

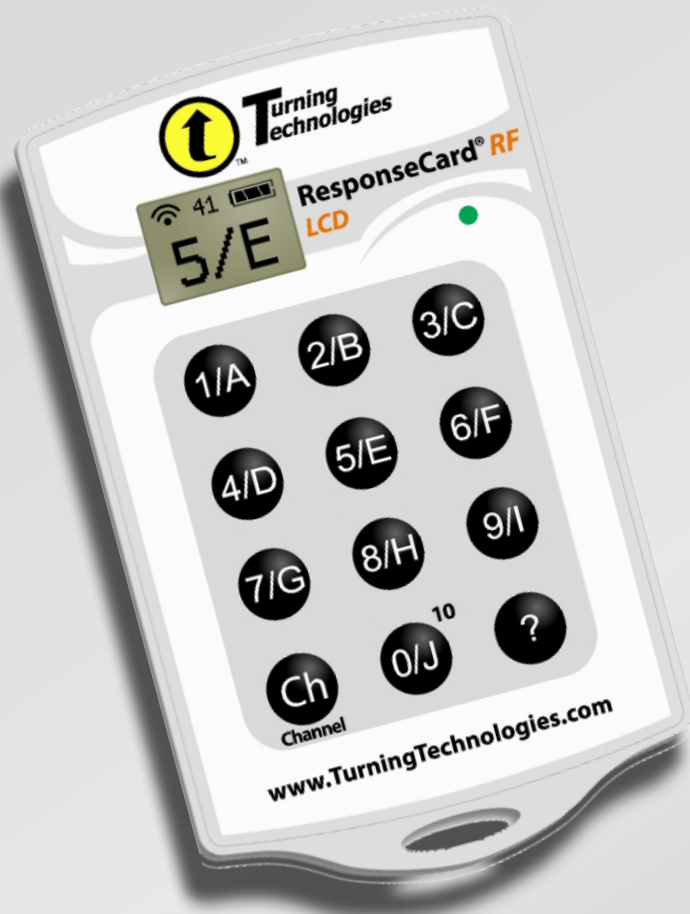
# Introduction to Peer Instruction



Physics and Astronomy New Faculty Workshop  
Greenbelt, MD 17 November 2011

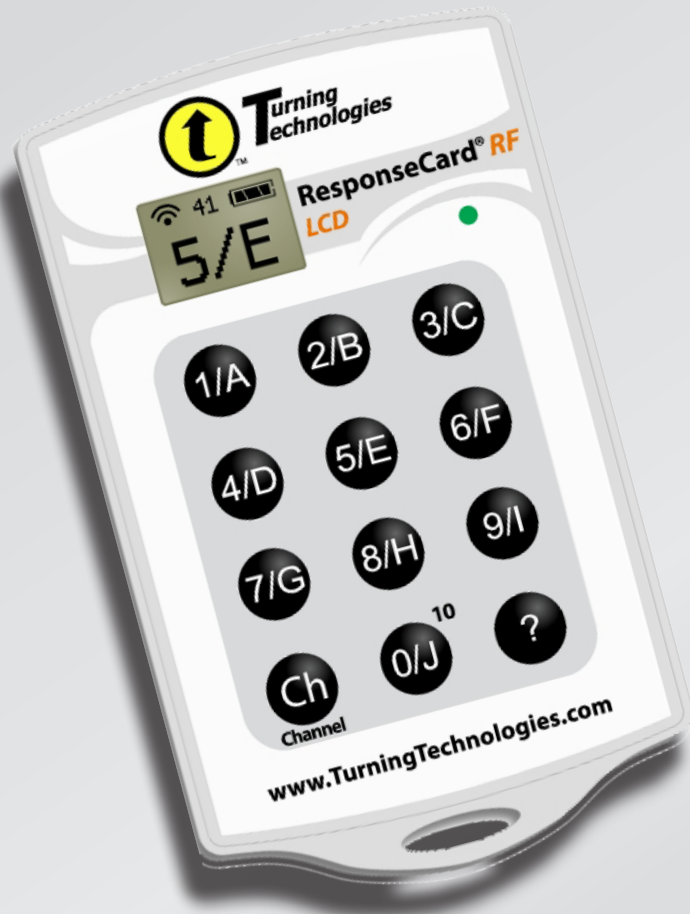


# Get your clickers ready!



- no ON/OFF button
- only last "click" counts
- display shows recorded answer

# Get your clickers ready!



Or use your web-enabled device!

- go to <http://rwpoll.com>
- enter session ID: **EMAZUR**

[rwpoll.com](http://rwpoll.com)

# Get your clickers ready!



[www.TurningTechnologies.com](http://www.TurningTechnologies.com)



# Quick survey...

## Peer Instruction...

1. Never heard of it.
2. I watched a video of your presentation online.
3. I heard someone else present on Peer Instruction.
4. I've attended one of your talks on Peer Instruction before.
5. I heard you speak about it so often, I could give your talk!



# Quick survey...

## Peer Instruction...

1. Never heard of it.
2. Don't use it in my classes, but I'm open to it.
3. Considering using it in my classes.
4. I have used it in my classes a few times.
5. I use it regularly in my classes.



# How do we learn?

**Think of something you are good at — something that you know you do well.**



# How do we learn?

**Think of something you are good at — something that you know you do well.**

***How did you become good at this?***

# How do we learn?

Became good at it by:

1. trial and error
2. lectures
3. practicing
4. apprenticeship
5. other



# How we teach...



# Learning spaces



# Learning spaces



# Learning spaces

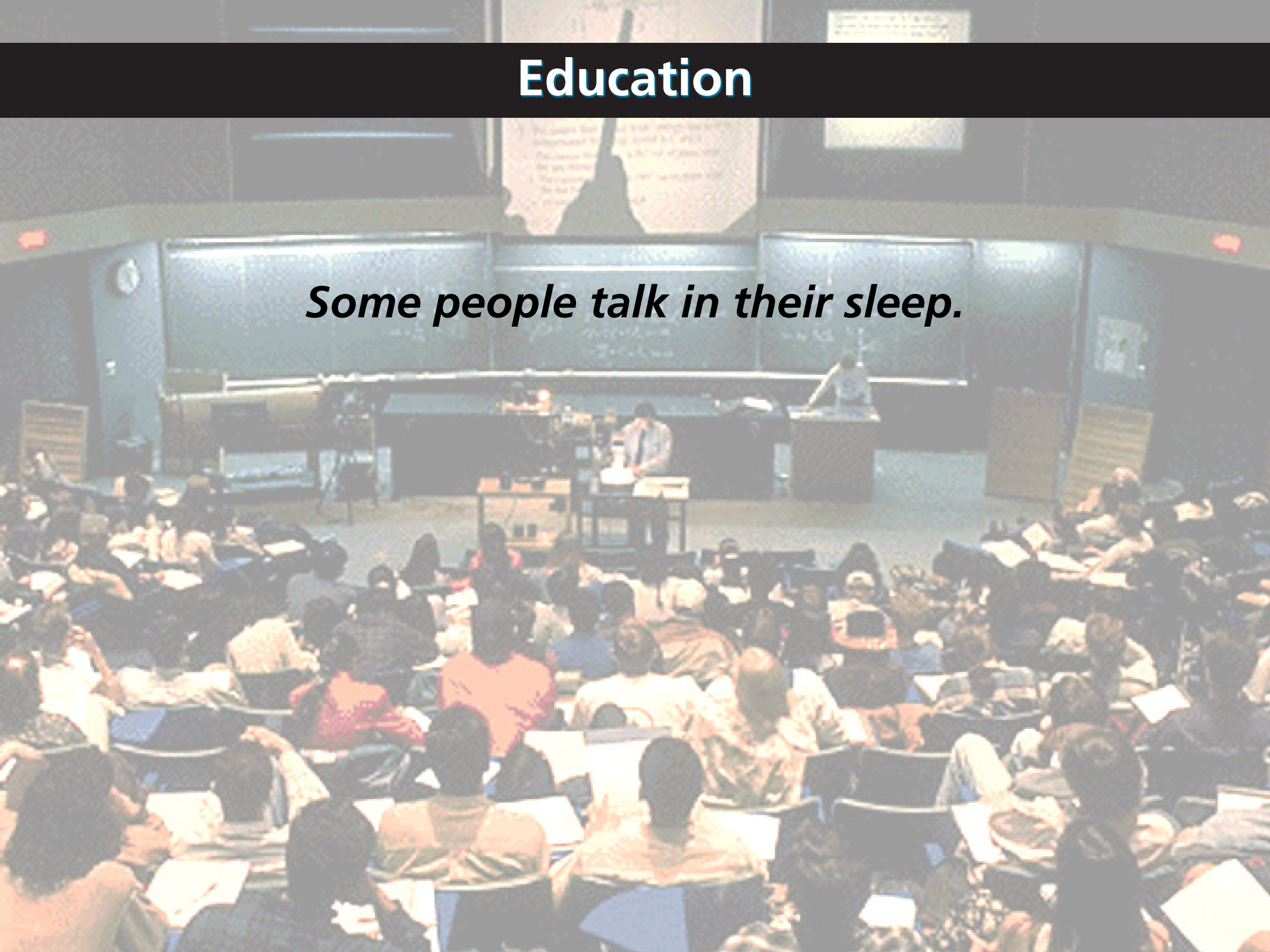


# Education



# Education

*Some people talk in their sleep.*





# Education

A large lecture hall with a lecturer at the front and many students in the audience. The room is filled with people, and the lecturer is standing at a podium, addressing the class. The students are seated in rows, and many are looking towards the front. The room has a high ceiling and large windows.

*Some people talk in their sleep.*

*Lecturers talk while other people are sleeping.*

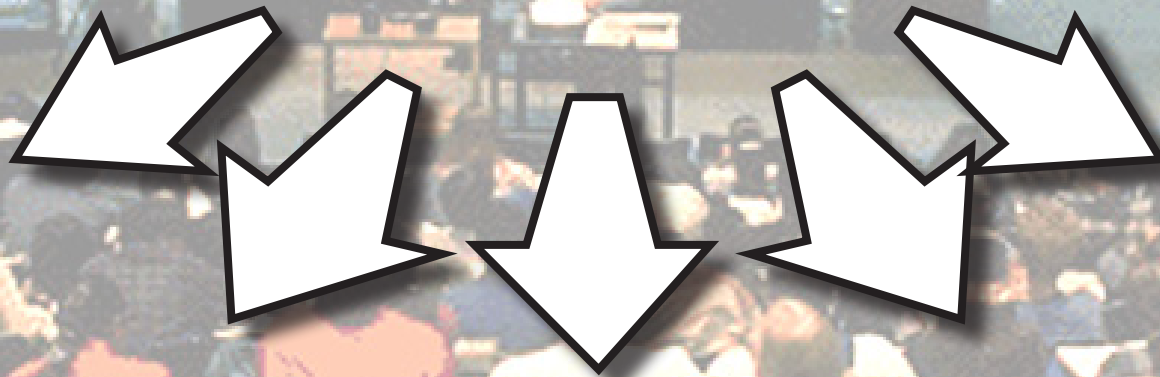
**Albert Camus**

# Education



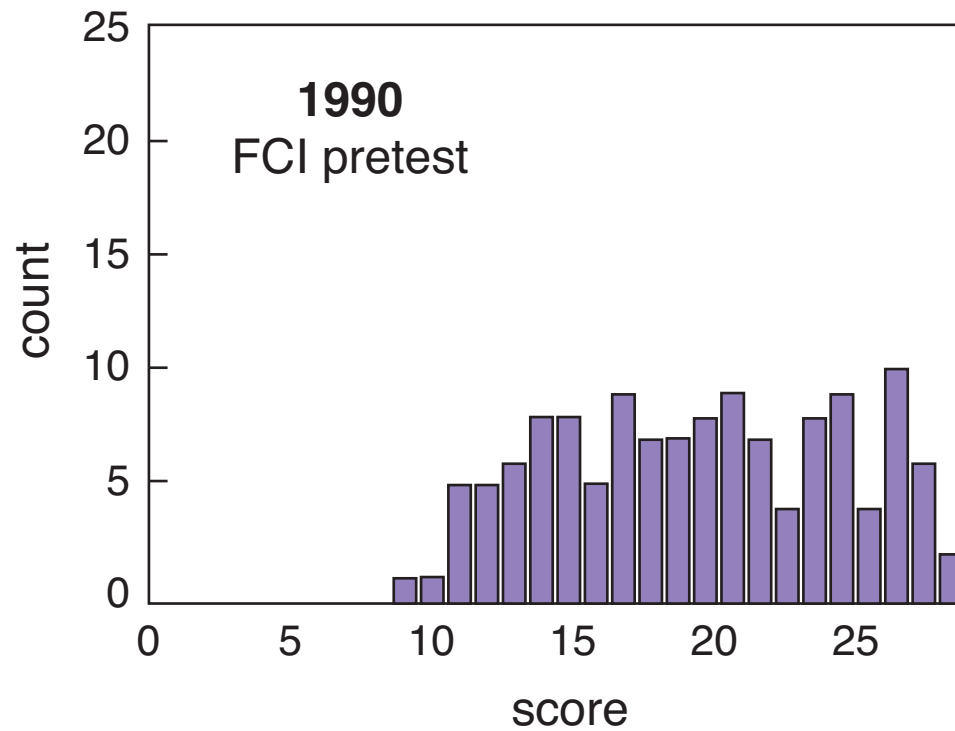
# Education

lectures focus on information transfer...



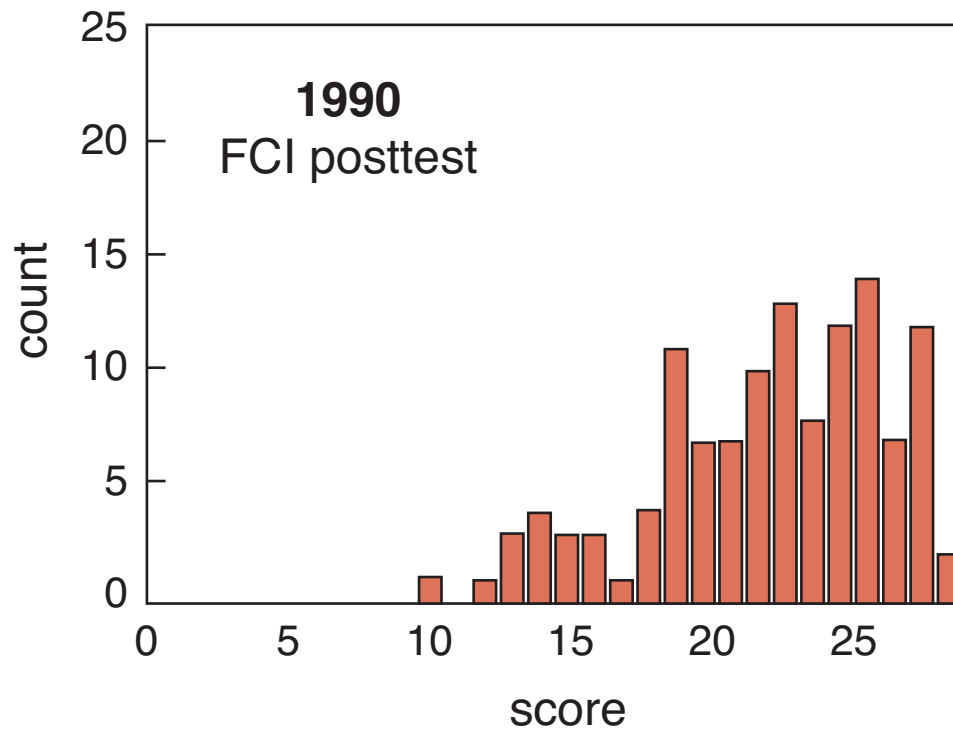
# Education

education is not just information transfer



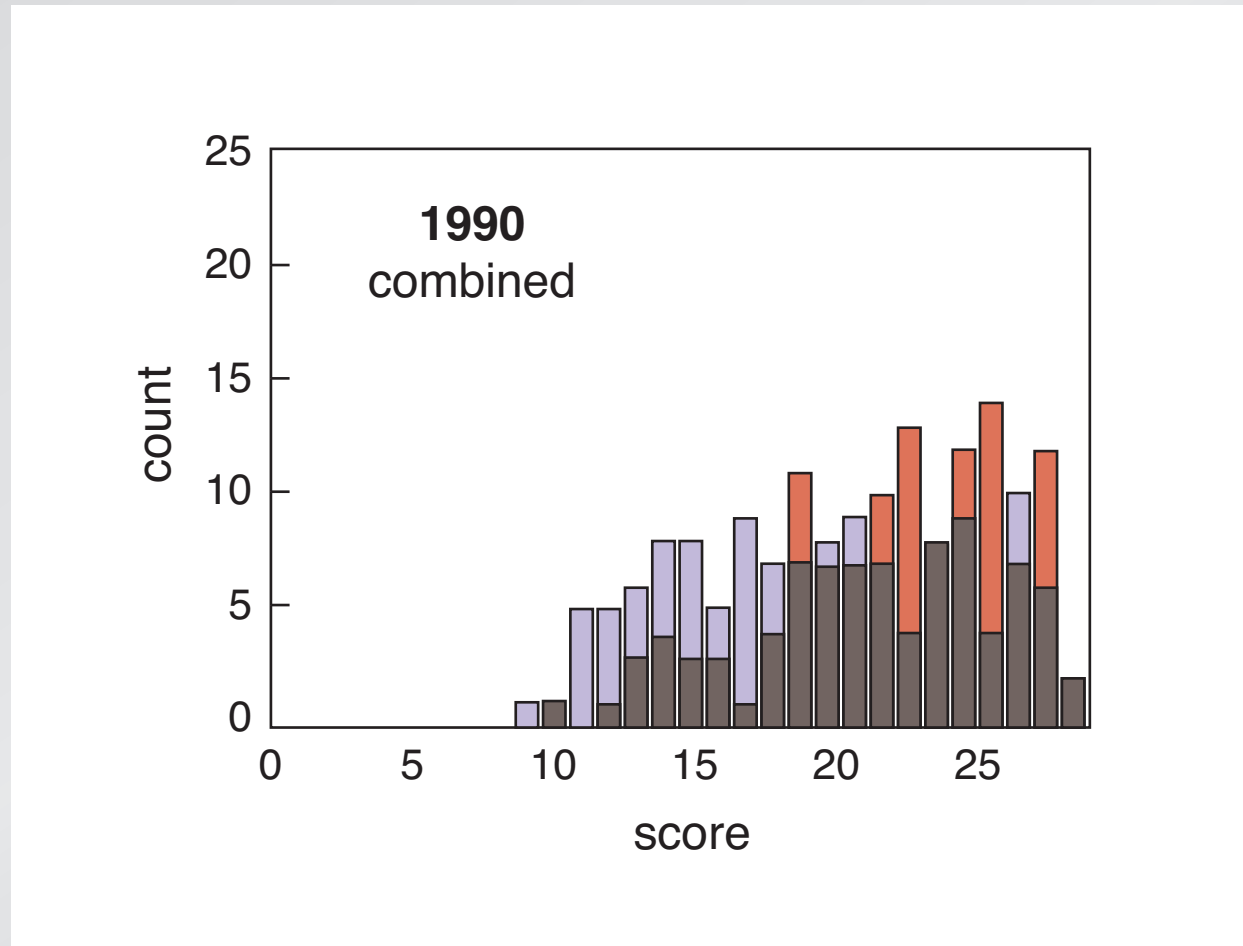
# Education

education is not just information transfer



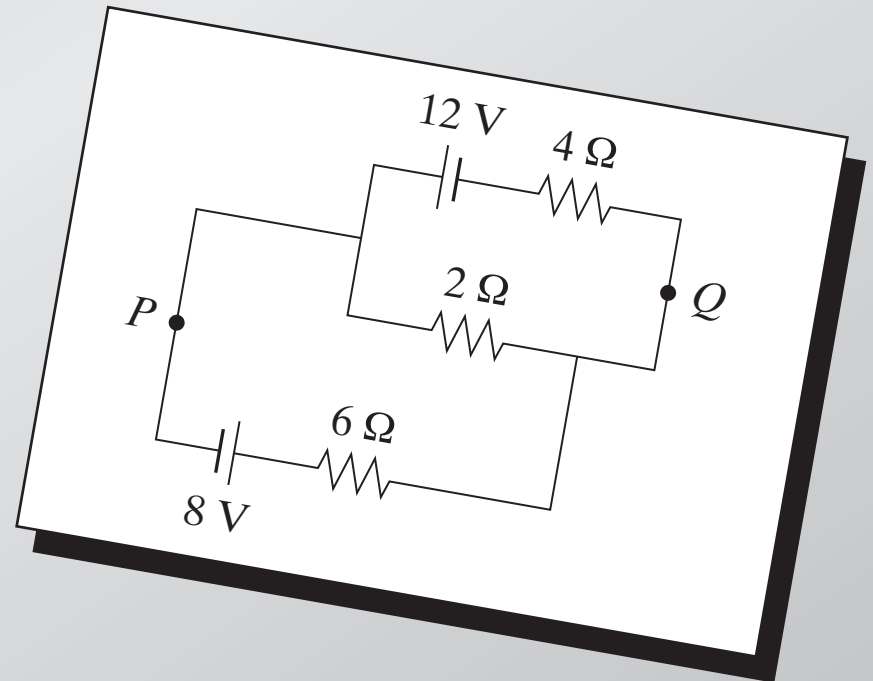
# Education

education is not just information transfer



# Education

conventional problems misleading



# Education

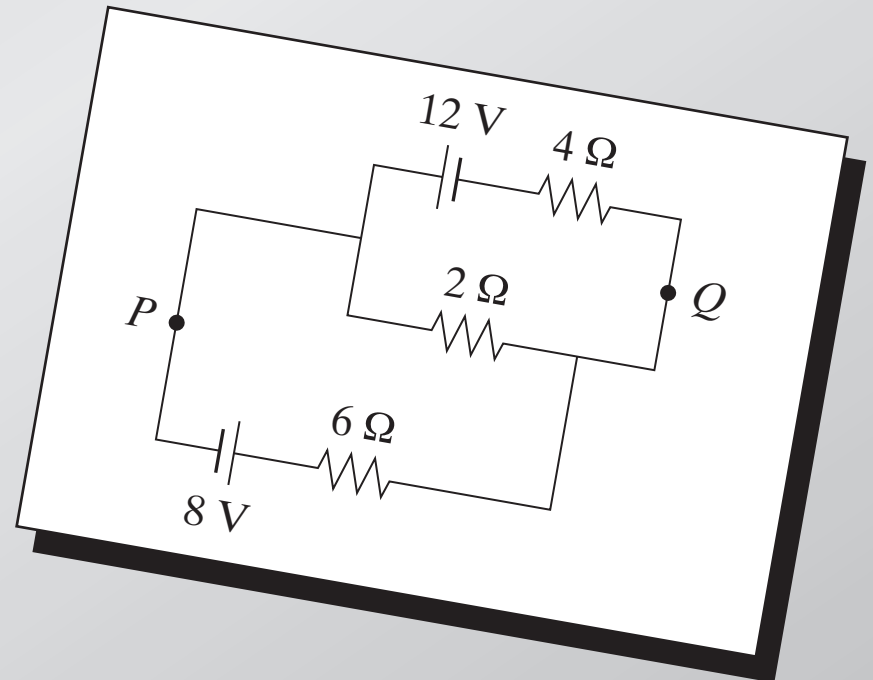
conventional problems misleading

Calculate:

(a) current in  $2\text{-}\Omega$  resistor

(b) potential difference

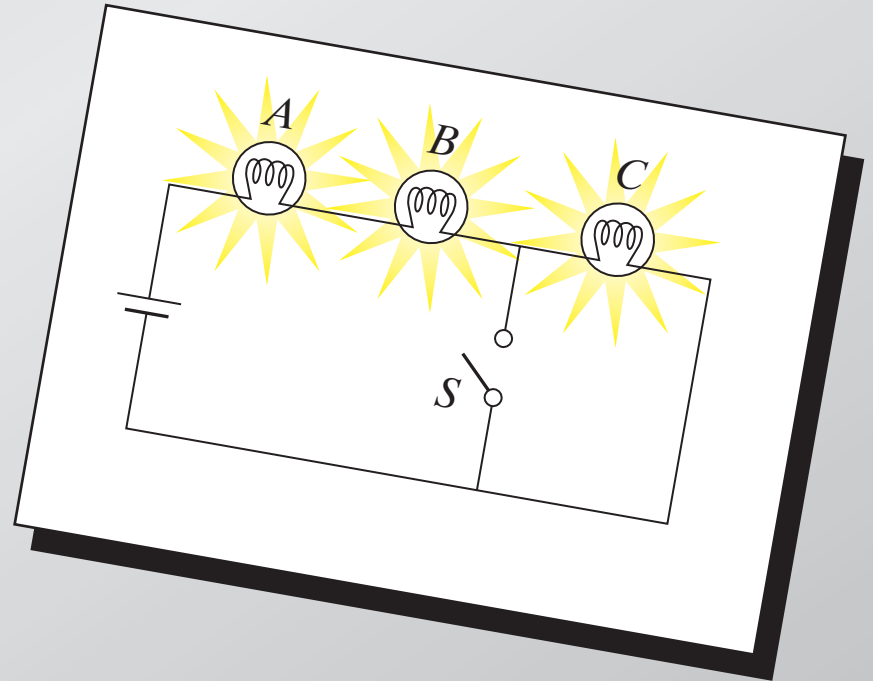
between  $P$  and  $Q$





# Education

are the basic principles understood?

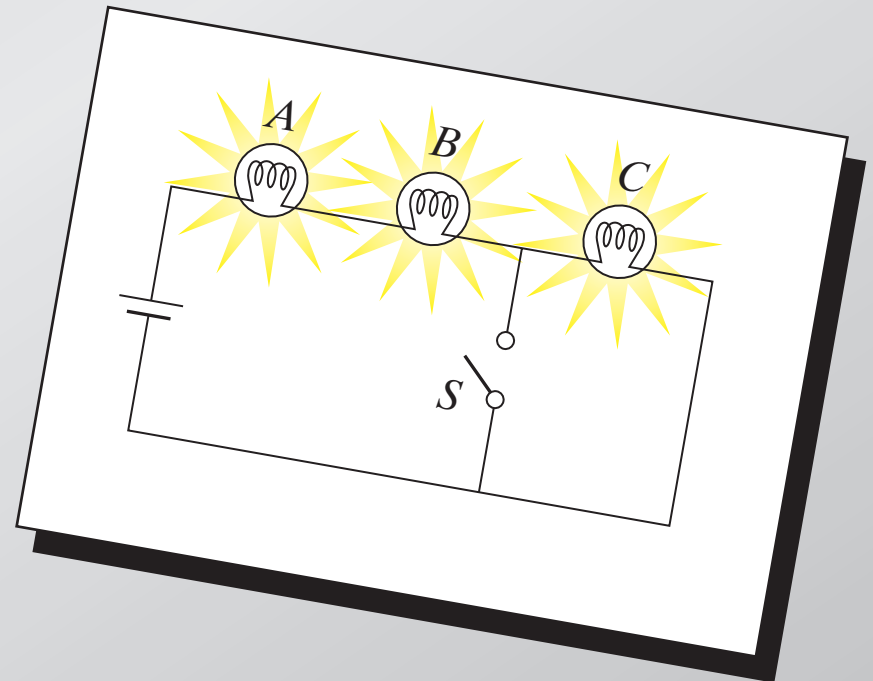


# Education

are the basic principles understood?

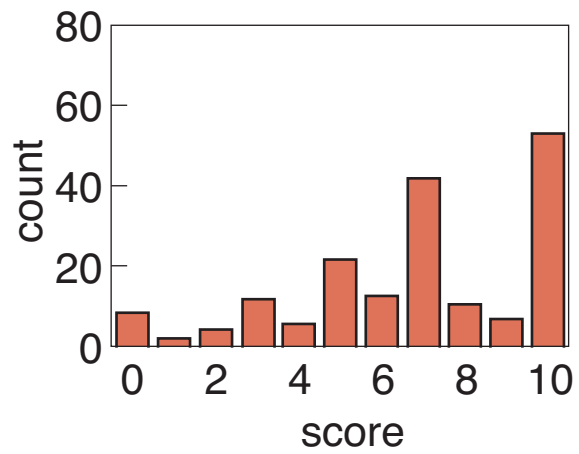
When  $S$  is closed, what happens to:

- (a) intensities of  $A$  and  $B$ ?
- (b) intensity of  $C$ ?
- (c) current through battery?
- (d) potential difference across  
 $A$ ,  $B$ , and  $C$ ?
- (e) the total power dissipated?

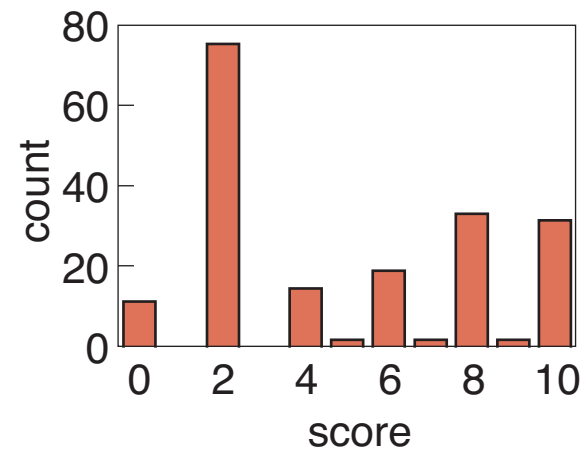


# Education

**conventional**

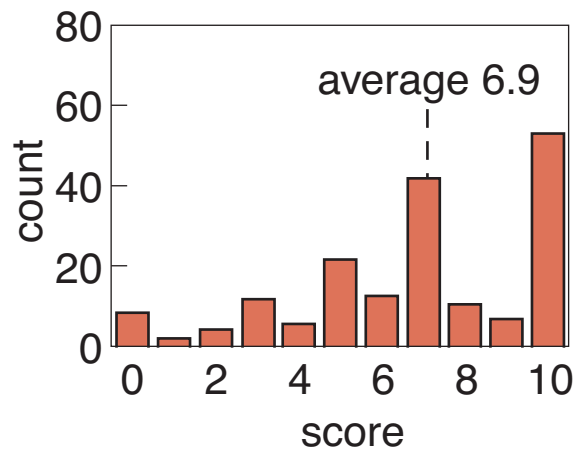


**conceptual**

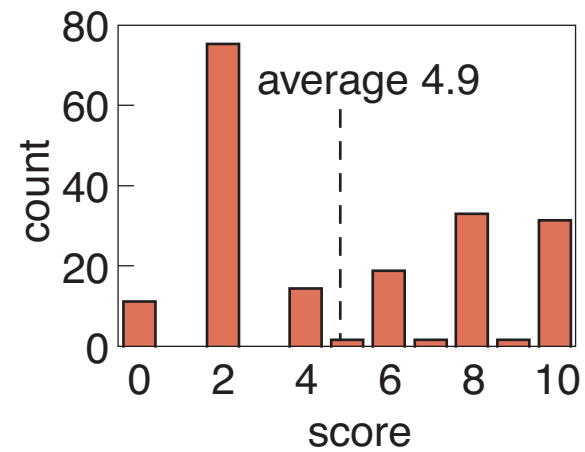


# Education

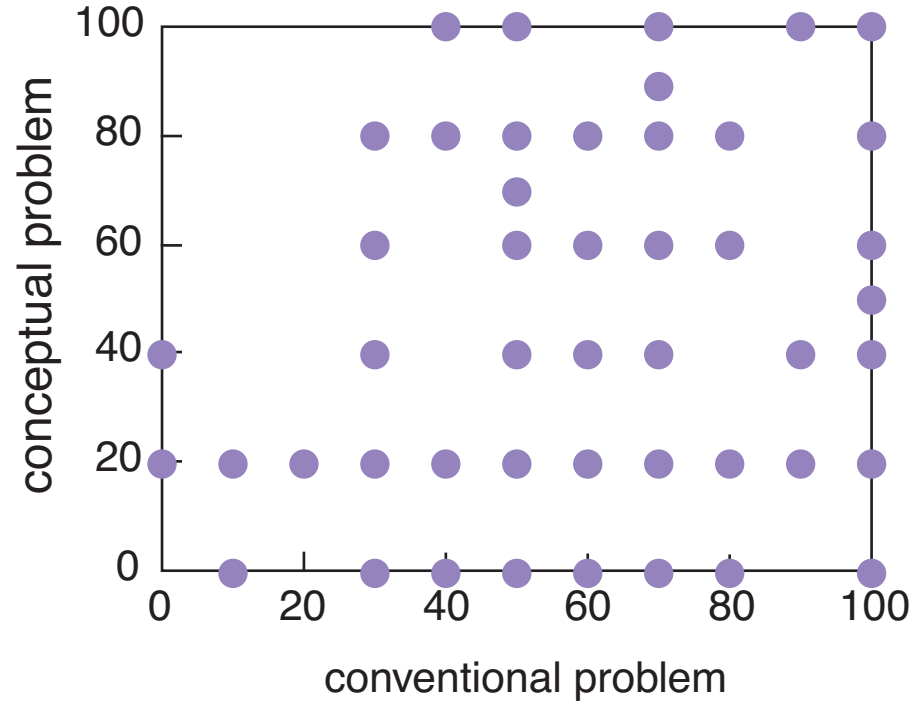
## conventional



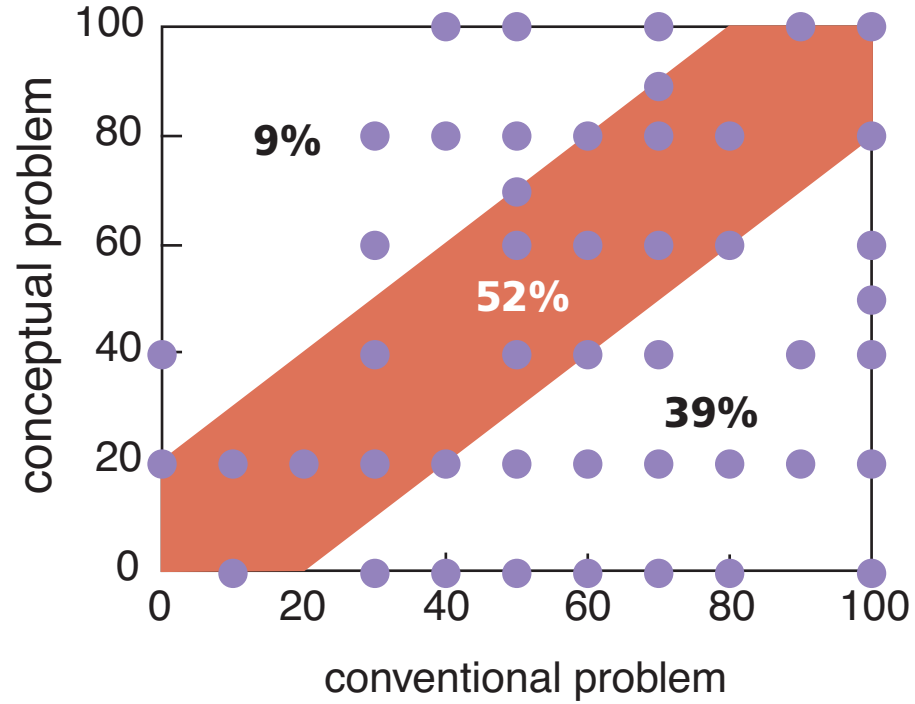
## conceptual



# Education



# Education



A large lecture hall with students seated at desks, facing a stage with a lecturer and a large screen displaying text. The text on the screen is partially legible and appears to be a list or a set of instructions. The room is dimly lit, with the main light source coming from the stage area.

So what should we do?

# Peer Instruction

**Give students more responsibility for gathering information...**



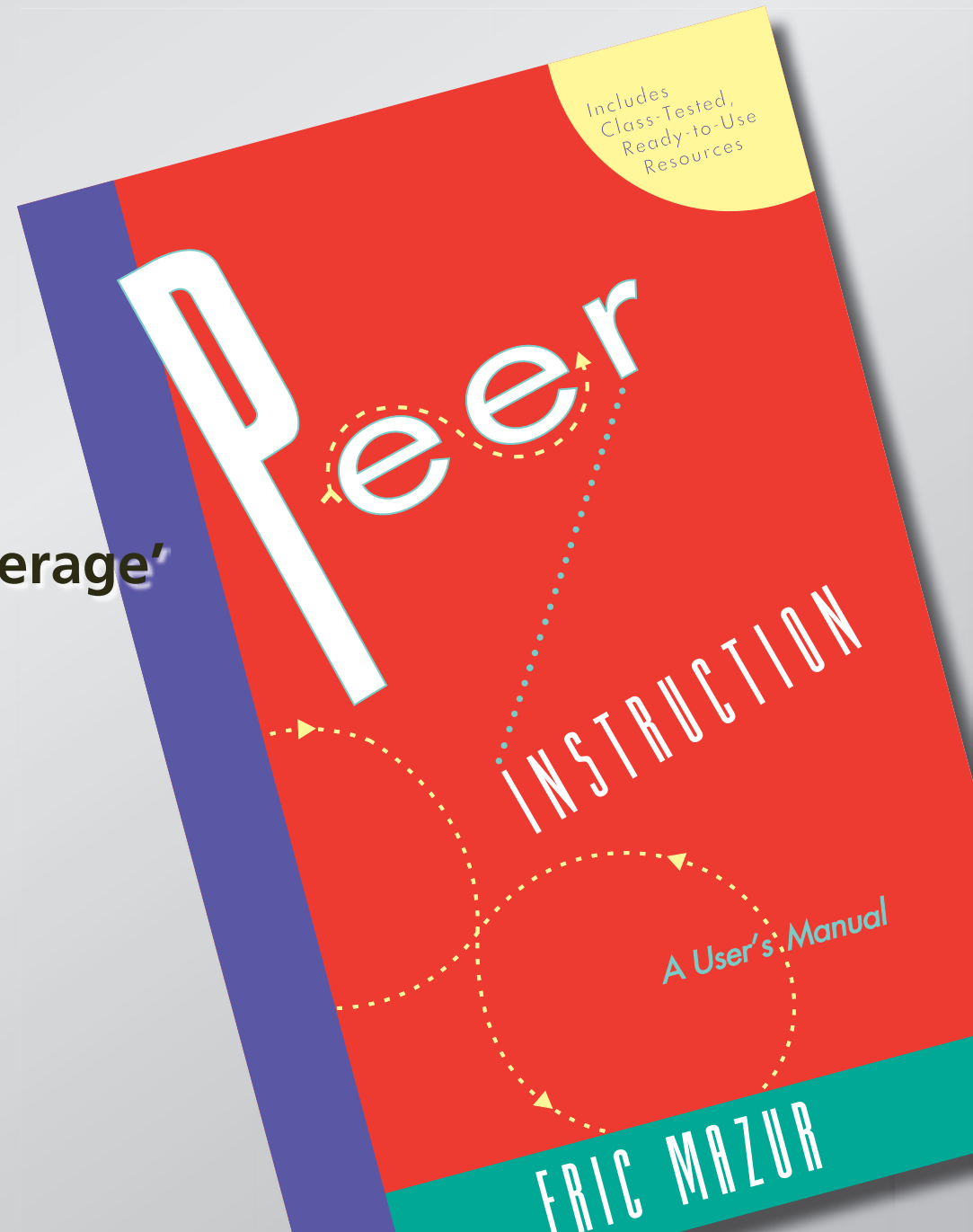
# Peer Instruction

**Give students more responsibility for gathering information...  
so we can better help them assimilate it.**

# Peer Instruction

## Main features:

- pre-class reading
- in-class: depth, not 'coverage'
- ConcepTests



# Peer Instruction

**ConcepTest:**

- 1. Question**
- 2. Thinking**
- 3. Individual answer**
- 4. Peer discussion**
- 5. Revised/Group answer**
- 6. Explanation**

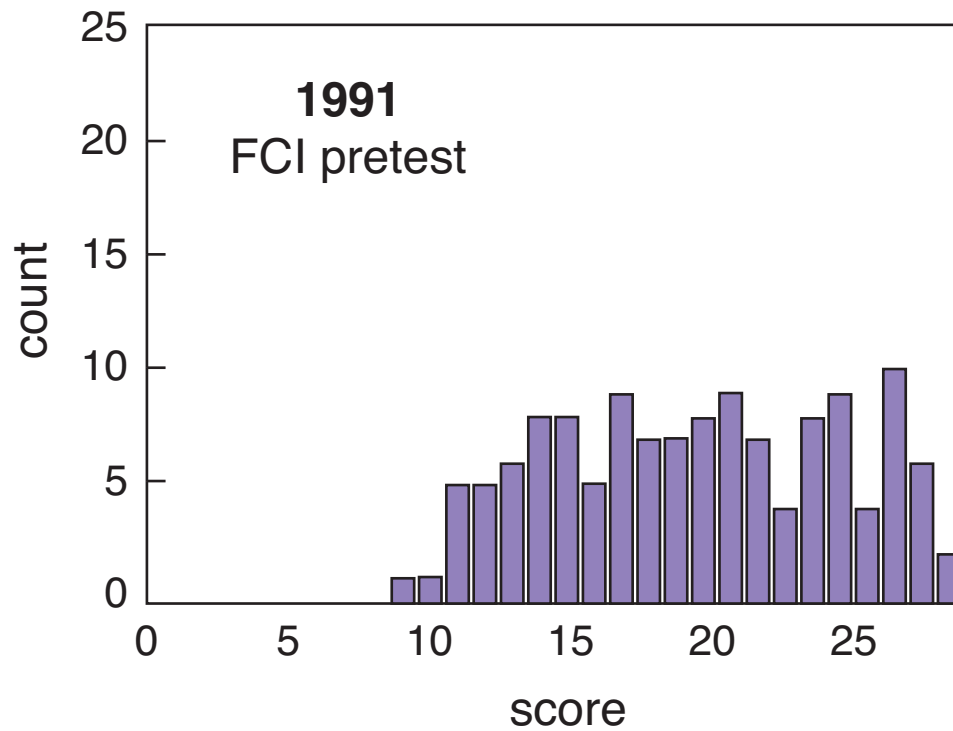


# Results

**is it any good?**

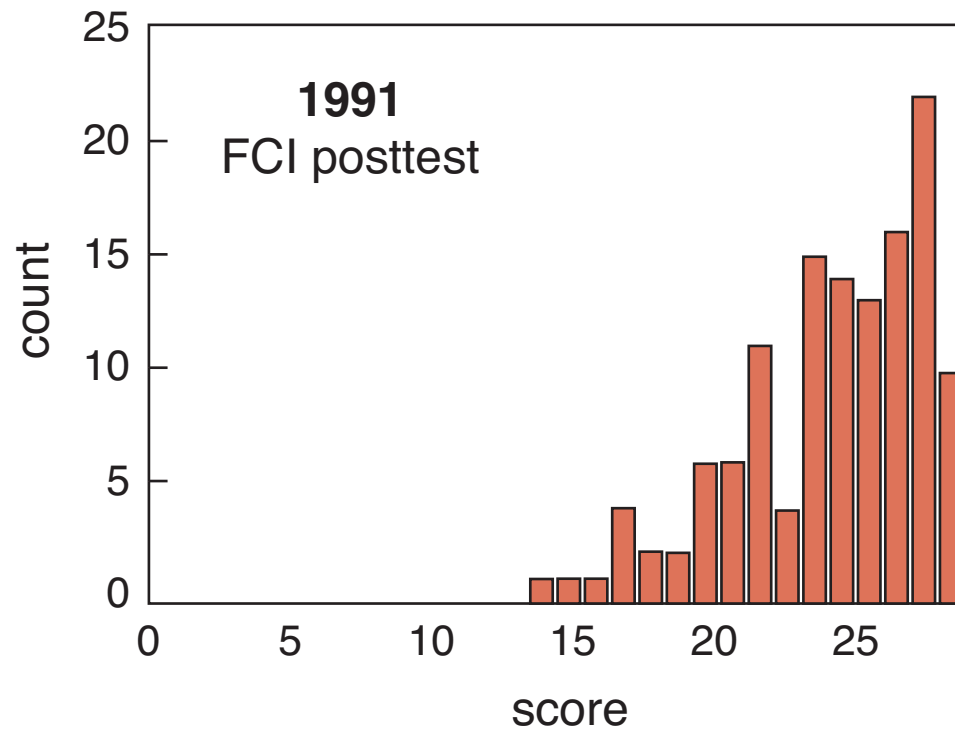
# Results

## first year of implementing PI



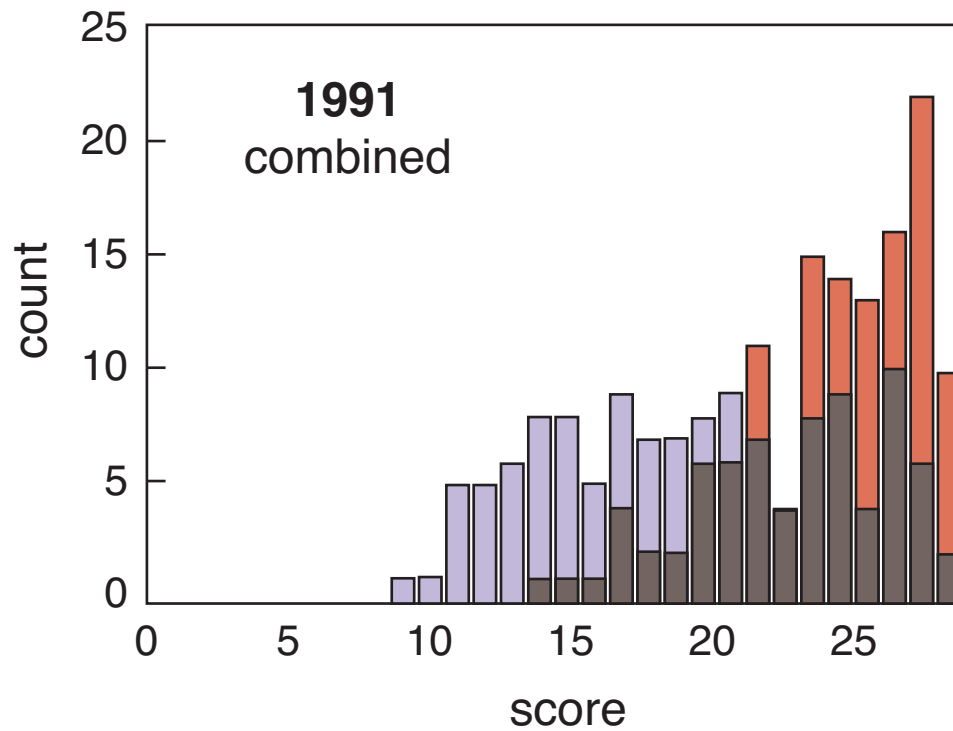
# Results

## first year of implementing PI



# Results

## first year of implementing PI

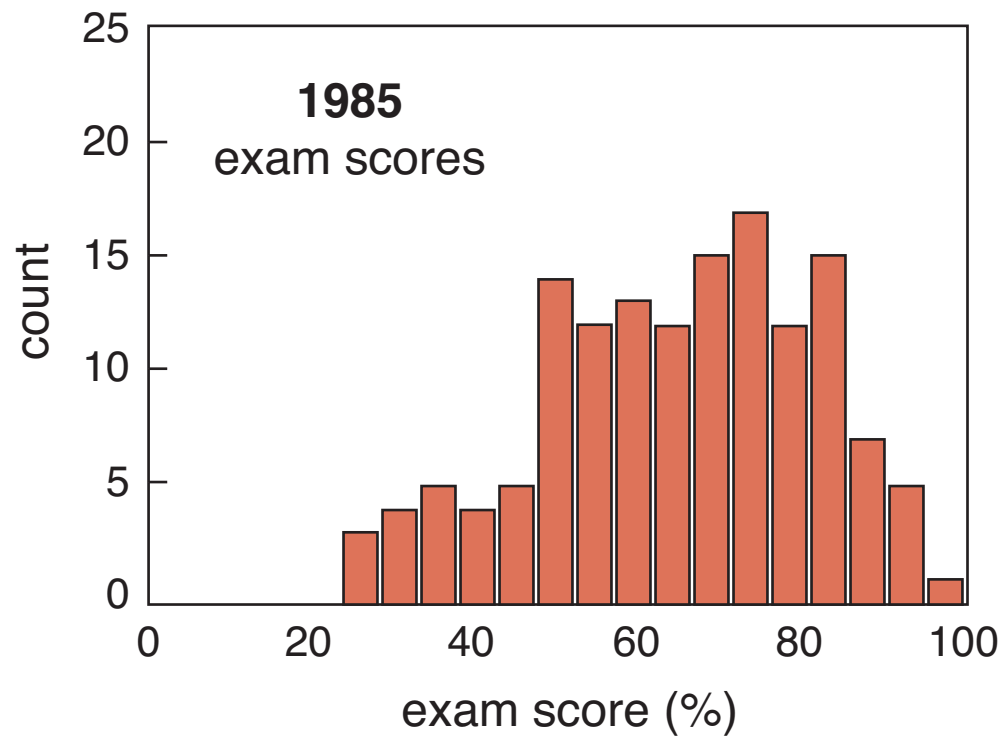




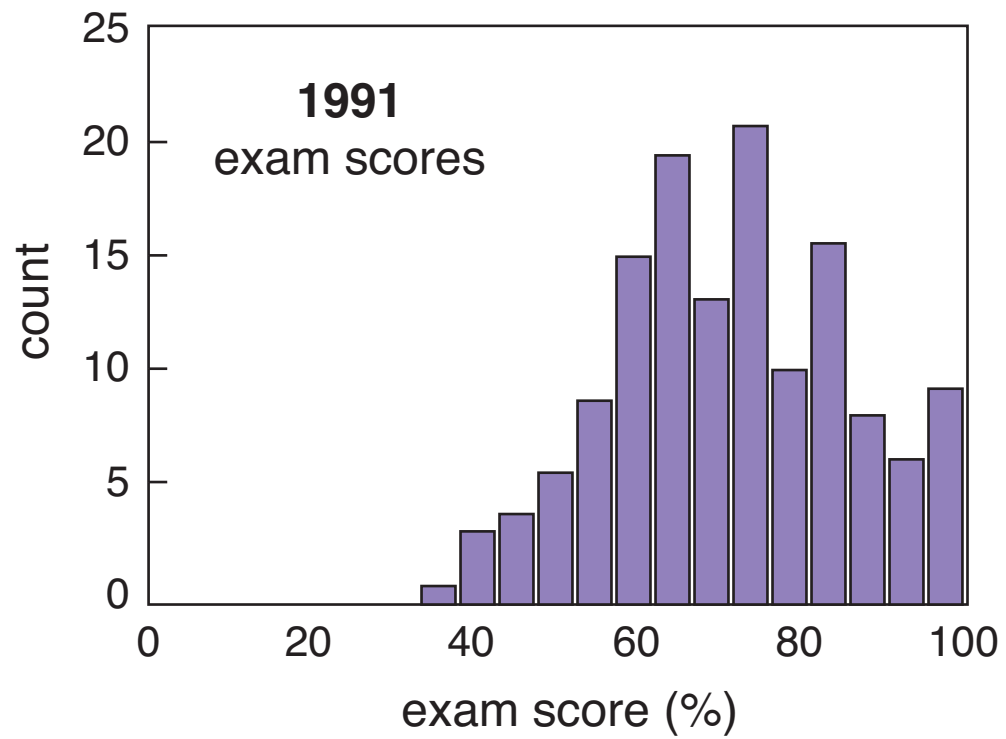
# Results

**what about problem solving?**

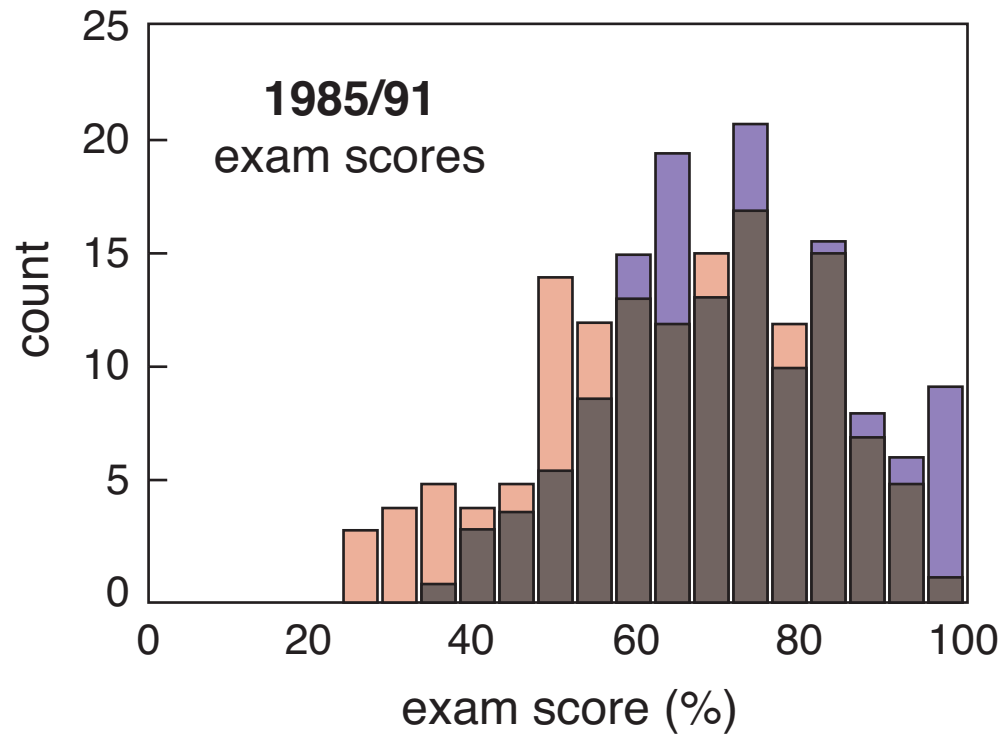
# Results



# Results



# Results



# Conclusion

**So better understanding leads to better  
problem solving!**

# Conclusion

**So better understanding leads to better problem solving!**

**(but “good” problem solving doesn’t always indicate understanding!)**

**Funding:**

**National Science Foundation**

**for a copy of this presentation:**

**<http://mazur.harvard.edu>**

**Follow me!**



**eric\_mazur**

Google™

Google Search

I'm Feeling Lucky



Google™

mazur

Google Search

I'm Feeling Lucky

# Google™

Google Search

I'm Feeling Lucky

# Google™

Google Search

I'm Feeling Lucky

**Funding:**

**National Science Foundation**

**for a copy of this presentation:**

**<http://mazur.harvard.edu>**

**Follow me!**



**eric\_mazur**

# Dinner Assignment

**What is the most burning question  
you have about Peer Instruction?**