T&L Summary- Week 5 : where are we?!?!?!

Top down introduction
– practice based
– rise to concrete:

Models of cognition
Course practices/learning models
Large scale structures/ student results

What about the level of practice

• Students are NOT learning what we expect.
• See difference between
  – active engagement
  – traditional practices / passive students
• Variety of strategies to engage people:
  • study what they know coming in
  • address misconceptions
  • build connected representations

Trad’l Approach
Theoretic Background
Instruction via transmission
Individual
Content (E/M)

PER Theoretic Background

Individual  Content (E/M)

PER Course Practice

• Tutorials
• Concept Tests / Peer Instruction
• JITT
• ILD

Cognitive underpinnings of practices

How to deal with Prior Knowledge:

• elicit-confront-resolve -- not really a cognitive model -- but basis for practice
• bridging -- step from p.k. to scientific knowledge

Models of cognition

• Full blown concepts /mis-concepts--
  – Heavier objects fall faster
• Schema -- organized structures that give rise to concepts
• Phenomenological primitives -
  “phenomenological” = from experience
  “primitive” = basic / irreducible unit

Where are we going

• Build back out …
• Realize there is more to education than “concepts”

And more to cognition?

• In fact we can’t really separate all of these because of CONTEXT