

Math 8001: Groupwork

March 2, 2012

Any current issues in your own teaching?

Why Groupwork?

Not everybody shares Krantz's view that lectures have been effective for thousands of years.

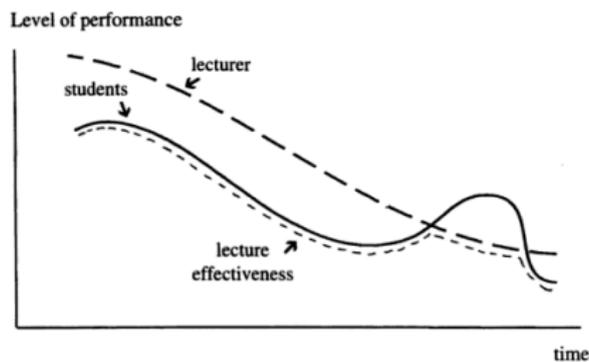


Figure 5.4. Level of performance during a lecture (after Lloyd, 1968)

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.

Groupwork is not a cure-all!

Using groupwork doesn't automatically improve your class.

Our Backgrounds

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

Guidelines for Groupwork

(See handout)

- Groups should have three or four members, facing each other. If your room has desks, make them turn towards each other. If your room has tables, have students sit on opposite sides and face each other. Otherwise they won't be close enough to interact.
- Don't be afraid to let groups struggle and make mistakes. The whole point of doing groupwork is that students will learn the material better if they sort out the issues on their own instead of you explaining it to them.
- You may have a "superstar" group which finishes everything very quickly. You can either ask them difficult followup questions about the groupwork or give them a sheet you know the rest of the class wont get to.

More Guidelines

- Have groups write their answers on the board from time to time.
- How should you form your groups? There's no optimal answer!

Designing Groupwork

- 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 \LaTeX .)