

# Confessions of a converted lecturer



EDUCACION

Ohio State University  
Columbus, OH, 2 April 2015



# Confessions of a converted lecturer

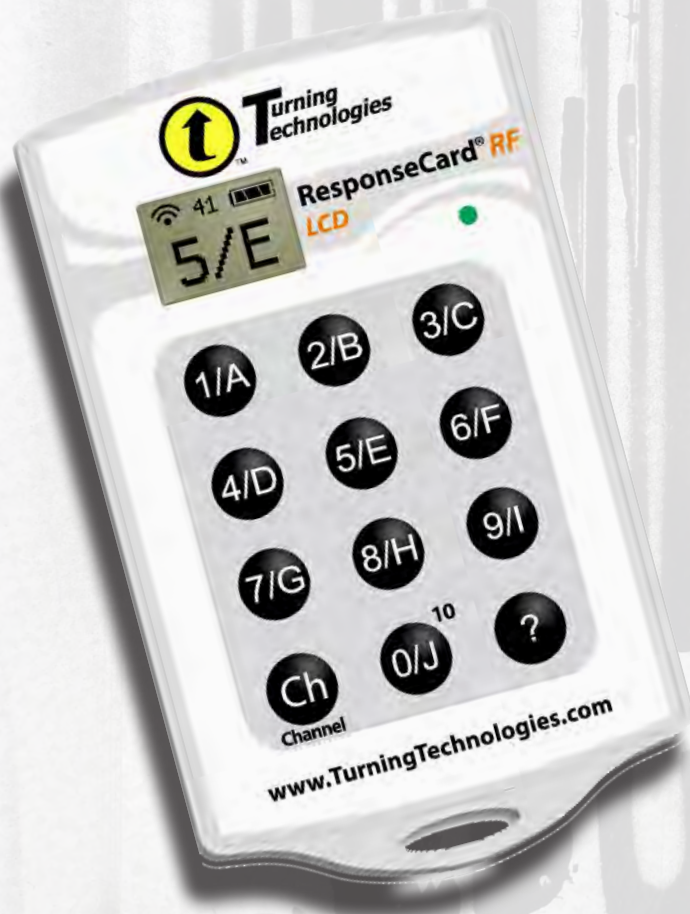


@eric\_mazur

EDUCATION

Ohio State University  
Columbus, OH, 2 April 2015





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



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unique ID on back of clicker

**Think of something you are good at**

**EDUCACION**

**Think of something you are good at**

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

**EDUCACION**

**Became good at it by:**

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











1 education

2 PI



1 education

2 PI

3 test



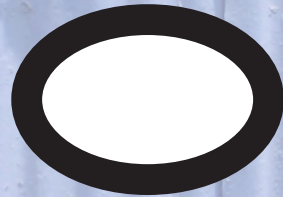
**better pay  
attention!**

**1** education

**2** PI

**3** test

**What happens  
in a lecture?**

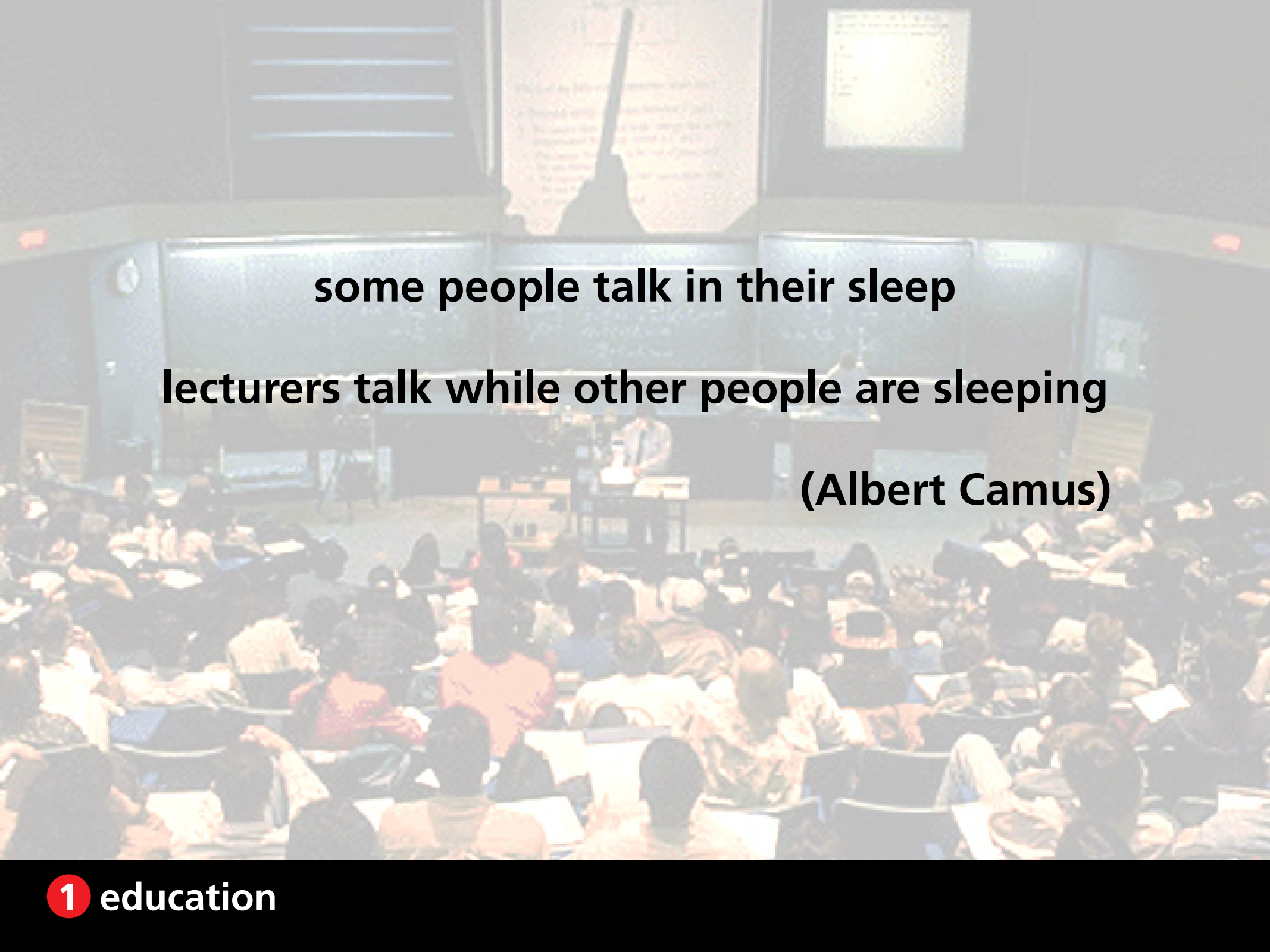




A large lecture hall with a professor at a podium and students in the audience. The room is filled with people, and there are large screens and a chalkboard in the background.

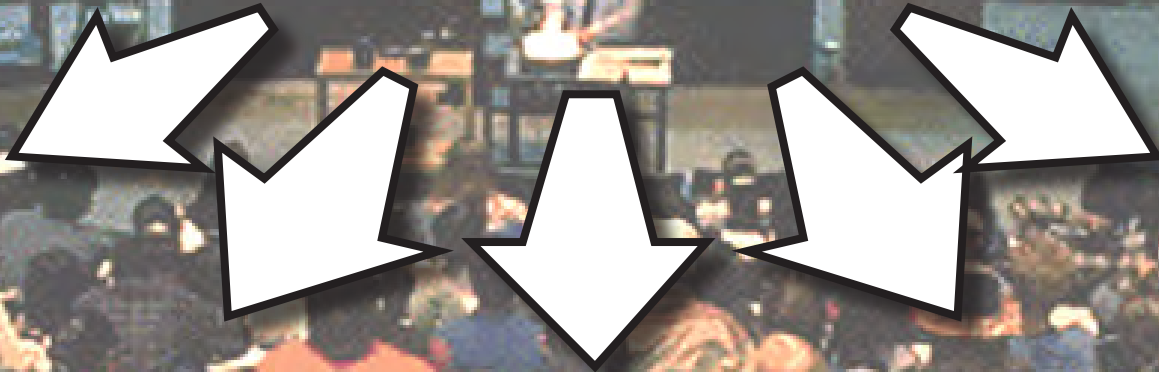
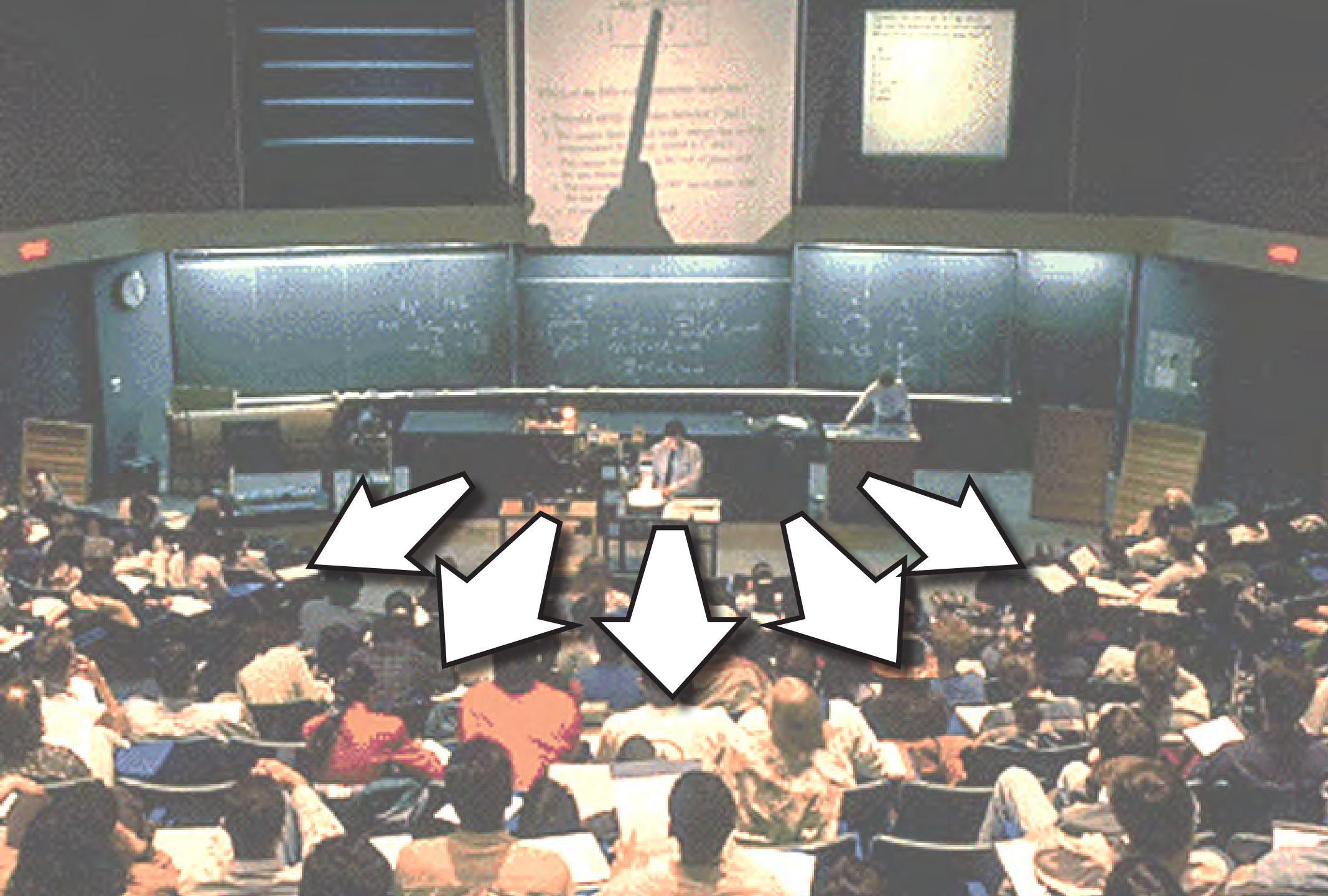
**some people talk in their sleep**





**some people talk in their sleep**  
**lecturers talk while other people are sleeping**  
**(Albert Camus)**





The result?

EDUCACION

**Lack of learning**

**EDUCACION**

Lack of learning

Lack of retention

**not transfer but assimilation of information is key**

**EDUCACION**







# 1. transfer of information



**1. transfer of information**

**2. assimilation of that information**




**1. transfer of information (in class)**

**2. assimilation of that information**



1. transfer of information (in class)

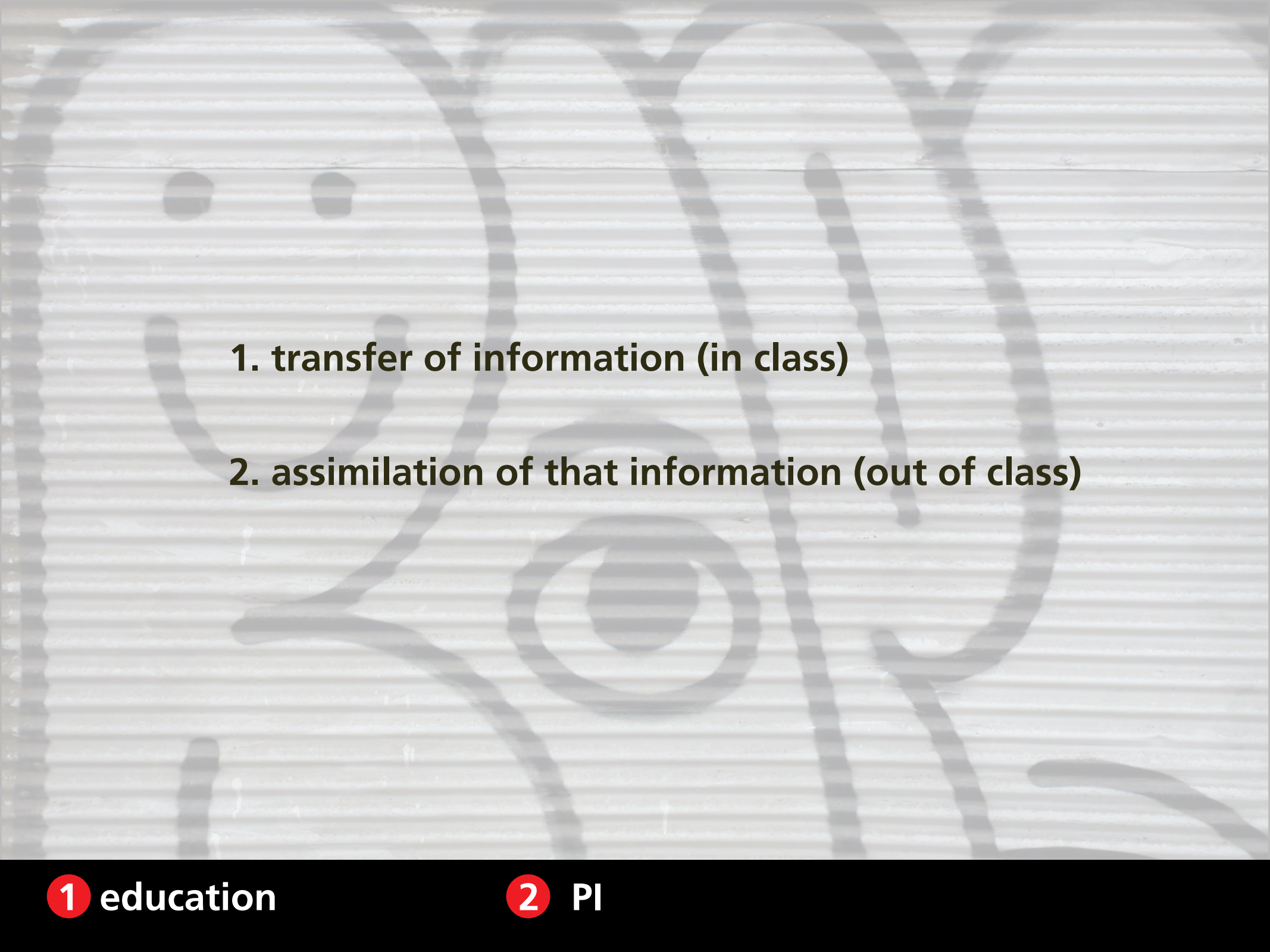
2. assimilation of that information (out of class)



**Should focus  
on THIS!**

1. transfer of information (in class)

**2. assimilation of that information (out of class)**

- 
- 1. transfer of information (in class)**
  - 2. assimilation of that information (out of class)**



**1. transfer of information (out of class)**

**2. assimilation of that information (in class)**

# Peer



1. transfer of information (out of class)

2. assimilation of that information (in class)

INSTRUCTION



question

1 education

2 PI

question



think

question



think



poll

**question**



**think**



**poll**



**discuss**

**question**



**think**



**poll**



**discuss**



**repoll**

**question**



**think**



**poll**



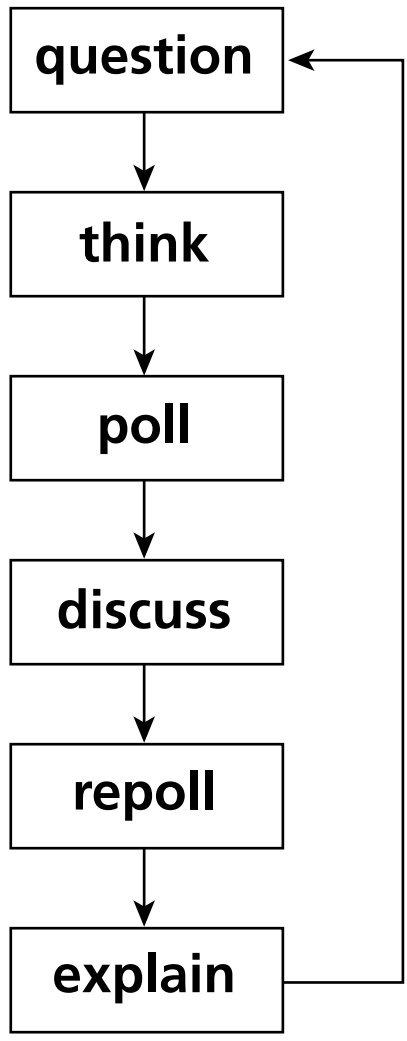
**discuss**

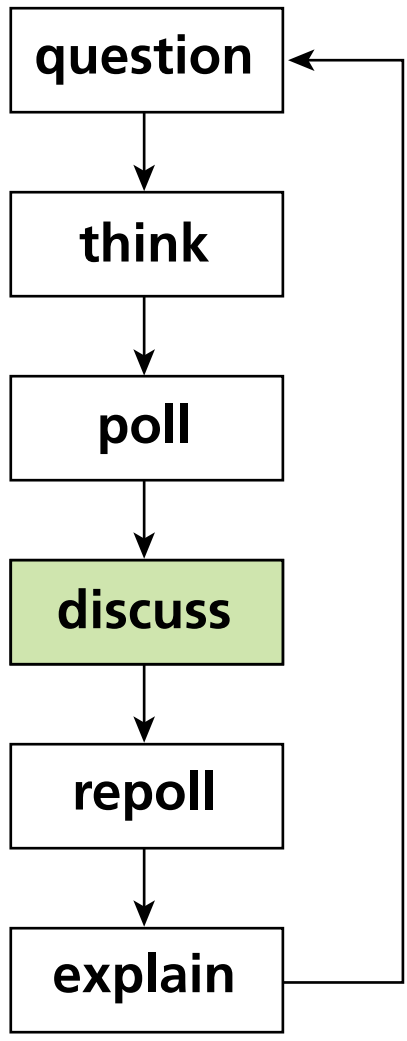


**repoll**



**explain**



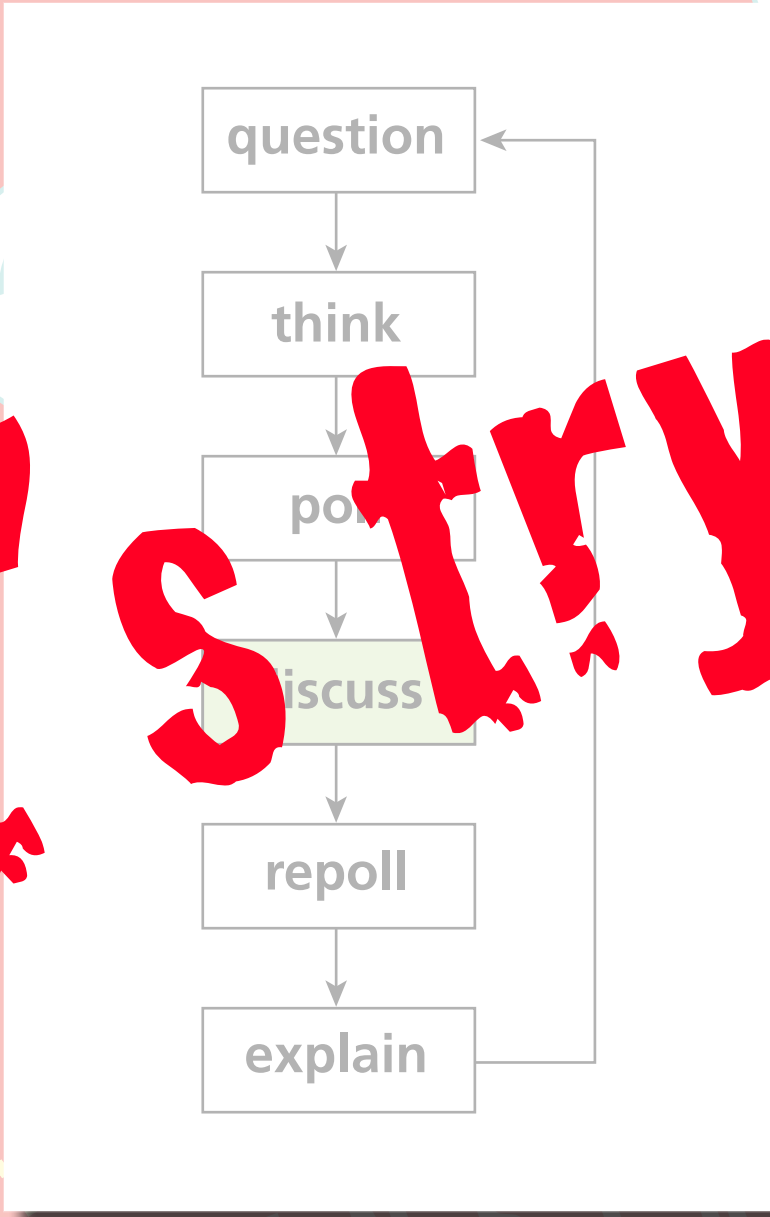




**1** education

**2** PI

# Let's try it!

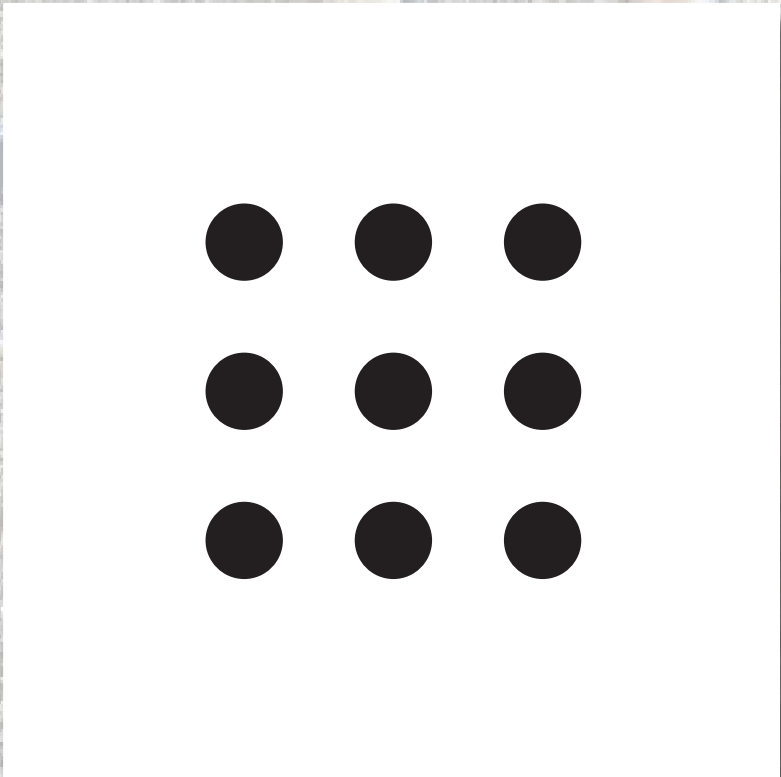


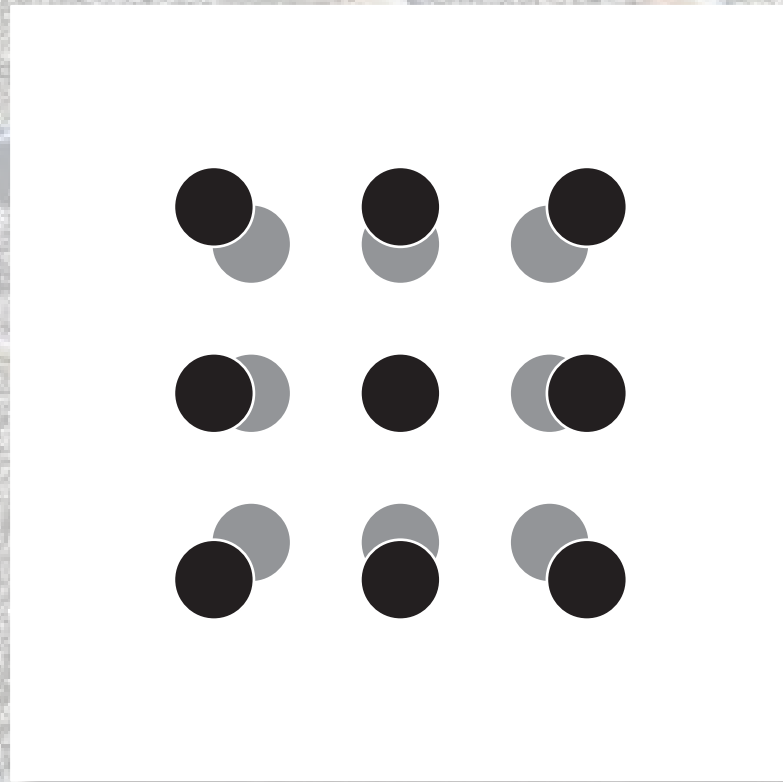
1 education

2 PI

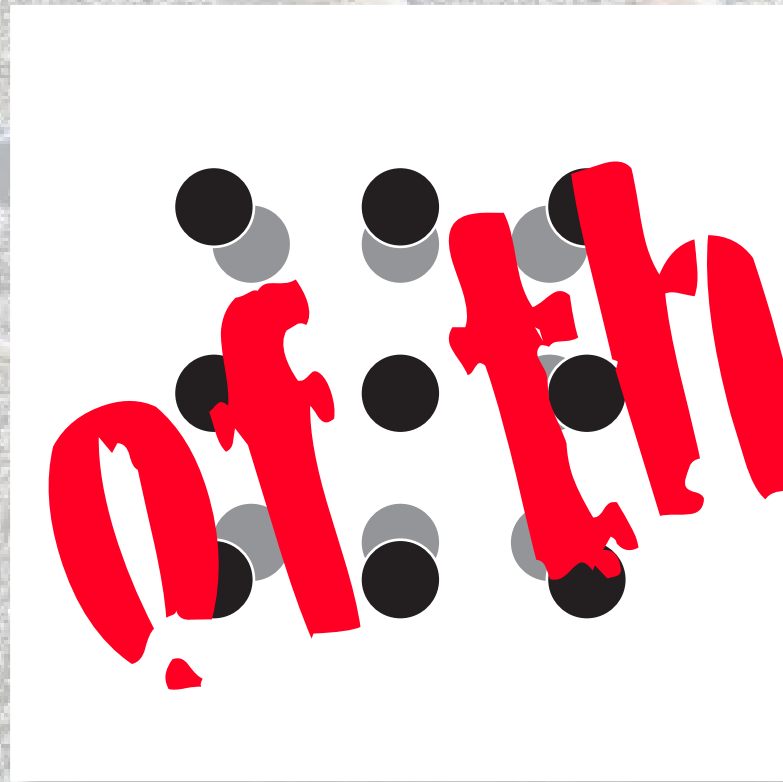


**thermal expansion**





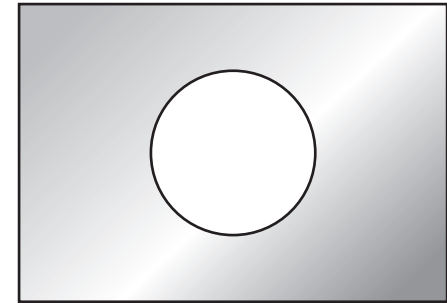
**all of them**



**1** education

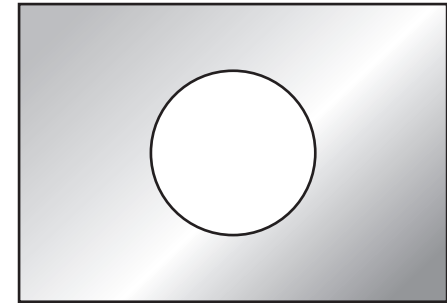
**2** PI

**Consider a rectangular metal plate  
with a circular hole in it.**



**Consider a rectangular metal plate with a circular hole in it.**

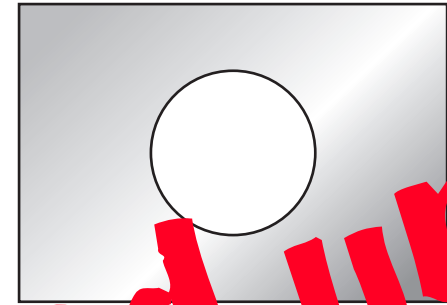
**When the plate is uniformly heated, the diameter of the hole**



- 1. increases.**
- 2. stays the same.**
- 3. decreases.**



Consider a rectangular metal plate with a circular hole in it.



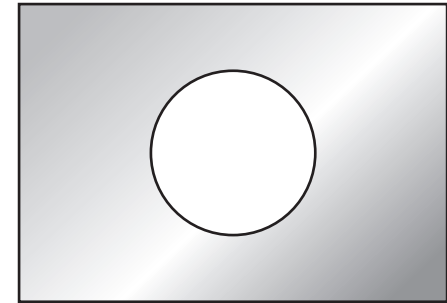
When the plate is uniformly heated, the diameter of the hole

1. increases.
2. stays the same.
3. decreases.

**you got all fired up!**

**Consider a rectangular metal plate with a circular hole in it.**

**When the plate is uniformly heated, the diameter of the hole**



- 1. increases.**
- 2. stays the same.**
- 3. decreases.**

**Before I tell you the answer...**

**1** education

**2** PI

**3** test

**Before I tell you the answer, let's analyze what happened.**

**1** education

**2** PI

**3** test

**Before I tell you the answer, let's analyze what happened.**

**You...**

**Before I tell you the answer, let's analyze what happened.**

**You...**

**1. made a commitment**

**Before I tell you the answer, let's analyze what happened.**

**You...**

- 1. made a commitment**
- 2. externalized your answer**

**Before I tell you the answer, let's analyze what happened.**

**You...**

- 1. made a commitment**
- 2. externalized your answer**
- 3. moved from the answer/fact to reasoning**



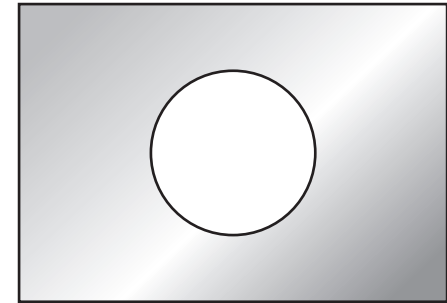
**Before I tell you the answer, let's analyze what happened.**

**You...**

- 1. made a commitment**
- 2. externalized your answer**
- 3. moved from the answer/fact to reasoning**
- 4. became emotionally invested in the learning process**

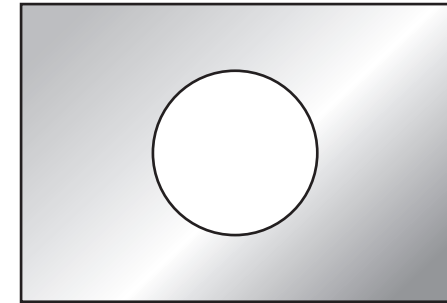
**Consider a rectangular metal plate with a circular hole in it.**

**When the plate is uniformly heated, the diameter of the hole**



- 1. increases.**
- 2. stays the same.**
- 3. decreases.**

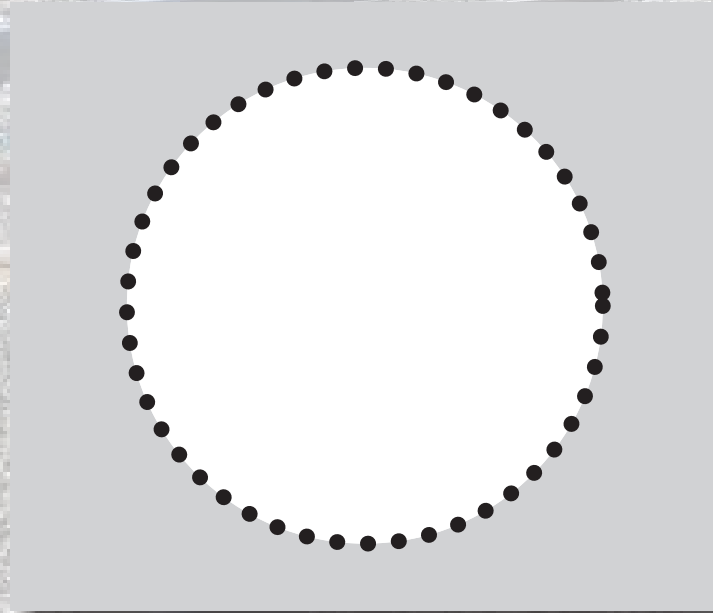
Consider a rectangular metal plate with a circular hole in it.



When the plate is uniformly heated, the diameter of the hole

1. increases. ✓
2. stays the same.
3. decreases.

consider atoms at rim of hole

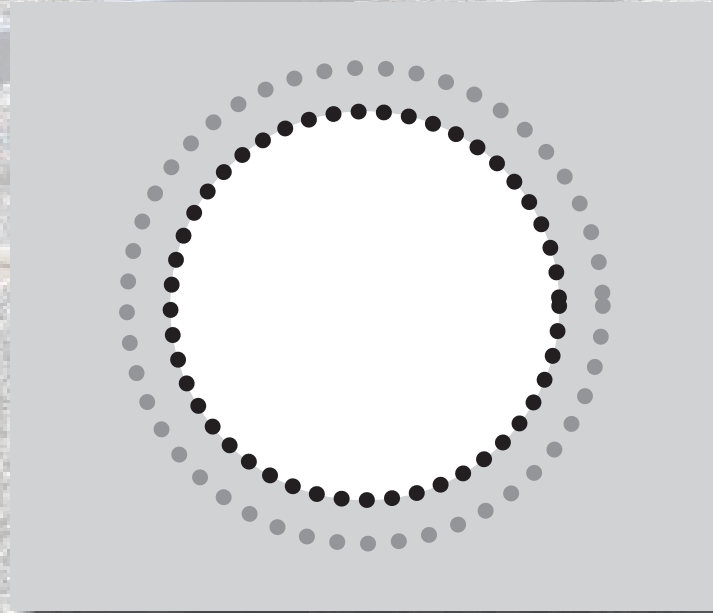


1 education

2 PI

3 test

consider atoms at rim of hole

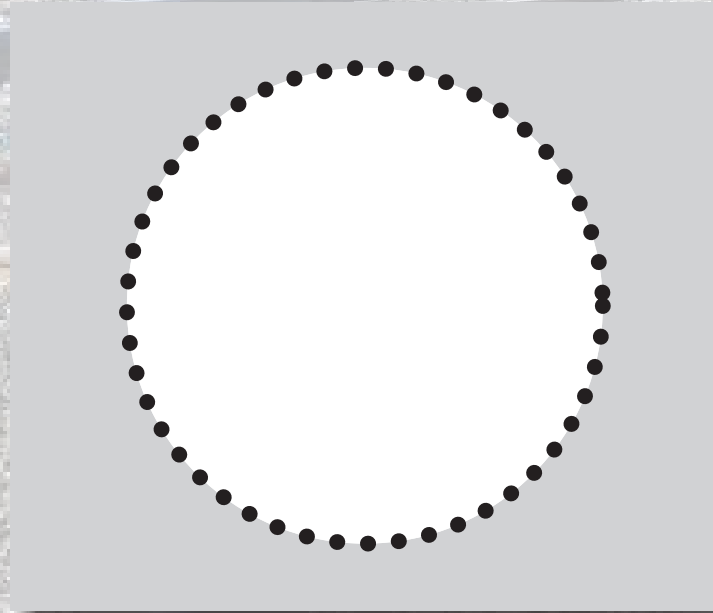


**1** education

**2** PI

**3** test

consider atoms at rim of hole

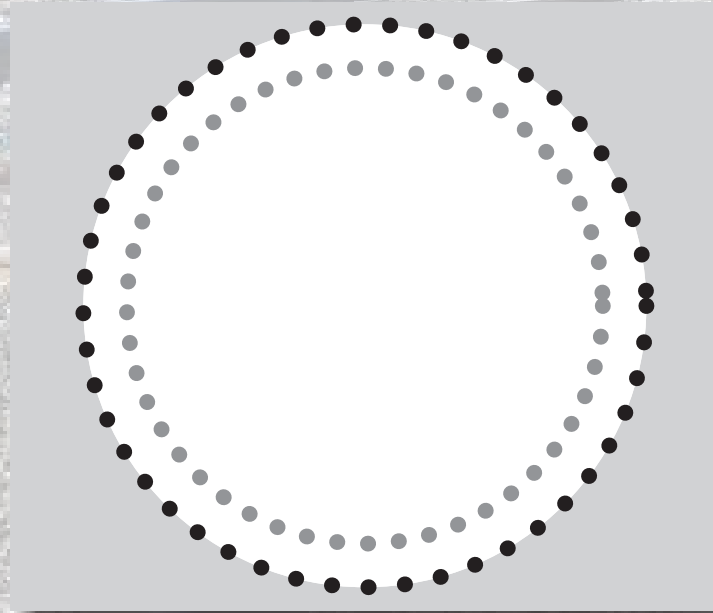


1 education

2 PI

3 test

consider atoms at rim of hole



1 education

2 PI

3 test

consider atoms at rim of hole

**you won't forget this**



**1** education

**2** PI

**3** test



# Peer

## back to pi

### INSTRUCTION

1 education

2 PI

3 test

Peer  
Greater learning gains

INSTRUCTION

1 education

2 PI

3 test

**Peer**  
**Greater learning gains**

**Better retention**

**INSTRUCTION**

**1 education**

**2 PI**

**3 test**



**1** education

**2** PI

**3** test

in a lecture, students...

**1** education

**2** PI

**3** test

**in a lecture, students...**

**1. don't pay utmost attention**

**in a lecture, students...**

**1. don't pay utmost attention**

**2. think they know it**

**in a lecture, students...**

- 1. don't pay utmost attention**
- 2. think they know it**
- 3. are not confronted with misconceptions**



in a lecture, students...

1. don't pay utmost attention

2. think they know it

3. are not confronted with misconceptions

**false**  
**sense of security**



**1** education

**2** PI

**3** test



**an illusion. . .**

**1** education

**2** PI

**3** test



**Education is not just about:**

- **transferring information**
- **getting students to do what we do**

**1** education

**2** PI

**3** test

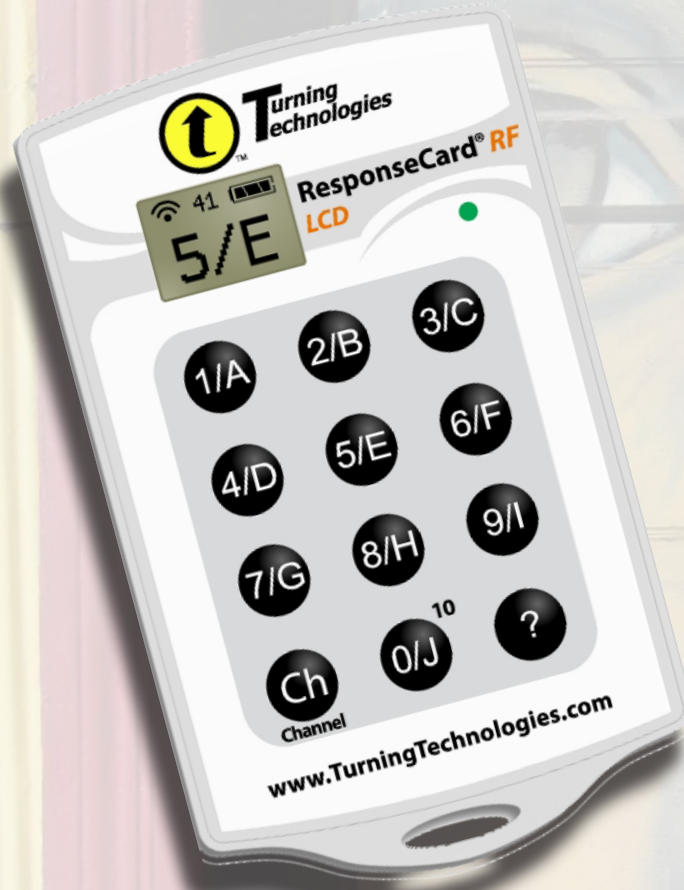


**Education is not just about:**

- **transferring information**
- **getting students to do what we do**

**active participation a must!**

# PLEASE RETURN CLICKER



1 education

2 PI

3 test



**Join now!**

**PeerInstruction.net**

**Funding:**

**National Science Foundation**

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