

UiO : **Department of Physics**
University of Oslo

Nei, forelesning er ikke død...

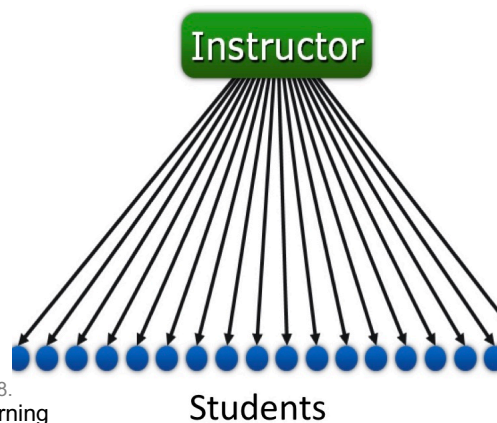
The role of lecture in student-centered teaching

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Student-Centered Teaching/Learning Models

- Active learning
- Inquiry-based learning
- Flipped classroom
- SCALE-UP/CLASP/Tutorials
- ...etc.



The “Big Question(s)”

**Is there any room for lecture in
student-centered teaching?**

and if so...

How can lecture be used most effectively?

Outline of Talk

1. Introduction
2. Study: *A Time For Telling* by Schwartz & Bransford
 - Contrasting cases activity
3. “Coatrack” metaphor for learning
4. Activities to support lecture

The “Big Question(s)”

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Research Study: A Time For Telling

Daniel Schwartz (Stanford School of Ed)



John Bransford (University of Washington)



Published in: *Cognition and Instruction*, 1998, vol. 16(4)

Study Question, Population, and Task

Question: Is there room for “telling” in good teaching?

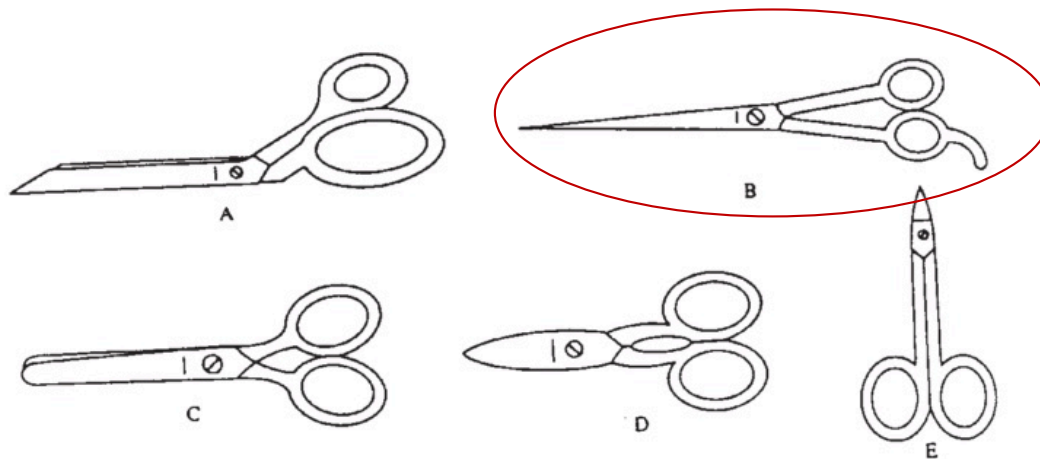
Population: 36 College sophomores

- Classroom setting
- No prior psychology classes
- Topics: *encoding* and *schema* concepts

Method: Testing combinations of activities and “telling”

- Activity: “Contrasting Cases”

Contrasting Cases Example



Barber's shears:

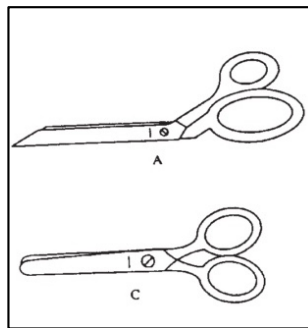
- Cut thin material
- Hold/support scissors at various angles

Structure	Function
a. Dressmaker's shears Heavy One hole larger than other Blades off-center and aligned with finger-hole edge	Because of heavy use Two or three fingers will fit in larger hole—allows greater steadiness as one cuts cloth on flat surface Blade can rest on table surface as cloth is cut—again, greater steadiness
b. Barber's shears Very sharp Pointed Hook on finger hole	To cut thin material, for example, hair Permits blades to snip close to scalp and to snip very small strands of hair A rest for one finger, which allows scissors to be supported when held at various angles—hence, greater maneuverability
c. Pocket or children's scissors Blunt ends Short blades	Scissors can be carried in pocket without cutting through cloth; children can handle without poking themselves or others Allow greater control by the gross motor movements of the child just learning to cut
d. Nail scissors Wide and thick at pivot point Slightly curved blades	To withstand pressure from cutting thick and rigid materials, that is, nails To cut slightly curved nails
e. Cuticle scissors Very sharp blade Small, curved blades Long extension from finger holes to joint	To cut semielastic materials, for example, skin of cuticles To allow maneuverability necessary to cut small curved area As compensation for short blades, necessary for holding.

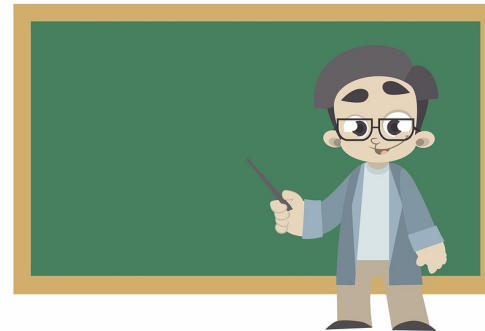
Experiment: Study Design

Week 1:

Analyze + Lecture (Everyone)



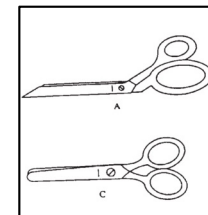
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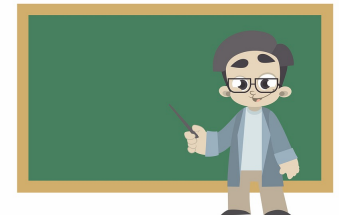
Experiment: Study Design

Week 2:

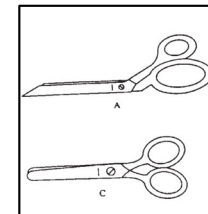
1. Analyze + Lecture



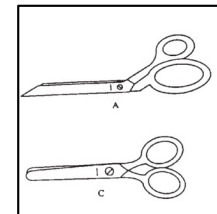
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2. Analyze + Analyze



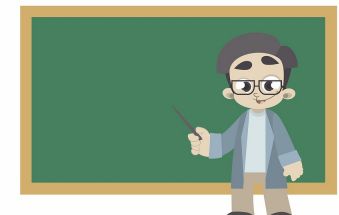
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3. Read/Summarize + Lecture

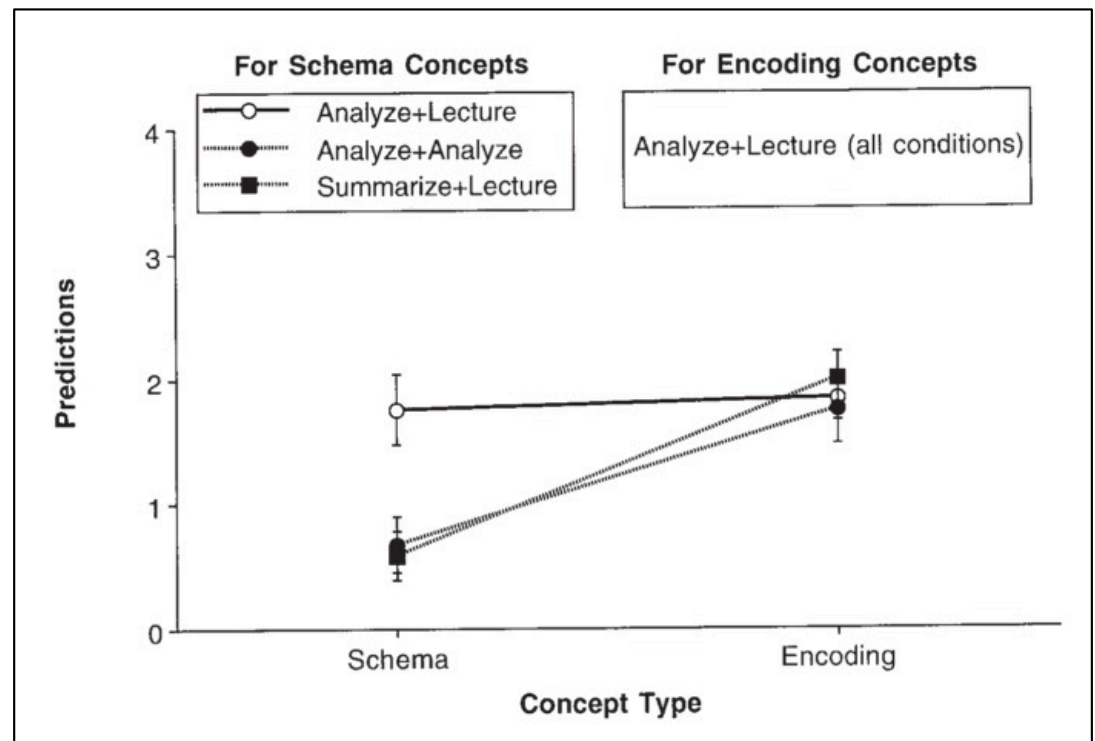


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Experiment: Results

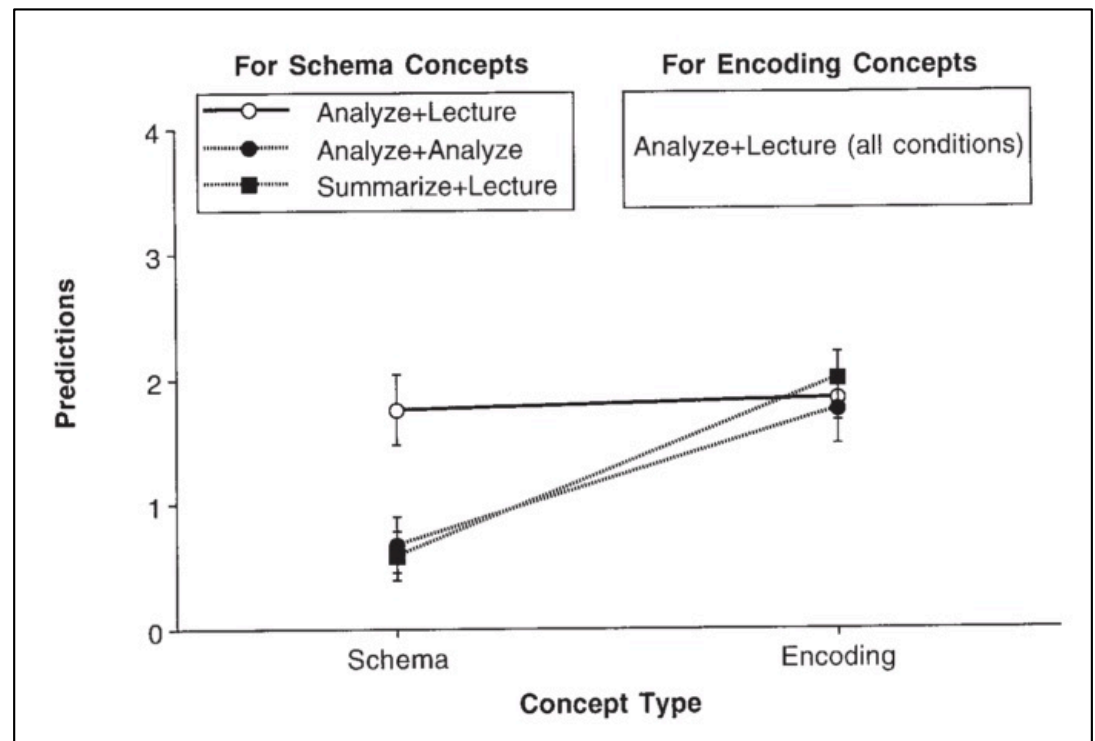
- **Evaluation:** predict the results of a hypothetical psychology study
- Max 4 concepts (*encoding* or *schema*) each



Analyze + Lecture > Analyze² = Summarize + Lecture

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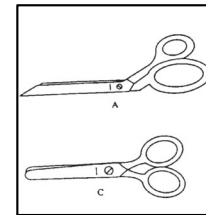
“Coatrack” Metaphor for Learning

- “Coatrack” metaphor:
 - You have to have “hooks” to “hang” new knowledge on
- Activities may help
 - Give students these “hooks”

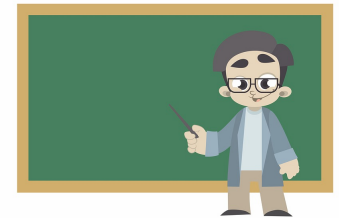


Time for Telling Results

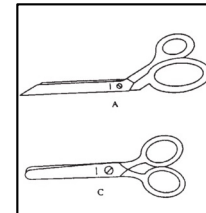
1. Analyze + Lecture



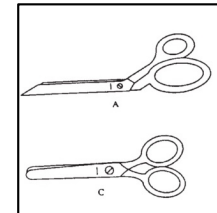
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2. Analyze + Analyze



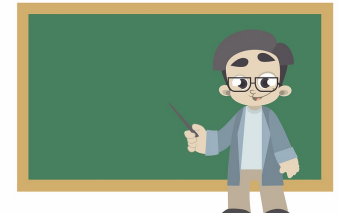
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3. Read/Summarize + Lecture



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Conclusion: A Time for Telling

Q: Is there room for “telling”/lecturing in good teaching?

A: Yes!

Q: When is it most effective?

A: After students have acquired some knowledge “hooks”
(through activities)

ACTIVITIES TO SUPPORT LECTURE

Example Activities

1. Contrasting Cases
2. Predict-Explain-Observe-Explain
3. Decision Making

Example Activities

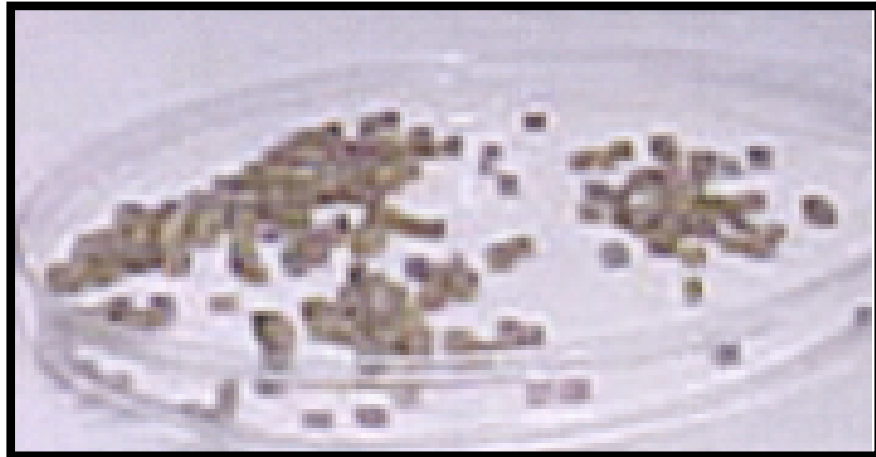
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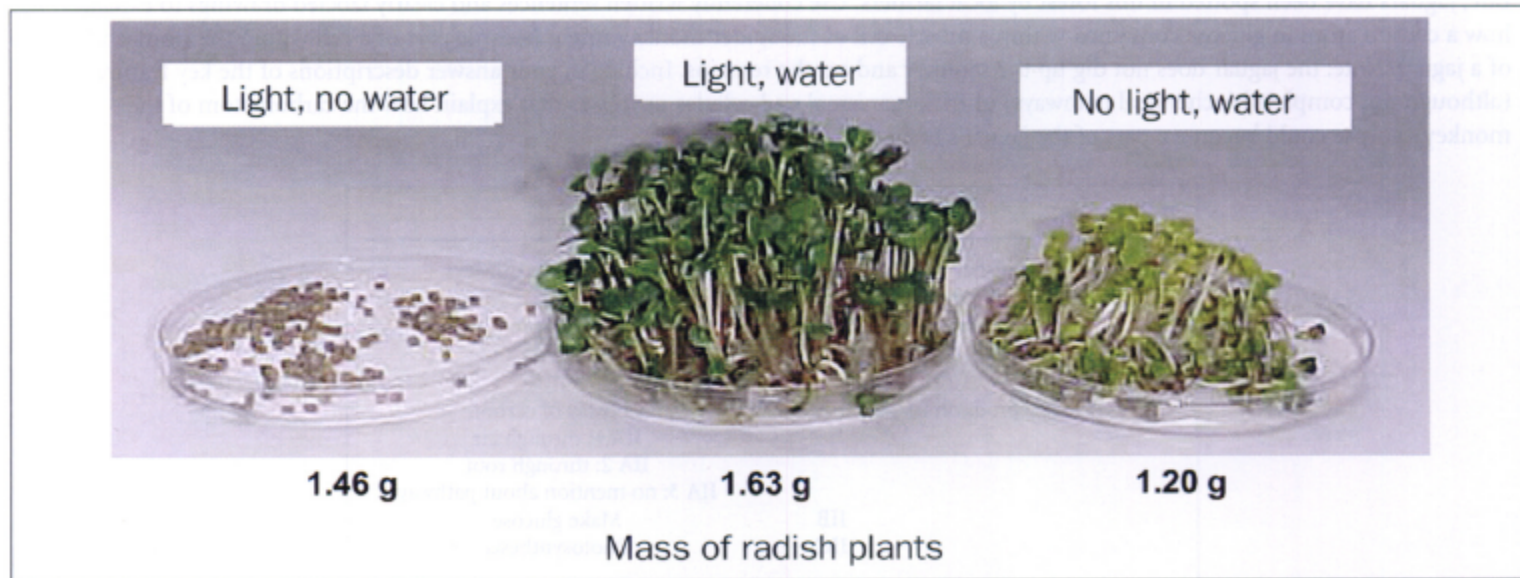
(Activities meant to *set up*, not *assess*)

PREDICT-EXPLAIN-OBSERVE- EXPLAIN

You are a researcher interested in understanding plant biology. To do so, you set up an experiment. You start with three groups of seeds, each of which has the same mass. One set of seeds you place under lights and water them regularly. One set you leave in the dark and water them regularly. The last set you just leave in the light; no watering. After a week, you dry the plant material entirely and weigh all three sets. From heaviest to lightest, what's the order of the groups of seeds?

- A. Light > dark > dry
- B. Dark > light > dry
- C. Light > dry > dark
- D. Dark > dry > light
- E. Dry > light > dark





C. Light > dry > dark

DECISION MAKING

Decision Making

You and a friend are driving in your car when you get caught in a thunderstorm. You pull off to wait out the storm, but as you are waiting your car is struck by lightning. You are a bit shaken up but fine. After the storm has passed you want to get out to stretch your legs. However, your friend stops you, warning you not to leave the car because you might get electrocuted.

**Do you believe your friend?
Why or why not?**

Summary

1. “Telling” (lecturing, reading) is **most effective** when students have **knowledge “hooks”** on which to “hang” the new knowledge
2. There are **many activities** that can provide these hooks
 - But they should **set up**, not **assess**



Thank You!

Questions and Discussion!