

Setting Learning Free: Lessons from Pandemic Teaching



Educamp 2023
14 September 2023

David Turner

Eric Mazur

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Setting Learning Free: Lessons from Pandemic Teaching



@eric_mazur

Educamp 2023
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Weekend long reads



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Life & Arts

Yuval Noah Harari: the world after coronavirus

This storm will pass. But the choices we make now could change our lives for years to come

Yuval Noah Harari MARCH 20 2020

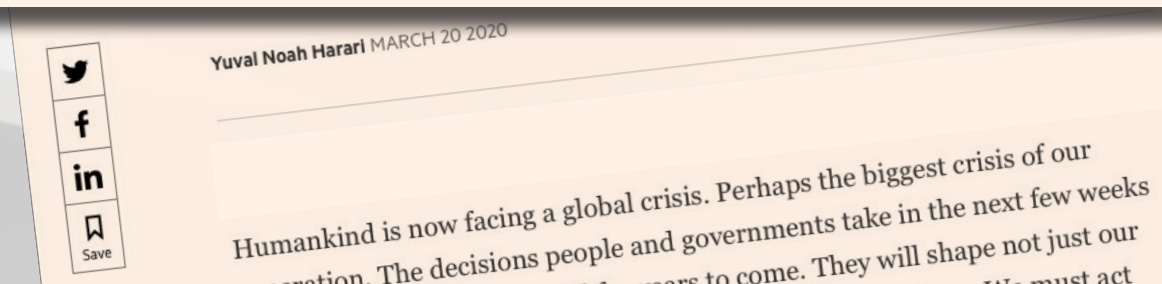


Save

Humankind is now facing a global crisis. Perhaps the biggest crisis of our generation. The decisions people and governments take in the next few weeks will shape the world for years to come. They will shape not just our lives but the lives of future generations. We must act



Many short-term emergency measures will become a fixture of life. That is the nature of emergencies. They fast-forward historical processes. Decisions that in normal times could take years of deliberation are passed in a matter of hours. Immature and even dangerous technologies are pressed into service, because the risks of doing nothing are bigger. Entire countries serve as guinea-pigs in large-scale social experiments. What happens when everybody works from home and communicates only at a distance? What happens when entire schools and universities go online? In normal times, governments, businesses and educational boards would never agree to conduct such experiments. But these aren't normal times.





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Yuval Noah Harari MARCH 20 2020

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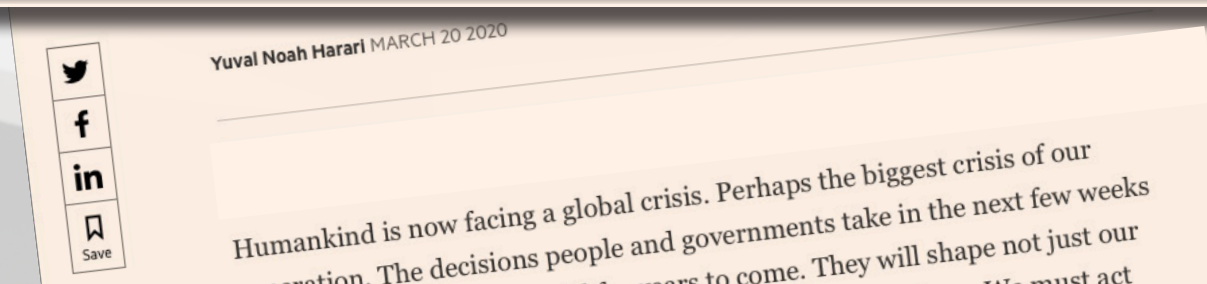


Yuval Noah Harari MARCH 20 2020

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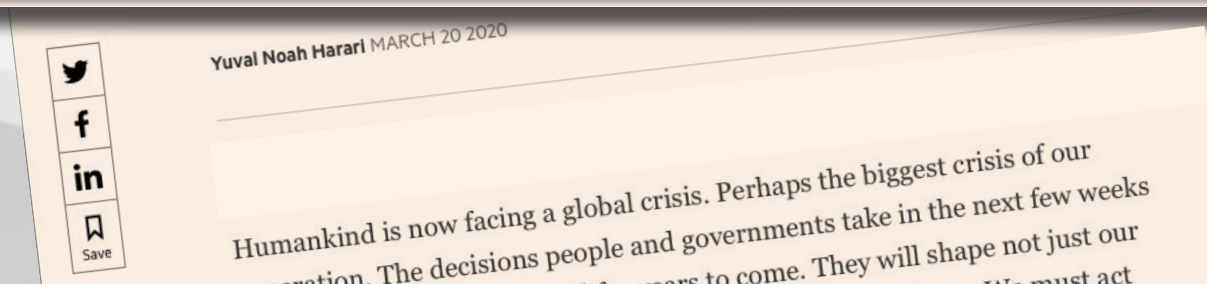


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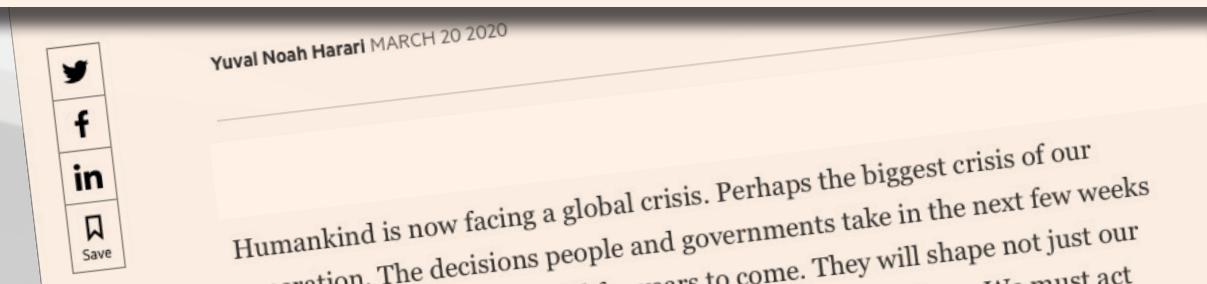




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Will online teaching become a fixture of life?

What happens when everybody works from home and communicates only at a distance? What happens when entire schools and universities go online? In normal times, governments, businesses and educational boards would never agree to conduct such experiments. But these aren't normal times.



lkbeat

SUBSCRIBE | ABOUT | RSS

THE WALL STREET JOURNAL.

A photograph of a woman with long brown hair, wearing a green shirt and jeans, sitting on a tan sofa in a living room. She is looking at a laptop. To her left, a boy in a blue shirt and red shorts is sitting on the sofa, looking at a tablet. To her right, a boy in a red and blue plaid shirt and blue shorts is sitting on the sofa, looking at a tablet. In the foreground, a girl in a white dress and blue headband is standing, looking down. Another boy in a red shirt is sitting on the floor in the foreground. The living room has two floor lamps with warm light, a coffee table with a blue tablet and books, and a patterned rug. The text 'EDUCATION' is visible on the coffee table.

The Results Are In for Remote Learning: It Didn't Work

The pandemic forced schools into a crash course in online education. Problems piled up quickly. 'I find it hectic and stressful'

Lucia Curatolo-Boylan supervises the online schooling of her four children, ages 4 to 10, in Staten Island, N.Y. KEVIN HAGEN FOR THE WALL STREET JOURNAL

by Howard and Lee Hawkins

lkbeat

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THE WALL STREET JOURNAL.



Popular

Latest

The Atlantic

IDEAS

Remote Learning Is a Bad Joke

My kid can't handle a virtual education, and neither can I.

AUGUST 18, 2020

Emily Gould

Author and essayist



RECOMMEN
READING

Put Anthony Fauci in
Dunk Tank

CONOR FRIEDERSDORF

Why Millennials Can
Up



The reason? Bad pedagogy!



**information
transfer**

sense-making

Traditional model

class

**information
transfer**

home

sense-making

Traditional model

class

**information
transfer**

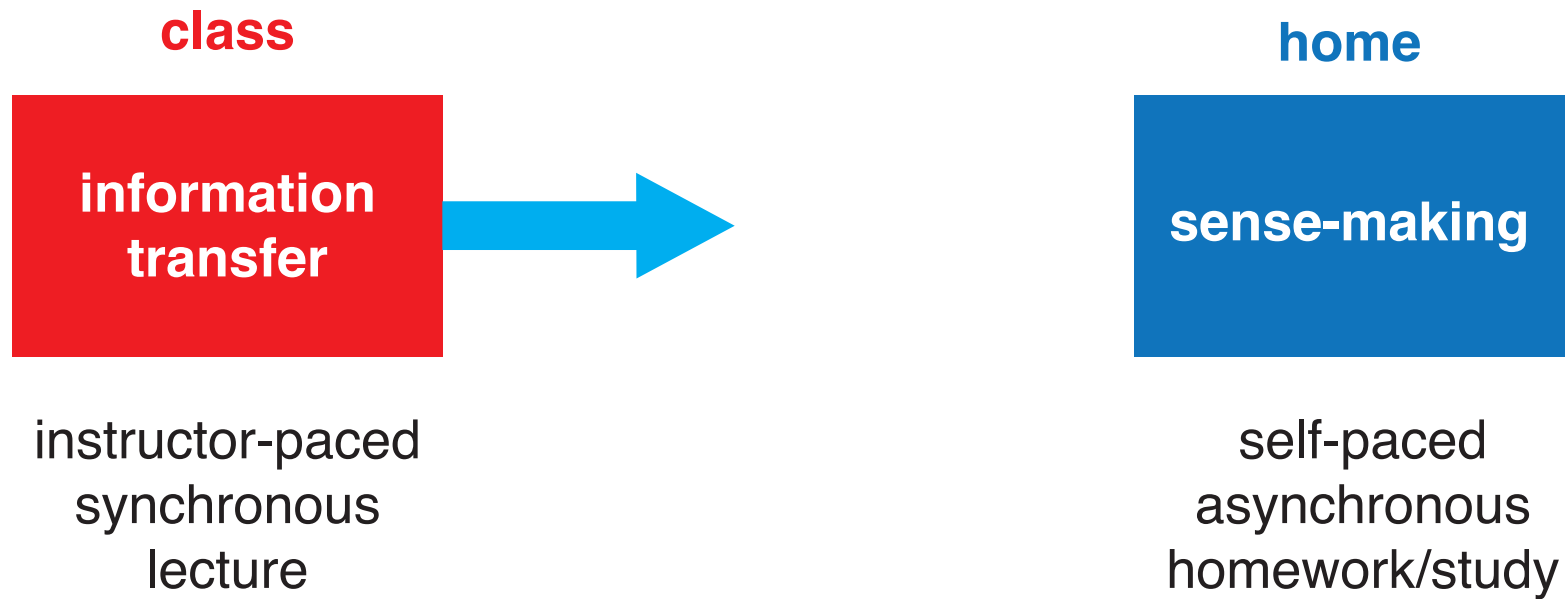
instructor-paced
synchronous
lecture

home

sense-making

self-paced
asynchronous
homework/study

Traditional model online



Traditional model online

class

information
transfer

instructor-paced
synchronous
lecture

home

information
transfer

instructor-paced
synchronous
online lecture

home

sense-making

self-paced
asynchronous
homework/study

Traditional model online

class

information
transfer

instructor-paced
synchronous
lecture

home

information
transfer

instructor-paced
asynchronous
recorded lecture

home

sense-making

self-paced
asynchronous
home work/study

Traditional model online

class

information
transfer

instructor-paced
synchronous
lecture

home

information
transfer

instructor-paced
asynchronous
recorded lecture

home

sense-making

self-paced
asynchronous
home work/study

all alone!

A group of people are working in a modern office setting. In the foreground, a woman with blonde hair is looking at a laptop screen. Next to her, a woman with dark hair is looking down at a notebook. In the background, other people are working at desks with laptops. The office has large windows and a bright, open atmosphere.

Small wonder!

Traditional model

class

**information
transfer**

home

sense-making

Flipped model

home

**information
transfer**

class

sense-making

Flipped model

home

**information
transfer**

self-paced
asynchronous

class

sense-making

instructor-led
synchronous
& **interactive**

Flipped model

home

information
transfer

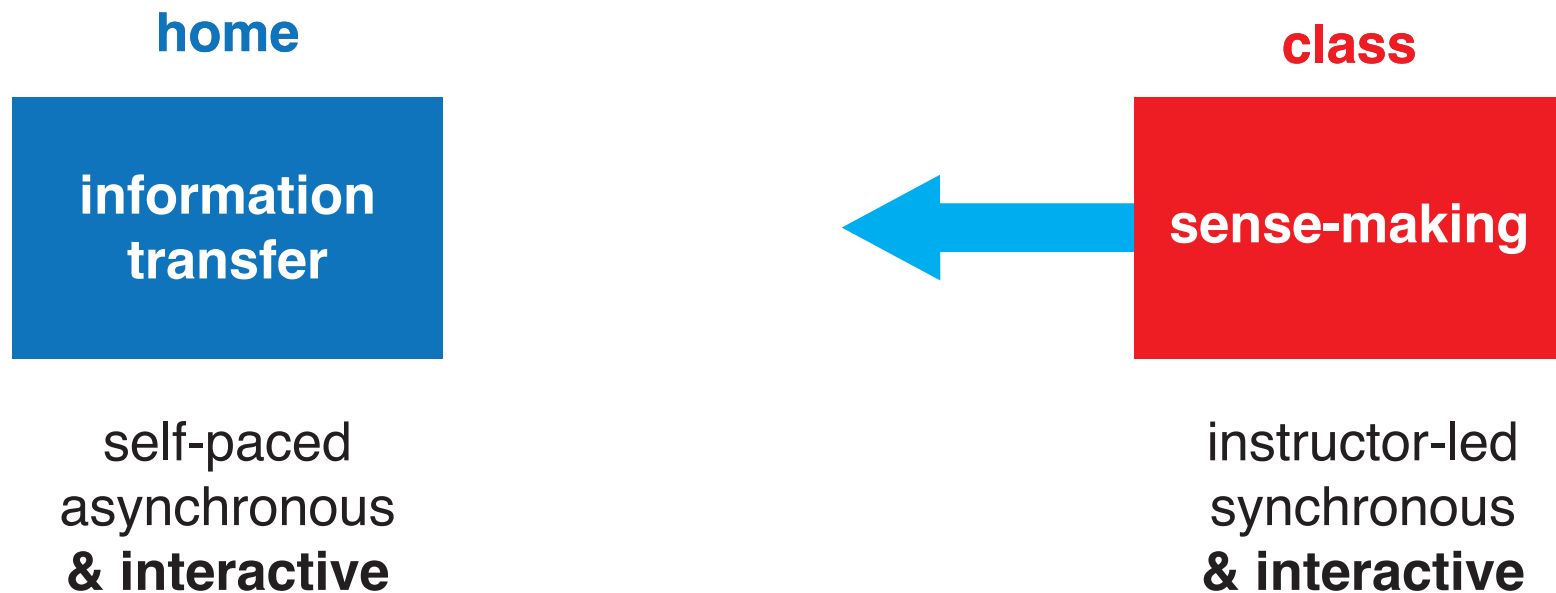
self-paced
asynchronous
& **interactive**

class

sense-making

instructor-led
synchronous
& **interactive**

Flipped model online



Flipped model online

home

**information
transfer**

self-paced
asynchronous
& **interactive**

home

sense-making

instructor-led
synchronous
& **interactive**

class

sense-making

instructor-led
synchronous
& **interactive**

Flipped model online





1 pandemic lessons



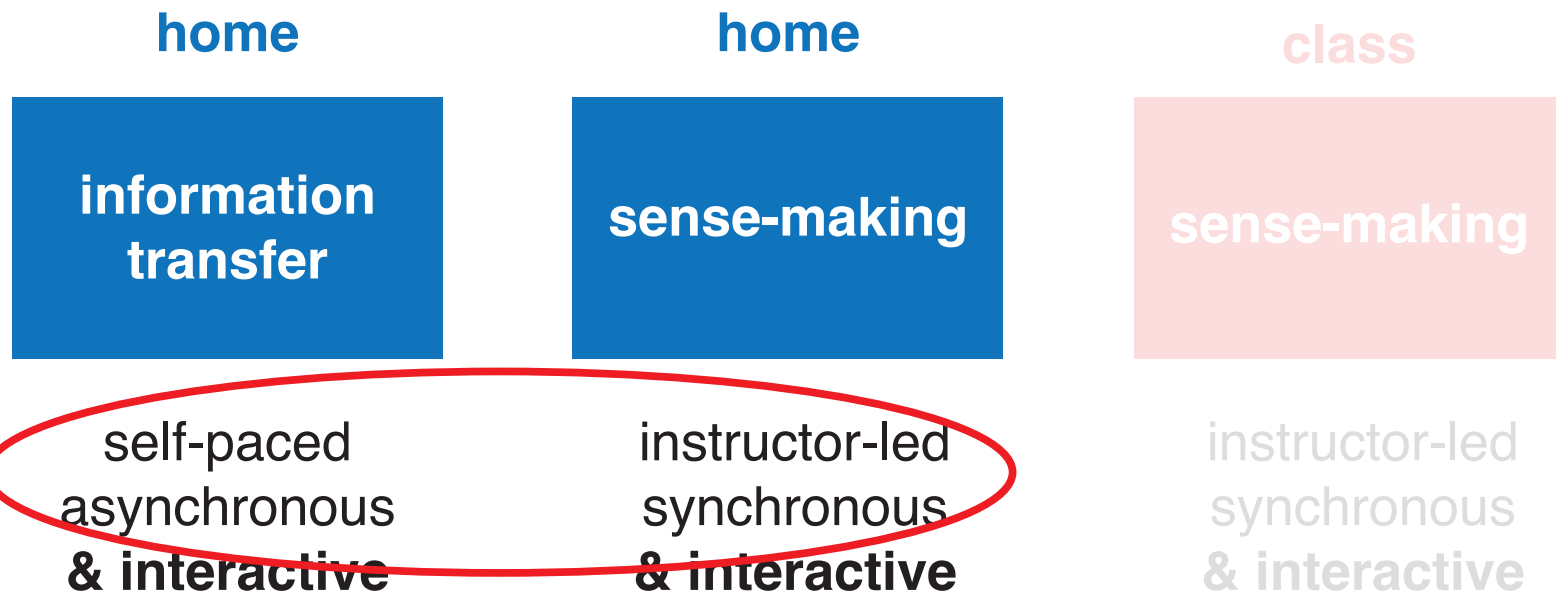
1 pandemic lessons

2 new normal

Optimize instructional face-to-face time

A group of people, likely students or professionals, are gathered around a large, light-colored circular table in a modern, well-lit room. They are engaged in collaborative work, with several laptops open on the table. One laptop in the foreground displays a website with the heading "learning catalysis". The individuals are dressed in business casual attire. The background shows more people working at desks, suggesting a busy, productive environment. The overall atmosphere is one of focused collaboration and learning.

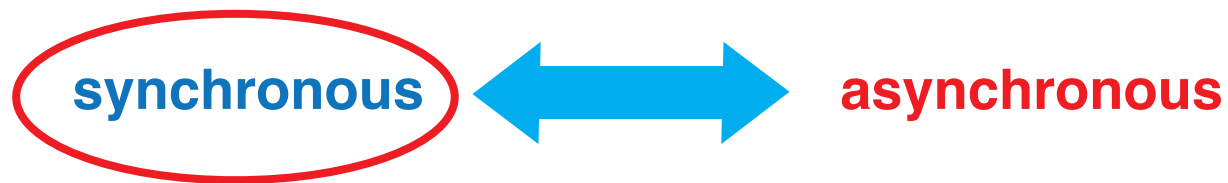
Optimize instructional face-to-face time



Optimize instructional face-to-face time

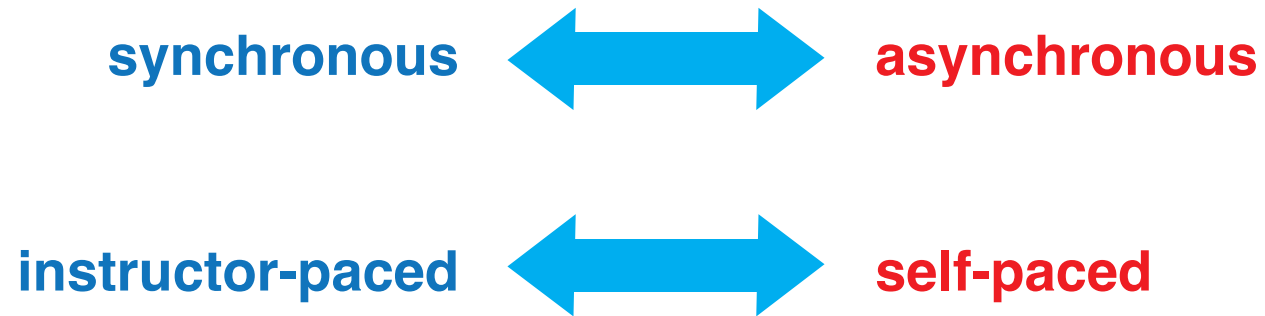
synchronous  asynchronous

Optimize instructional face-to-face time

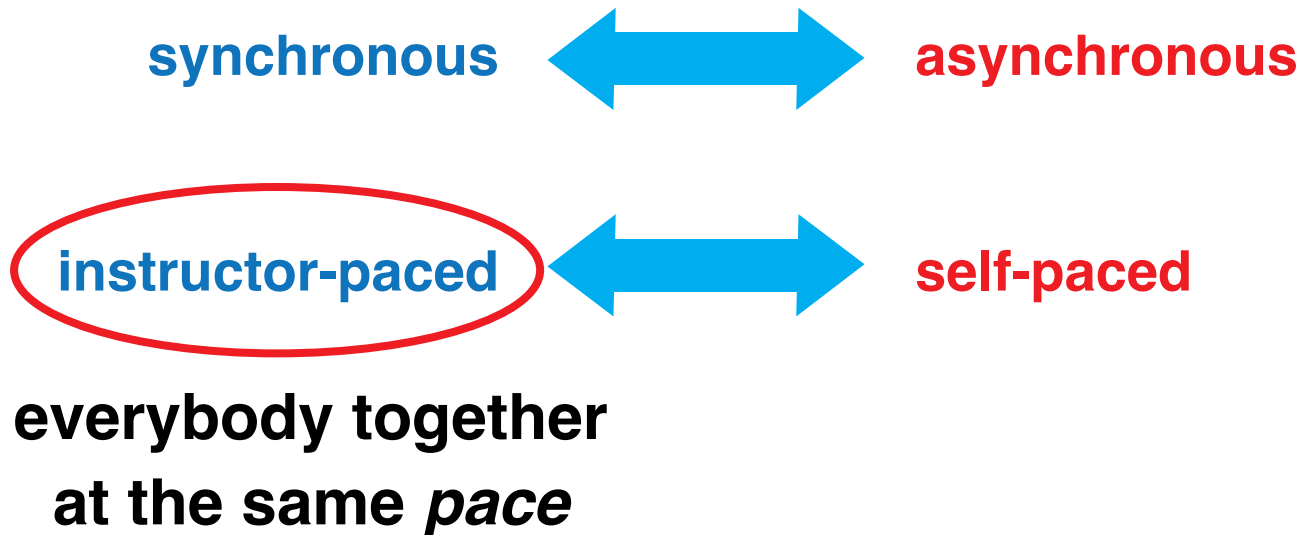


**everybody together
at the same *time***

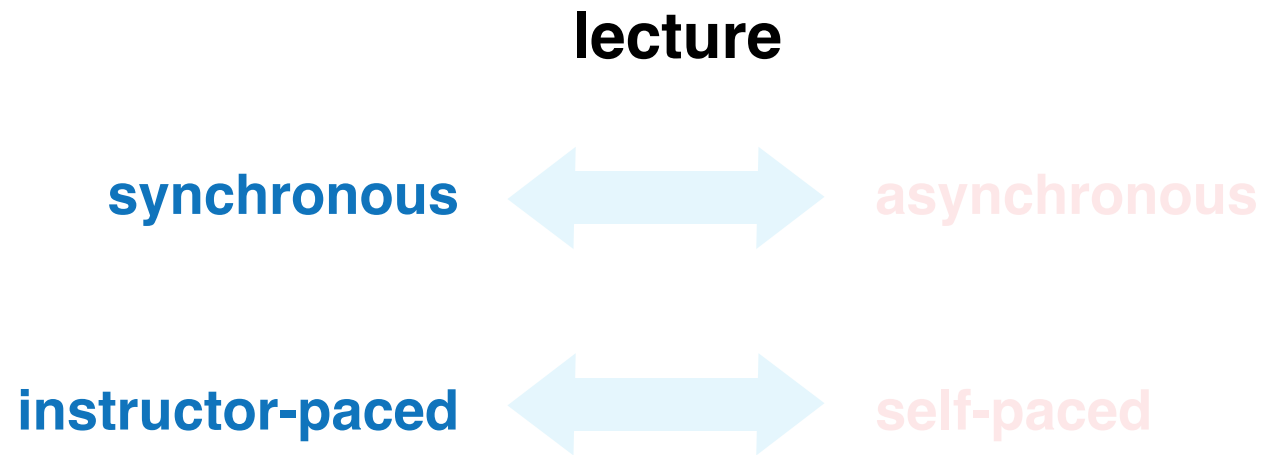
Optimize instructional face-to-face time



Optimize instructional face-to-face time



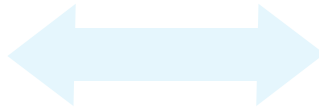
Optimize instructional face-to-face time



Optimize instructional face-to-face time

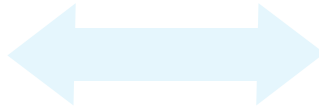
recorded lecture

synchronous



asynchronous

instructor-paced

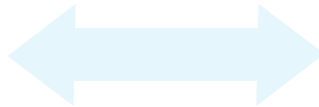


self-paced

Optimize instructional face-to-face time

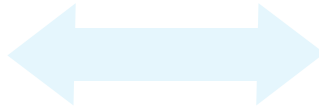
recorded lecture

synchronous



asynchronous

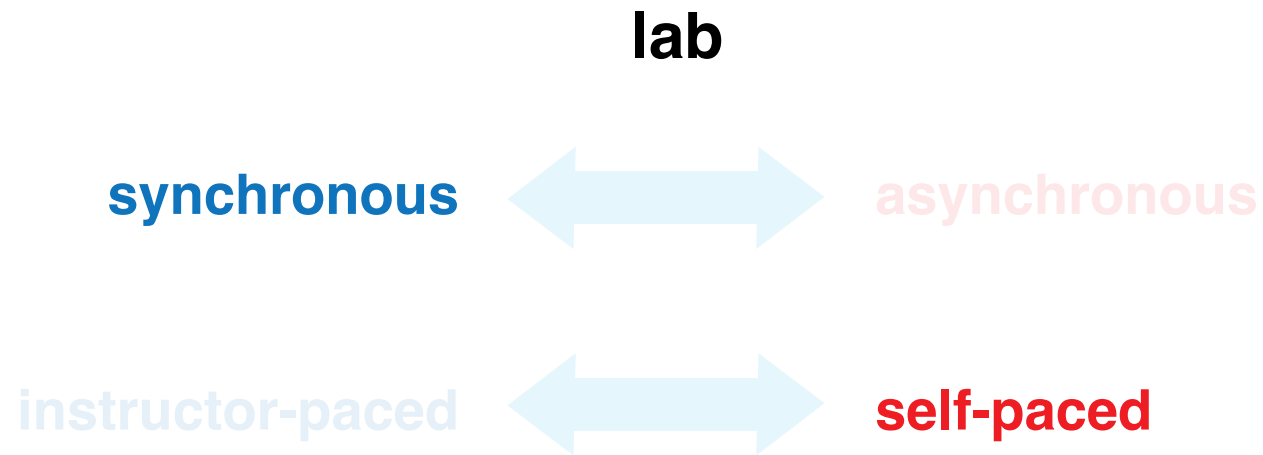
instructor-paced



self-paced

1.5x!

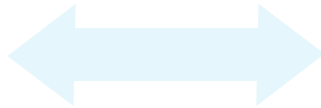
Optimize instructional face-to-face time



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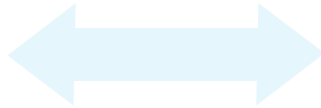
homework/study

synchronous



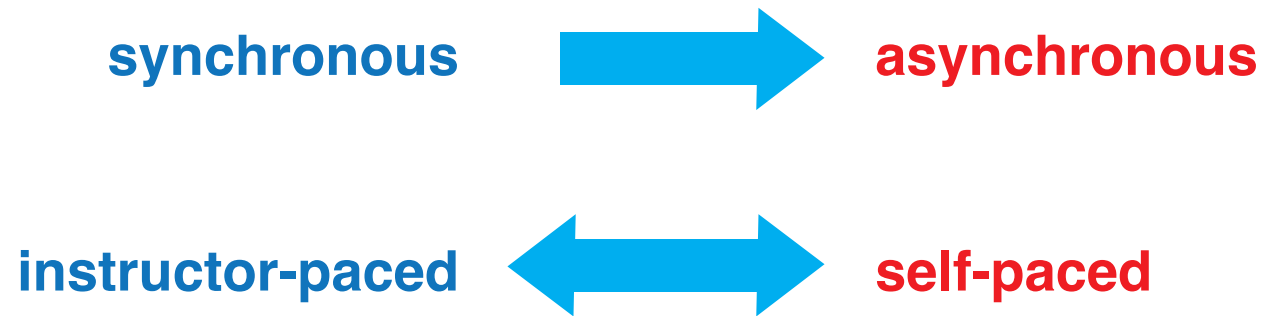
asynchronous

instructor-paced

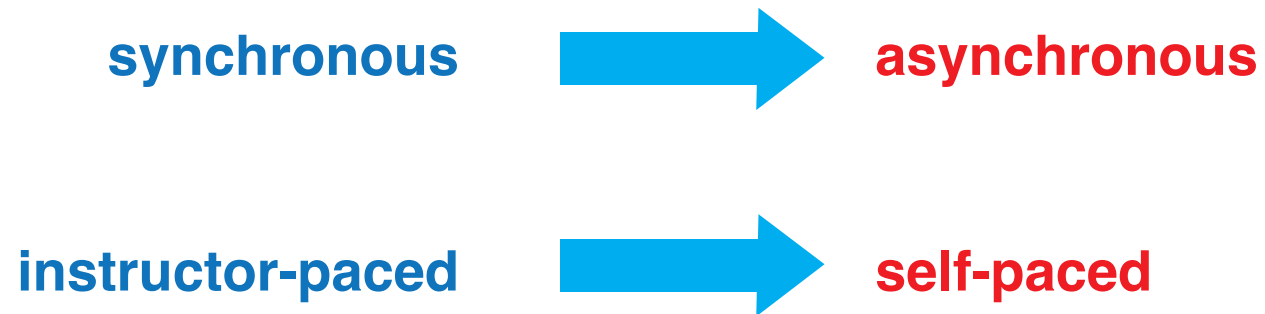


self-paced

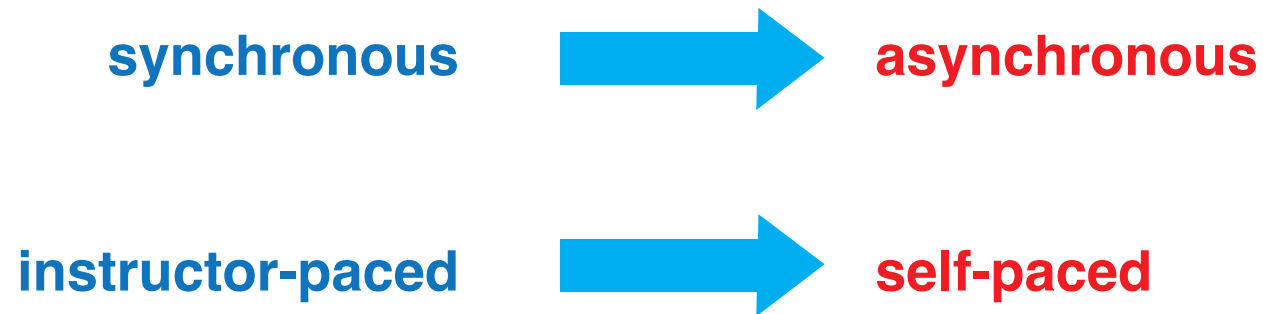
Optimize instructional face-to-face time



Optimize instructional face-to-face time



Optimize instructional face-to-face time



**more time to help students
where it really matters!**

A group of people are working in a modern office or classroom setting. They are seated around a large, light-colored circular table, using laptops and notebooks. The background shows more people working at desks near large windows. The text "Try this exercise!" is overlaid in the center of the image.

Try this exercise!

Optimize team face-to-face time

synchronous

collaborative work

Optimize team face-to-face time

synchronous

collaborative work

- not all students engaged
- inefficient team work
- poor use of staff time
- no quality control

Optimize team face-to-face time

synchronous

collaborative work

- not all students engaged
- inefficient team work
- poor use of staff time
- no quality control

asynchronous

**individual
work**

Optimize team face-to-face time

synchronous

collaborative work

- not all students engaged
- inefficient team work
- poor use of staff time
- no quality control

asynchronous

**individual
work**



synchronous

**team
work**

Optimize team face-to-face time

synchronous

collaborative work

- not all students engaged
- inefficient team work
- poor use of staff time
- no quality control

asynchronous

**individual
work**



synchronous

**team
work**



**team
check**

Optimize team face-to-face time

synchronous

collaborative work

- not all students engaged
- inefficient team work
- poor use of staff time
- no quality control

asynchronous

individual
work

all engaged



synchronous

team
work

efficient team



team
check

quality control

Establish continuous accountability

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

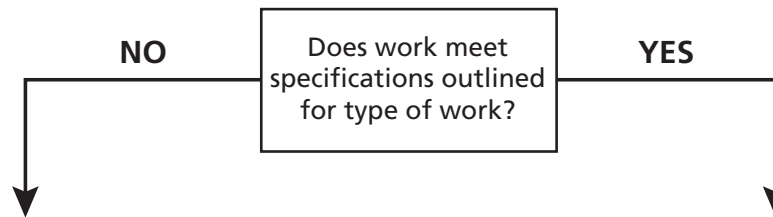
A group of people in a modern office setting, working on laptops and discussing documents. The image is faded and serves as a background for the text.

Establish continuous accountability

Specifications grading

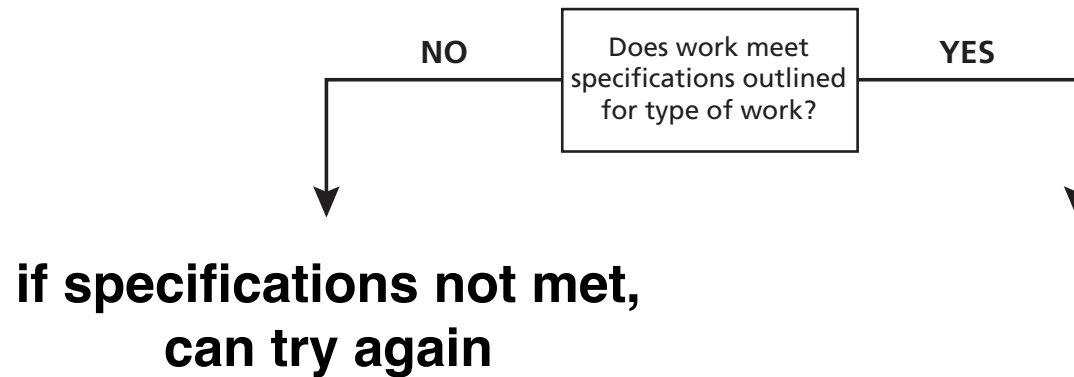
Inside Higher Ed, Yes, Virginia, there is a better way to grade

Establish continuous accountability



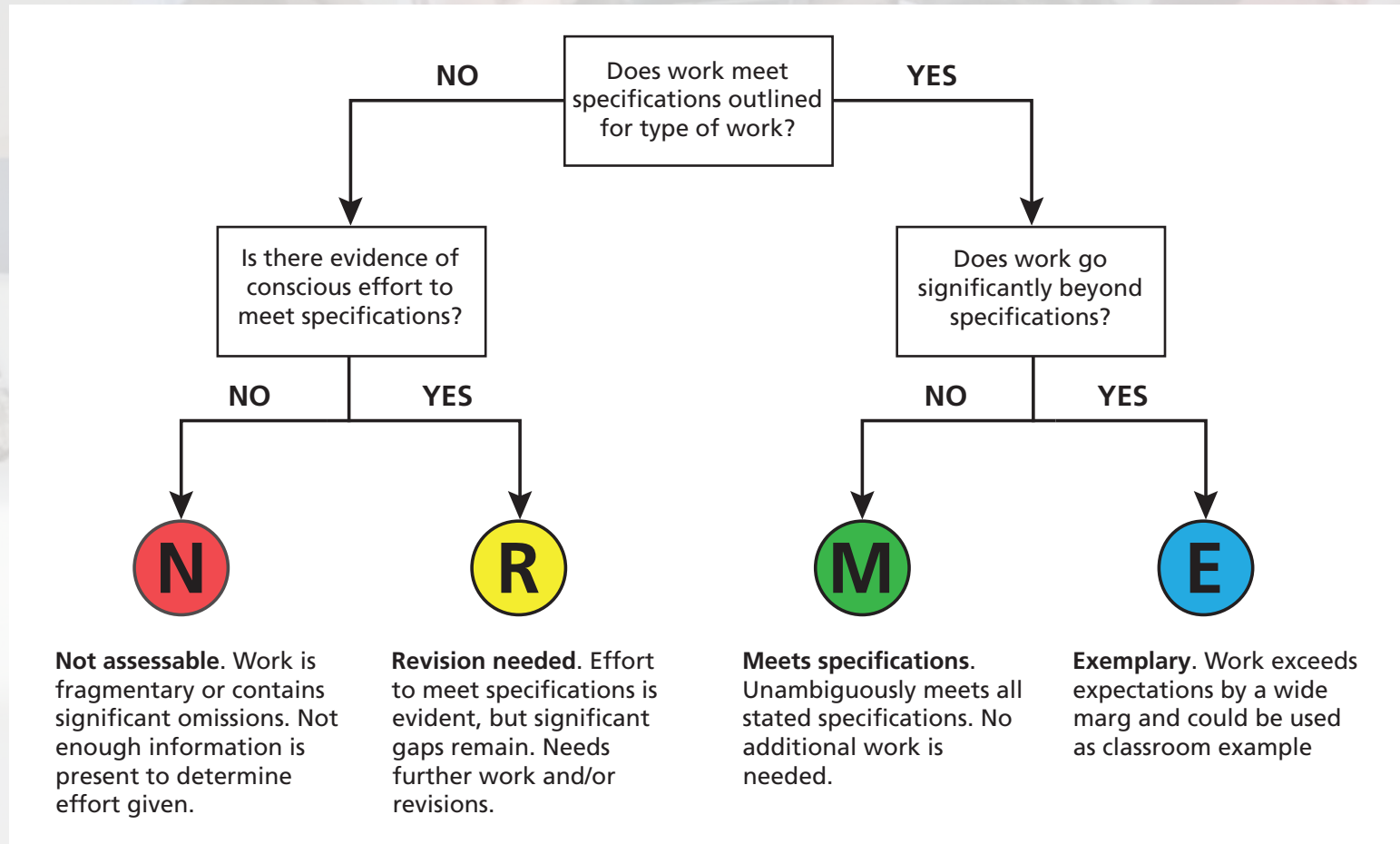
Inside Higher Ed, *Yes, Virginia, there is a better way to grade*

Establish continuous accountability



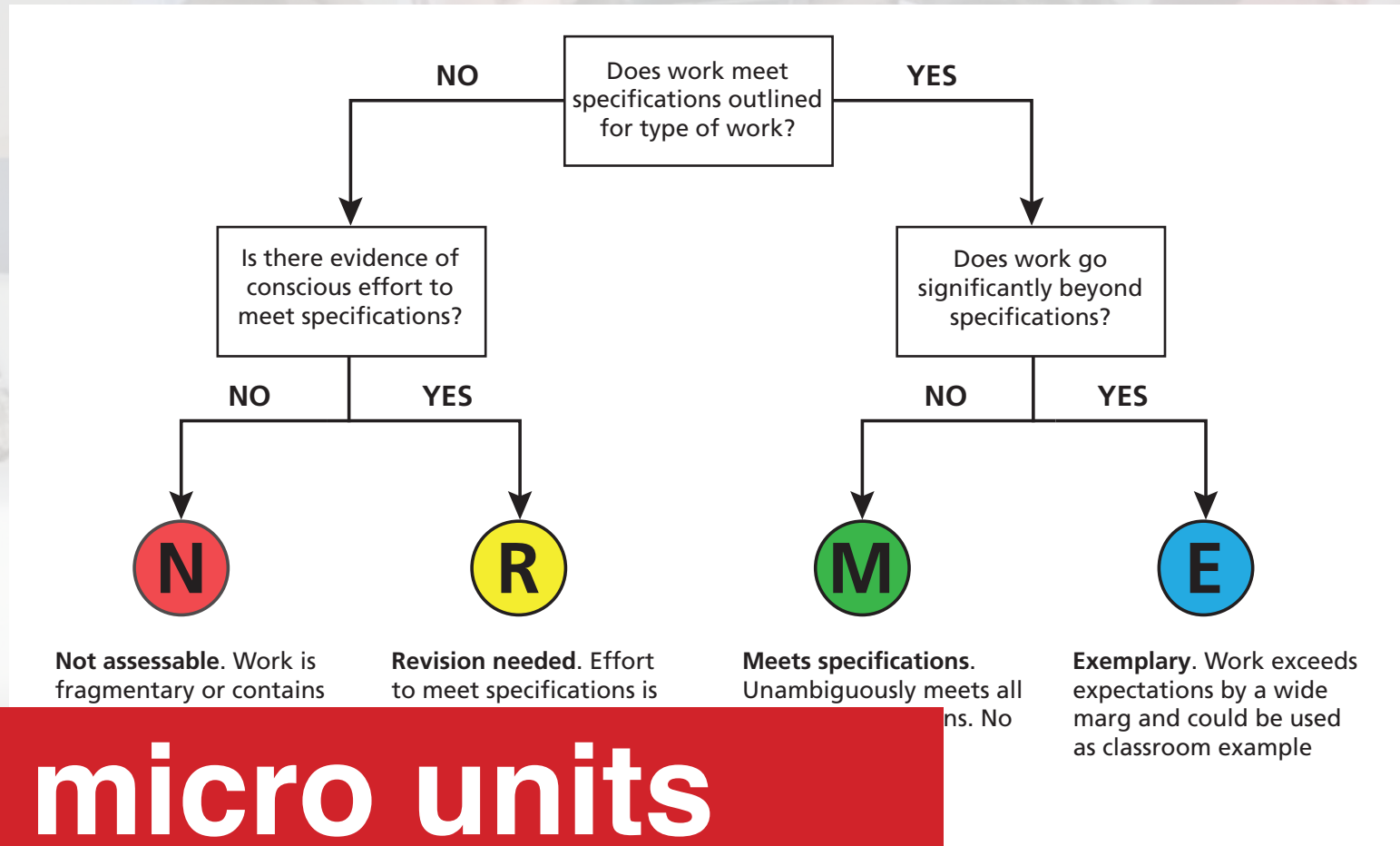
Inside Higher Ed, *Yes, Virginia, there is a better way to grade*

Establish continuous accountability



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

Establish continuous accountability

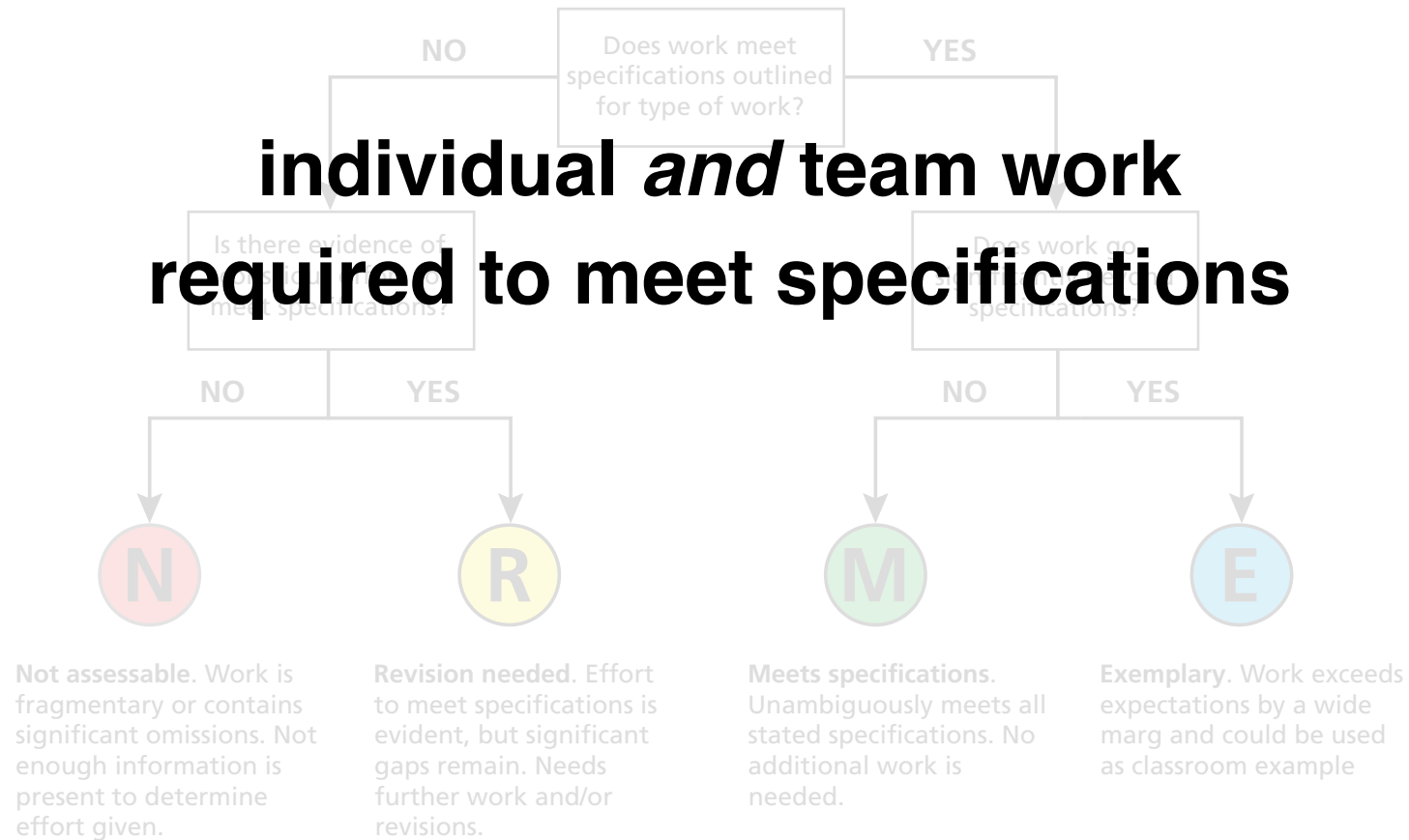


70 micro units

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

Establish continuous accountability

individual *and* team work required to meet specifications



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

Establish continuous accountability

**individual *and* team work
required to meet specifications**

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

N
Not assessable. Work is fragmented, incomplete, or contains significant omissions. Not enough information is present to determine effort given.

R
Revision needed. Effort evident, but significant gaps remain. Needs further work and/or revisions.

M
Meets specifications. Work meets stated specifications. No additional work is needed.

E
Exemplary. Work exceeds specifications and could be used as classroom example.

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

Shift ownership of learning space

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

Shift ownership of learning space

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

...instructional staff visits each team's own room

Shift ownership of learning space

80 students in one room → 20 rooms with 4 students

Oliver Mook

Eric Mazur

Cora Novak

Jill Smith

Sara Paul

Assignment Module 25 • UNGRADED

STUDENT: Codi-Ann Reid

TOTAL POINTS: - / 0 pts

QUESTION 1: Cover Page (0 pts)

QUESTION 2: Question 1 (0 pts)

QUESTION 3: Question 2 (0 pts)

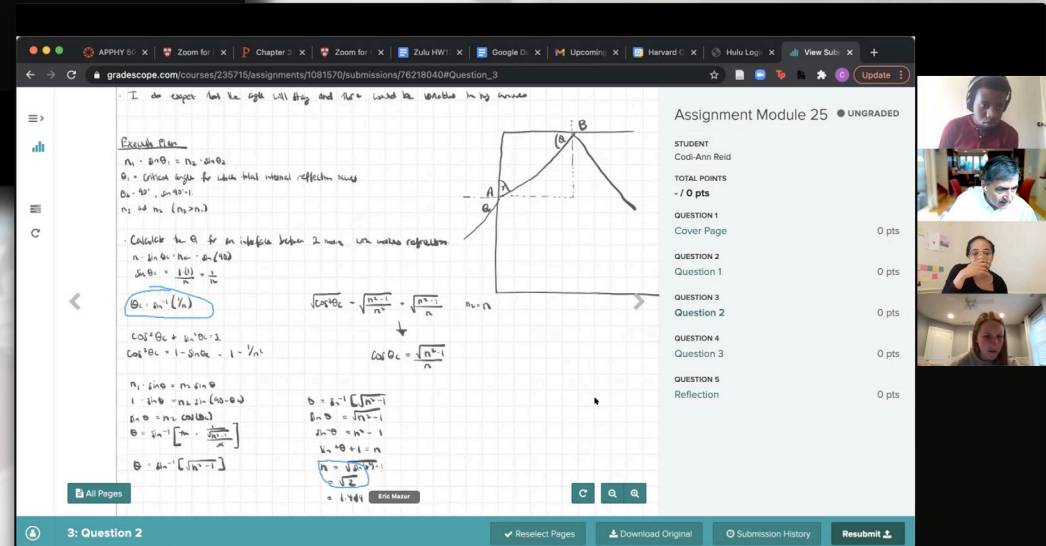
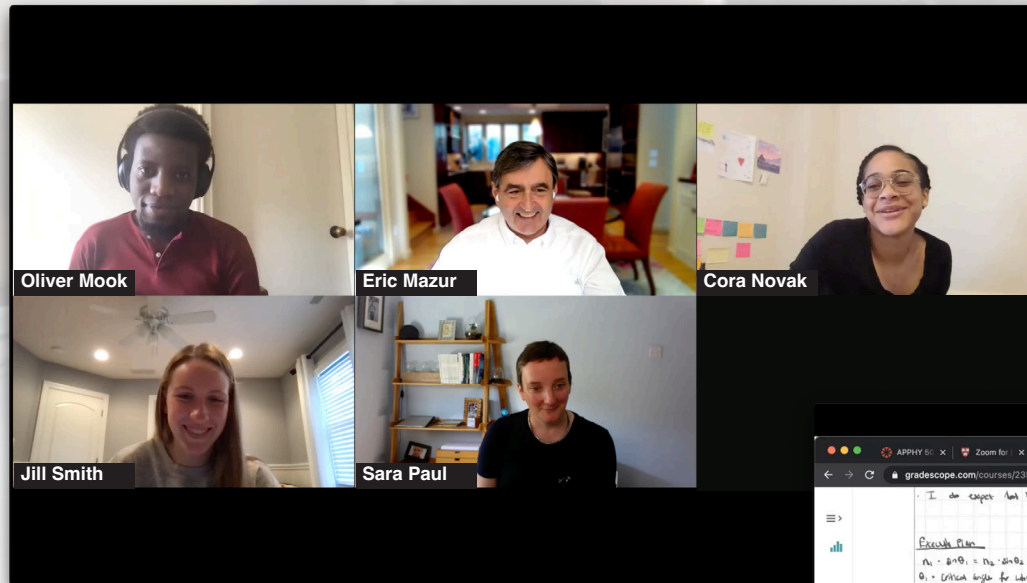
QUESTION 4: Question 3 (0 pts)

QUESTION 5: Reflection (0 pts)

3: Question 2

Reselect Pages Download Original Submission History Resubmit

every student on front row



every student on front row & address each by their name





Does it work?

1 pandemic lessons

Doubling of...

- content learning gains
- physics self-efficacy gains

Research Shows Students Falling Months Behind During Virus Disruptions

The abrupt switch to remote learning wiped out academic gains for many students in America, and widened racial and economic



What do students say?

Research Shows Students Falling Months Behind During Virus Disruptions

The abrupt switch to remote learning wiped out academic gains for many students in America, and widened racial and economic gaps. It won't be easy.

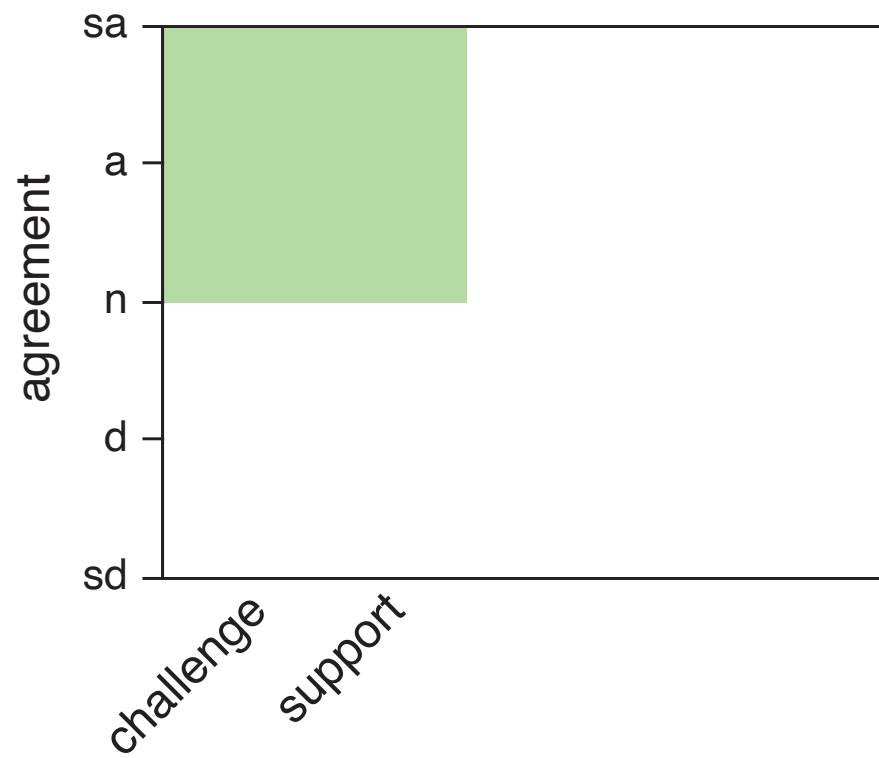
Agile Feedback Survey (Talbert)

- 1. I was challenged intellectually**
- 2. I had plenty of support**
- 3. I am closer to mastering the ideas of the course now**
- 4. I made progress because of my own efforts and choices**
- 5. I felt I was part of a community of learners**

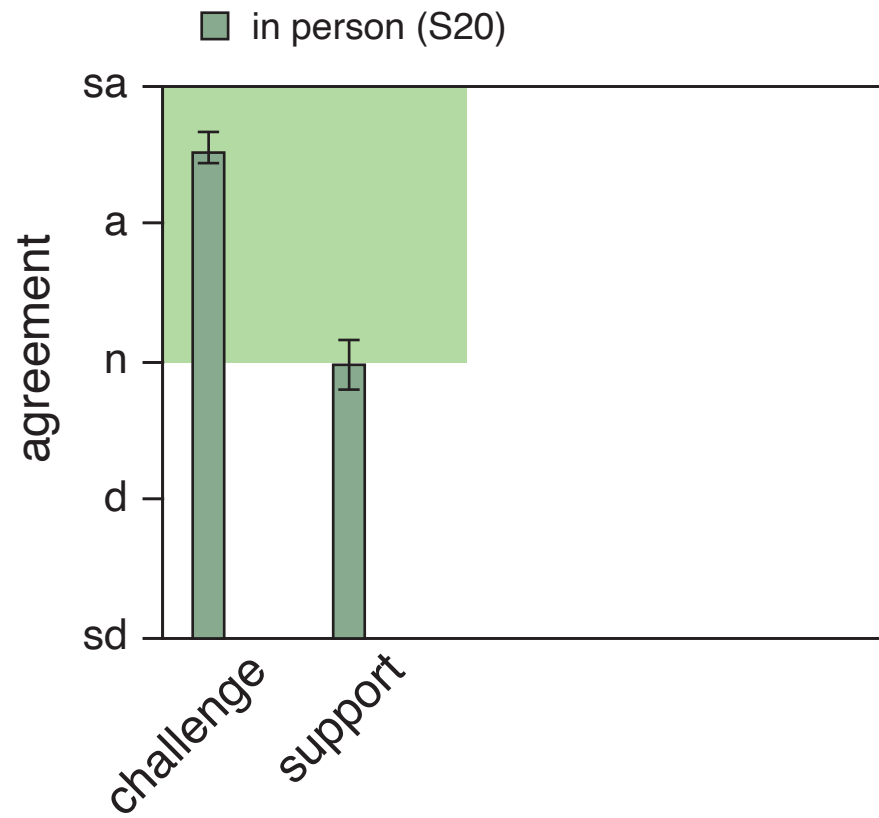
challenge vs. support

- 1. I was challenged intellectually**
- 2. I had plenty of support**
3. I am closer to mastering the ideas of the course now
4. I made progress because of my own efforts and choices
5. I felt I was part of a community of learners

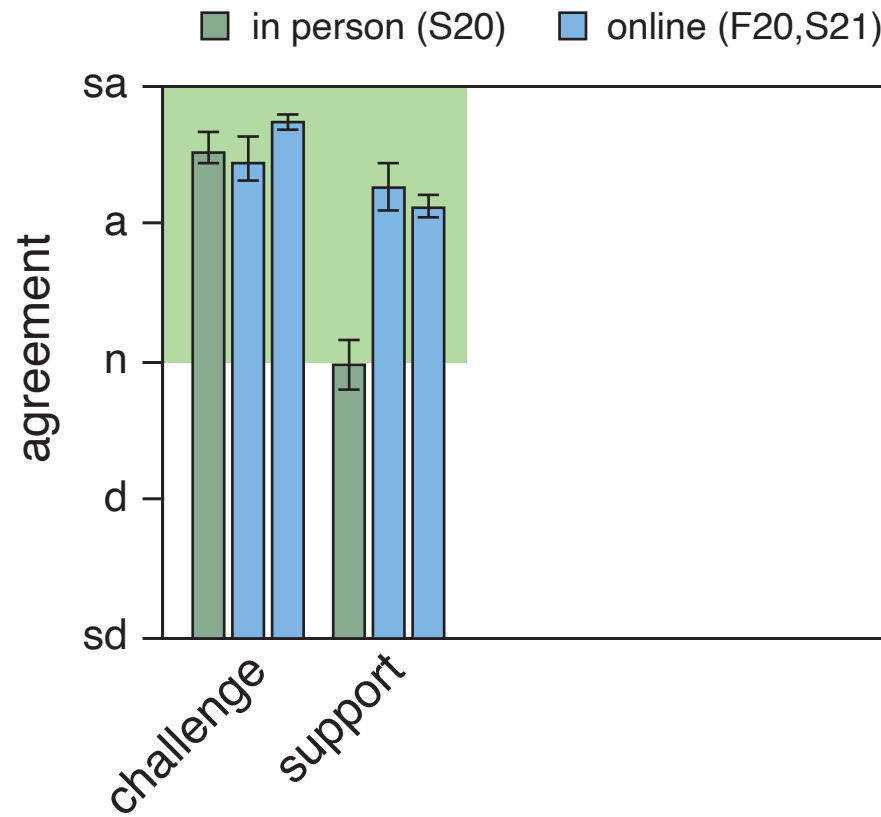
challenge vs. support



challenge vs. support



challenge vs. support





self-determination

1. I was challenged intellectually (challenge)

2. I had plenty of support (support)

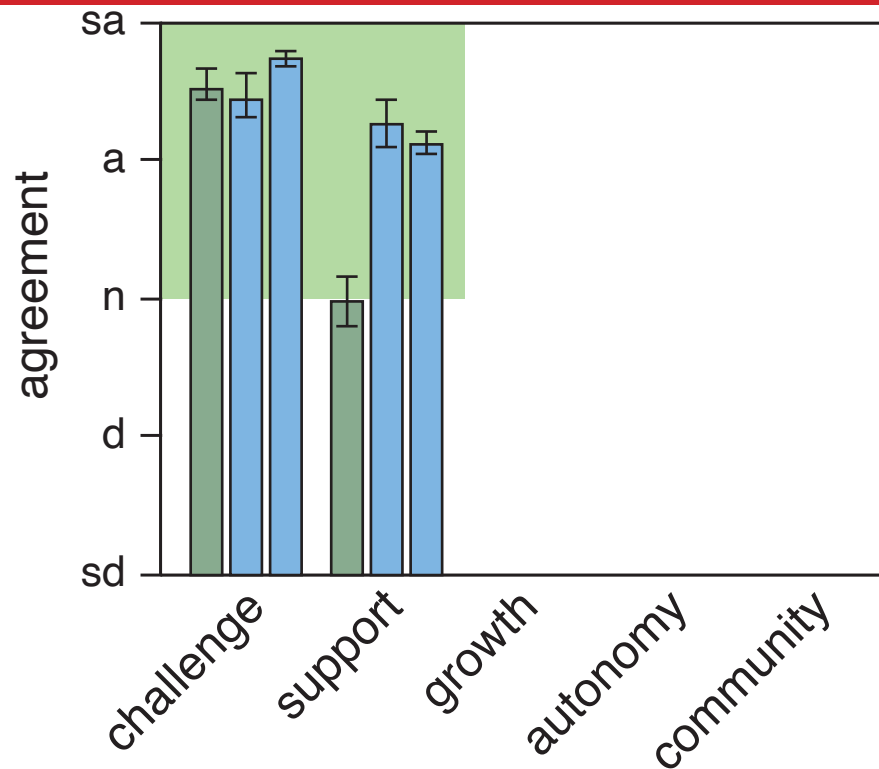
3. I am closer to mastering the ideas of the course now (growth)

4. I made progress because of my own efforts and choices (auton.)

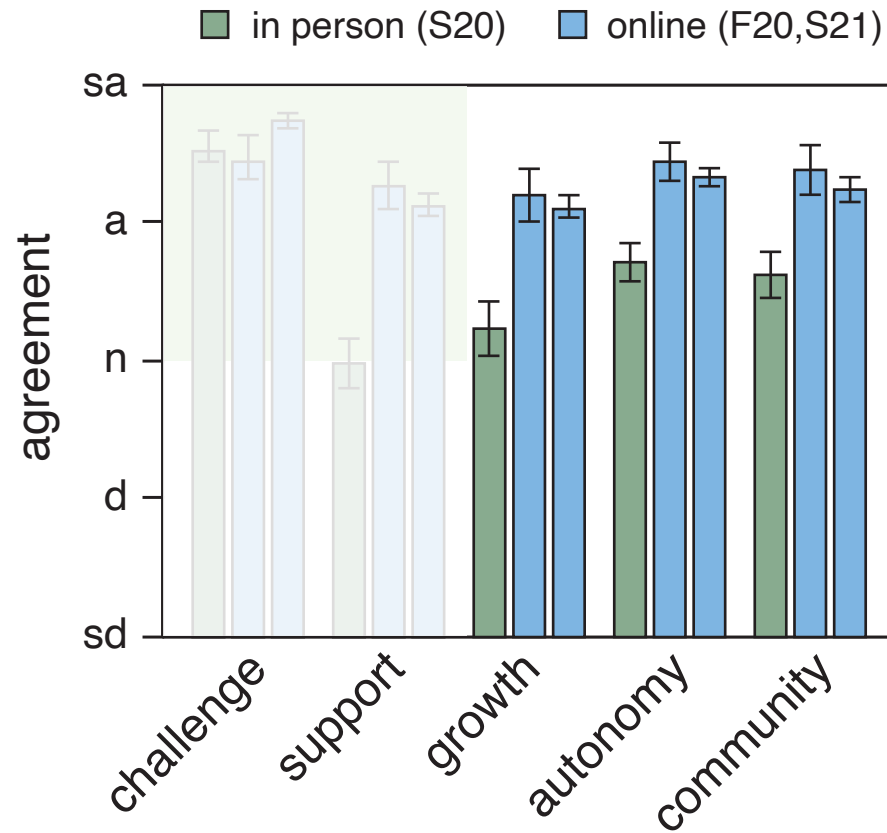
5. I felt I was part of a community of learners (relatedness)

self-determination

What do you predict?



self-determination





I did my best teaching *ever* online!

1 pandemic lessons



1 pandemic lessons **2** new normal



weekly workflow

1 pandemic lessons

2 new normal

weekly workflow

content module

practical work

1 pandemic lessons

2 new normal

weekly workflow

content module

practical work

reading

1 pandemic lessons

2 new normal

weekly workflow

content module

reading

readiness assurance

practical work

1 pandemic lessons

2 new normal

weekly workflow

content module

reading

readiness assurance

tutorial

practical work

1 pandemic lessons

2 new normal

weekly workflow

content module

reading

readiness assurance

tutorial

challenge

practical work

1 pandemic lessons

2 new normal

weekly workflow

content module

reading

readiness assurance

tutorial

challenge

practical work

skills session

1 pandemic lessons

2 new normal

weekly workflow

content module

reading

readiness assurance

tutorial

challenge

practical work

skills session

project work

1 pandemic lessons

2 new normal

weekly workflow

content module

reading

readiness assurance

tutorial

challenge

practical work

skills session

project work

1 pandemic lessons

2 new normal

weekly workflow

content module

reading

readiness assurance

tutorial

challenge

practical work

skills session

project work

replaces lectures

1 pandemic lessons

2 new normal

weekly workflow

content module

reading

readiness assurance

tutorial

challenge

practical work

skills session

project work

replaces lectures

using a social learning platform

1 pandemic lessons

2 new normal

weekly workflow

content module

reading

readiness assurance

tutorial

challenge

practical work

skills session

project work

replaces lectures

using a social learning platform

Perusall

1 pandemic lessons

2 new normal

weekly workflow

content module

reading

readiness assurance

tutorial

challenge

practical work

skills session

project work

1 pandemic lessons

2 new normal

weekly workflow

content module

reading

readiness assurance

tutorial

challenge

practical work

skills session

project work

strengthen basic knowledge

1 pandemic lessons

2 new normal

weekly workflow

content module

reading

readiness assurance

tutorial

challenge

practical work

skills session

project work

**strengthen basic knowledge
through self-paced Peer Instruction**

1 pandemic lessons

2 new normal

weekly workflow

content module

reading

readiness assurance

tutorial

challenge

practical work

skills session

project work

1 pandemic lessons

2 new normal

weekly workflow

content module

reading

readiness assurance

tutorial

challenge

practical work

skills session

project work

resolve common misconceptions

1 pandemic lessons

2 new normal

weekly workflow

content module

reading

readiness assurance

tutorial

challenge

practical work

skills session

project work

1 pandemic lessons

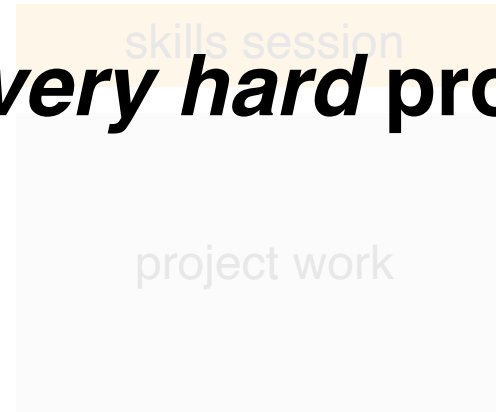
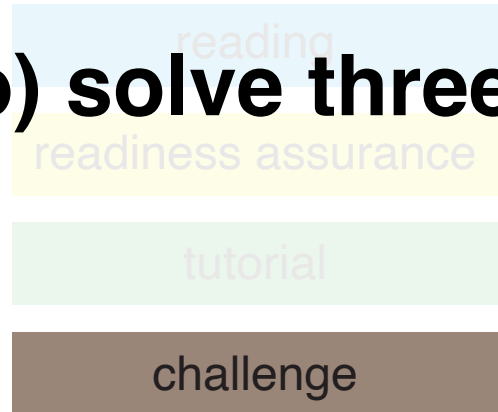
2 new normal

weekly workflow

(try to) solve three *very hard* problems

content module

practical work



1 pandemic lessons

2 new normal

weekly workflow

content module

practical work

(try to) solve three *very hard* problems
(and reflect on your work)

reading
readiness assurance
tutorial

skills session
project work

challenge

1 pandemic lessons

2 new normal

weekly workflow

content module

reading

readiness assurance

tutorial

challenge

practical work

skills session

project work

1 pandemic lessons

2 new normal

weekly workflow

content module

reading

readiness assurance

develop relevant skills

challenge

practical work

skills session

project work

1 pandemic lessons

2 new normal

weekly workflow

content module

reading

readiness assurance

develop relevant skills

challenge

practical work

skills session

project work

(team work, taking data, building circuits, etc.)

1 pandemic lessons

2 new normal

weekly workflow

content module

reading

readiness assurance

tutorial

challenge

practical work

skills session

project work

1 pandemic lessons

2 new normal

weekly workflow

content module

reading

readiness assurance

tutorial

challenge

practical work

skills session

project work

3 month-long projects per semester (six total)

1 pandemic lessons

2 new normal

weekly workflow

content module

reading

readiness assurance

tutorial

challenge

practical work

skills session

project work

3 month-long projects per semester (six total)
new team for each project

1 pandemic lessons

2 new normal



classrooms are a constraint

1 pandemic lessons

2 new normal

InnoBreakCafe

learning space

content module

reading

readiness assurance

tutorial

challenge

practical work

skills session

project work

1 pandemic lessons

2 new normal

InnoBreakCafe

learning space

content module

reading
ONLINE

readiness assurance

tutorial

challenge

practical work

skills session

project work

1 pandemic lessons

2 new normal

InnoBreakCafe

learning space

content module

reading

ONLINE

readiness assurance

tutorial

challenge

FLEX SPACE

practical work

skills session

project work

1 pandemic lessons

2 new normal

InnoBreakCafe

learning space

content module

reading

ONLINE

readiness assurance

tutorial

challenge

FLEX SPACE

practical work

skills session

project work

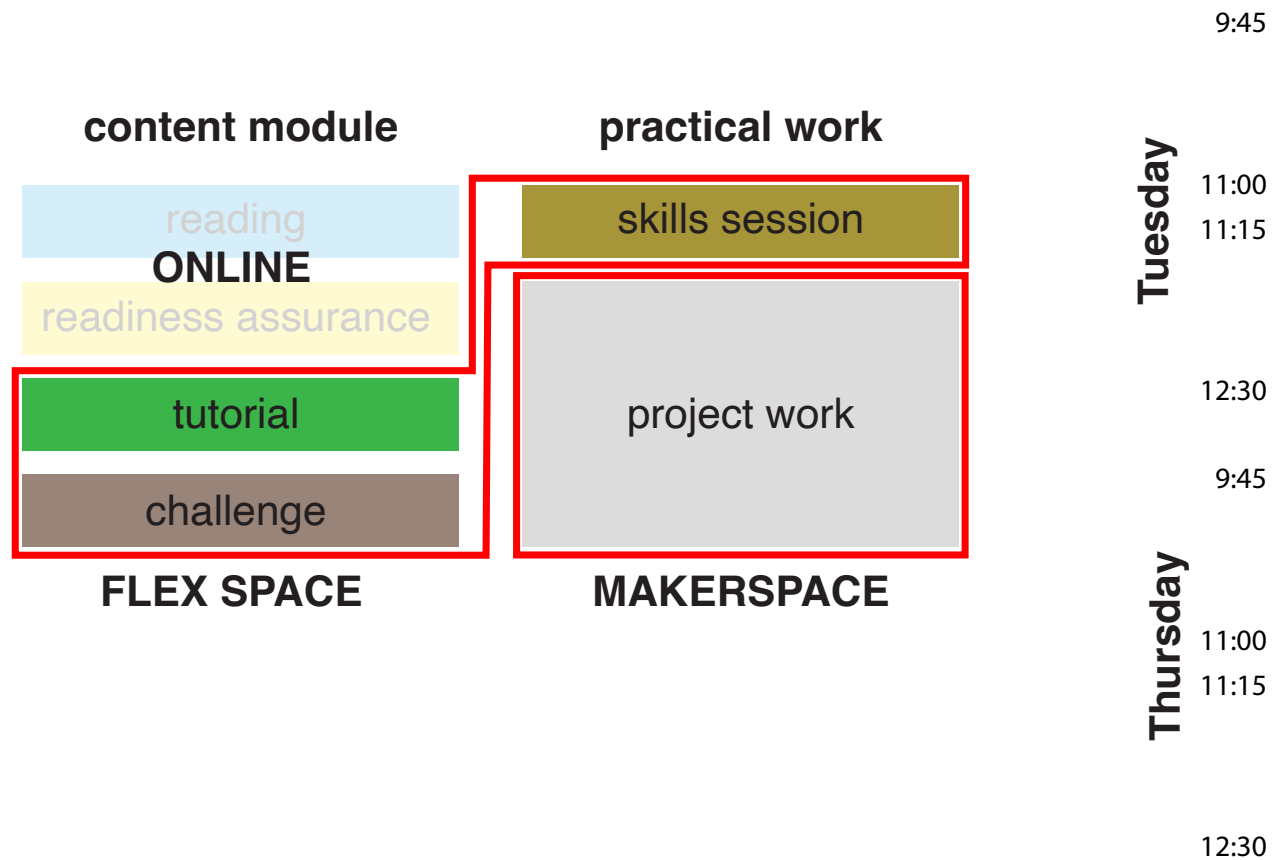
MAKERSPACE

1 pandemic lessons

2 new normal

InnoBreakCafe

learning space



1 pandemic lessons

2 new normal

InnoBreakCafe

learning space

COHORTS

A B C D

9:45

content module

practical work

reading

ONLINE

readiness assurance

skills session

tutorial

challenge

project work

FLEX SPACE

MAKERSPACE

Tuesday

11:00

11:15

12:30

9:45

Thursday

11:00

11:15

12:30

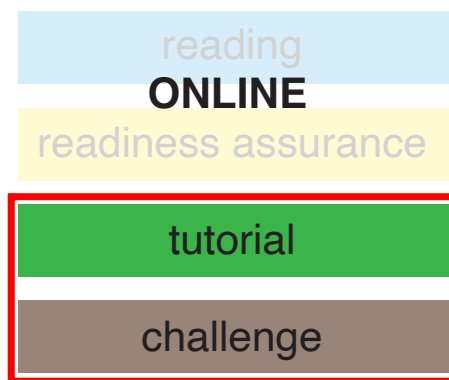
1 pandemic lessons

2 new normal

InnoBreakCafe

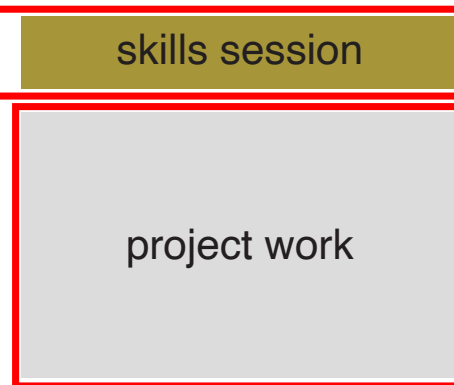
learning space

content module



FLEX SPACE

practical work



MAKERSPACE

COHORTS

	A	B	C	D
Tuesday	9:45			
Thursday	9:45			

	A	B	C	D
Tuesday	9:45			
Thursday	9:45			

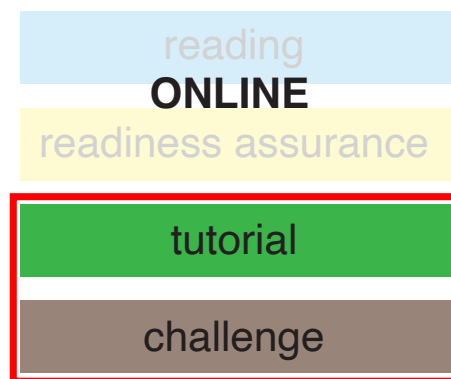
1 pandemic lessons

2 new normal

InnoBreakCafe

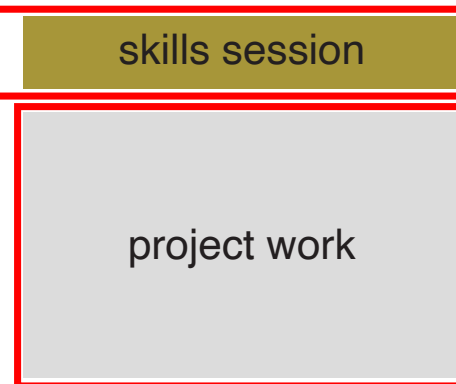
learning space

content module



FLEX SPACE

practical work



MAKERSPACE

COHORTS

	A	B	C	D
Tuesday	9:45	Team Review of Tutorial LL2.229	Project A.L.L	Skills LL2.223
	11:00			
	11:15	Project A.L.L	Skills LL2.223	Team Review of Tutorial LL2.229
	12:30			
Thursday	9:45	Team Review of Challenge LL2.229	Skills LL2.223	Project A.L.L
	11:00			
	11:15	Skills LL2.223	Project A.L.L	Team Review of Challenge LL2.229
	12:30			

1 pandemic lessons

2 new normal



1 pandemic lessons **2** new normal



“breaking down classroom walls”

1 pandemic lessons

2 new normal

the new (not so) normal



1 pandemic lessons

2 new normal

the new (not so) normal

- no lectures

1 pandemic lessons

2 new normal

the new (not so) normal

- no lectures
- no exams

1 pandemic lessons

2 new normal

the new (not so) normal

- no lectures
- no exams
- no (fixed) classroom

1 pandemic lessons

2 new normal

the new (not so) normal

- no lectures
- no exams
- no (fixed) classroom
- no (fixed) start or end time

1 pandemic lessons

2 new normal

InnoBreakCafe

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mazur.harvard.edu

course Canvas page: bit.ly/erics_course

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