Collaborative learning is not a recipe…

"Collaboration per se does not produce learning outcomes; its results depend upon the extent to which groups actually engaged in productive interactions." Dillenbourg, Järvelä & Fischer, 2007

The type of engagement and the nature of the activity matters

Dillenbourg, Järvelä and Fischer (2007) identify 3 main categories of interactions that produce learning (1 & 2 can be done as individual, group or whole class):

- Being required to explain to self or others
  - > e.g., Peer Instruction (polling); Jig Saw; Think-pair-share; pre-post lecture questioning (e.g., your reflective writing activity); one-minute paper; brainstorming; peer review; group problem solving; group discussion.
- Argumentations/negotiation
  - > e.g., Peer Instruction; Think-pair-share; concept mapping; scratch card feedback (don't remember what these are called); simulations; group problem solving; group discussion
  - > i.e., any activity that requires students to come to a shared understanding or common product.
- Opportunities for mutual regulation
  - > e.g., student presentations; case studies; shared/public concept mapping; gallery walk (similar to presentations but who group required to move);

What did we see in LBD groups/classes?

- Groups composed of students with more homogeneous knowledge worked better.
- Clear statement of goals at the start of the activity is critical.

- Development of activities with an inquiry orientation are important but not sufficient.
- Development of activities that call for mutual accountability is important but not sufficient.

- Emphasis on something that has ambiguity (e.g., data interpretations) appears to be necessary!
  - > Improves the authentic scientific talk.
  - > Provides a resource that is open and can continue to support a focused discussion.

Traditional Pedagogical Script Components

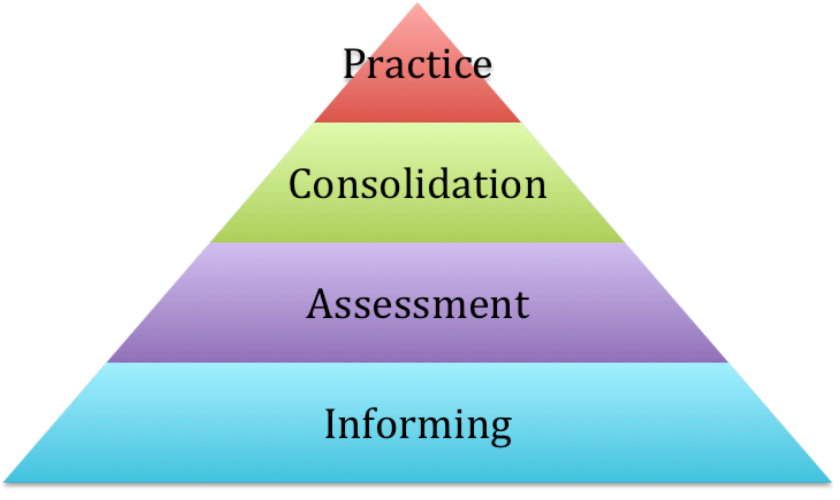
Categories of Pedagogical activities (DAPC) and their purpose:

1. Informing about the content (knowledge and skills)
    1. Tell your knowledge (normal lecture)
    2. Demonstrate your knowledge & skill (demonstration)

2. Assessment of content - status update on student's knowledge &/or understanding
    1. Formal testing (high stakes)
    2. Immediate feedback (low stakes) e.g., clickers.
    3. Asking questions (e.g., IRE) – could be high stakes depending on the classroom atmosphere.

3. Practice and application of the content (knowledge and skills) –
    1. Watching students use the skills (traditionally done in labs – low stakes but usually cook book therefore not very informative)
    2. Hearing students use the knowledge (traditionally done in presentations – high stakes)

4. Consolidation of content
    1. Reviewing content
    2. Homework review
    3. Testing
5. Orientation and goal setting?

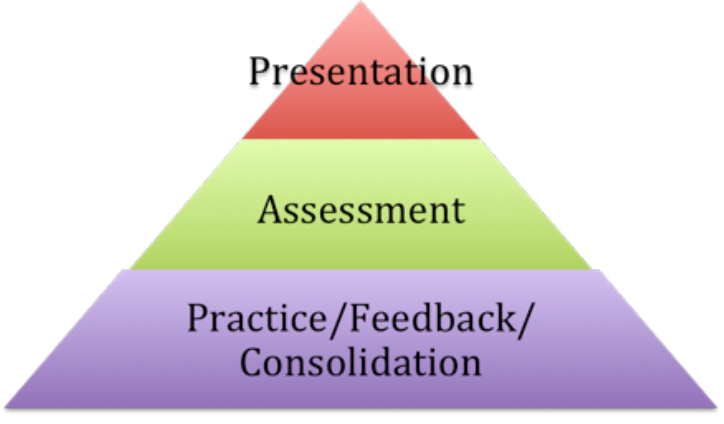


Active Pedagogical Script Components

1. Informing about the content (knowledge and skills)
    1. Telling what you know (mini lecture)
    2. Modeling your skills (modified lecture)
    3. Demonstrating your skill (mini demonstration; predict first demonstrations)

2. Assessment of content - status update on student's knowledge &/or understanding
    1. Formal testing (high stakes)
    2. Immediate feedback (low stakes) e.g., clickers.
    3. Asking questions – getting students to ask the questions (preparation for asking questions)
        1. reflective writing;
        2. Just in Time Teaching (JiTT)

3. Practice and application of the content (knowledge and skills), feedback and reflection (consolidation)
    1. Watching students use the skills – in class learning activities
        1. Coaching
        2. Scaffolding
        3. Peer modeling
    2. Hearing students use the knowledge – in class socially based learning activities
    3. Consolidating knowledge and skills
        1. student generated questions
        2. bringing ideas together (concept mapping/ sorting tasks/ knowledge building)
4. Orientation – goal setting



How do you begin? The micro-components

Before designing activities what you need to know:

Types of knowledge

- > Declarative – factual/conceptual
- > Procedural
- > Conditional
- > Metacognitive

- Tool to help us design activities
- http://www.celt.iastate.edu/teaching/RevisedBlooms1.html