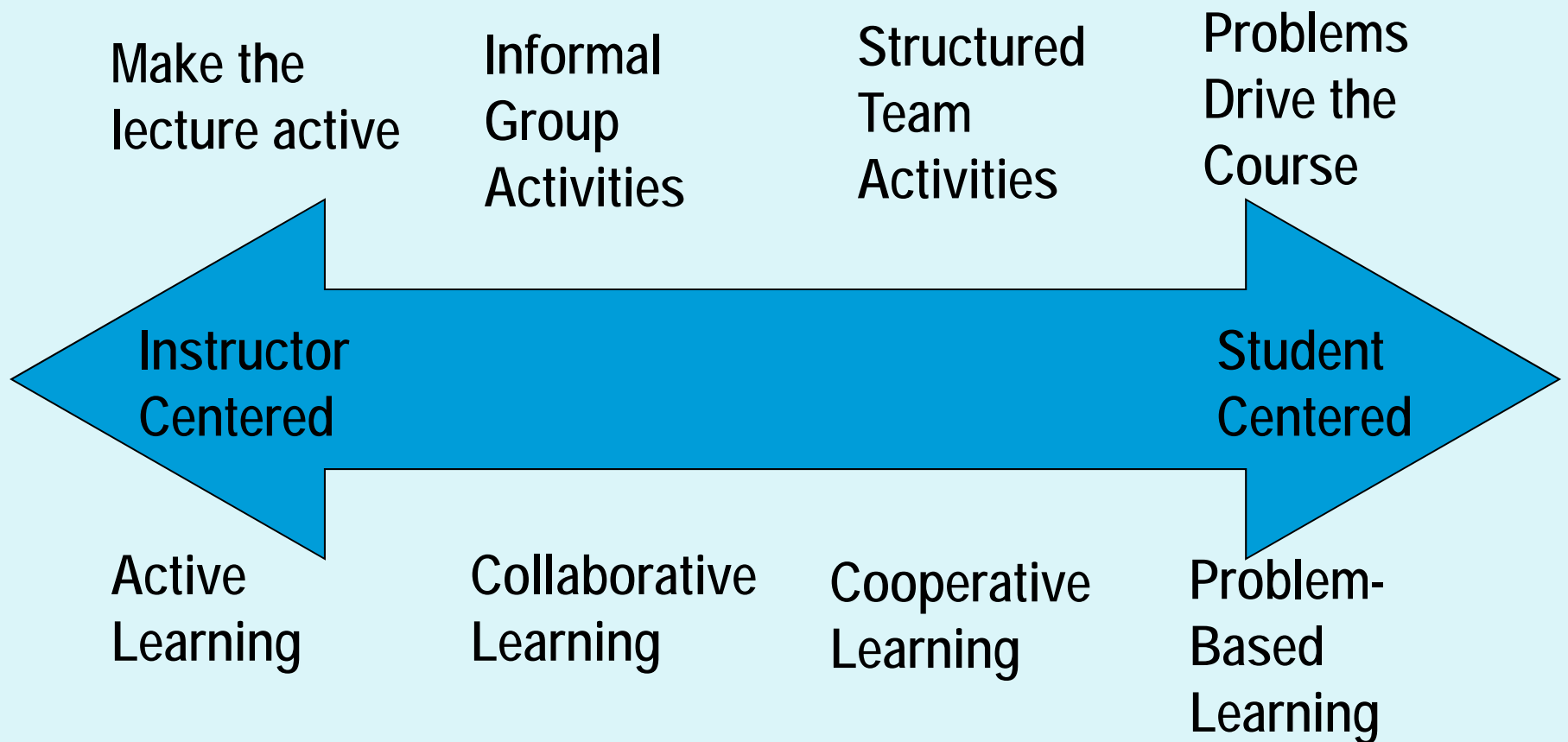
Active/Cooperative Learning

Michael Prince

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Bucknell University

The Active Learning Continuum

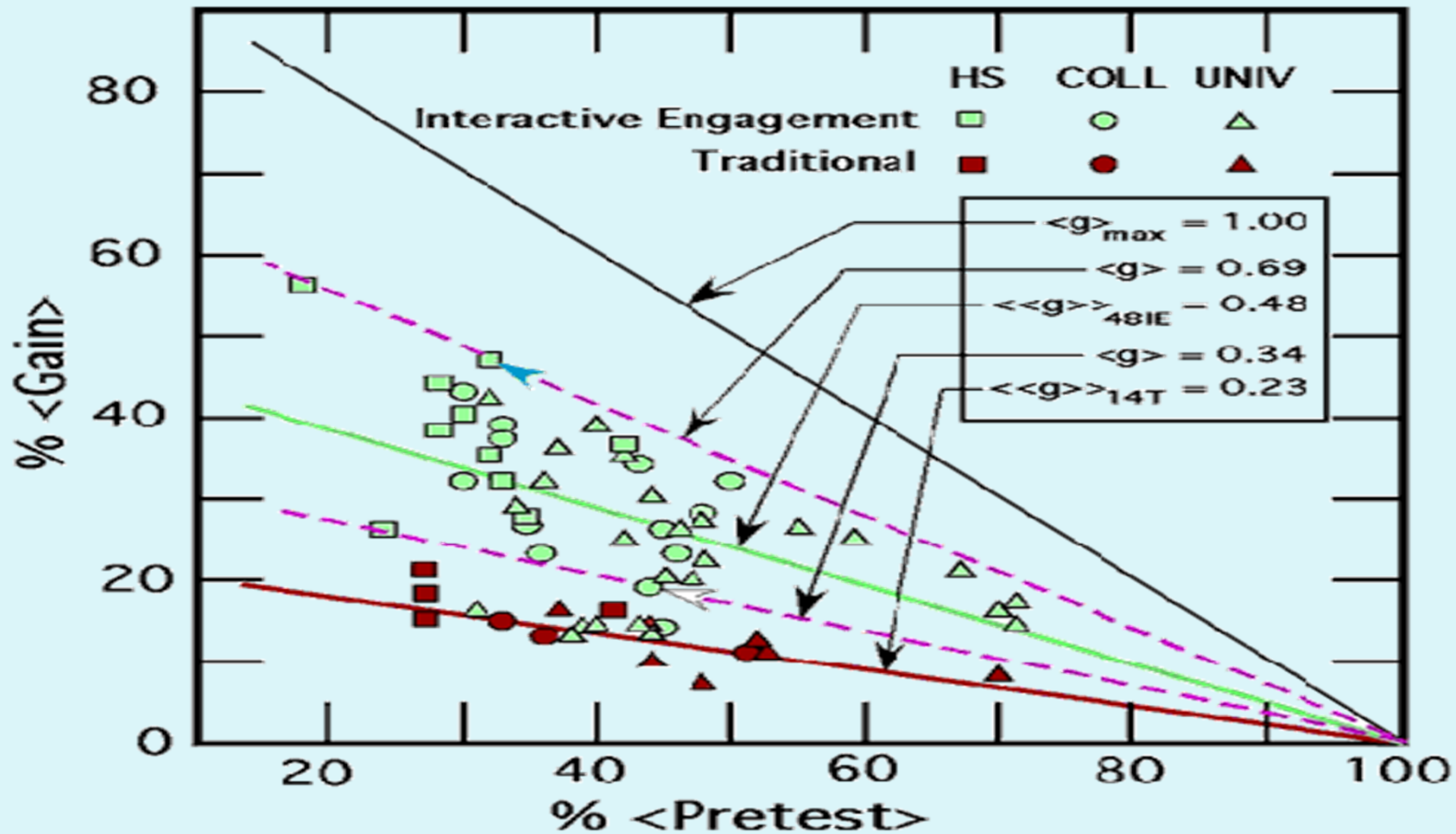


Effectiveness of Short Activities: Less Can Be More

	With Pause	Without Pause
Short term recall	108 correct facts recalled after lecture	80 correct facts recalled after lecture
Long term recall	Average exam score = 84.9	Average exam score = 76.7

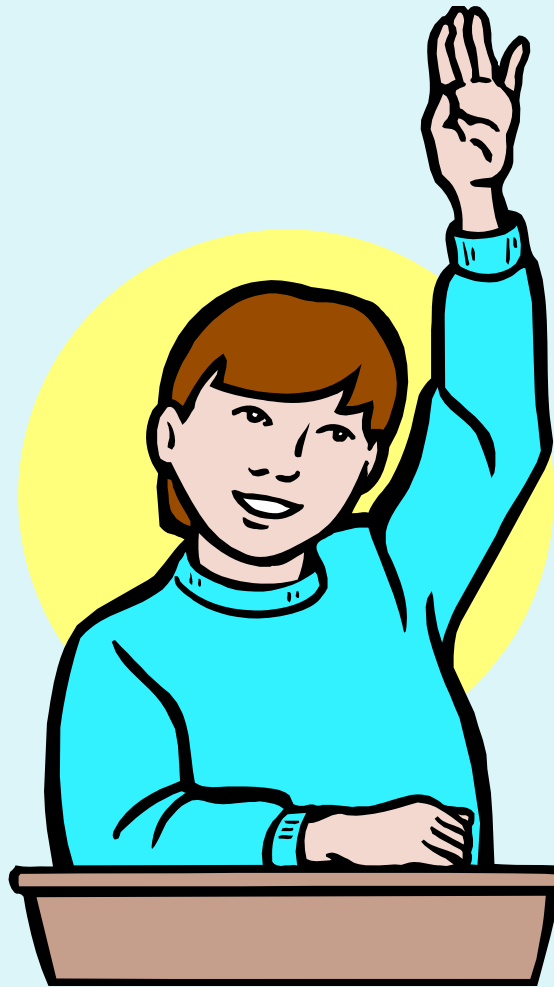
Ruhl et al., "Using the Pause Procedure to Enhance Lecture Recall", *Teacher Education and Special Education*, Vol. 10, Winter 1987

Active Learning: Twice As Effective as Lecturing



Hake, R., "Interactive Engagement vs. Traditional Methods", Am. J. of Physics, 1998.

Incorporating Active Learning: Variations on How We Ask Questions



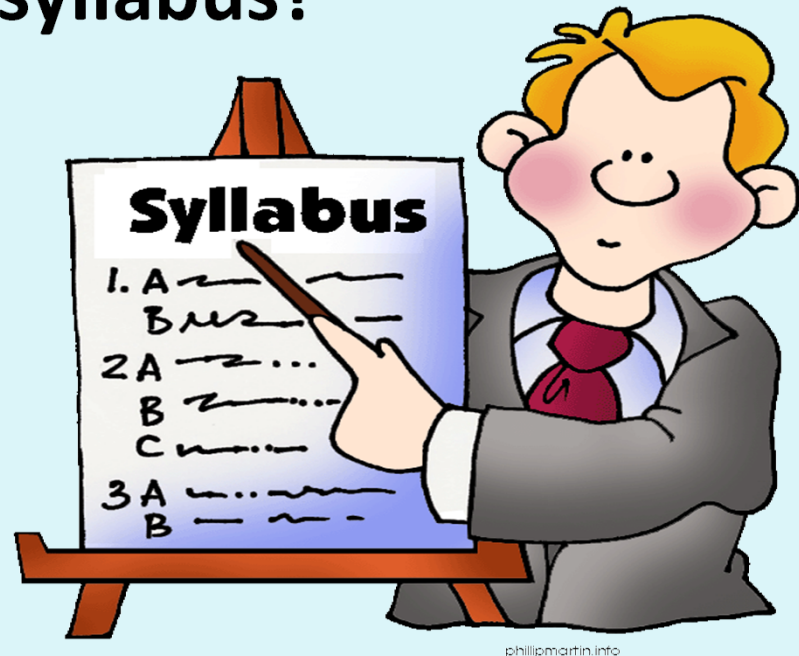
Common Faculty Questions

How much time does it take to prepare?



Often very little

Can I still cover the syllabus?



YES!!

Active Learning and Teams

Consider the Following Scenario

- You assign 4 homework problems to teams of 4 students
- Students pick teams
- One solution handed in
- Same grade for all

What could go wrong?



CL Criteria: Structures to Improve Teams

*Regular self-assessment
of group functioning*

*Face-to-face
interaction*



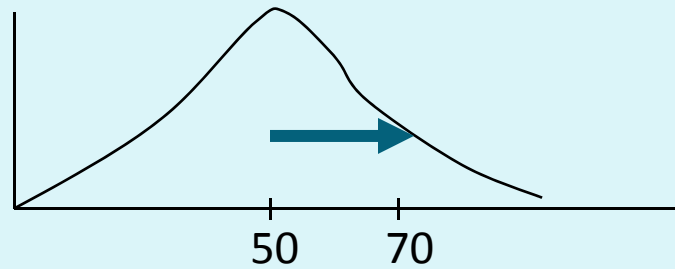
*Appropriate use of
interpersonal skills*

*Positive
interdependence*

*Individual
accountability*

Does Cooperative Learning Work?

- Achievement:



- Retention:



- Student Attitudes



Springer et al., "Effects of small-group learning on undergraduates in science , mathematics, engineering, and technology: A meta-analysis". Review of Educational Research, 1999