Flipping the classroom 201, Part 2

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NCAT
Greensboro, NC
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Think of something you are very good at, something you know you do well and write that down.

How did you get good at that something?

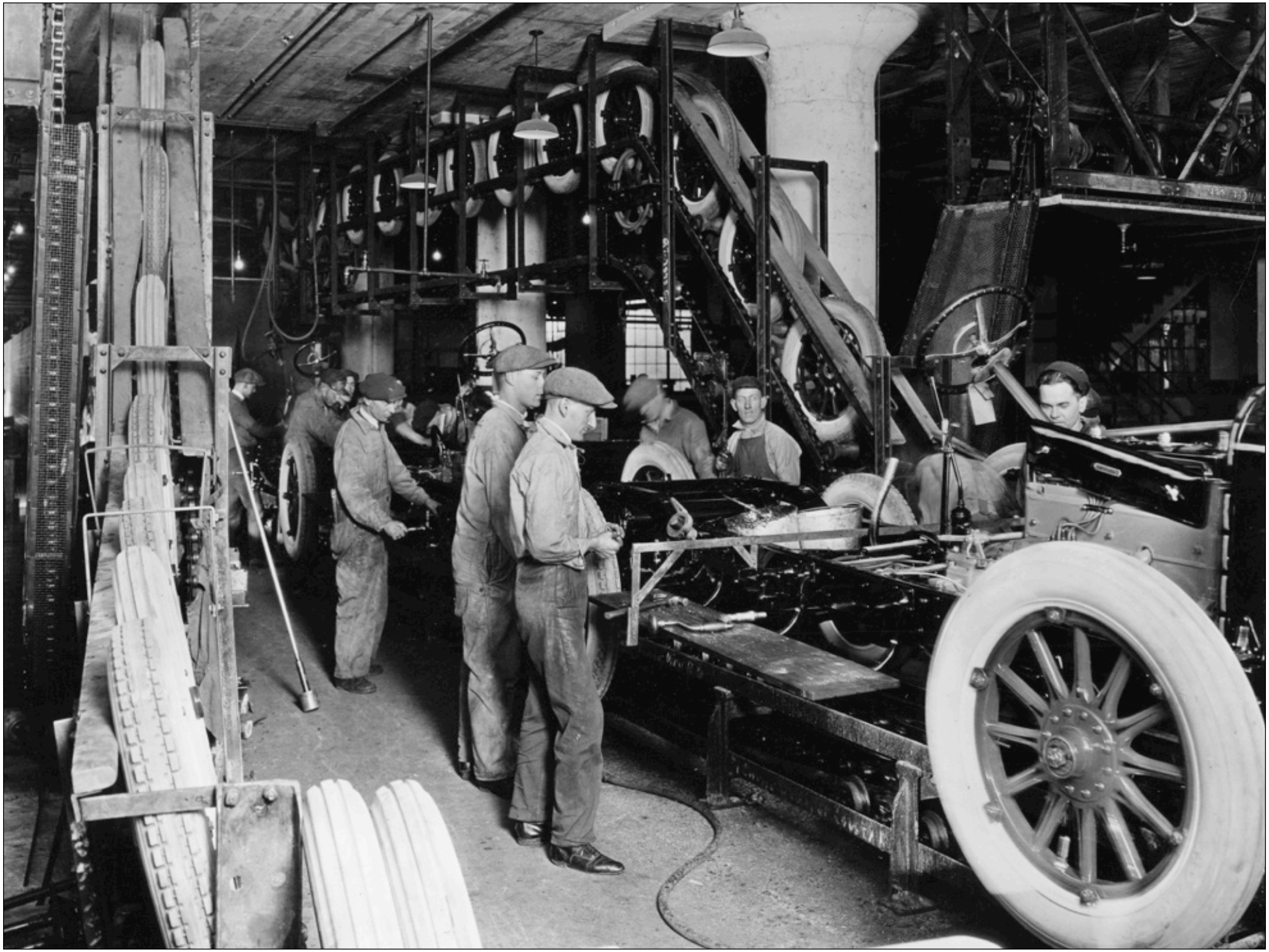
Also jot that down.

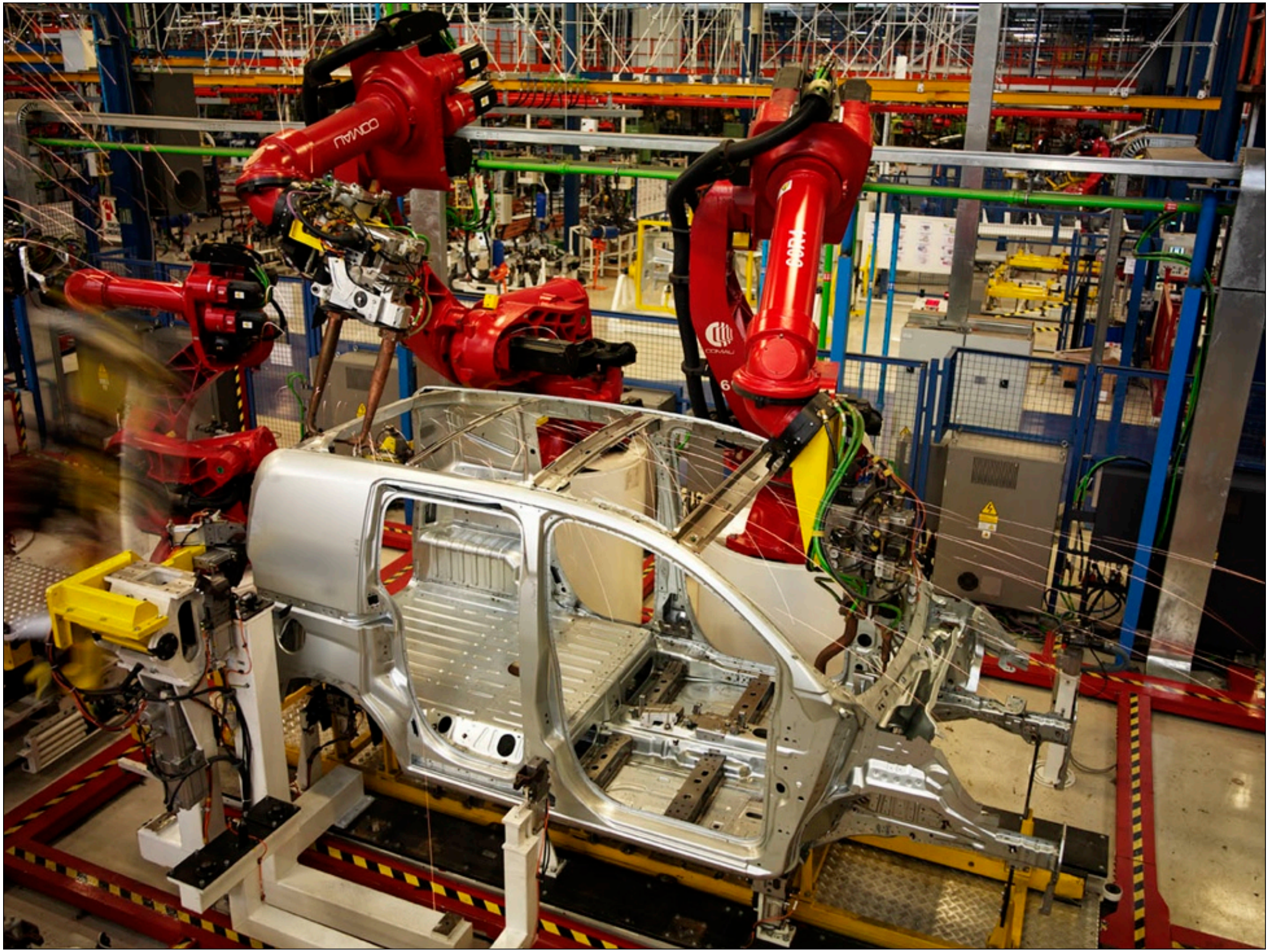
Which option best matches how you got good at it?

A. listening to someone else talk
B. practice or trial & error
C. taught myself
D. other

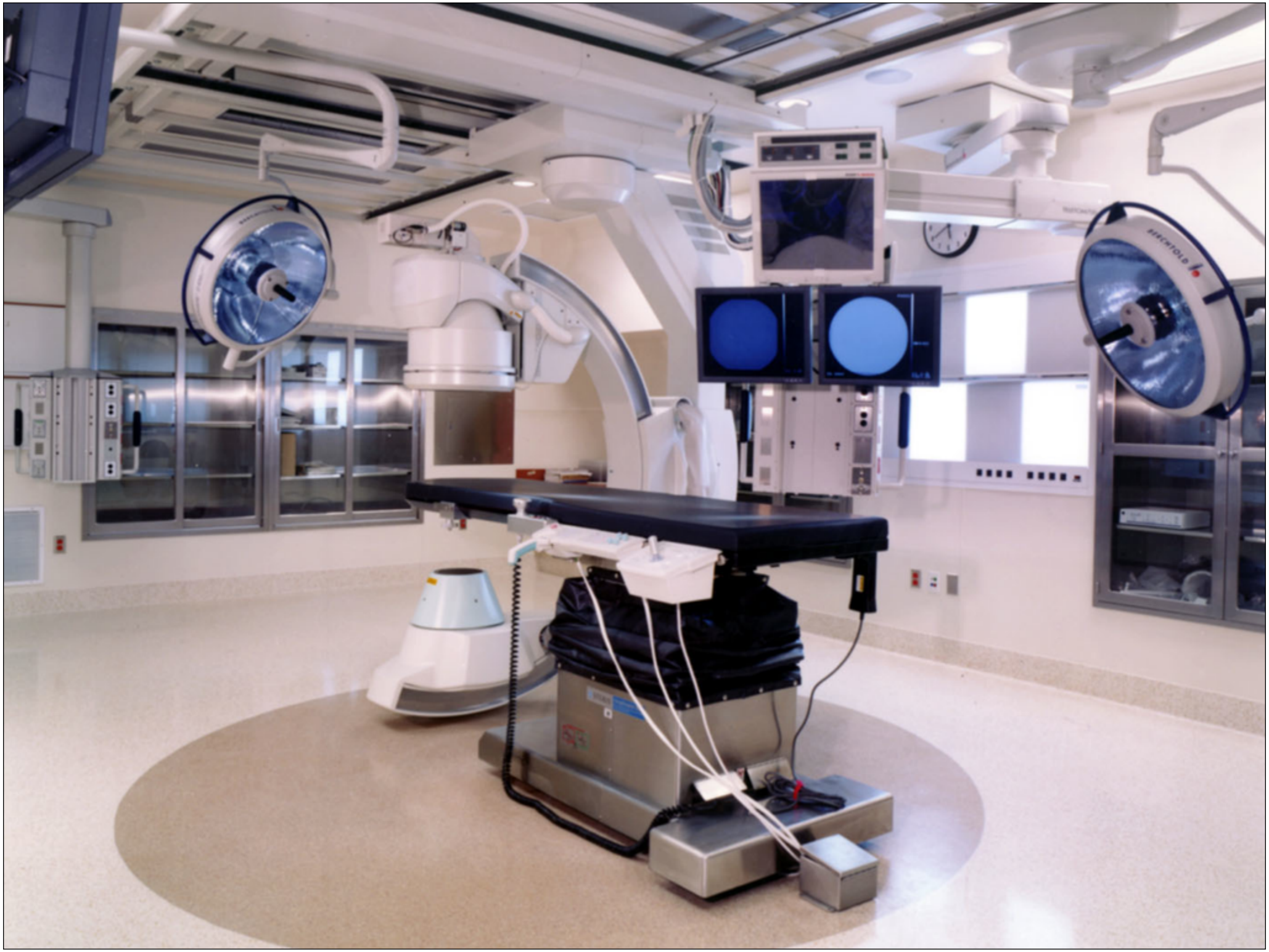
What is the model of education in most classrooms?

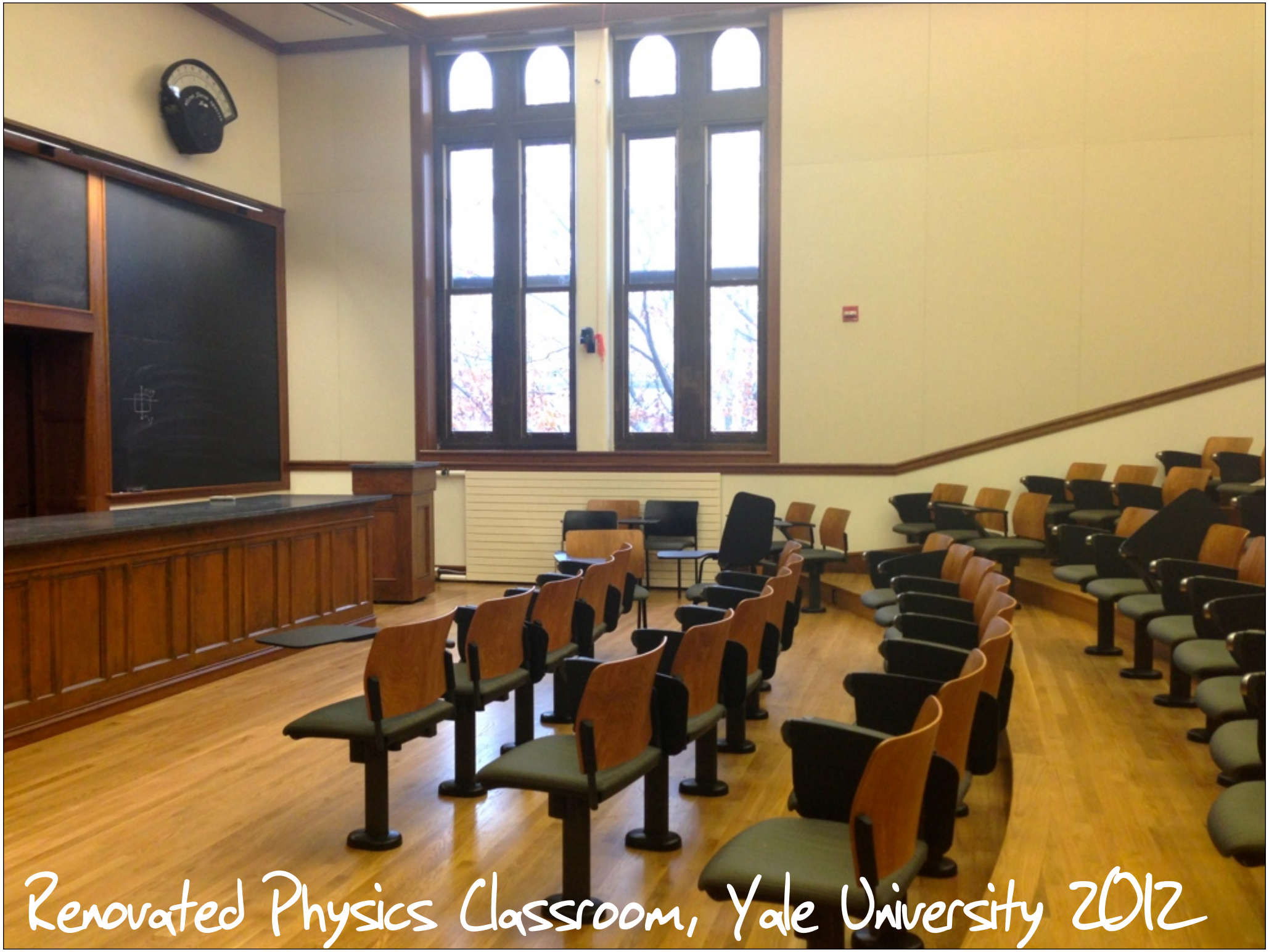
The primary model of education in most classrooms is delivery of information, not doing.






Greek amphitheater, 4th Century BC

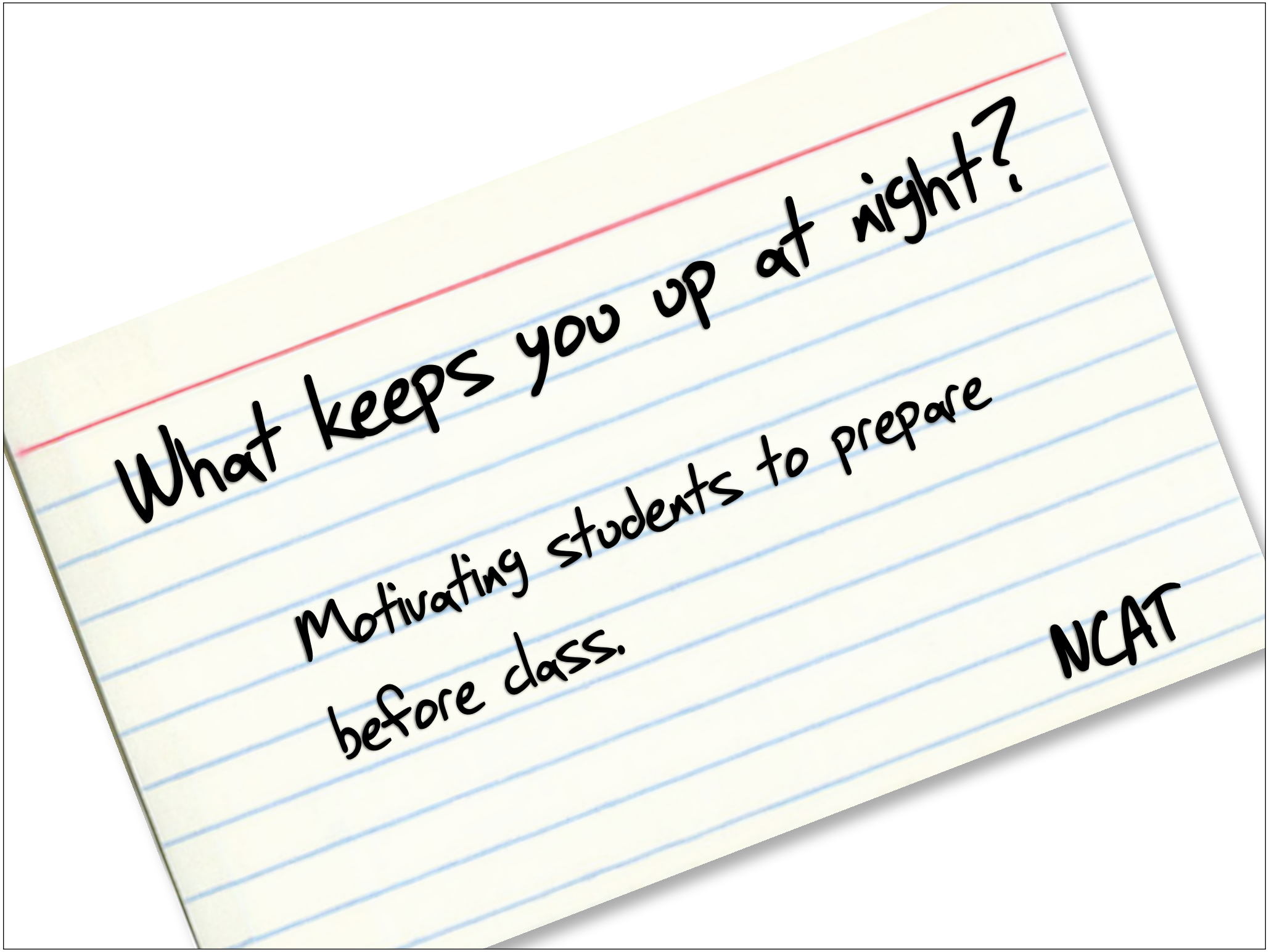



Renovated Physics Classroom, Yale University 2012

3 2 1

Workshop Goals...

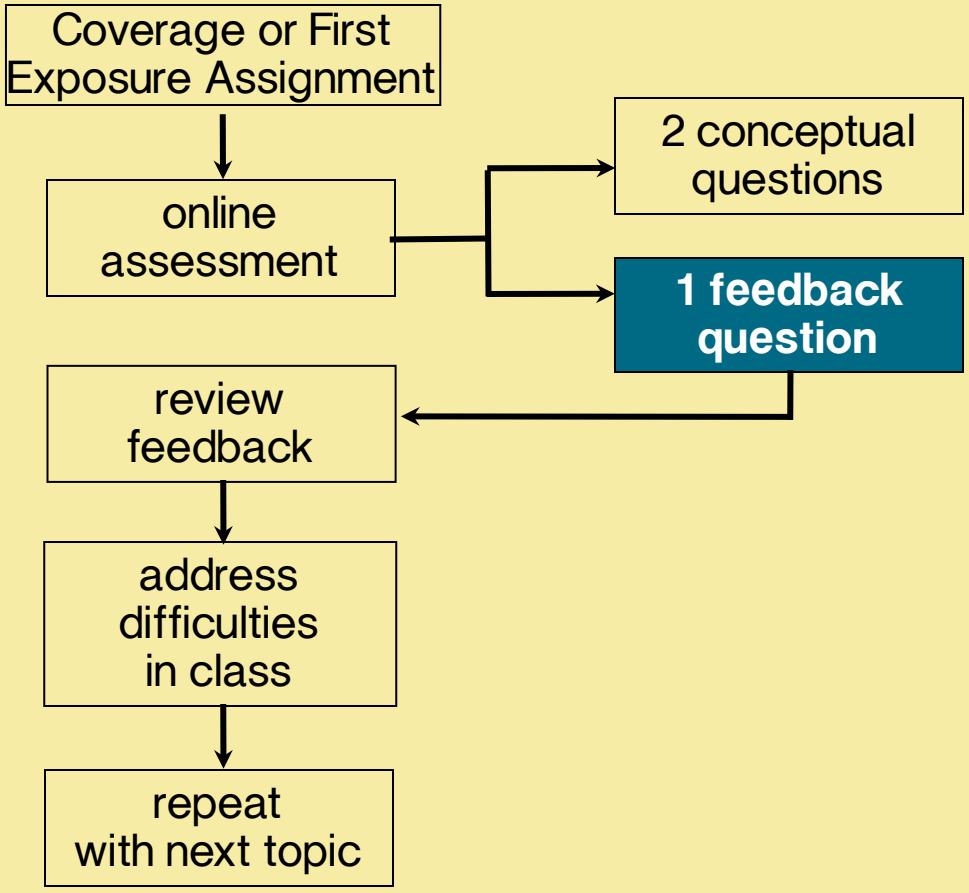
1. Motivate students to prepare before coming to class
2. Engage students inside class
3. Learn more


What keeps you up at night?
Motivating students to prepare before class.
NCAT

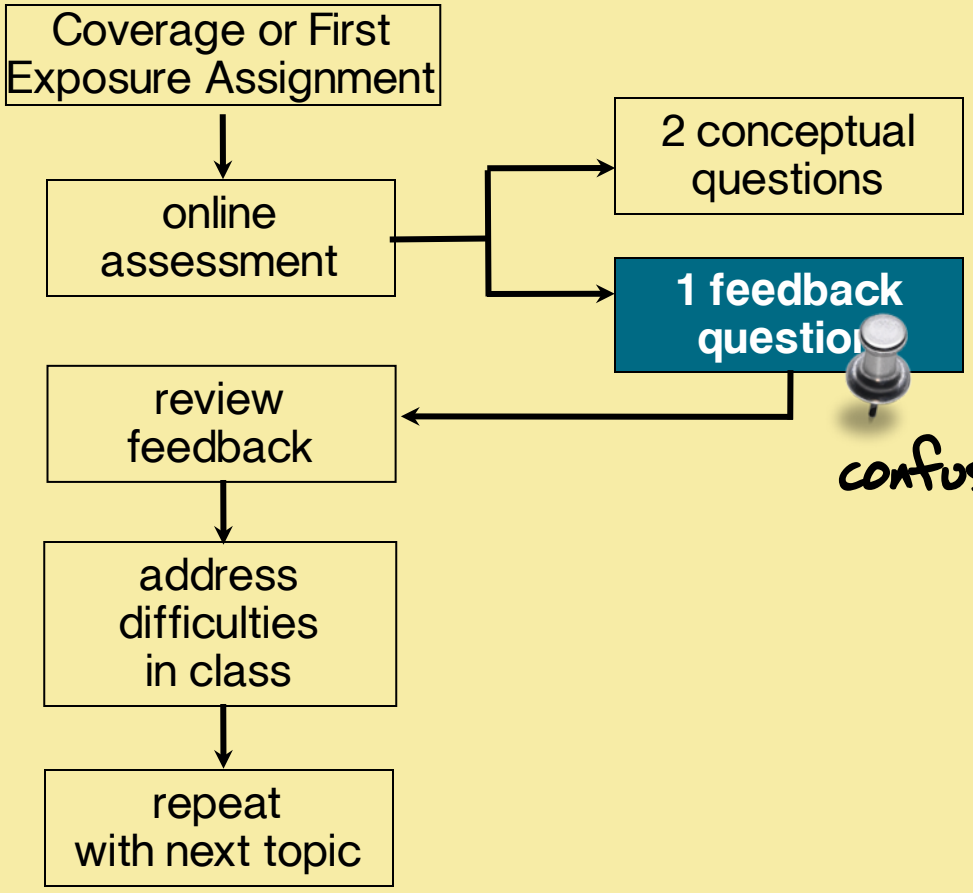
1

How do I motivate my students to prepare before class?

Just-in-Time Teaching



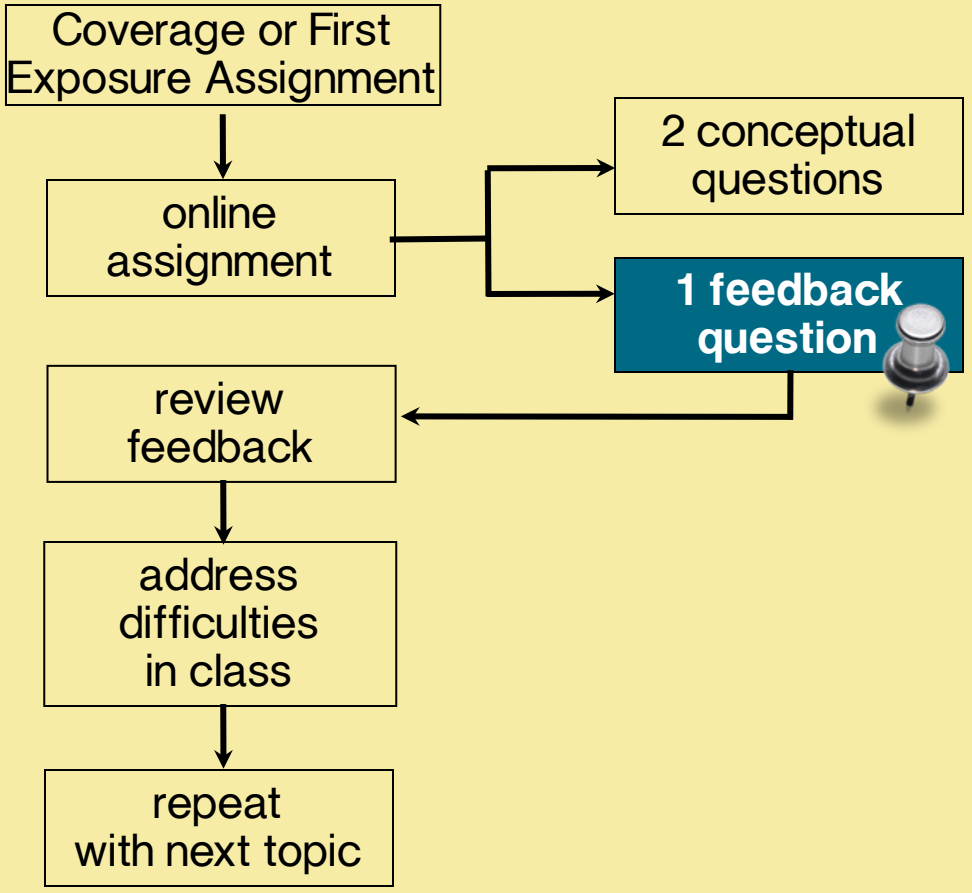
Just-in-Time Teaching



What do you find most confusing about what you read?

Muddiest Point Technique

Just-in-Time Teaching



What do you wonder about this topic? Wonder Question

Pride and Prejudice

What is Collins' profession?

A. Lawyer

B. Clergyman

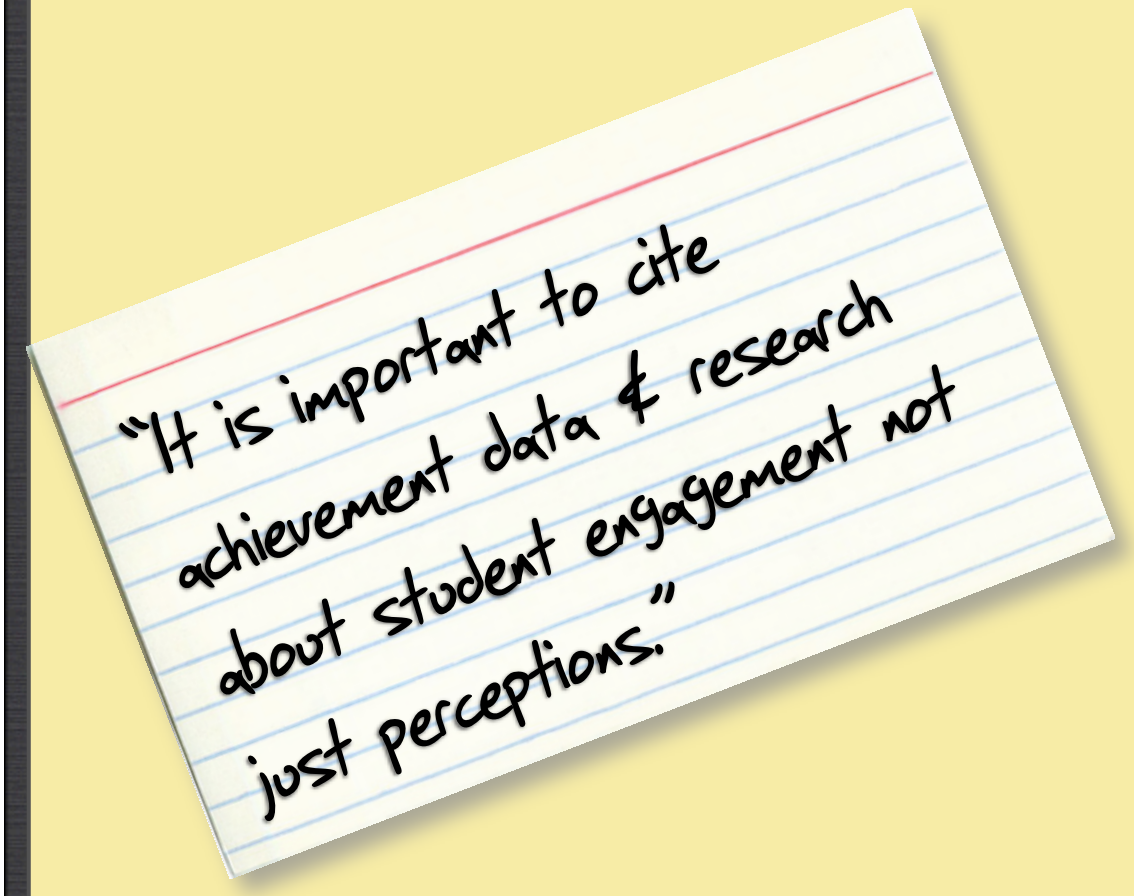
C. Farmer

D. I don't know

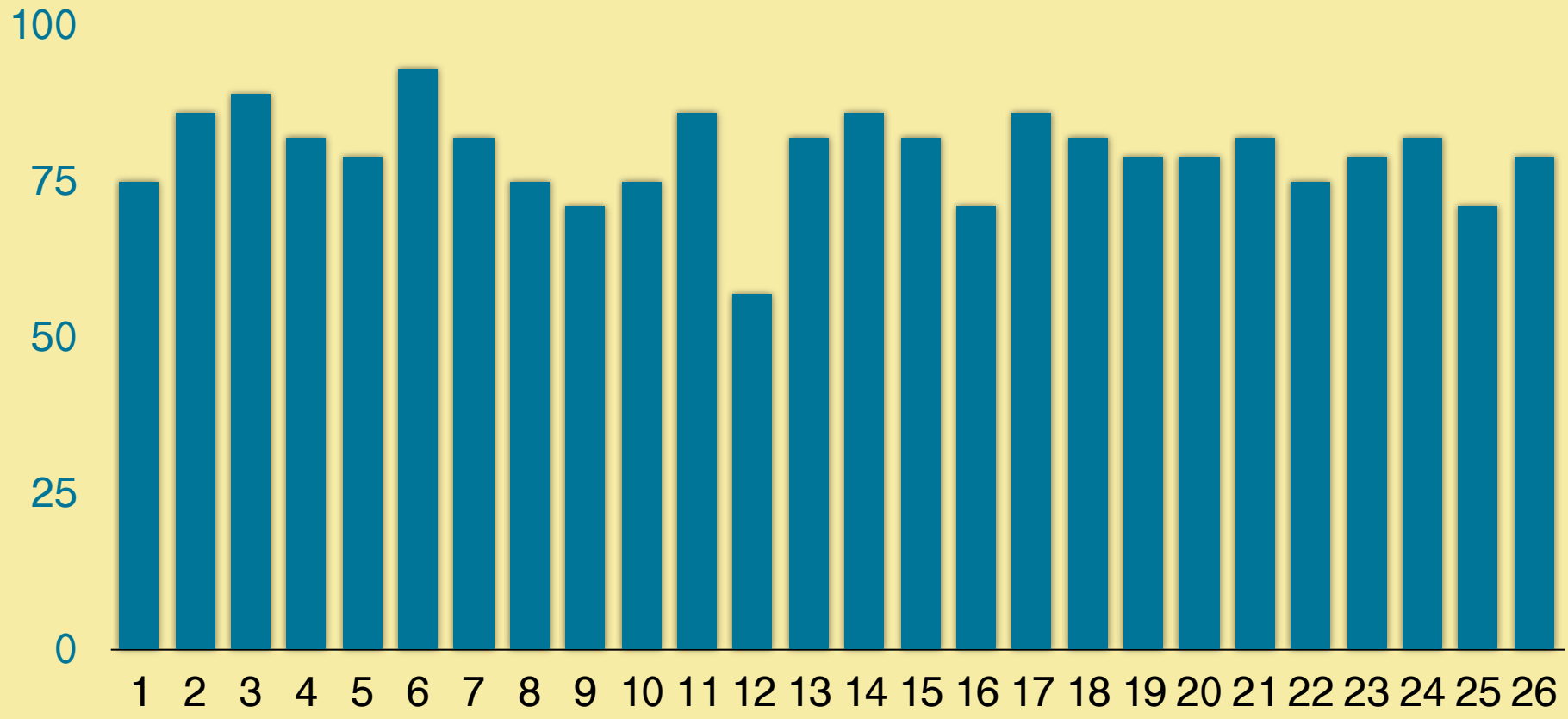
Hypothesize Collins' perception of the purpose of marriage.

What do you wonder about Collins' proposal?

Just-in-Time Teaching

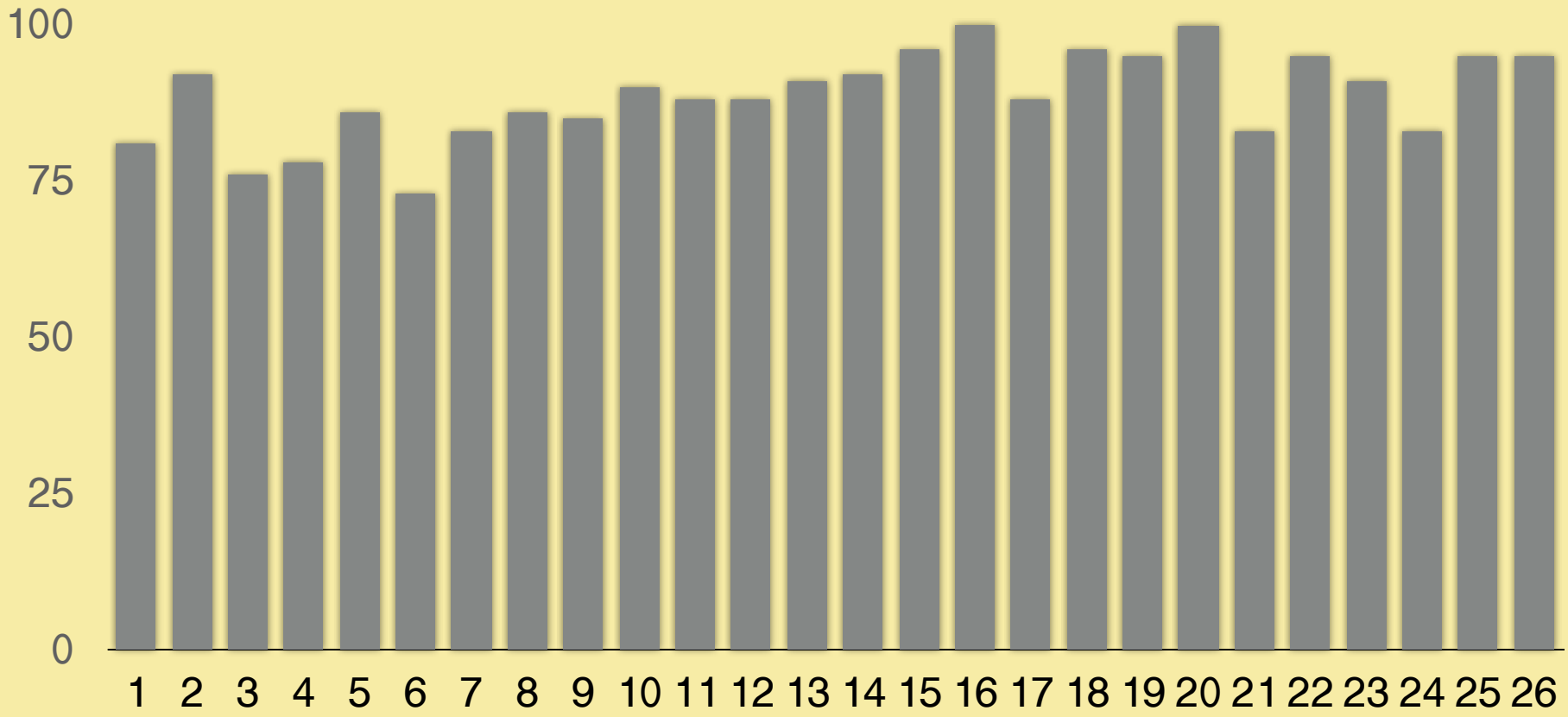


Just-in-Time Teaching



% of students (n=28) completing reading assignment (n=26)

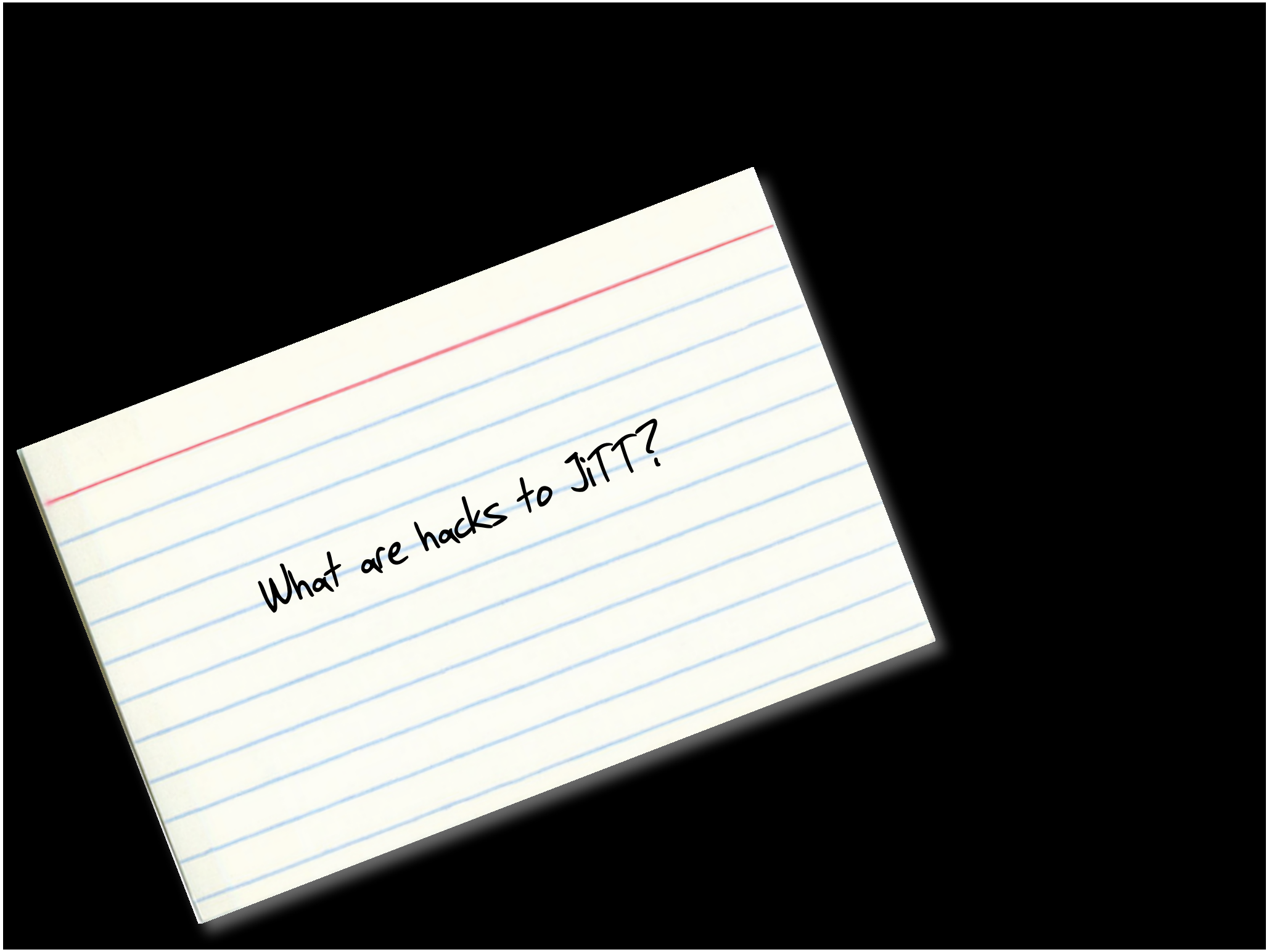
Just-in-Time Teaching

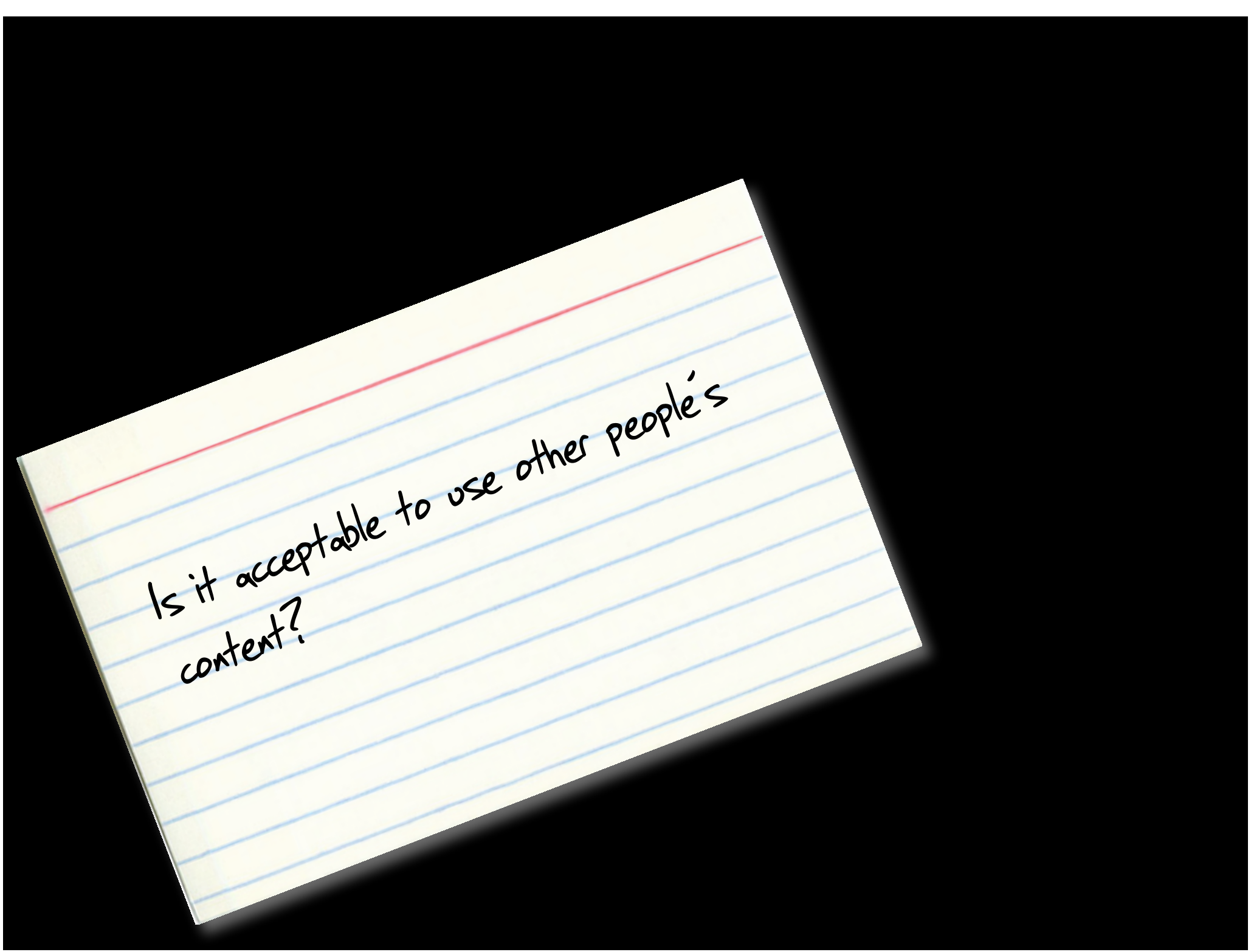


% of students (n=28) reading assignment engagement (n=26)

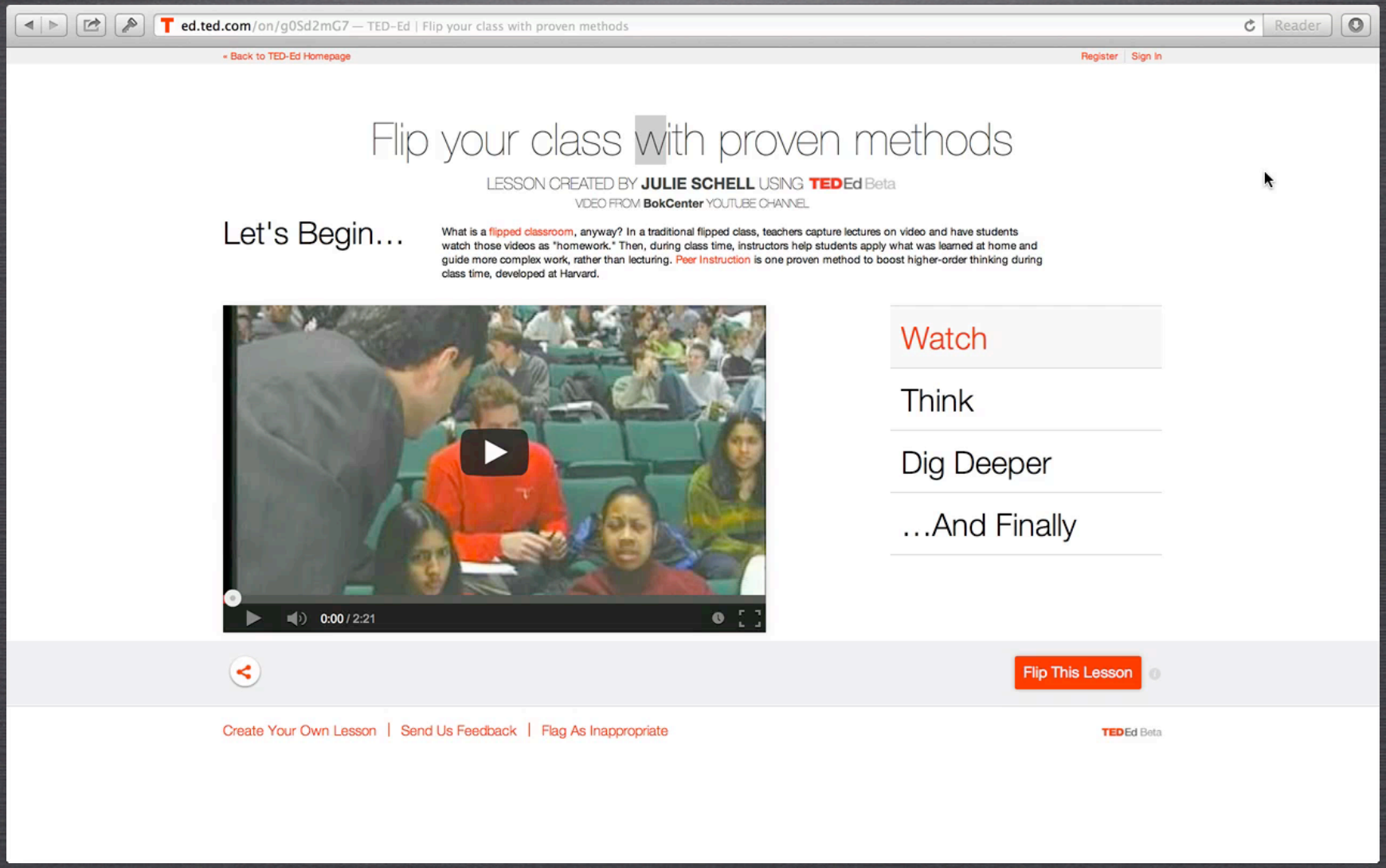
Score for each question	Criteria (Students are asked to respond with an answer and a rationale for that answer)
0	Question is left blank or incomplete
1	Response includes an answer, but does not include any or includes only very minimal reasoning or rationale (regardless of correctness)
2	Response includes an answer AND reasoning or rationale (regardless of correctness)

Mazur's JiTT Rubric


What are hacks to JiTT?


Is it acceptable to use other people's content?

http://ed.ted.com/on/g0Sd2mG7



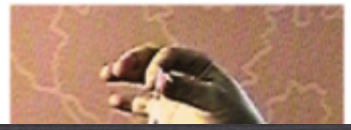
http://nb.mit.edu

strips of tape and various nearby objects, the magnitude of the electric force depends on distance — it decreases as you increase the separation.

22.2 Suspend a freshly pulled strip of transparent tape from the edge of your desk. (*a*) Pull a second strip of tape out of the dispenser and hold it near the first strip. What do you notice? (*b*) Does it matter which sides of the strips you orient toward each other?

As Checkpoint 22.2 makes clear, not all electric interactions are attractive. Even if you increase the mass of the strip by suspending paper clips from them, the repulsion between the strips is large enough to keep the paper clips apart (Figure 22.2). Now place your hand between two repelling strips and notice how both strips fly toward your hand! Then run each tape several times between your fingers and notice how the electric interaction diminishes or even disappears.

22.3 Suspend two freshly pulled 20-cm strips of transparent tape from the edge of your desk. Cut two 20-cm strips of paper, making each strip the same width as the tape, and investigate the interactions between the paper strips and the tape by bringing them near each other. Which of the following combinations display an electric interaction: paper-paper, tape-paper, tape-tape?



22.2 Electrical charge

As we saw in the previous section, electric interacti
are sometimes attractive and sometimes repulsive
addition, the experiment you performed in Checkpo
22.3 demonstrates that paper strips, which do not
teract electrically with each other, do interact elec
cally with transparent tape. What causes th
interactions? To answer this question, we need to ca
out a systematic sequence of experiments.

Figure 22.3 illustrates a simple procedure for rep
ducibly creating strips of tape that interact electrica
A suspended strip created according to this proced
interacts in the following ways: it repels another s
created in the same manner, and it attracts any ot

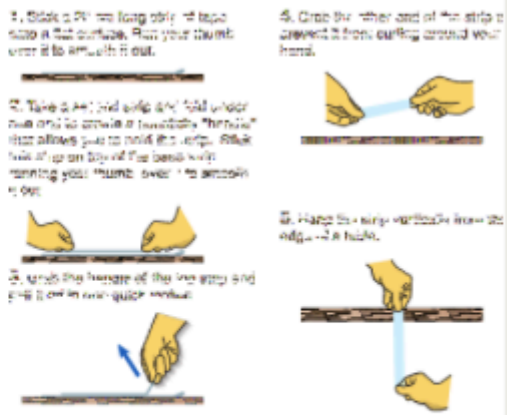


Figure 22.3 Procedure for making strips of transparent t
that interact electrically. The lower strip is used to provi
standard surface—the top side of a piece of tape — beca
surface properties may vary from one tabletop or deskto
another.

Welcome to NB !

Use your mouse or the ❶ and ❷ keys to move from discussion to discussion.
Use your mouse or the ❸ and ❹ keys to scroll up and down the document.
Drag across any region on the pdf to create a new discussion
Right-click on any comment to post a reply

More help...

New note...

- The entire class
- Instructors and TAs
- Myself only

☐ Anonymous to students

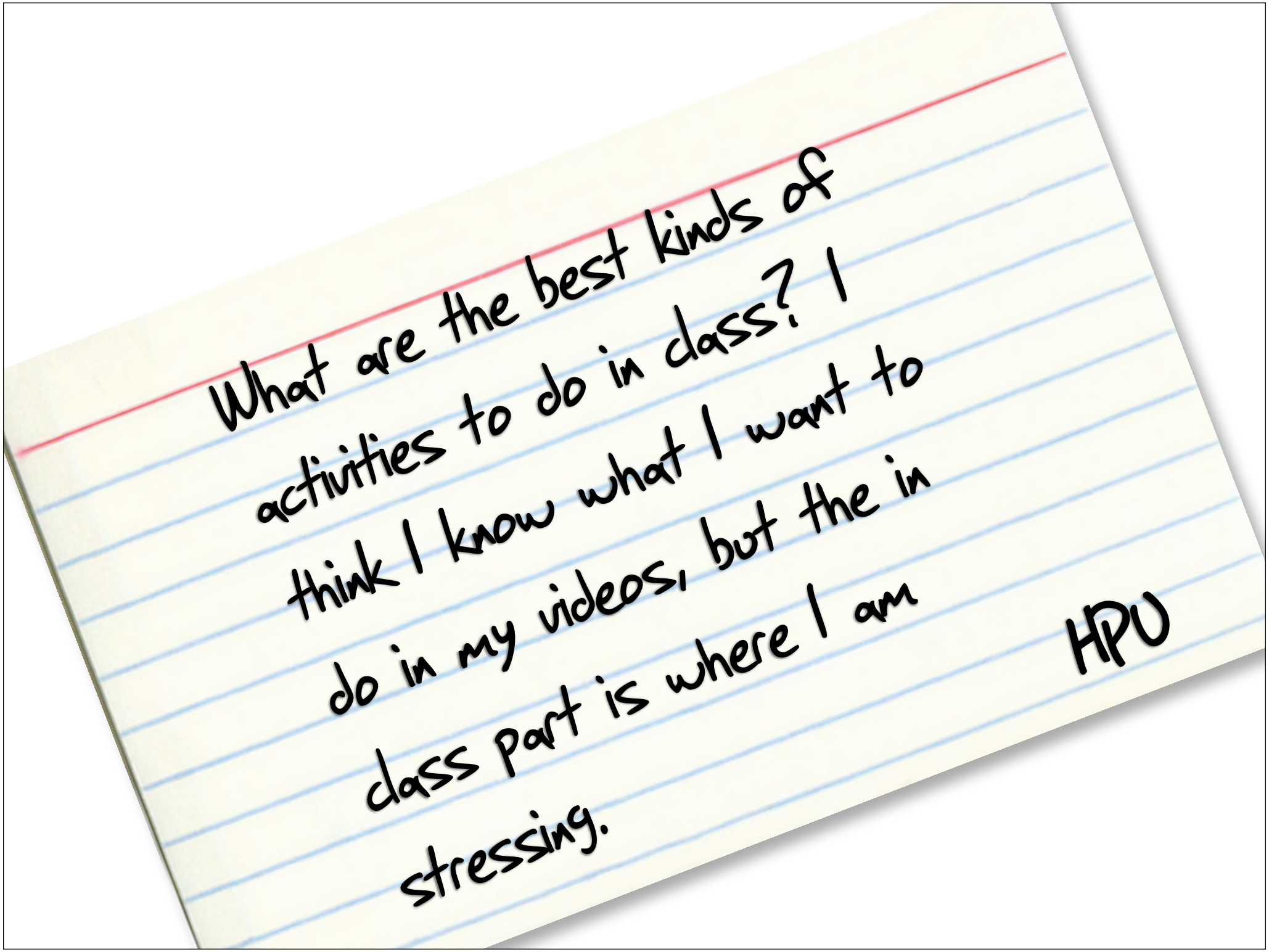
Save

NB

Name	Assignment	Download PDF	Stats
ch22	No	original	me 1 unread 39 all 50
ch32	No	original	me 0 unread 73 all 73
ch25	No	original	me 0 unread 131 all 131
ch33	No	original	me 0 unread 99 all 99
ch26	No	original	me 0 unread 96 all 99
ch24	No	original	me 0 unread 169 all 180
Ch30	No	original	me 0 unread 81 all 81
ch29	No	original	me 0 unread 38 all 38
ch27	No	original	me 0 unread 53 all 55
ch23	No	original	me 0 unread 154 all 172
ch28	No	original	me 0 unread 79 all 79
ch31	No	original	me 0 unread 41 all 41

Tips for JiTT

- give points for effort
- organize class time using feedback
- display comments anonymously
- formally assess content
- find a colleague doing it on campus


What are the best kinds of activities to do in class? I think I know what I want to do in my videos, but the in class part is where I am stressing.
HPU

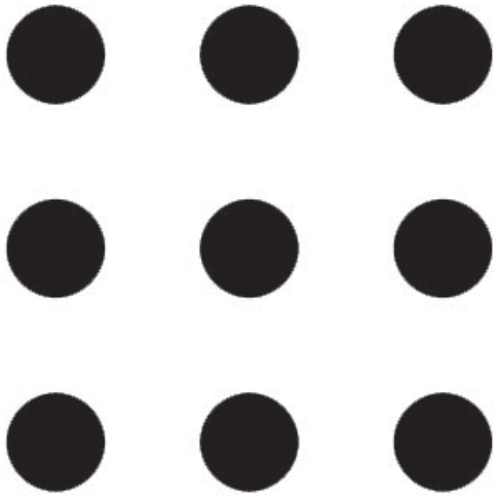
2

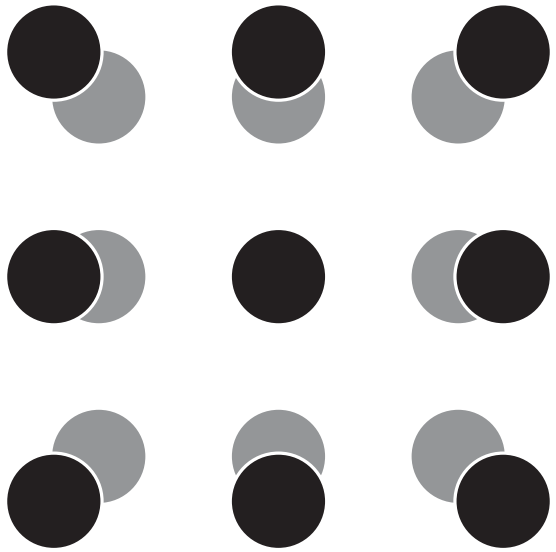
How do I engage my students in class?


FOUND DEEP

Thermal Expansion

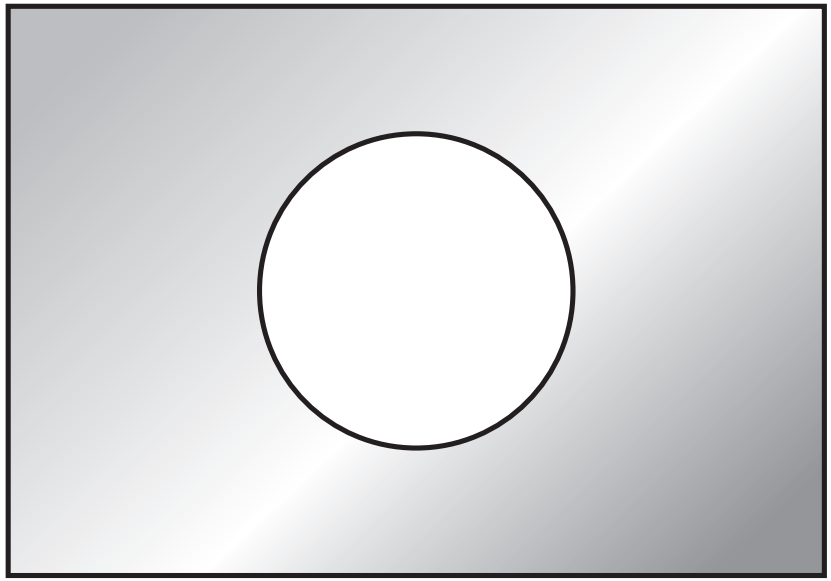
When metals heat up, they expand.





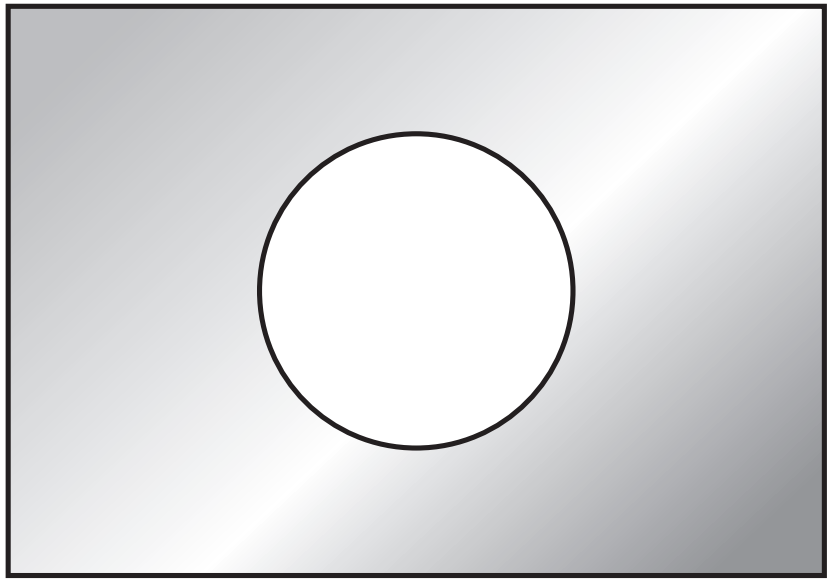
Consider a metal plate with a hole in it.

A. increases
B. stays the same
C. decreases



Consider a metal plate with a hole in it. If you heat it uniformly what happens to diameter of hole?

A. increases
B. stays the same
C. decreases



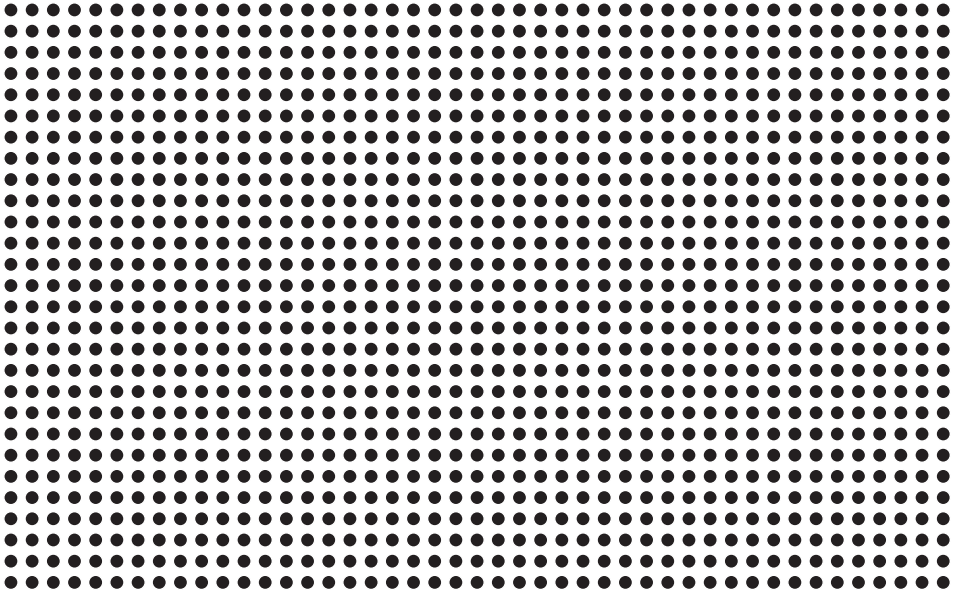
What just happened?

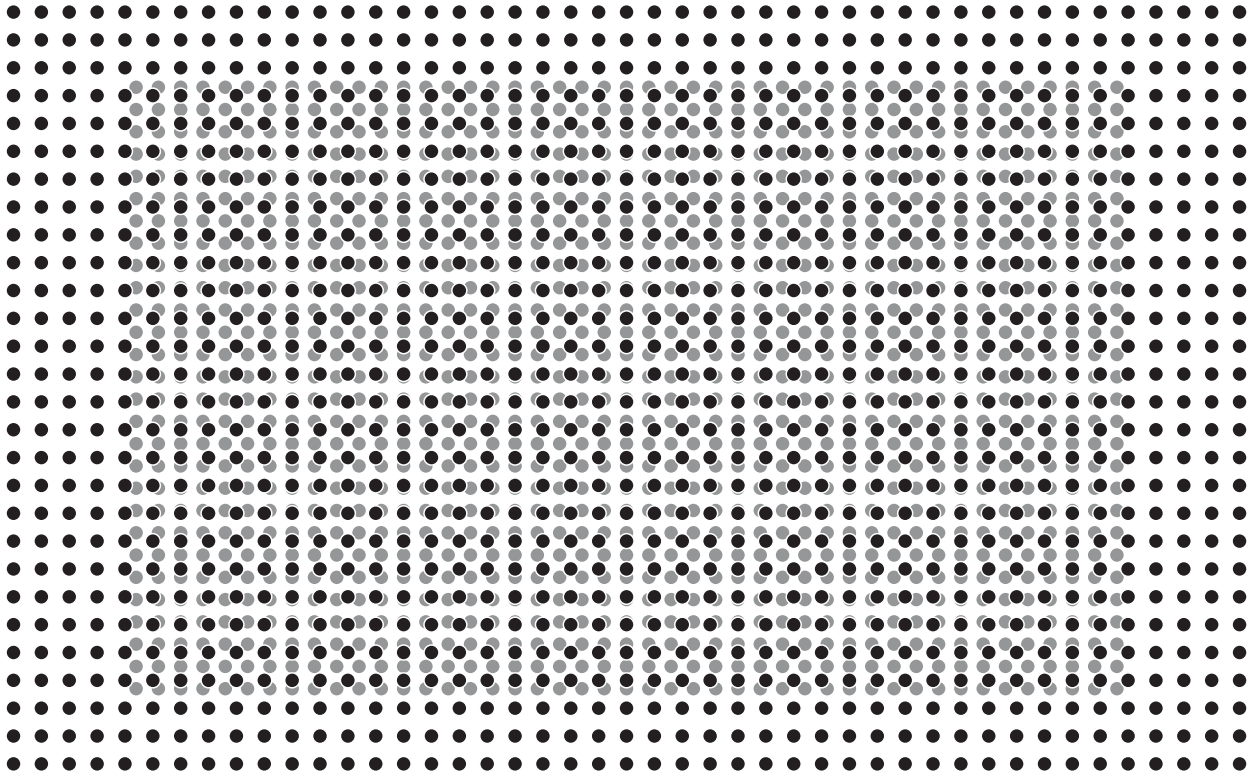
1. made a commitment, gained awareness of knowledge state

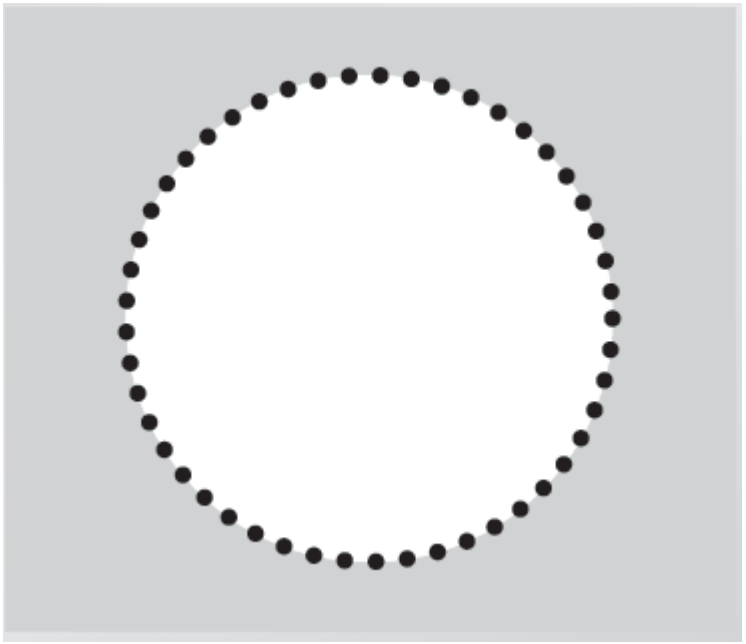
2. externalized your answer

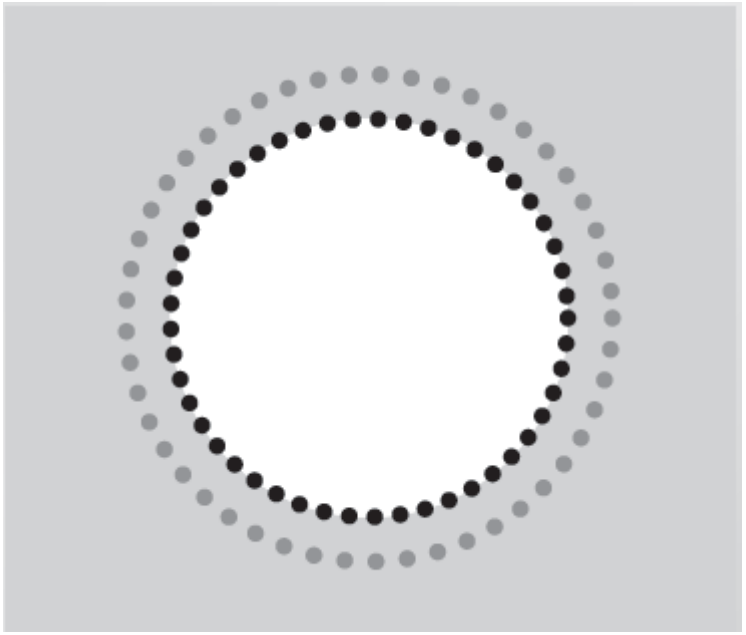
3. moved from the answer to reasoning

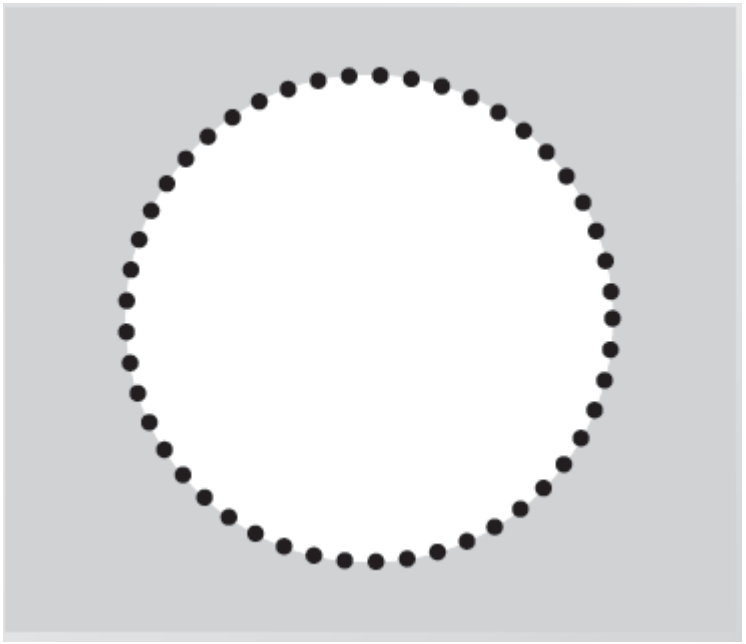
4. became emotionally invested in the learning process









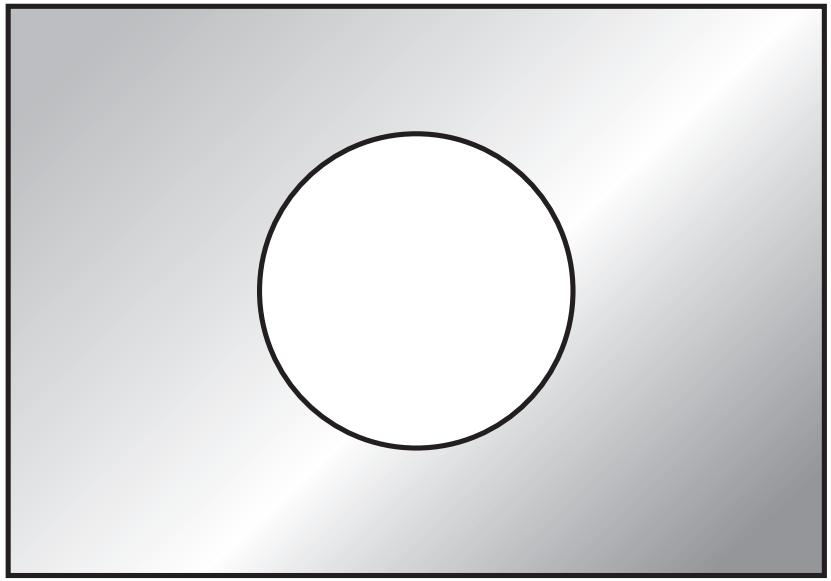


What happens when you heat metals up?

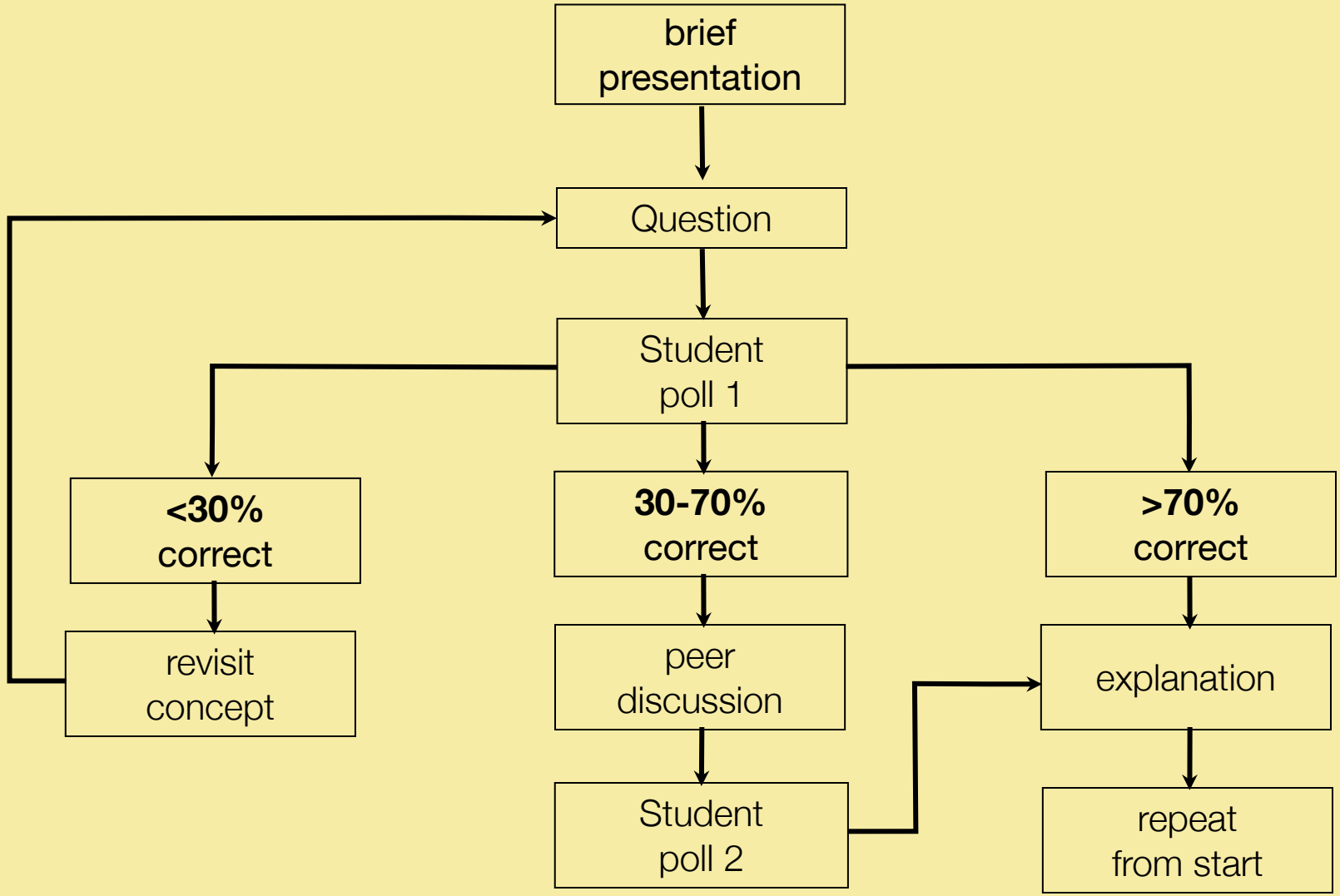
A. they expand
B. they stay the same
C. they get smaller
D. who cares?

If you heat it uniformly what happens to diameter of hole?

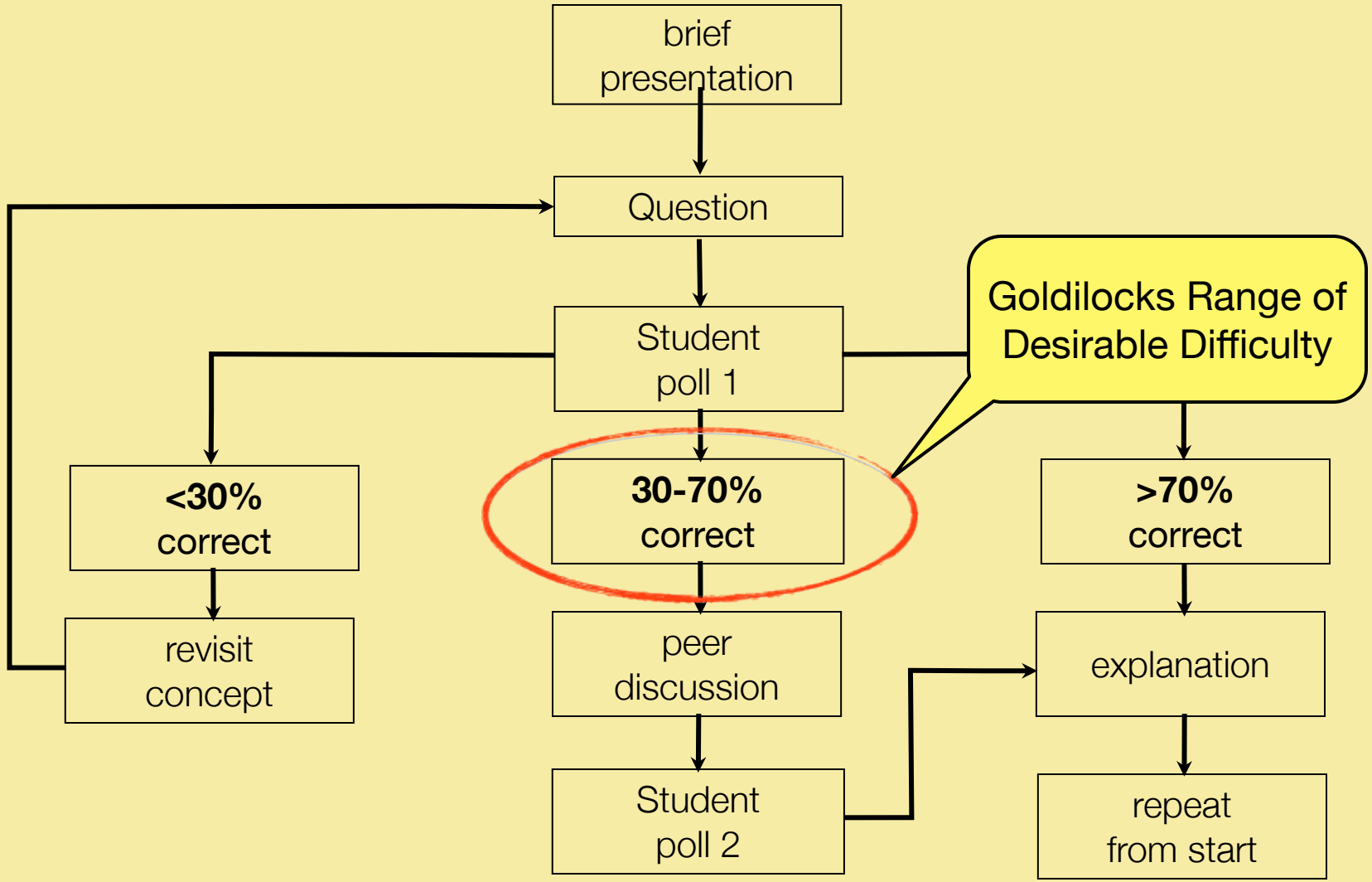
A. increases
B. stays the same
C. decreases

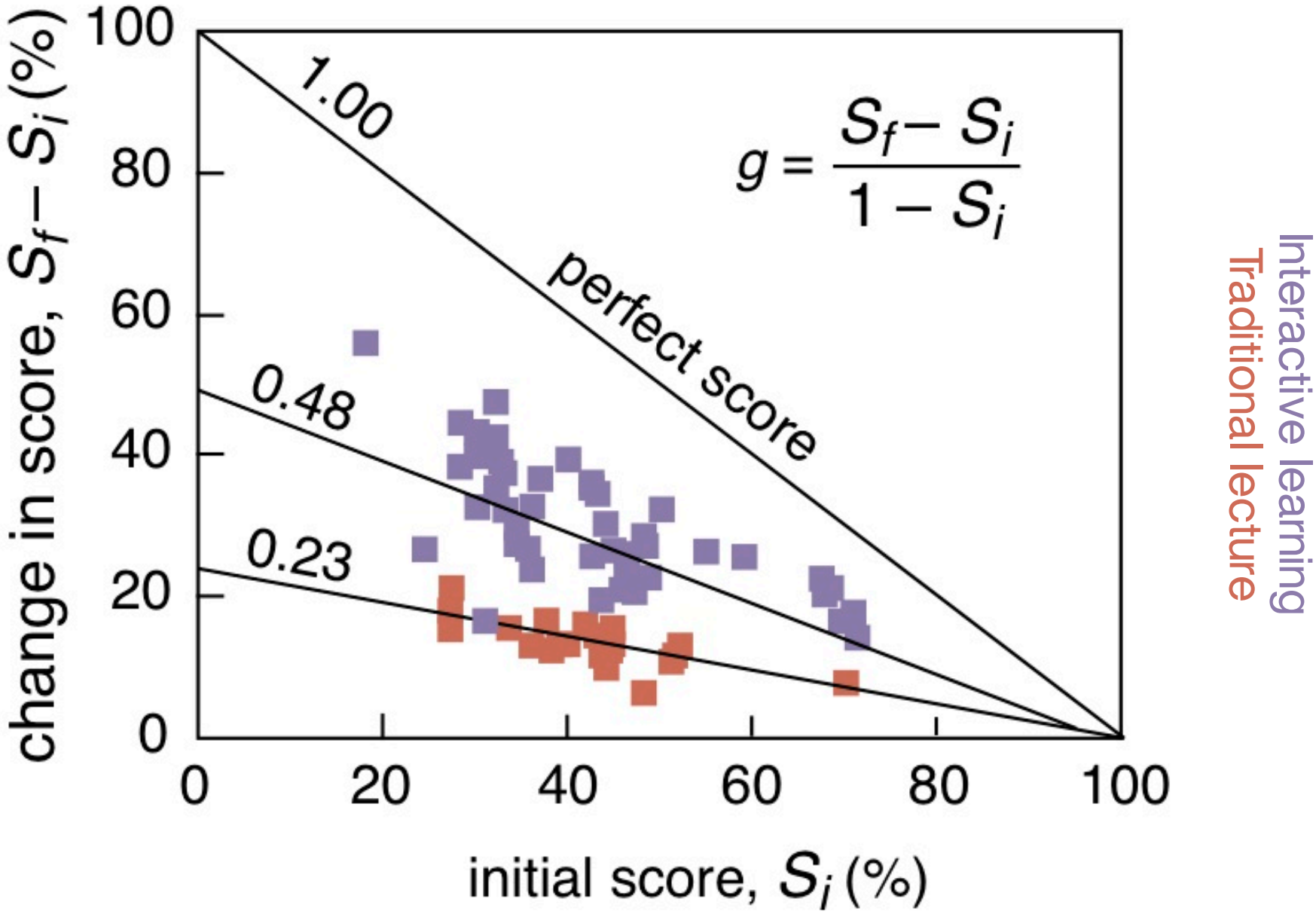


Peer Instruction



Peer Instruction





Source: Hake, R. R. (1998). Interactive-engagement versus traditional methods: A six-thousand-student survey of mechanics test data for introductory physics courses. *Am. J. Phys.* 66(1).


Moral Ambiguity

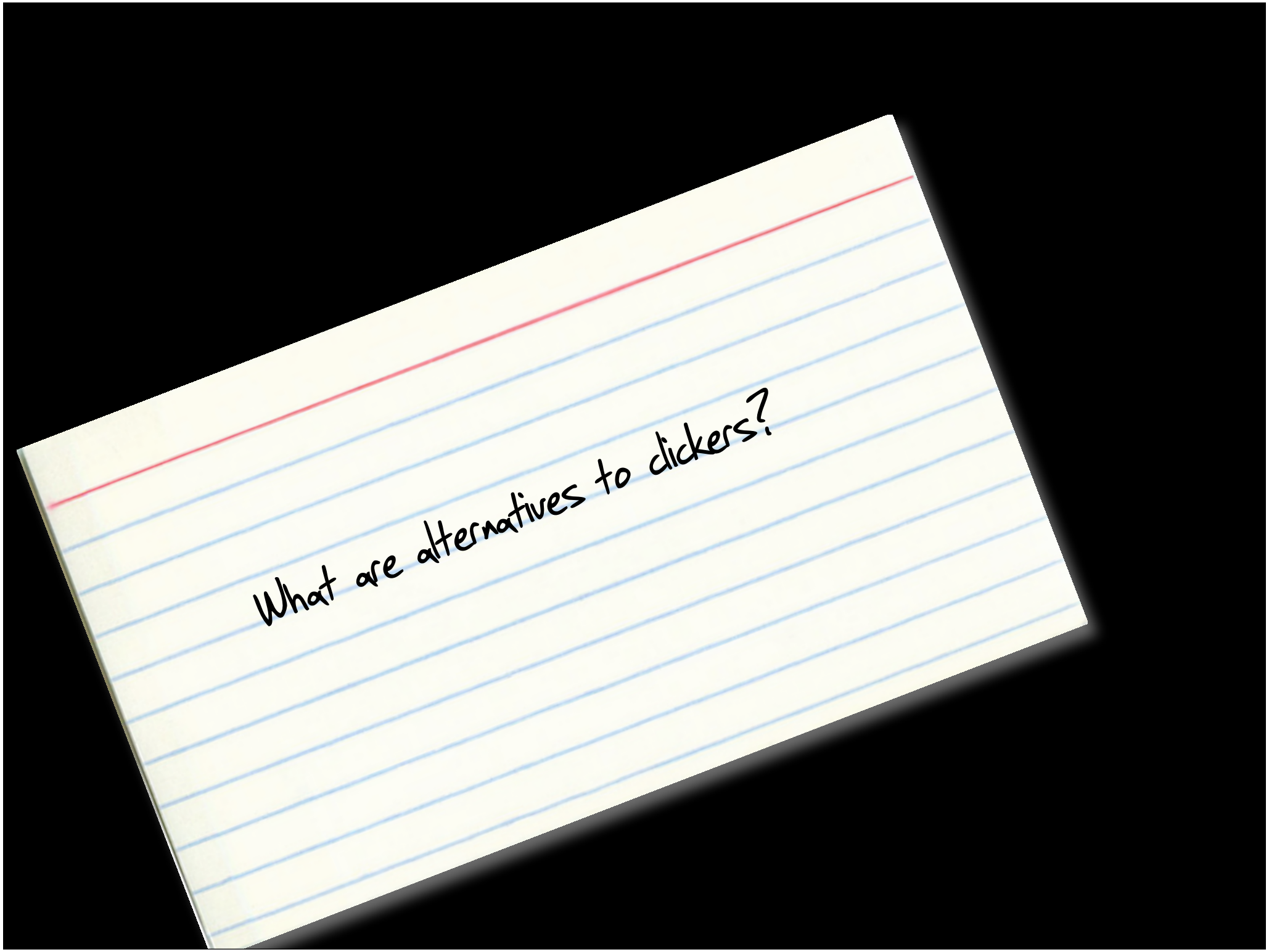
Gert's Moral Rules Everyone must follow!

1. Do not kill.
2. Do not cause pain.
3. Do not disable.
4. Do not deprive of freedom.
5. Do not deprive of pleasure.
6. Do not deceive.
7. Keep your promises.
8. Do not cheat.
9. Obey the law.
10. Do your duty.

Heinz's wife was near death, and her only hope was a drug that had been discovered by a pharmacist who was selling it for an exorbitant price. The drug cost $20,000 to make, and the pharmacist was selling it for $200,000. Heinz could only raise $50,000 and insurance wouldn't make up the difference. He offered what he had to the pharmacist, and when his offer was rejected, Heinz said he would pay the rest later. Still the pharmacist refused. In desperation, Heinz broke into the store and stole the drug.

Should Heinz have broken into the store to steal the drug for his wife?

A. Yes
B. No


What are alternatives to clickers?


POWER
LOW BATTERY
VOTE STATUS
i>clicker
jump search
clear
send
A/1
B/2
C/3
D/4
E/5
F/6
G/7
H/8
I/9
J/0
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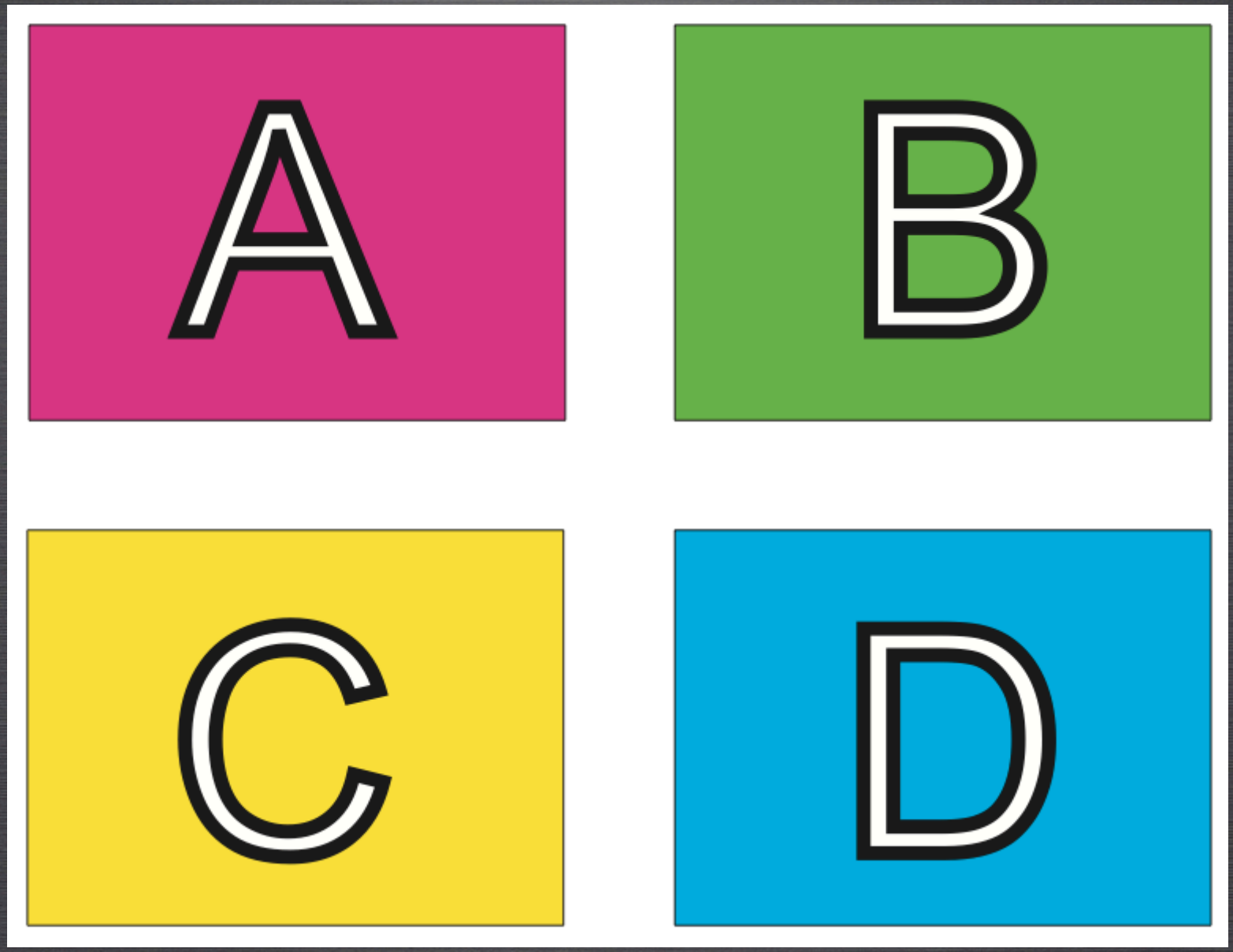

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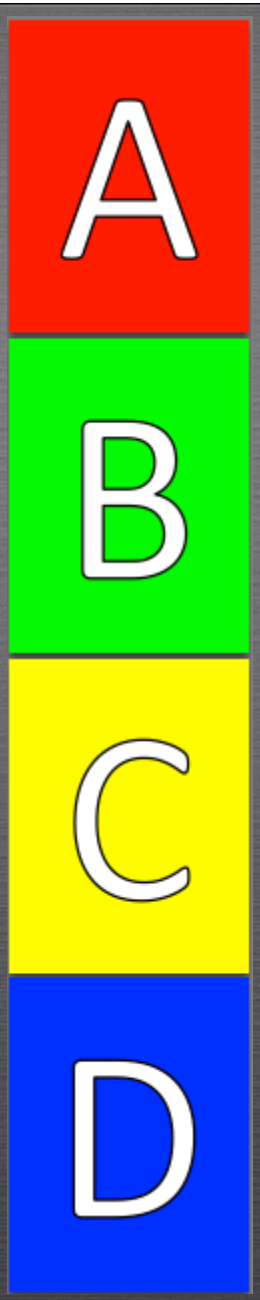

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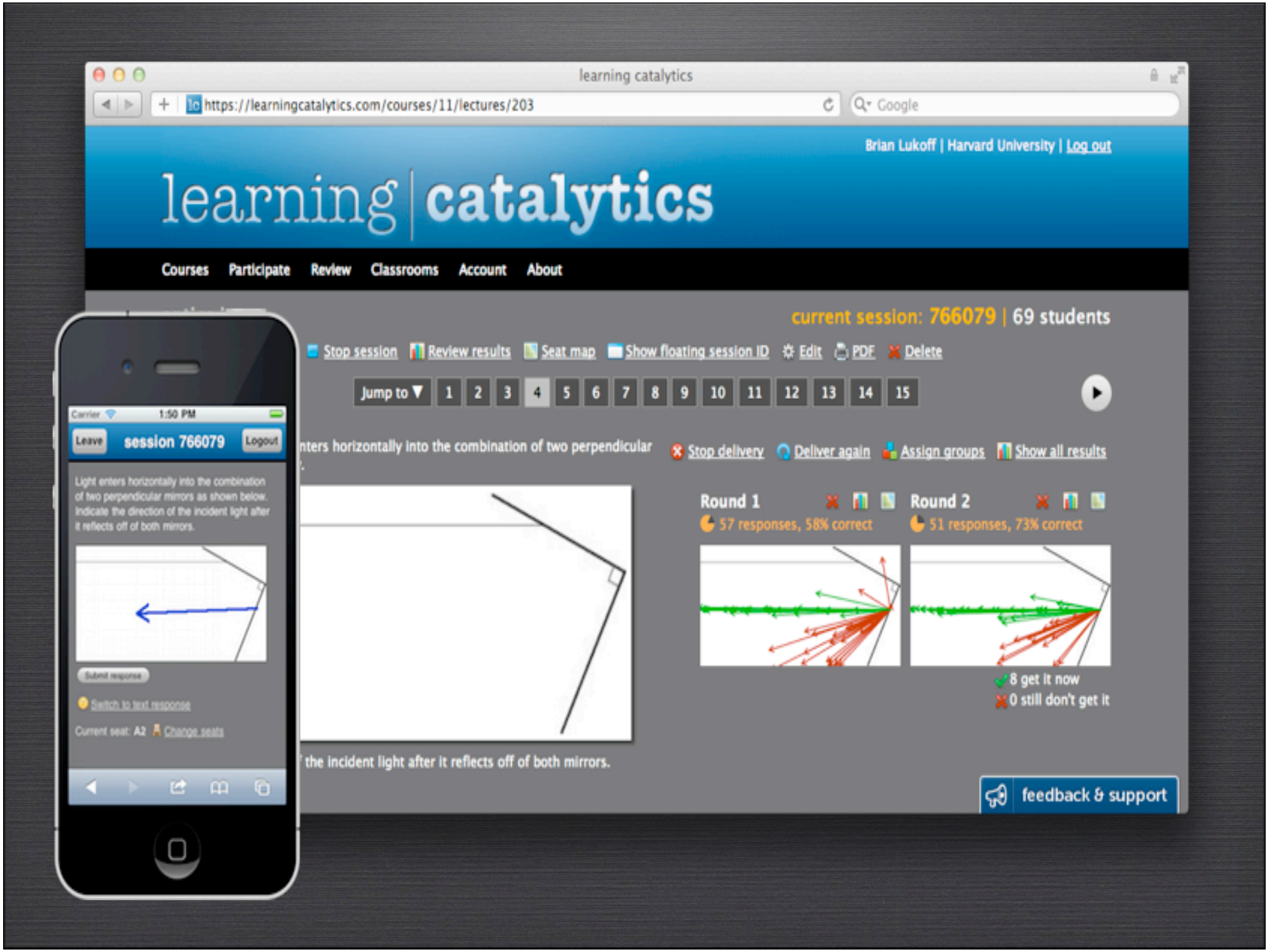
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About
current session: 766079 | 69 students
Stop session
Review results
Seat map
Show floating session ID
Edit
PDF
Delete
Jump to
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
nters horizontally into the combination of two perpendicular
Stop delivery
Deliver again
Assign groups
Show all results
Round 1
57 responses, 58% correct
Round 2
51 responses, 73% correct
8 get it now
0 still don't get it
the incident light after it reflects off of both mirrors.
feedback & support
Carrier
1:50 PM
Leave
session 766079
Logout
Light enters horizontally into the combination of two perpendicular mirrors as shown below. Indicate the direction of the incident light after it reflects off of both mirrors.
Submit response
Switch to text response
Current seat: A2
Change seats

Socrative.com

Tips for PI

-can use with just one concept in a course

-always give students a chance to vote first before discussion

-have students give explanations of different responses as closure activity

-don't show histogram after first vote if there is a correct answer

3

How to get started or learn more?

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