

The Thinking Classroom: An Interview With Peter Liljedahl

Cult of Pedagogy

How does a thinking classroom look different than a normal math class?

- Nobody is sitting. Everyone is standing in groups at erasable surfaces. There's a lot of noise. There's a lot of interaction in groups and between groups.
- Students are doing tasks. They'll be done with a question and will move on. Not every group is necessarily working on the same task, but it will be the same sequence of tasks.
- The teacher is moving around. The teacher is surprisingly calm. They're interacting with groups, checking in, supporting those who need help, and challenging those who need a challenge.
- At the beginning of the lesson, the teacher gets the students on their feet and gives the task verbally in some location in the room.
- The teacher randomly groups the students.
- Nuances:
 - The students steal the task from those around them.
 - The teacher is very careful about answering questions.
 - The sequence of tasks is not arbitrary. It's carefully constructed and becomes incrementally more challenging.
 - The teacher consolidates by previously identifying work to showcase. It's a guided gallery not, not freeform.
 - The teacher directs students to look at what other students are doing.

How did building thinking classrooms come about?

- Students spend most of their class time not thinking.
- Thinking is a necessary precursor to learning.
- Classrooms look more alike than different. Teaching and learning in math classrooms adheres to normative structures from over 170 years ago.
- If we're going to get students to think, we have to break normative structures that are holding non-thinking in place.

Why vertical surfaces?

- Standing and working at whiteboards is most effective at generating thinking.
- Everyone is oriented towards the work in the same direction. Horizontal work creates a privileged position.
- Knowledge mobility is promoted and gives greater access to more ideas.
- The teacher can see everything. They don't have to wait until the quiz to know how students are doing. They can intervene immediately.
- It's not that standing is so good. Sitting is so bad. When they sit, they feel anonymous. When they feel anonymous, they are likely to disengage. When they stand up, they lose their anonymity.
- There can be resistance from students who want to disengage and more so if the teacher tries to slowly introduce this practice.

Why nonpermanent surfaces?

- Risk is a barrier to thinking.
- Example: Students using whiteboards started solving the task within 20 seconds. Students using flip chart paper didn't make a notation for upwards to 3 minutes.
- Permanence is not conducive to trying something.

What are students actually doing?

- Non-curricular tasks are the first 4 - 6 tasks. There's a feeling of low-stakes playfulness. The stakes are low for the teacher as well.
- 95% of the time students are doing straight up curriculum but tearing through it. When they start to think, they become voracious users of content.
- The optimal learning space is actually students trying to make meaning of something with other students who are trying to make meaning of the same thing.
- The classic I Do, You Do, We Do promotes mimicking.
- In a thinking classroom, we have to remove the I Do. Most of the time that's possible but sometimes we have to give them some nugget of information. The teacher has five minutes at the beginning of the lesson to do so.
- In a typical lecture we talk until students are prepared to do the last question. In a thinking classroom, if we need to say something, what is the minimum amount of information that they need in order to do the first question in the sequence?
- Sometimes we have to step in and say more when a group gets stuck.
- They're not doing practice at the boards. They're figuring it out on the boards.

What happens next?

- There needs to be a transfer from collective knowing and doing to individual collective knowing and doing.
- Transfer occurs through the following practices:
 - Consolidation helps to turn unstructured and informal work to a more structured and formal thinking.
 - Note making (not note taking) is about them being cognitively present as they take their learning and represent it in a formal and structured way.
 - Check your understanding questions are a form of self-assessment. It's not homework. It starts in the classroom. Students have a choice as to what they want to do. It's self-evaluation. Can students do individually what they could do collectively?
 - Sometimes all these happen in one lesson. Sometimes some of them happen. Sometimes we move some to a second lesson. There's lots of variability and flexibility. You have to listen to the room. Be present and formatively assess what's needed.

What are the results?

- Student performance is improving.
- It's transforming not just the average of the scores but failure rates and dropout rates.
- Student identity, self-efficacy, and student relationship with mathematics are changing.

- They are not products. They are bi-products of an environment where thinking is the thing we're working on.

Try it. The book gives you plenty of resources to almost guarantee some early success. See what happens. See your students behave in a way you haven't seen them behave before.