

# Math 8001: Groupwork

October 5, 2012

Any current issues in your own teaching?

# Why Groupwork?

Not everybody shares the view that lectures have been effective for thousands of years.

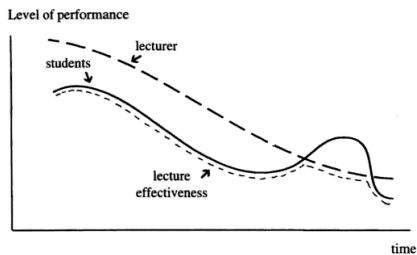


Figure 5.4. Level of performance during a lecture (after Lloyd, 1968)

Bligh, *What's the Use of Lectures?*, 1998

Others suggest that students take notes on / assimilate just 20-40% of a lecture. (Kiewra, 2002.)

# Defintions

Constructive Learning  $\neq$  Groupwork.

- **Constructivism:** A broad educational theory that students' learning builds (constructs) on prior knowledge. Since we don't know what's in their head, learning will be more effective when students are actively engaged.
  
- **Groupwork, Guided Discovery,** etc., are teaching methods which attempt to engage the students.

# Our Backgrounds

Illinois, Michigan, Michigan Tech, UMTYMP, IT/CSE Calculus.

# Groupwork is not a cure-all!

Using groupwork doesn't automatically improve your class.

Instructor buy-in is *vital*.

# Guidelines for Groupwork

(See handout)

- Don't be afraid to let groups struggle and make mistakes.
- Physically be a group.

## More Guidelines

- Have groups write their answers on the board from time to time. (Or work at the board the entire time.)
  
- How should you form your groups? There's no optimal answer!
  - ▶ Don't isolate.
  - ▶ What can you do with the fastest and slowest groups?
  - ▶ Actively rearrange groups.



## Groupwork in Different Settings

- Know the parameters: your style, your students' style, course guidelines.
- **Dedicated workshops:** the entire time is spent on group work, and that's what the students signed for.
- **Traditional setting:** group work can be incorporated into almost any class style.

# Designing Worksheets

- What's the goal? Basic computational practice? Deeper thinking?
- How does this build on the students' background?
- Make the groupwork genuine and versatile.
- What's the punchline?

## Your assignment

Pick a section covered in your class next week (modulo special circumstances). Develop two groupworks: one which focuses on computations, and one which is more conceptual.

(I'll post our UMTYMP groupwork template if you'd like to use  $\text{\LaTeX}$ .)