

# Lisa Orloff Clark: Inquiry-based learning in mathematics

## What is IBL?

Develop students confidence and ability to do mathematics on their own

## Why do it?

Challenge our views and opinions in the classroom

## How do we do IBL?

Socratic Method: Teaching by asking questions

Xunzi: Teaching by doing

Moore Method: The student is taught best who is told the least

Additional Examples:

- George Polya
- Kenneth P. Boggart

## Student Experience:

Student Challenges:

- Not engaged
- Lazy
- Limited attention span

What was your best learning experience?

- Exploratory content (Moore)
- Discussion based work (Socrates)
- Practical work (Xunzi)

What was your worst learning experience?

- Calling out/shaming students
- Reading or teaching from the textbook
- Wrote learning

## Methods of IBL:

Reverse Classroom:

Give students the textbook/material and ask them to learn it on their own and then present back to the wider class

Exercise based activities:

Students develop the material on their own as they complete the activities

Example exercise:

Kenneth Arrows Voting Theory

Techniques:

- Whiteboard tutorials
- 1 day per week dedicated to IBL activities
- Use reverse classroom for small classes
- Develop notes to run a Moore Method class
- Expand outcomes to: writing skills, team work, oral communication and presentation skills

## Questions:

Impact of class size? Does this change engagement?

- Large class rooms will increase marking time (be aware of this when developing IBL exercises)
- Students can still be engaged with activities, perhaps attempt more group orientated IBL such as presentations or discussions. This will also minimise the time taken to mark.

How to deal with complex content?

- Being wrong is an integral part of the learning experience, do not shy away from complex content
- In terms of teaching, take an either/or approach between group work or presentations (doing both will increase teaching complexity alongside the already complex content).