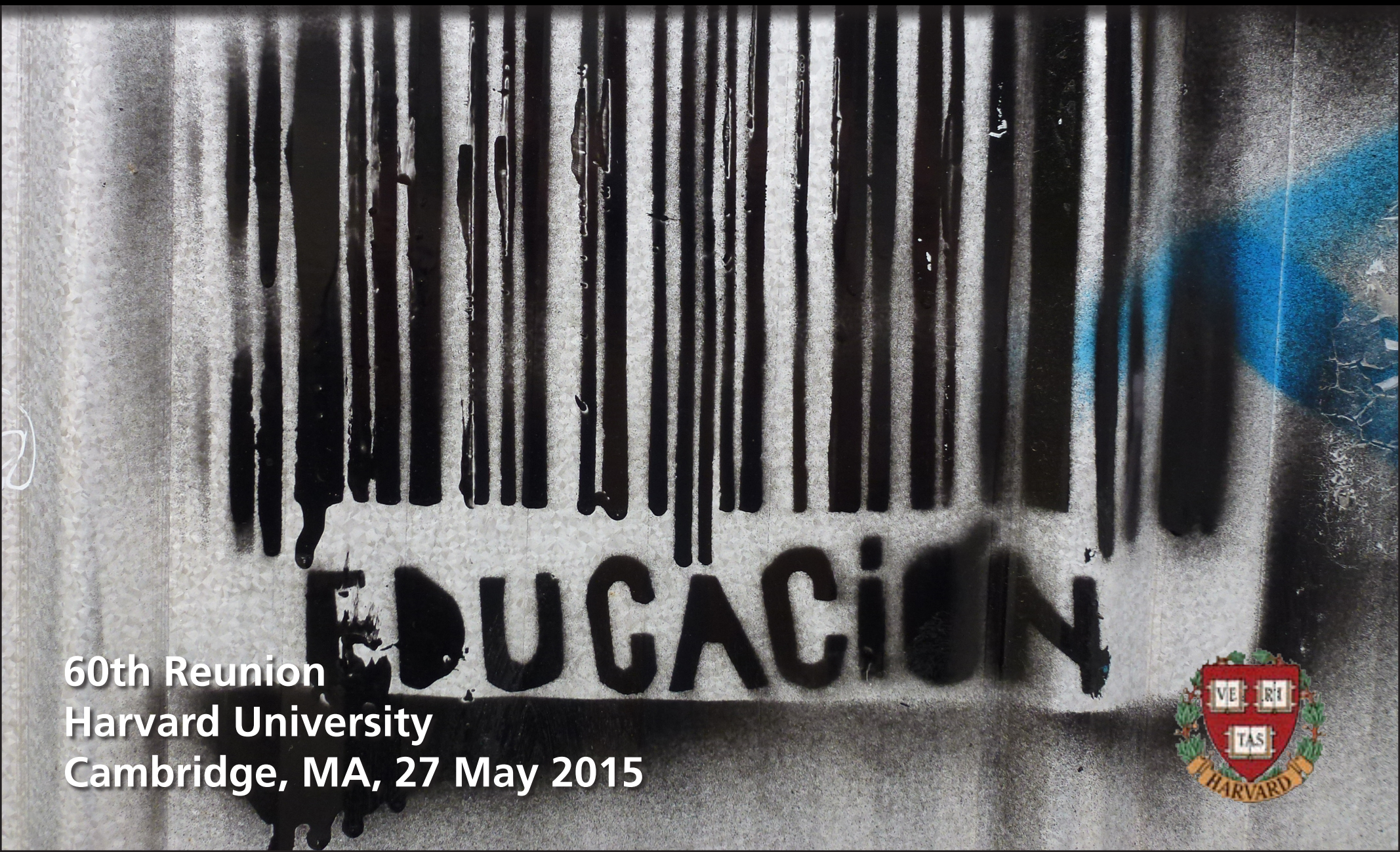
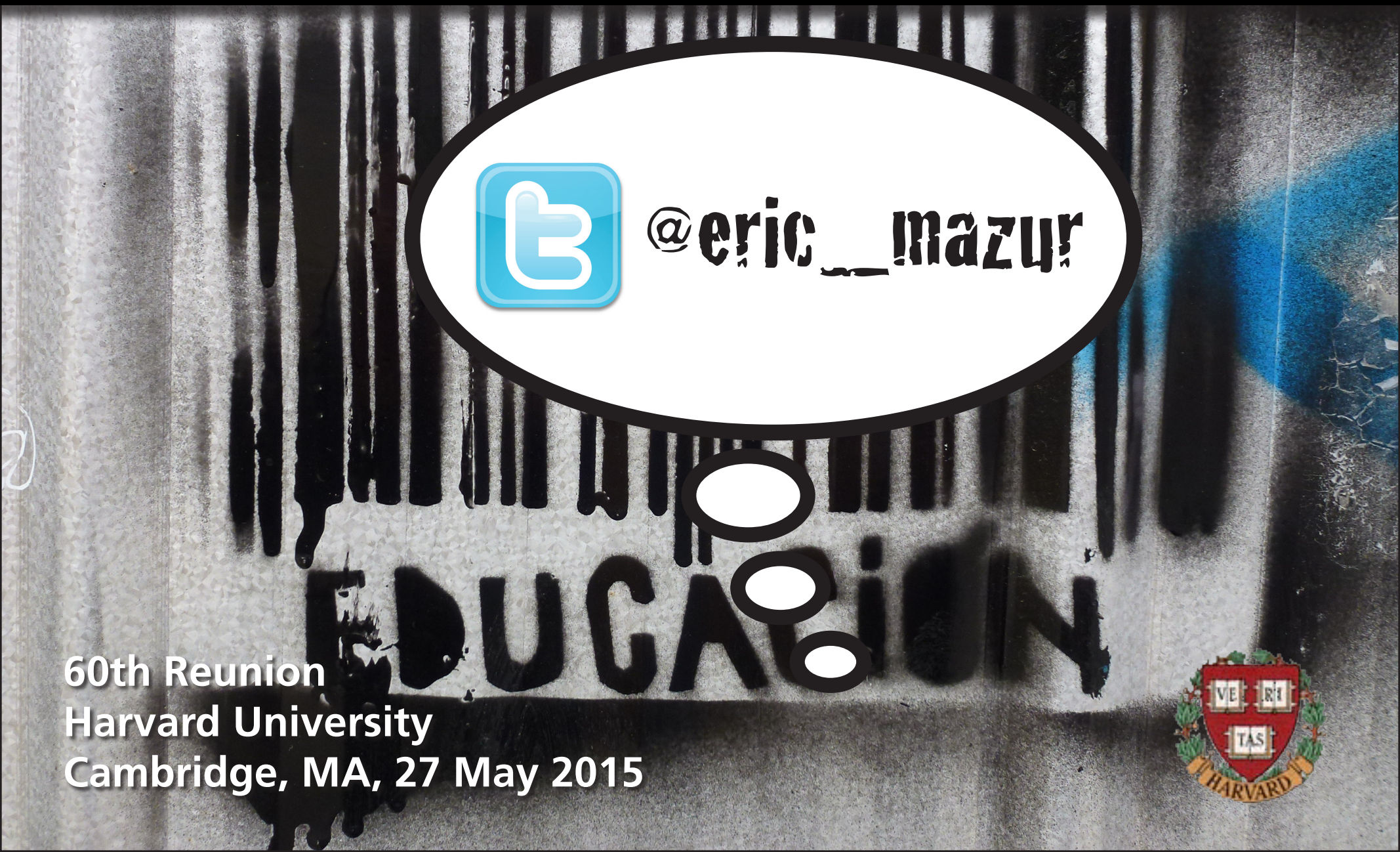
Educating: one-on-one, all at once



60th Reunion
Harvard University
Cambridge, MA, 27 May 2015

Educating: one-on-one, all at once



60th Reunion
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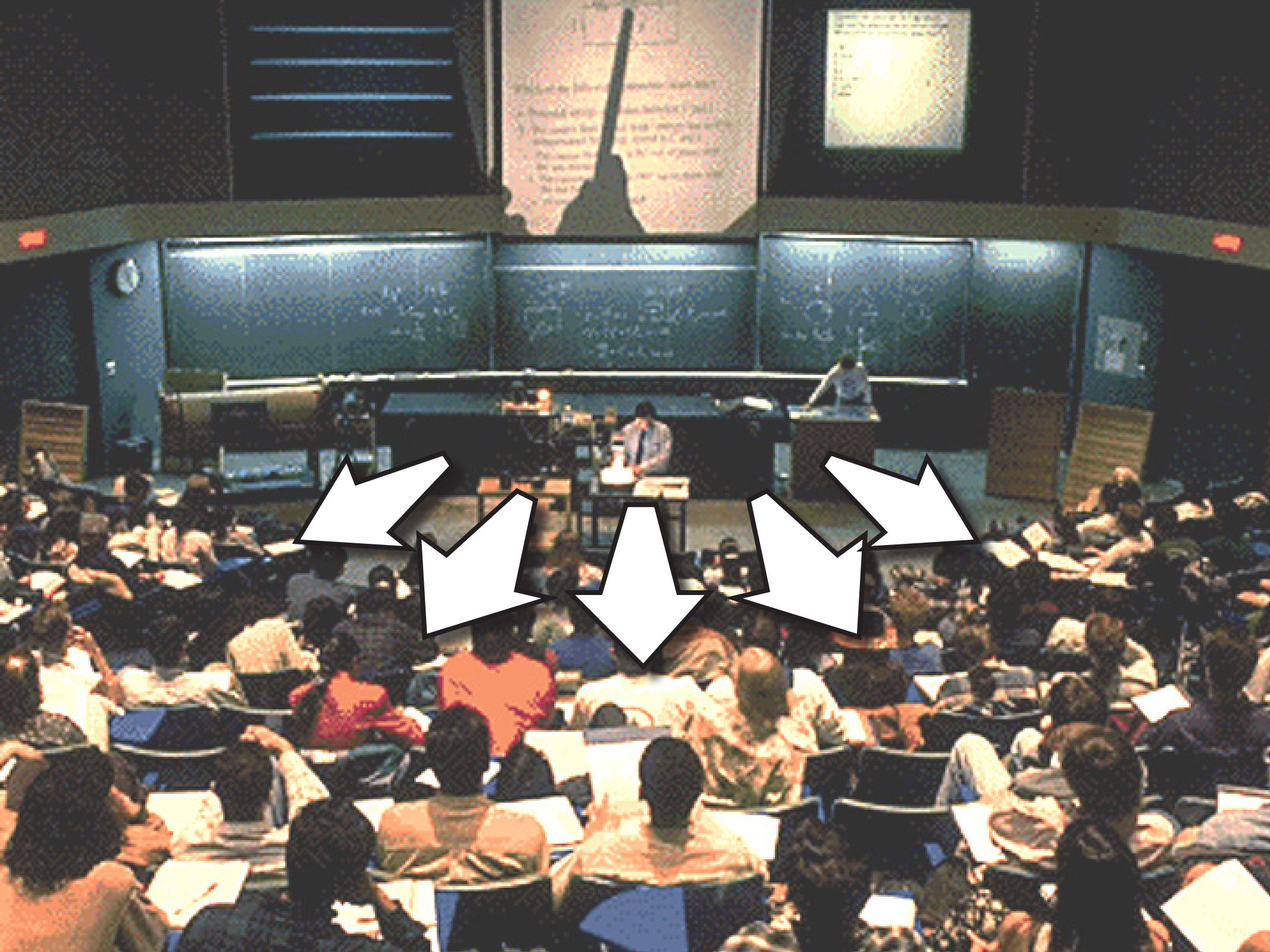



an illusion. . .

1. transfer of information

1. transfer of information

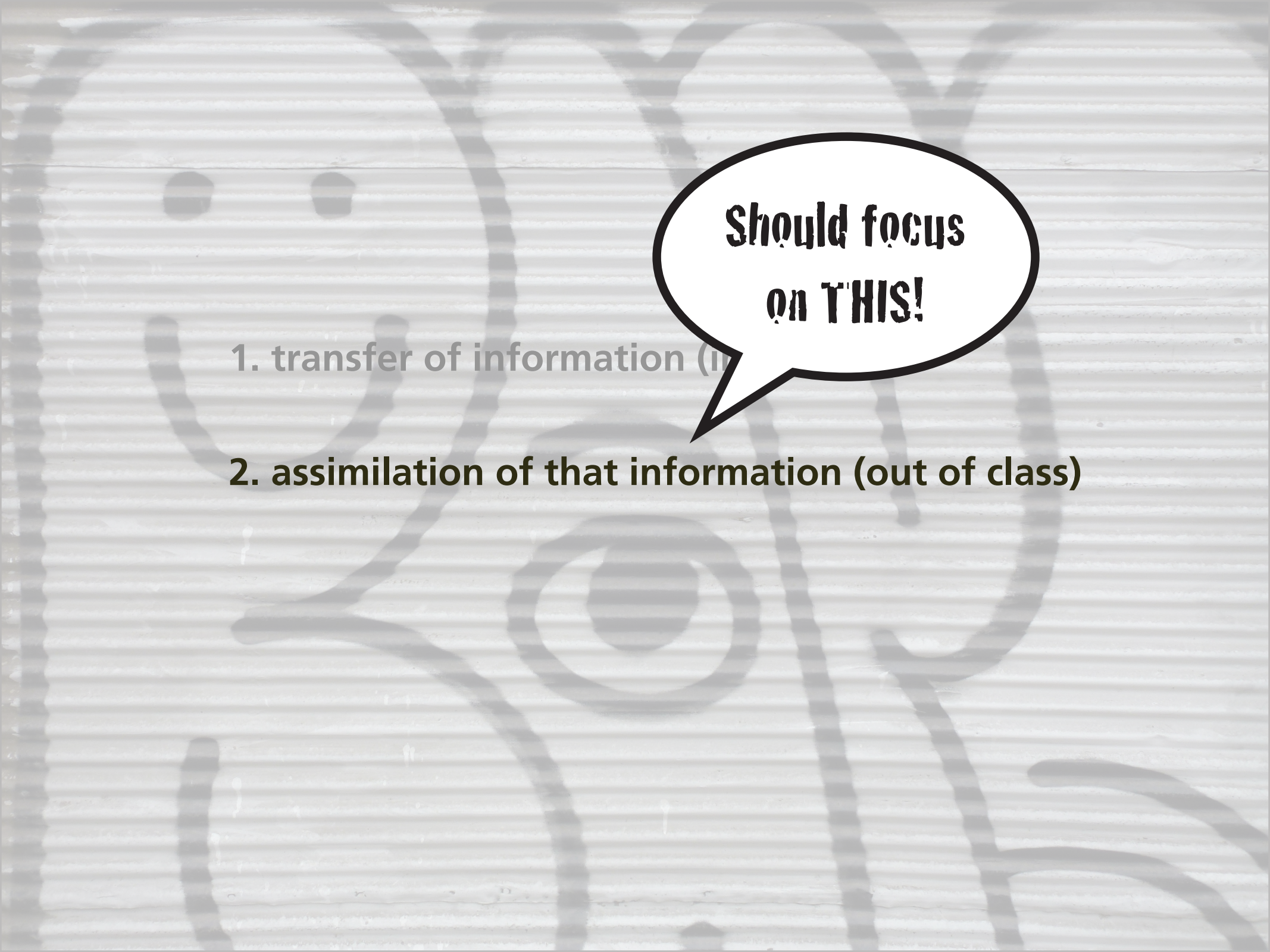
2. assimilation of that information

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)

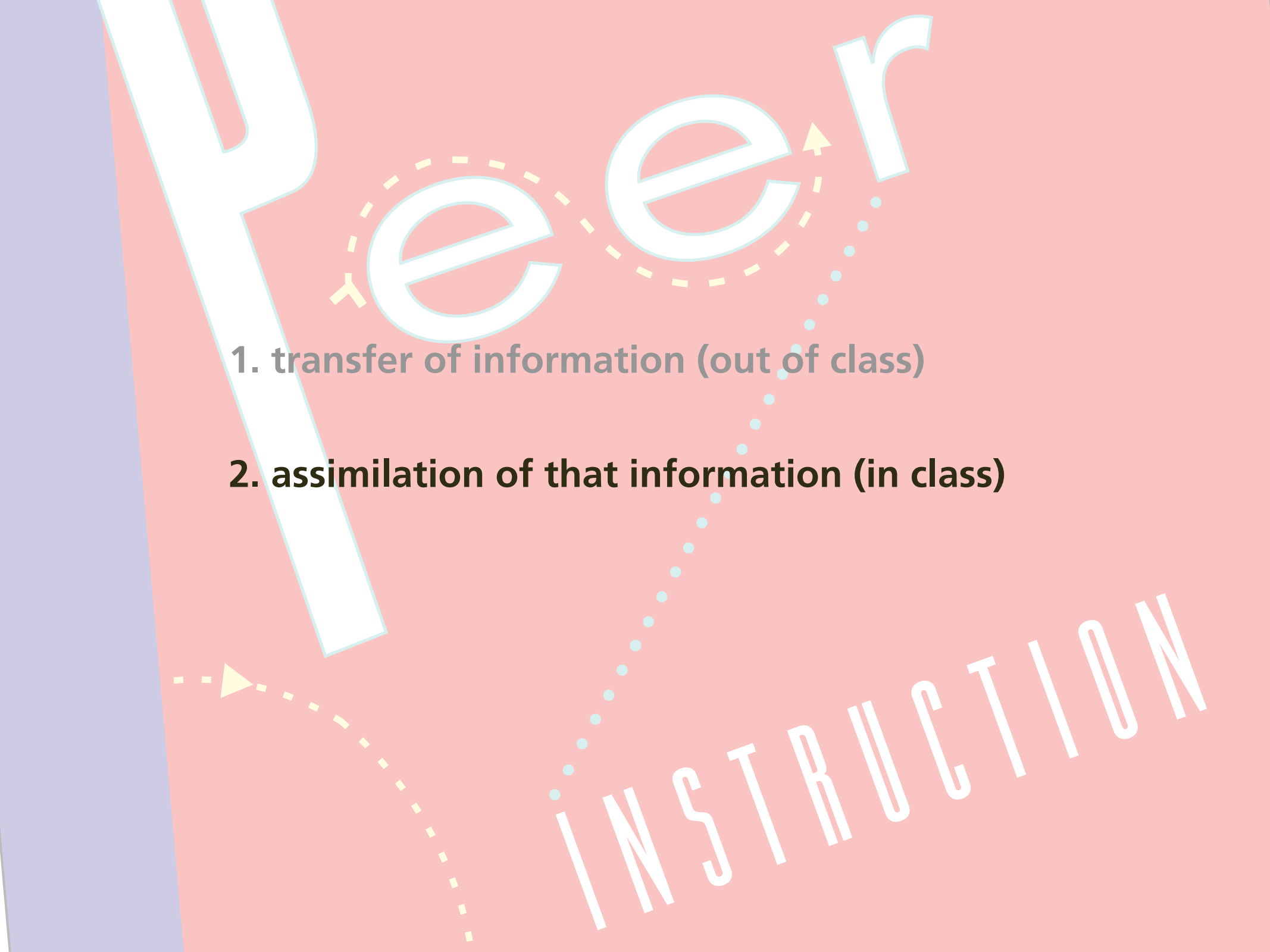

Should focus
on THIS!
1. transfer of information (i
2. assimilation of that information (out of class)

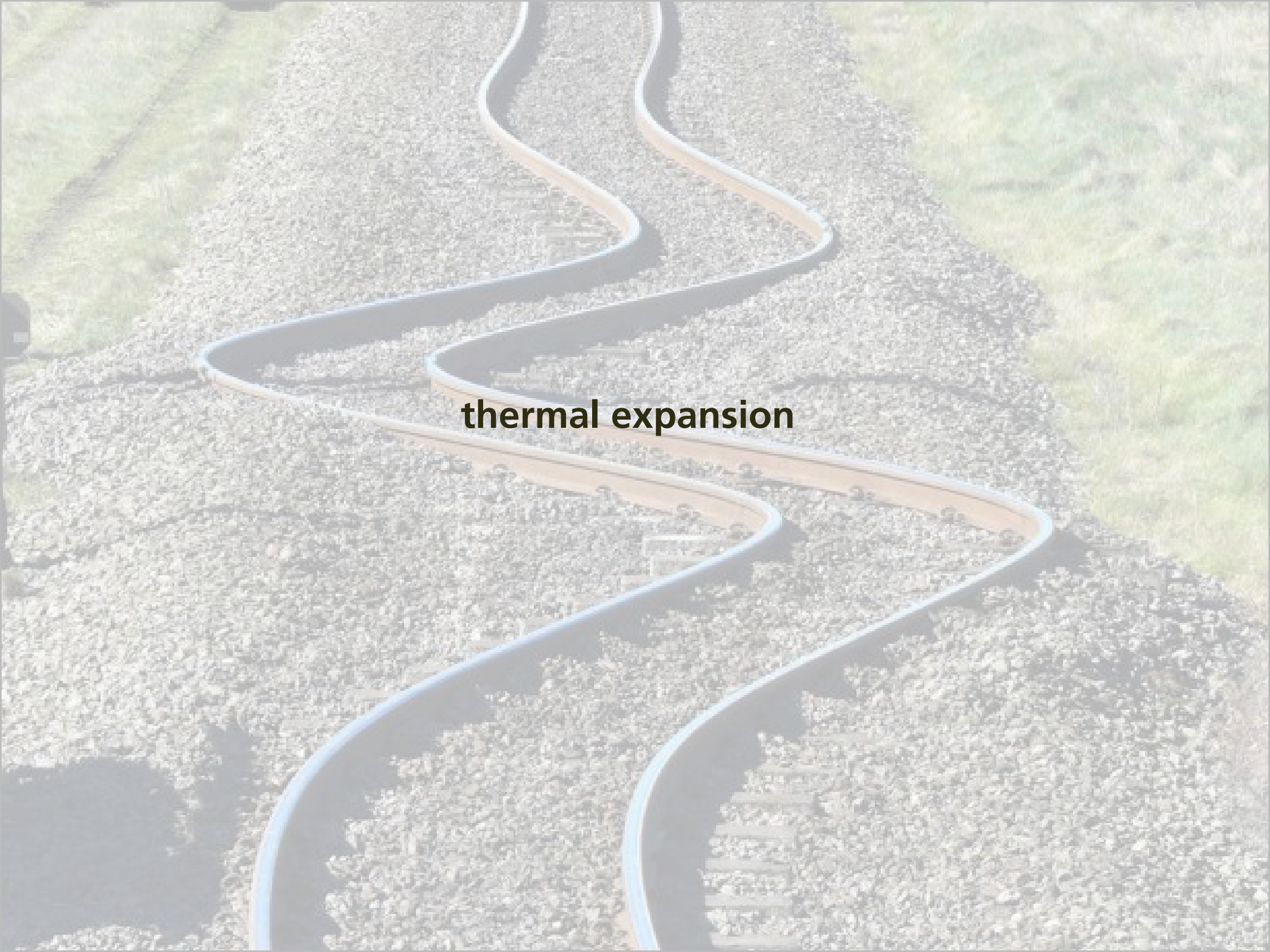
1. transfer of information (in class)

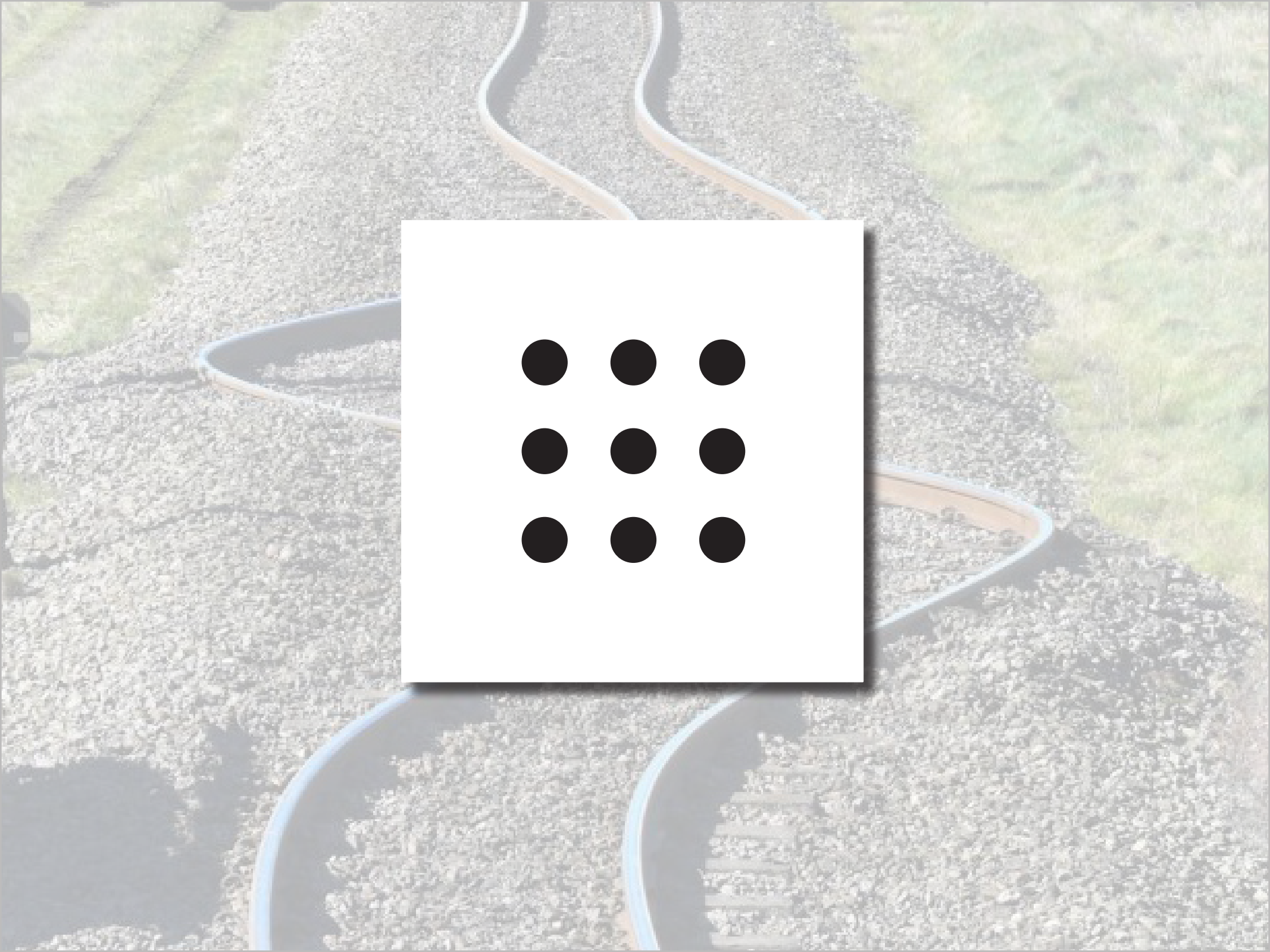
2. assimilation of that information (out of class)

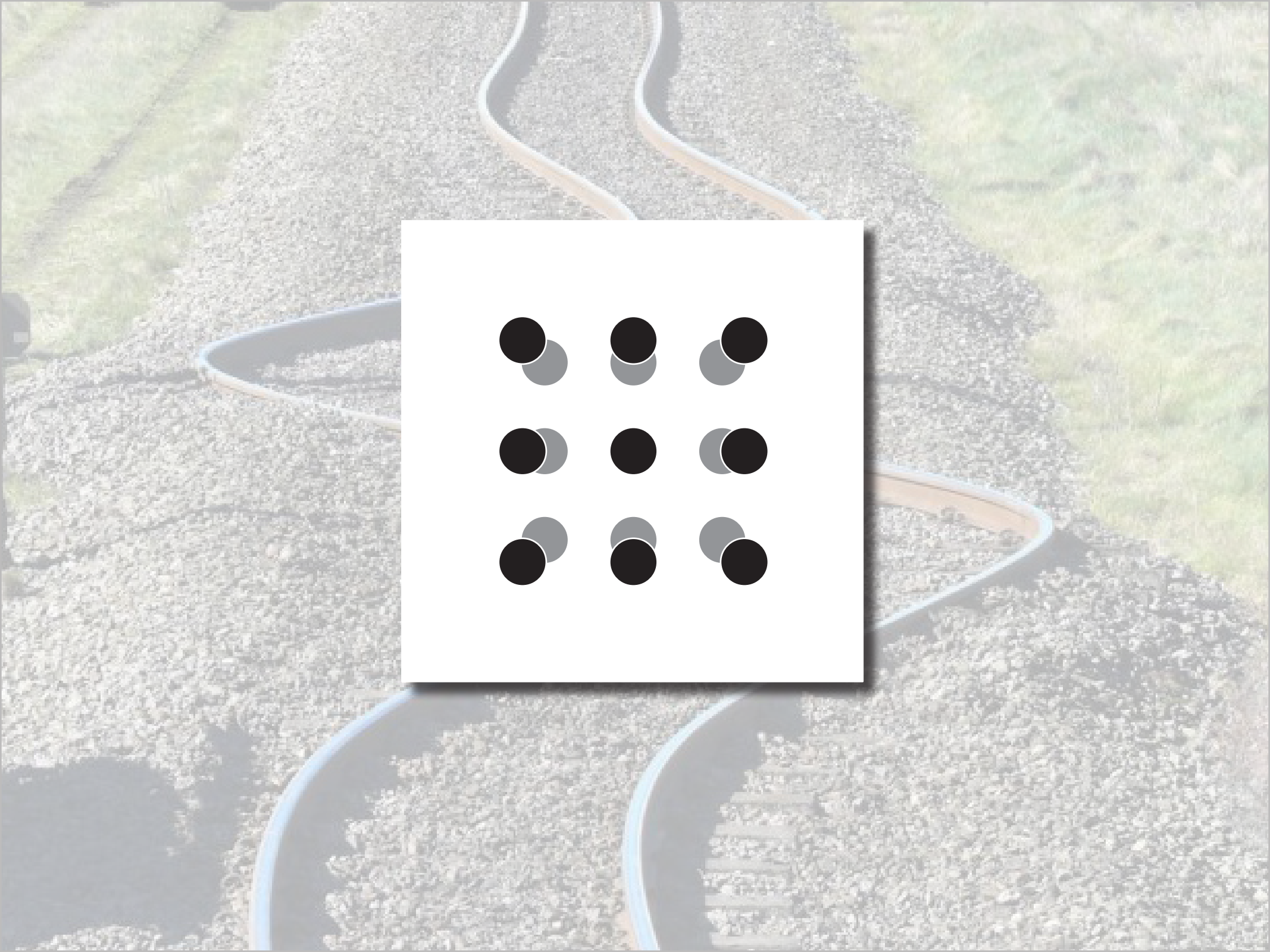
1. transfer of information (out of class)

2. assimilation of that information (in class)


peer
1. transfer of information (out of class)
2. assimilation of that information (in class)
INSTRUCTION

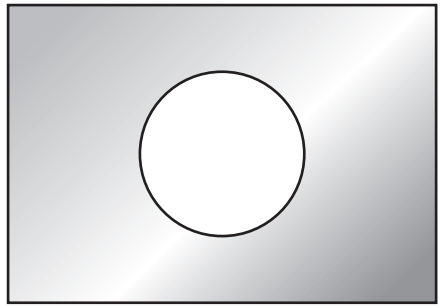

thermal expansion



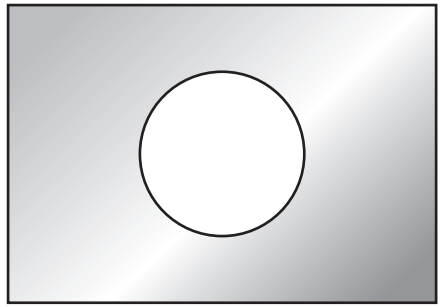



all of them

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



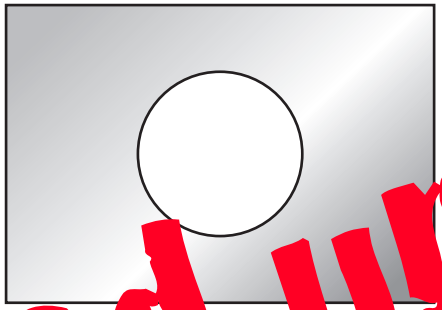
Consider a rectangular metal plate with a circular hole in it.



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.

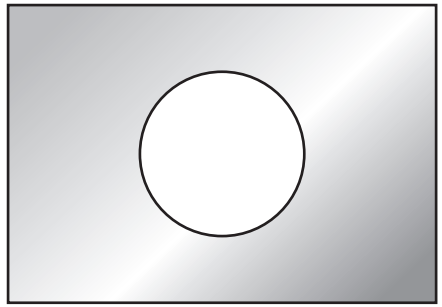


When the plate is uniformly heated, the diameter of the hole

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, let's analyze what happened.

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…

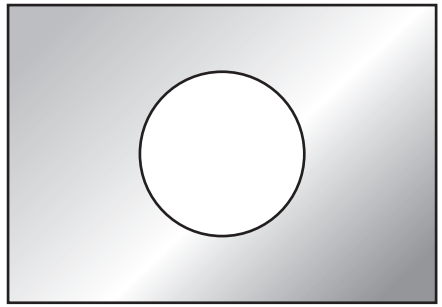
1. made a commitment
2. externalized your answer
3. moved from the answer/fact to reasoning

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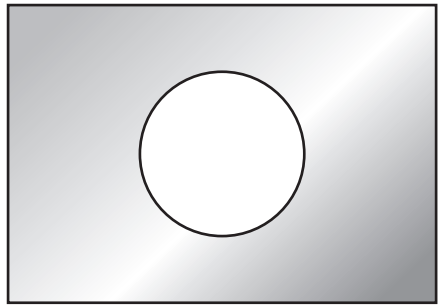
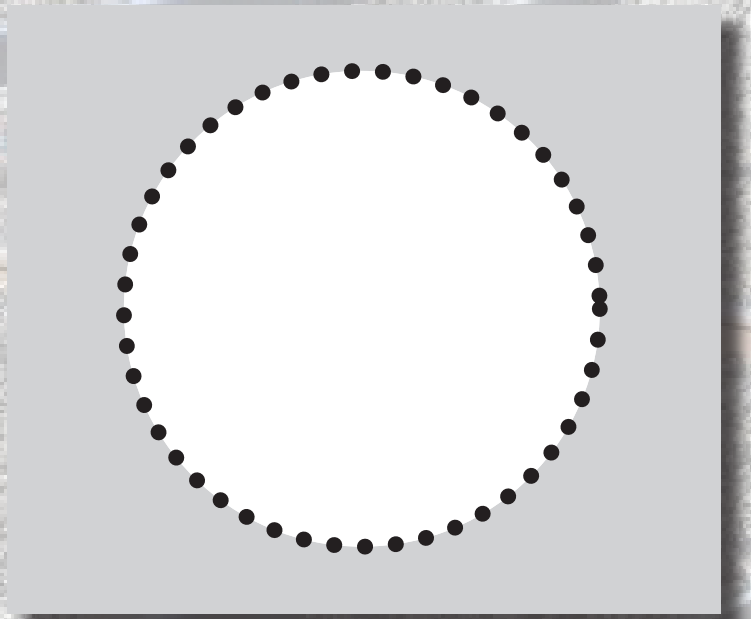
Consider a rectangular metal plate with a circular hole in it.



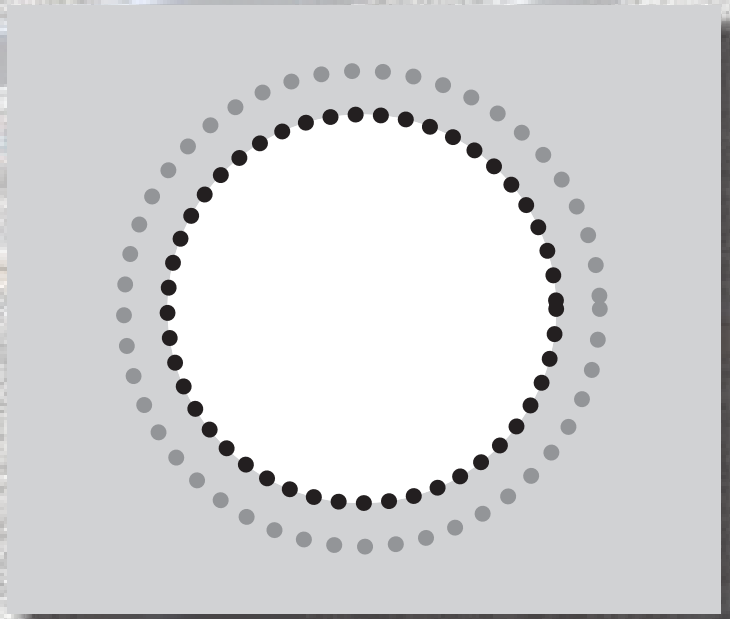
When the plate is uniformly heated, the diameter of the hole

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

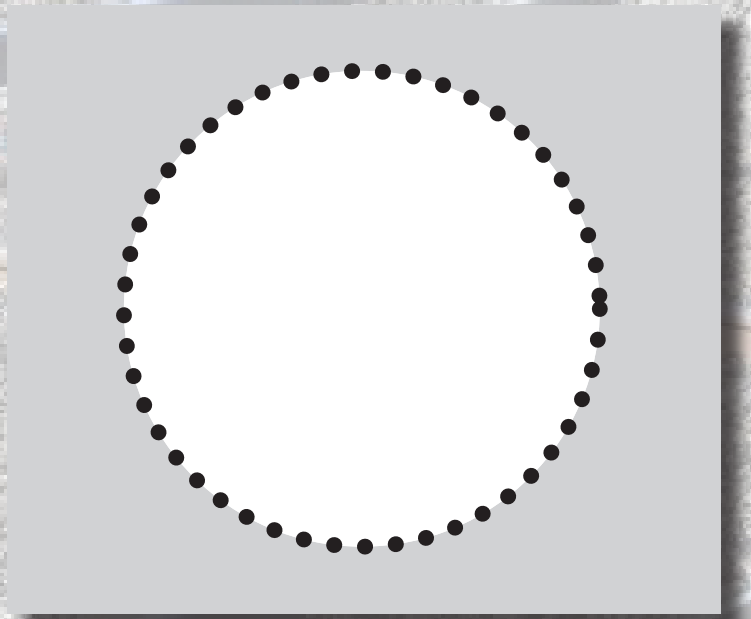
consider atoms at rim of hole



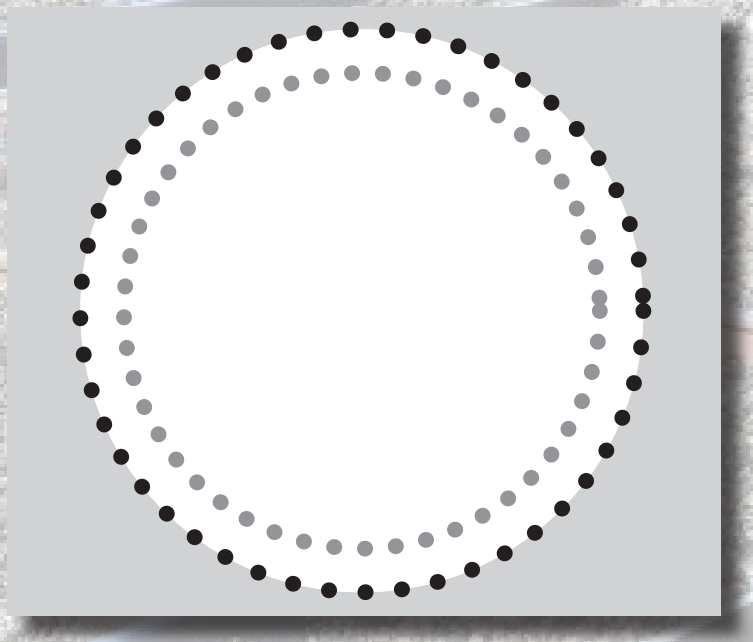
consider atoms at rim of hole



consider atoms at rim of hole



consider atoms at rim of hole

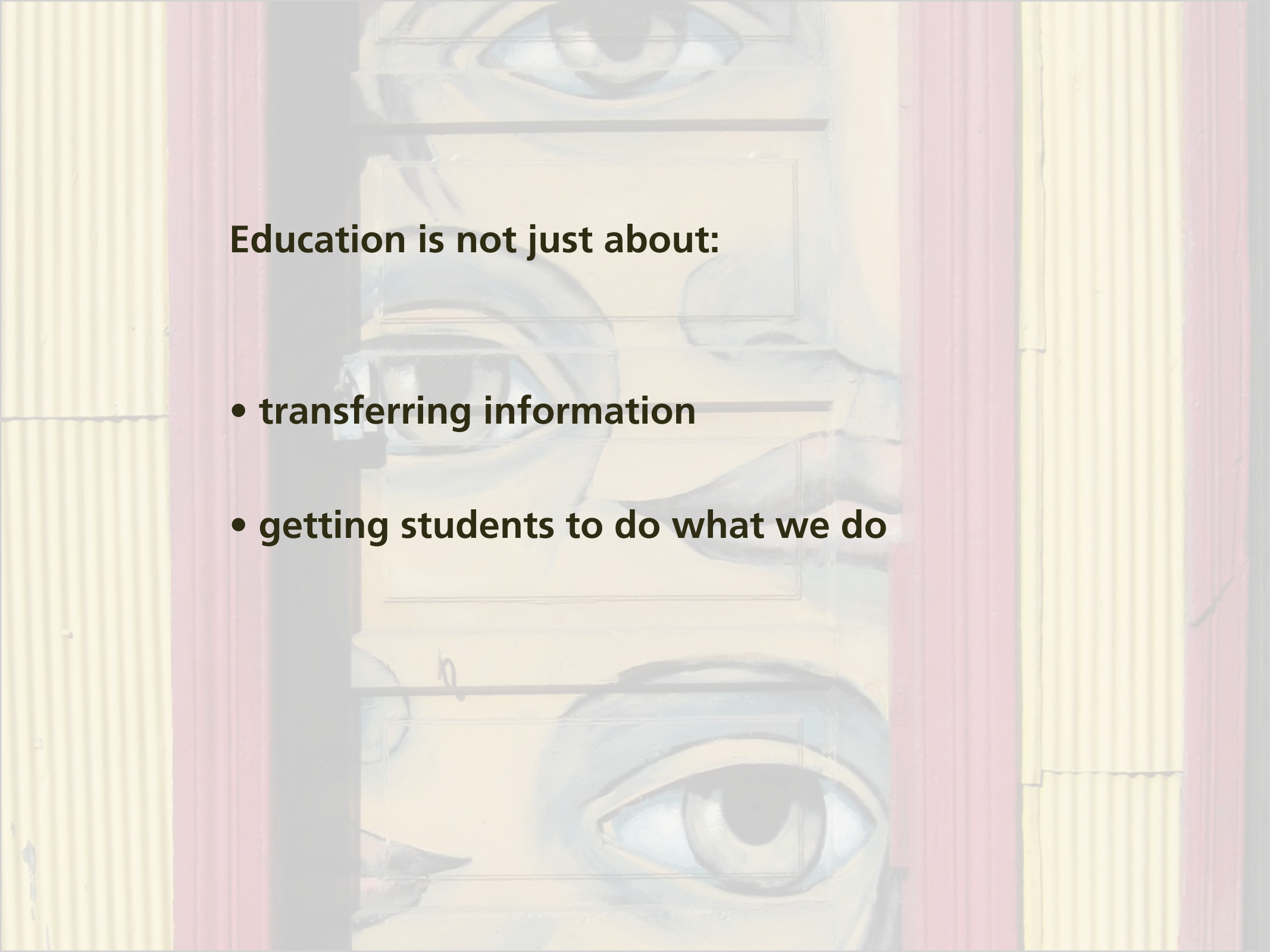


consider atoms at rim of hole

Education is not just about:

- transferring information
- getting students to do what we do

active participation a must!



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