

Physics 4810 / 7810 Week 13 (lucky!)

Day 23: Fa2008:
Transfer
Preparation for Future Learning

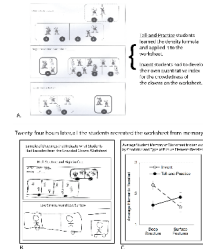
Quick Feedback on Projects
- howzit?
- how many doing drafts today?



Surface vs. Deep Structure in Learning?

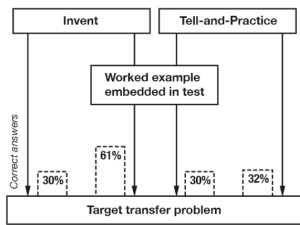
Direct Instruction prevents students from learning deeper structure / patterns

Inventing allows for learning patterns?



Preparation for Future Learning

Alternative Goal for Instruction?

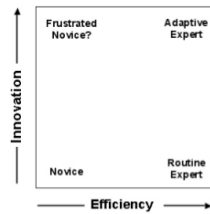


Type of leading activity matters

- "Why...not encourage reading the materials beforehand?"

Goals

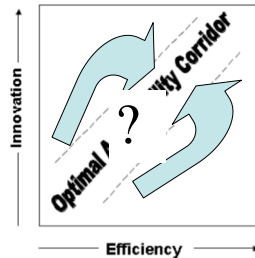
- Routine Expertise
- Adaptive Expertise



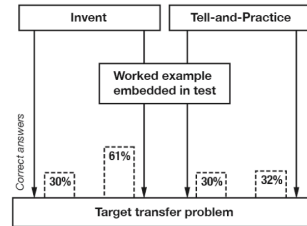
The pieces of PFL

- If direct instruction isn't enough, why is it essential

How to develop Adaptive Expertise?



Remember the studies?



What is transferred?

How would diSessa and other 'fine-grained constructivists' (to borrow Hammer et al's phrase) explain the results of this study? Can the results be explained by activation of small cognitive resources (such as p-prims)?

The How of Transfer: Concrete vs Abstract

Surprising, students are more likely to transfer if examples are abstract. Would have thought otherwise. The paper keeps mentioning that surface features get in the way of transfer. I can think of some reasons, but I would like some explanation based on research, if it's out there.

The paper claims, research claims that students are more likely to transfer if instructional examples are abstract and relatively free of surface details. This seems to contradict our earlier claim that putting science in a real world context enhances student learning.

Let's look at the activities

Go through the two activities

I) What would common student responses be?

II) Compare the differences **KEY THEMES:**

- Invention
- What is being "PREPARED"
- Concrete vs. Abstract
- Who is doing what (agency)

Acquisition vs. Participation

Table 1
The Metaphorical Mappings

Acquisition metaphor		Participation metaphor
Individual enrichment	Goal of learning	Community building
Acquisition of something	Learning	Becoming a participant
Recipient (consumer), (re-)constructor	Student	Peripheral participant, apprentice
Provider, facilitator, mediator	Teacher	Expert participant, preserver of practice/discourse
Property, possession, commodity (individual, public)	Knowledge, concept	Aspect of practice/discourse/activity
Having, possessing	Knowing	Belonging, participating, communicating