Flipping your class and never looking back

AVID at Victoria University
14 September 2021, Melbourne, Australia
Flipping your class and never looking back

@eric__mazur

AVID at Victoria University
14 September 2021, Melbourne, Australia
try something different?
thermal expansion
all of them
Consider a rectangular metal plate with a circular hole in it.

When the plate is uniformly heated, the diameter of the hole
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.
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
consider atoms at rim of hole
consider atoms at rim of hole
consider atoms at rim of hole
You won't forget this!

Consider atoms at rim of hole.
Higher learning gains
Higher learning gains

<table>
<thead>
<tr>
<th>normalized gain (%)</th>
<th>0</th>
<th>20</th>
<th>40</th>
<th>60</th>
<th>80</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>lecturing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Higher learning gains

<table>
<thead>
<tr>
<th></th>
<th>Normalized Gain (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecturing</td>
<td>20</td>
</tr>
<tr>
<td>Peer Instruction</td>
<td>80</td>
</tr>
</tbody>
</table>
Higher learning gains
Better retention
Rethinking education
Rethinking education

“How can I transfer online what I do in the classroom?”

(challenge)
Rethinking education

“How can I transfer online what I do in the classroom?”
(challenge)

“What can I do online that I cannot do in the classroom?”
(opportunity)
Rethinking education

• Minimize sync/instructor paced instruction

• Rethink learning space

• Make space for (creativity and) failure
Minimize sync/instructor-paced instruction

synchronous ← asynchronous
Minimize sync/instructor-paced instruction

synchronous

asynchronous

everybody together

at the same time
Minimize sync/instructor-paced instruction

- synchronous ↔ asynchronous
- instructor-paced ↔ self-paced
Minimize sync/instructor-paced instruction

everybody together
at the same pace
Minimize sync/instructor-paced instruction

lecture

synchronous ↔ asynchronous

instructor-paced ↔ self-paced
Minimize sync/instructor-paced instruction

recorded lecture

synchronous ↔ asynchronous

instructor-paced ↔ self-paced
Minimize sync/instructor-paced instruction

synchronous \leftrightarrow \text{lab} \leftrightarrow \text{asynchronous}

instructor-paced \leftrightarrow \text{self-paced}
Minimize sync/instructor-paced instruction

Homework/study

Synchronous <-> Asynchronous

Instructor-paced <-> Self-paced
Minimize sync/instructor-paced instruction

synchronous ↔ asynchronous

instructor-paced ↔ self-paced
Minimize sync/instructor-paced instruction

- synchronous -> asynchronous
- instructor-paced <-> self-paced
Minimize sync/instructor-paced instruction

- Synchronous → Asynchronous
- Instructor-paced → Self-paced
Minimize sync/instructor-paced instruction

synchronous $\xrightarrow{\text{More time for personalized instruction!}}$ asynchronous

instructor-paced $\xrightarrow{\text{More time for personalized instruction!}}$ self-paced
Rethink learning space instead of all students coming to instructor’s room...
Rethink learning space

...instead of all students coming to instructor’s room...

...instructional staff visits each team’s own room
Rethink learning space

instead of all students coming to instructor’s room...

...instructional staff visits each team’s own learning space

more personalized instruction!
Make space for creativity (and failure)

specifications grading

Inside Higher Ed, Yes, Virginia, there is a better way to grade
Make space for creativity (and failure)

Inside Higher Ed, Yes, Virginia, there is a better way to grade

Does work meet specifications outlined for type of work?

YES

NO

Revision needed. Effort to meet specifications is evident, but significant gaps remain. Needs further work and/or revisions.

Not assessable. Work is fragmentary or contains significant omissions. Not enough information is present to determine effort given.

Exemplary. Work exceeds expectations by a wide margin and could be used as classroom example.

Meets specifications. Unambiguously meets all stated specifications. No additional work is needed.
Inside Higher Ed, Yes, Virginia, there is a better way to grade

Make space for creativity (and failure)

Specifications grading

- Does work meet specifications outlined for type of work?
- Is there evidence of conscious effort to meet specifications?
- Does work go significantly beyond specifications?

Exemplary: Work exceeds expectations by a wide margin and could be used as classroom example

Meets specifications: Unambiguously meets all stated specifications. No additional work is needed.

Revision needed: Effort to meet specifications is evident, but significant gaps remain. Needs further work and/or revisions.

Not assessable: Work is fragmentary or contains significant omissions. Not enough information is present to determine effort given.

If specifications not met, can try again.
Inside Higher Ed, Yes, Virginia, there is a better way to grade
Make space for creativity (and failure)

Does work meet specifications outlined for type of work?

Is there evidence of conscious effort to meet specifications?

Does work go significantly beyond specifications?

Exemplary. Work exceeds expectations by a wide margin and could be used as classroom example.

Meets specifications. Unambiguously meets all stated specifications. No additional work is needed.

Revision needed. Effort to meet specifications is evident, but significant gaps remain. Needs further work and/or revisions.

Not assessable. Work is fragmentary or contains significant omissions. Not enough information is present to determine effort given.

Inside Higher Ed, Yes, Virginia, there is a better way to grade

68 micro units
Make space for creativity (and failure)

Does work meet specifications outlined for type of work?

Is there evidence of conscious effort to meet specifications?

Does work go significantly beyond specifications?

Exemplary. Work exceeds expectations by a wide margin and could be used as classroom example.

Meets specifications. Unambiguously meets all stated specifications. No additional work is needed.

Revision needed. Effort to meet specifications is evident, but significant gaps remain. Needs further work and/or revisions.

Not assessable. Work is fragmentary or contains significant omissions. Not enough information is present to determine effort given.

course grade determined by number of units for which specifications were met

Inside Higher Ed, Yes, Virginia, there is a better way to grade
Education in 21st century is not just about:

• transferring information

• getting students to do what we do

social engagement in & out of classroom a must!