

“I’m not teaching anything...”

**“I’m not teaching anything...
...they are learning!”**

Connecting the dots and setting learning free



@eric_mazur

14th Reinventing Higher Education Conference
University of Miami
7 March 2024, Miami, FL









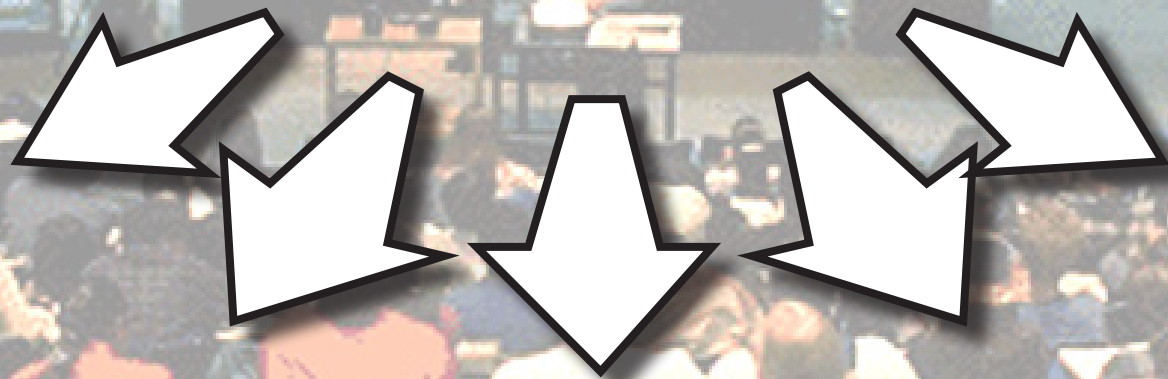


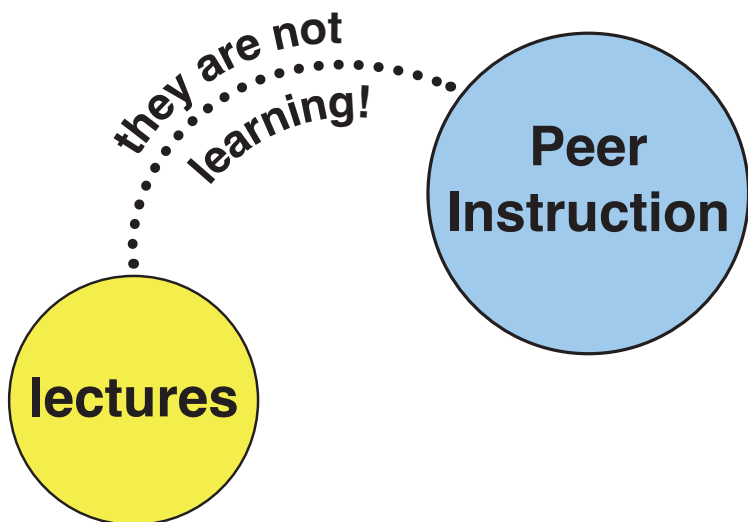


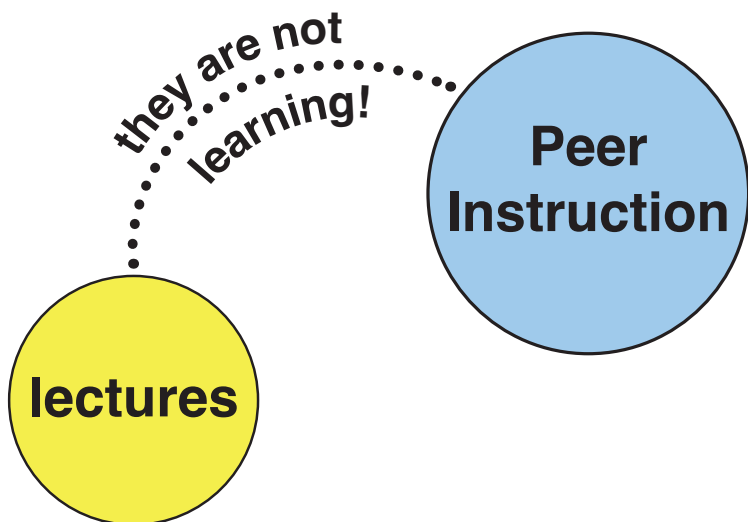
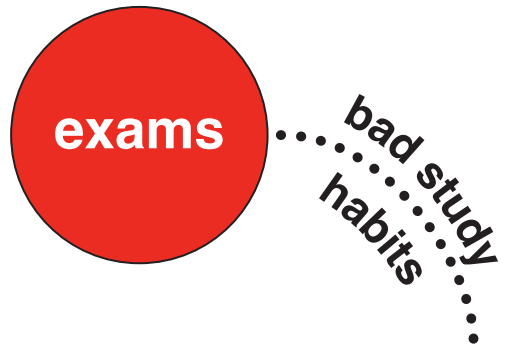


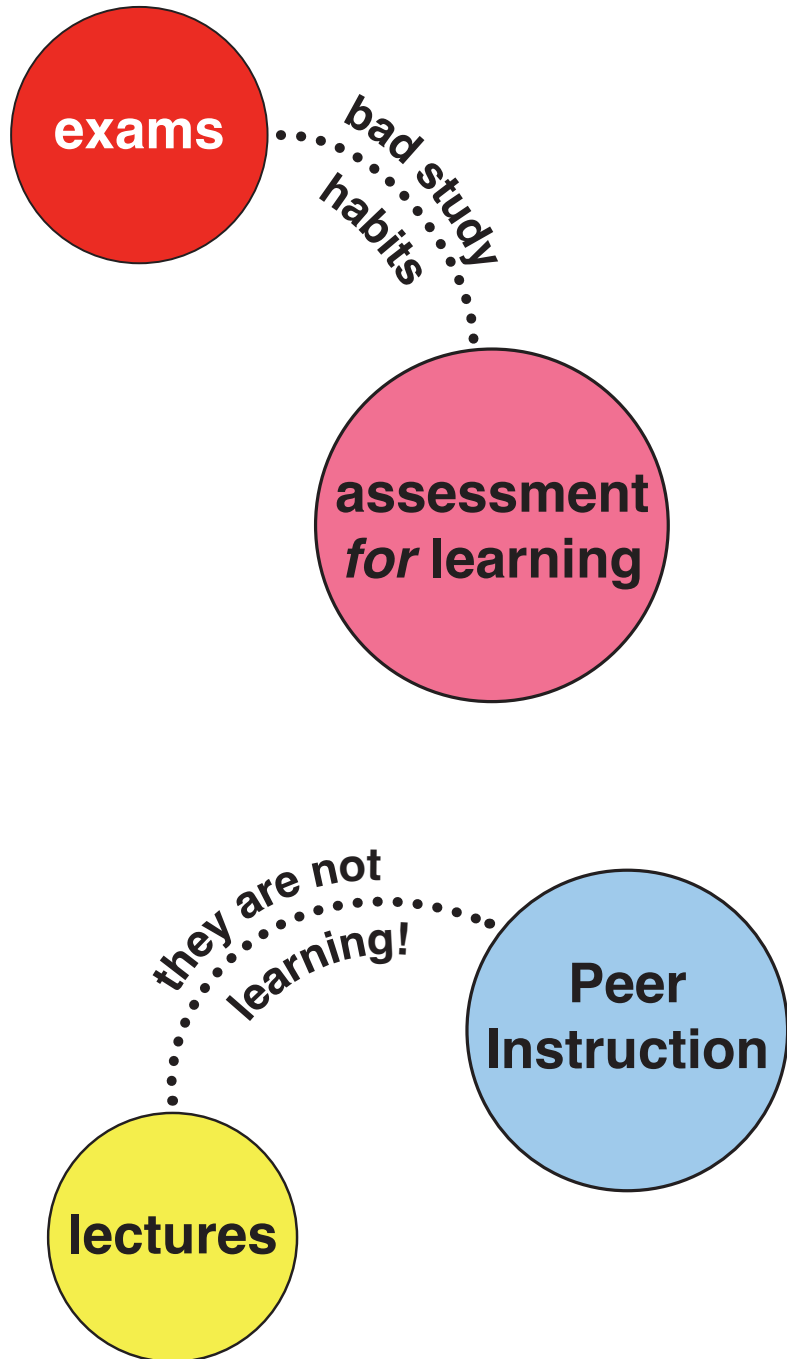
they are not
learning!

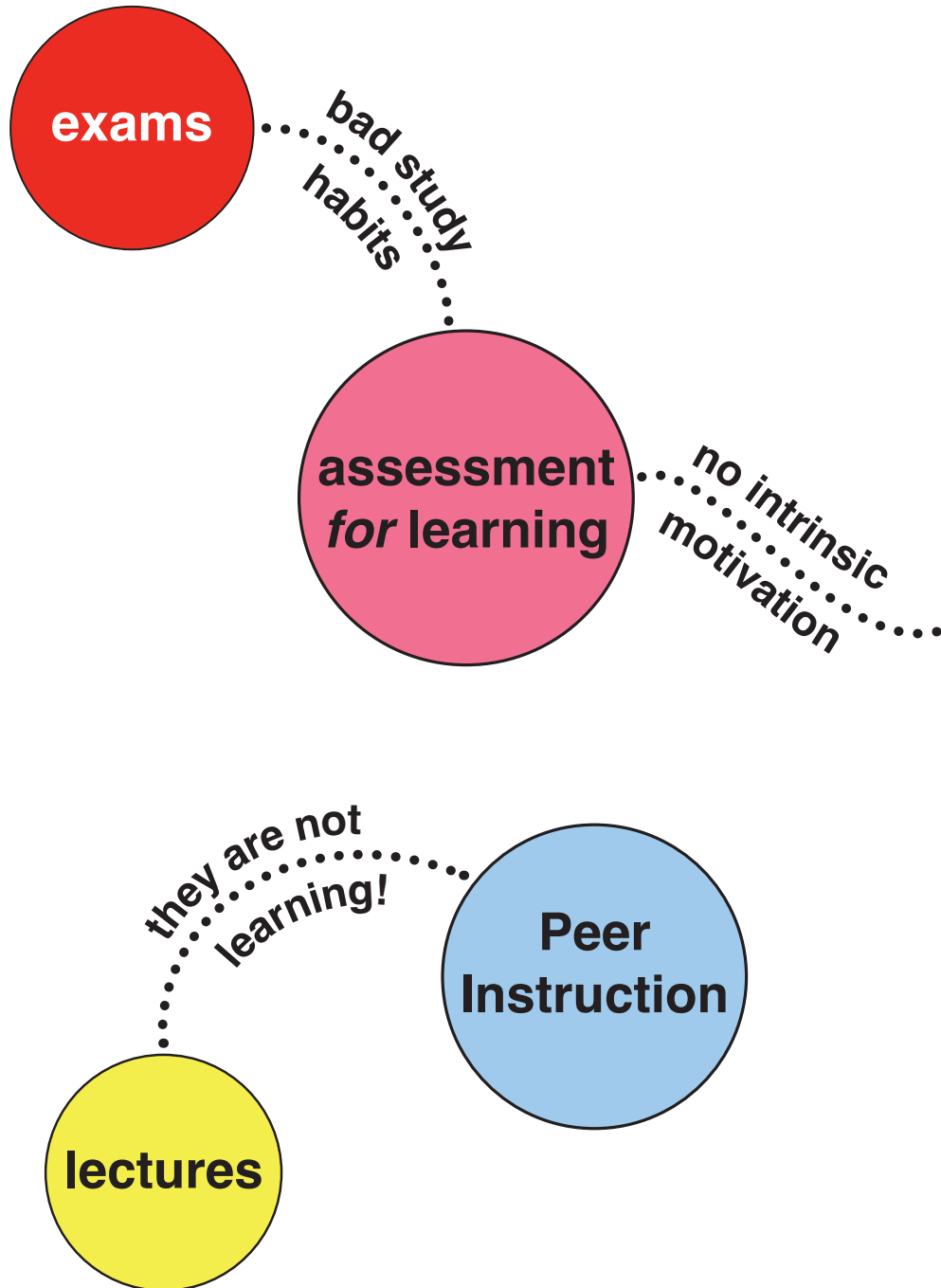
lectures focus on information transfer...





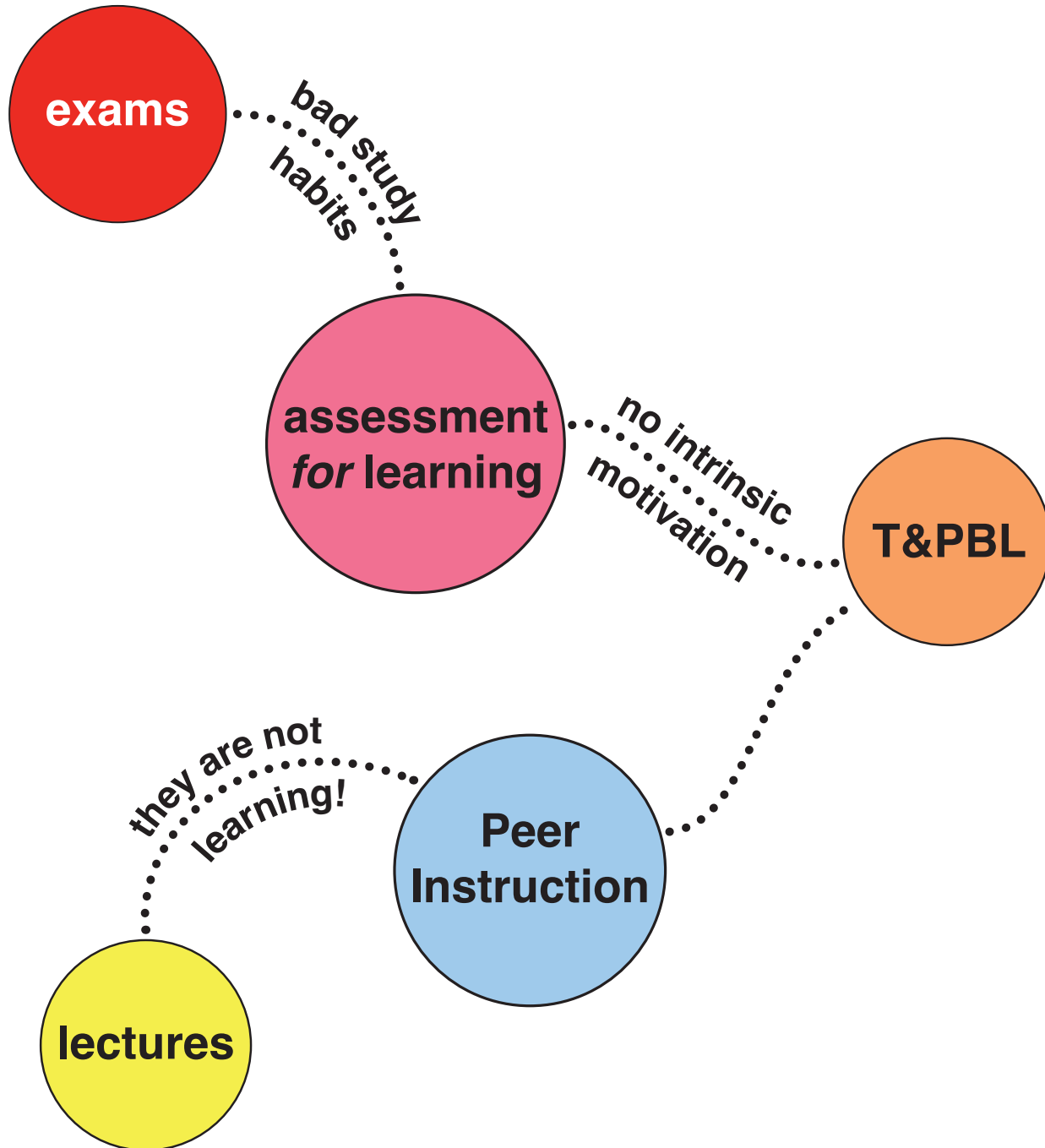


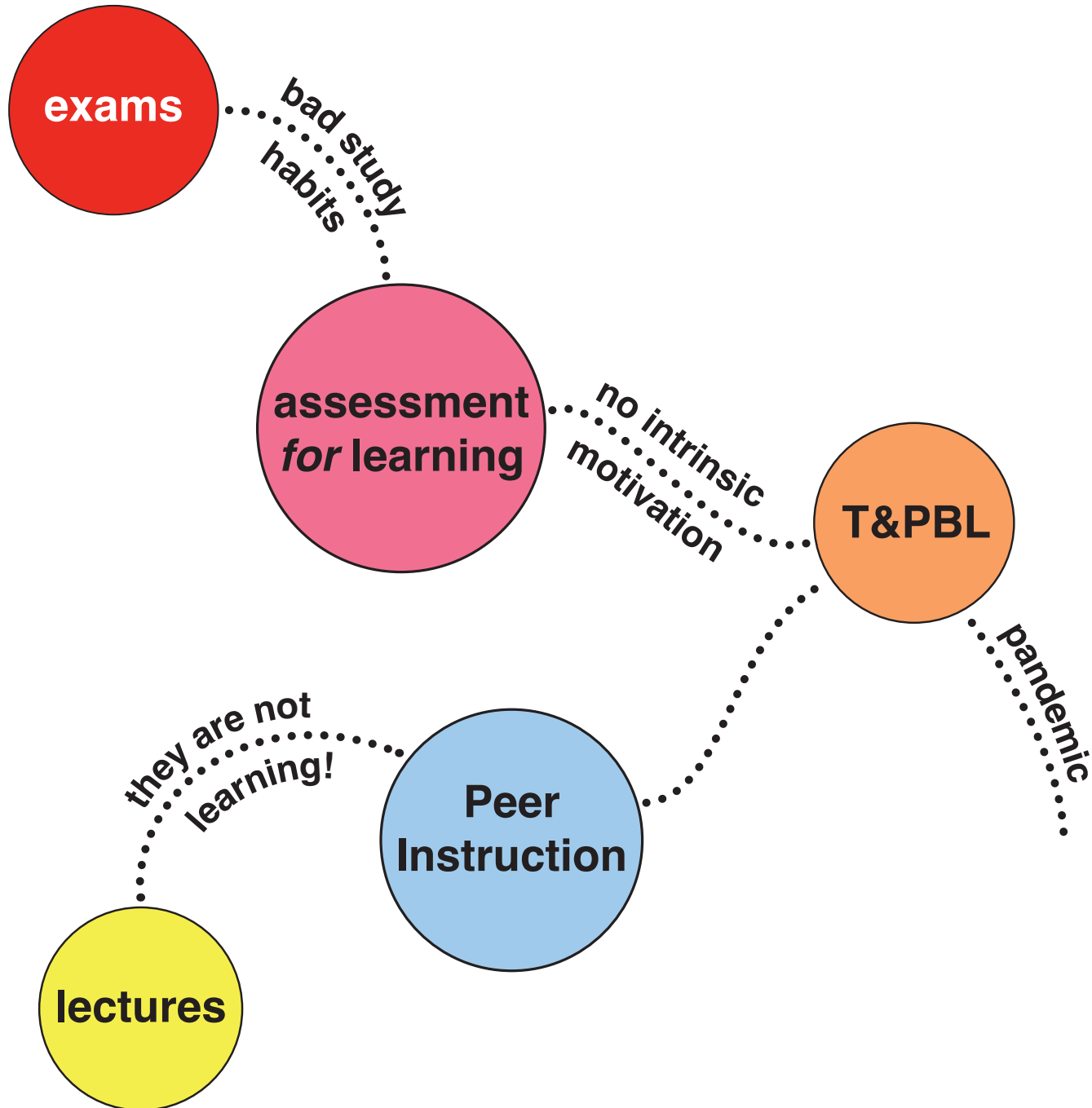














Weekend long reads



© Graziano Pantili

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.





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.



Yuval Noah Harari MARCH 20 2020

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 to come. They will shape not just our lives but the lives of our children. 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.

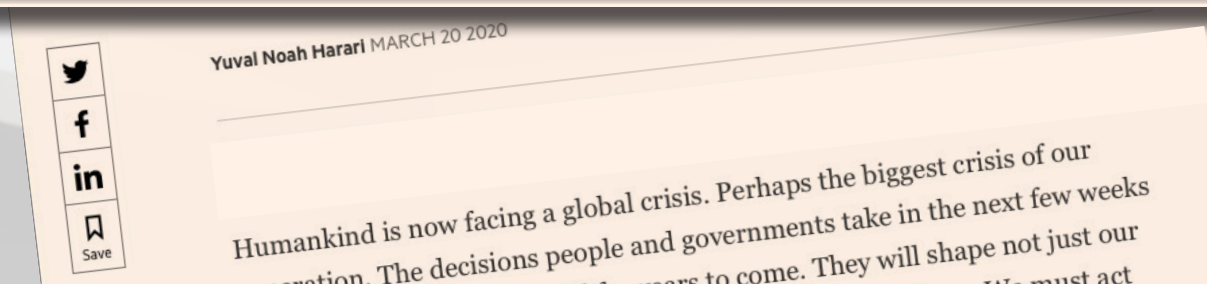


Yuval Noah Harari MARCH 20 2020

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 to come. They will shape not just our lives but the lives of future generations. We must act

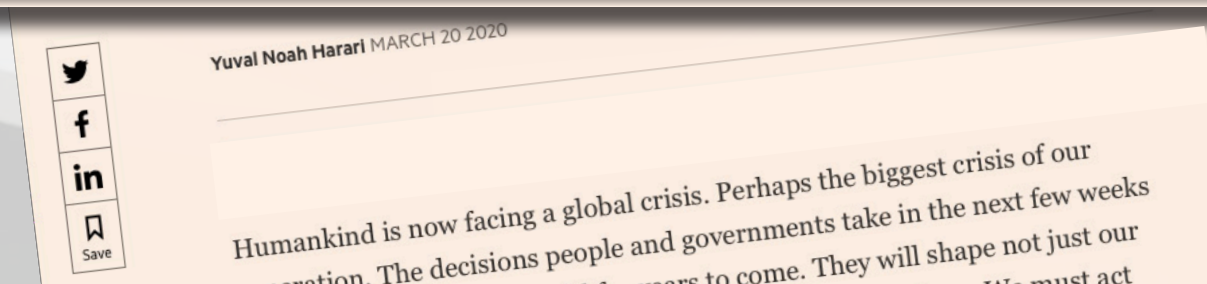


Many short-term emergency measures will become a fixture of life. That is the nature of emergencies. They fast-forward historical processes. Decisions that in normal times could take years of deliberation are passed in a matter of hours. Immature and even dangerous technologies are pressed into service, 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.





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.

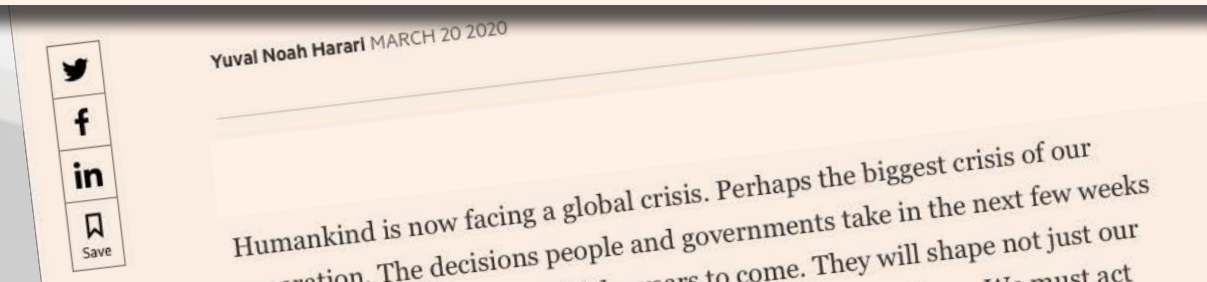




Many short-term emergency measures will become a fixture of life. That is the nature of emergencies. They fast-forward historical processes. Decisions that in normal times could take years of deliberation are passed in a matter of hours. Immature and even dangerous technologies are pressed into service. 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.

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

SUBSCRIBE | ABOUT | RSS

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**

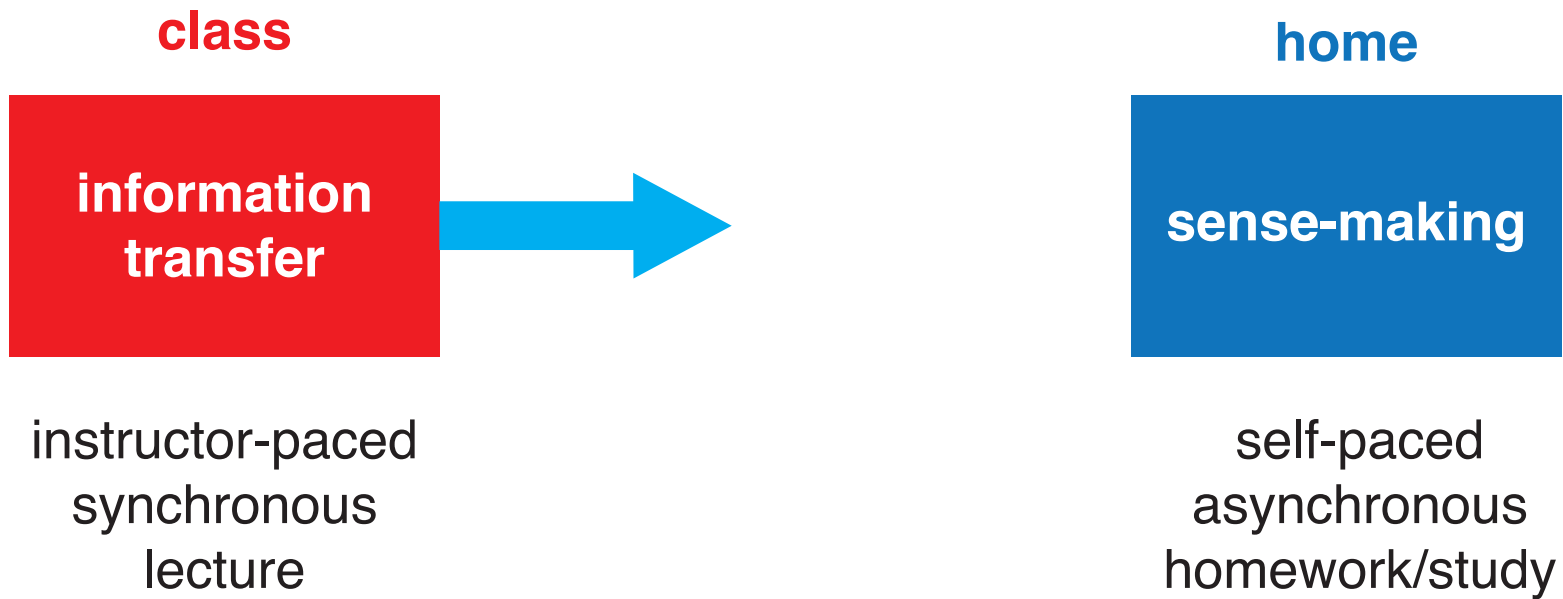
instructor-paced
synchronous
lecture

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, several 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**

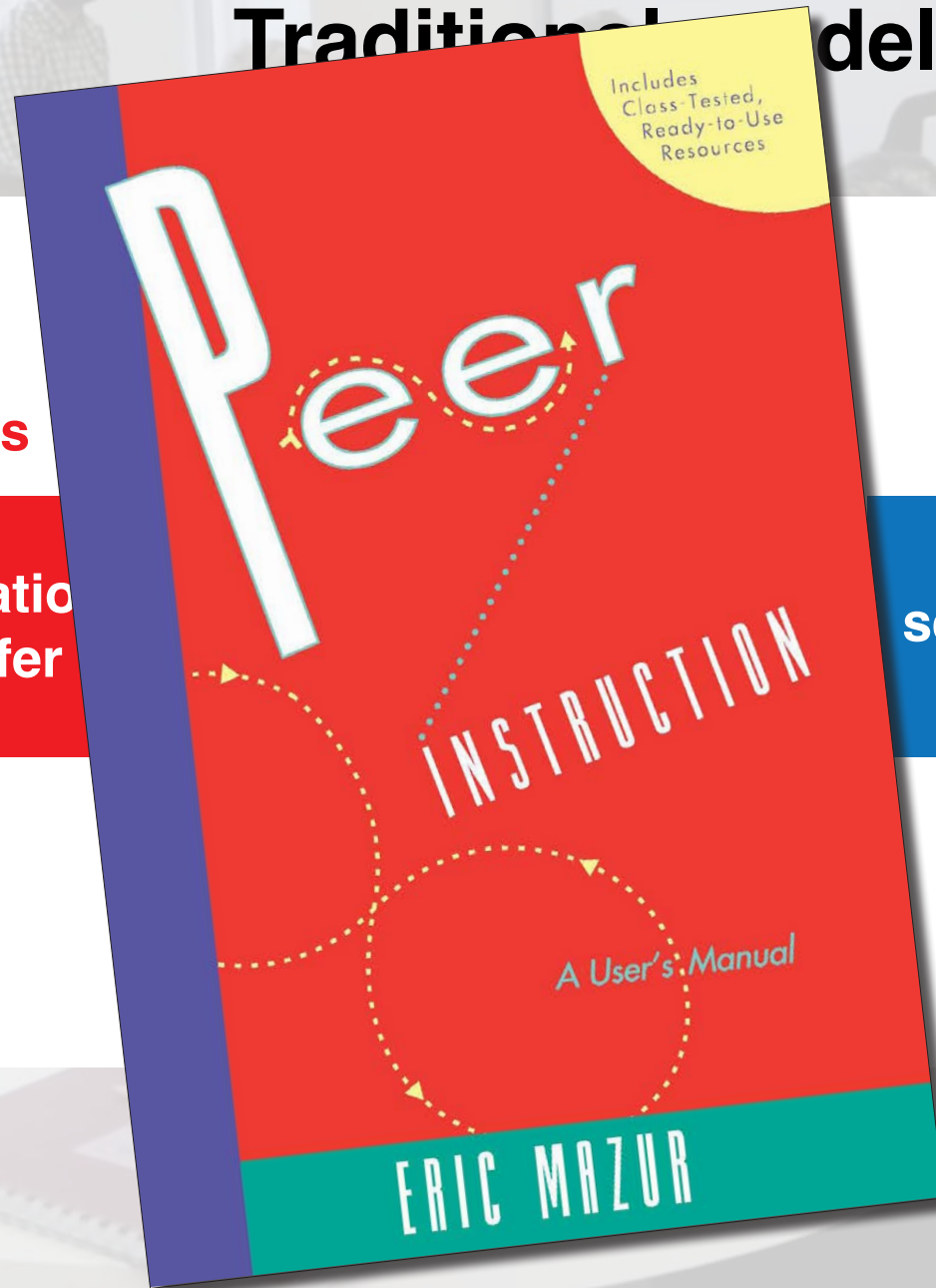
home

sense-making

Traditional Model

class
information transfer

home
sense-making



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

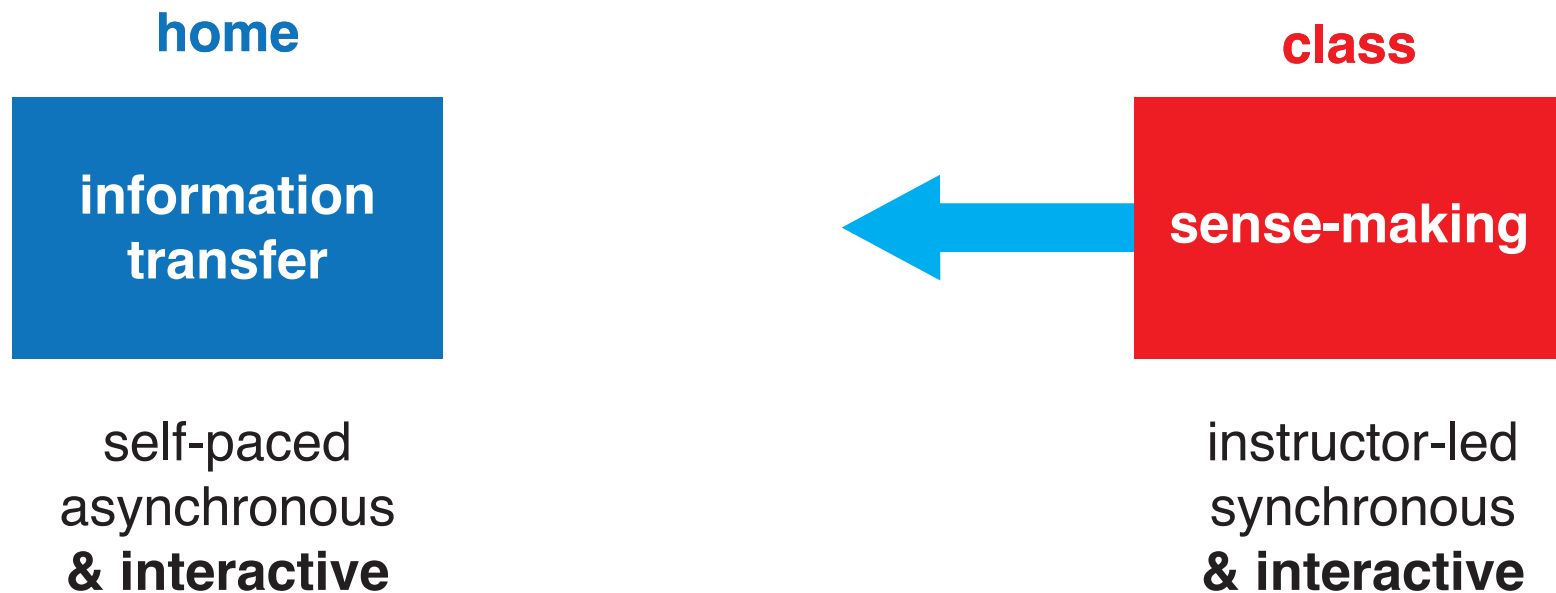
sense-making

instructor-led
synchronous
& interactive

Perusall

perusall.com

Flipped model online



Flipped model online

home

**information
transfer**

self-paced
asynchronous
& **interactive**

home

sense-making

instructor-led
synchronous
& **interactive**

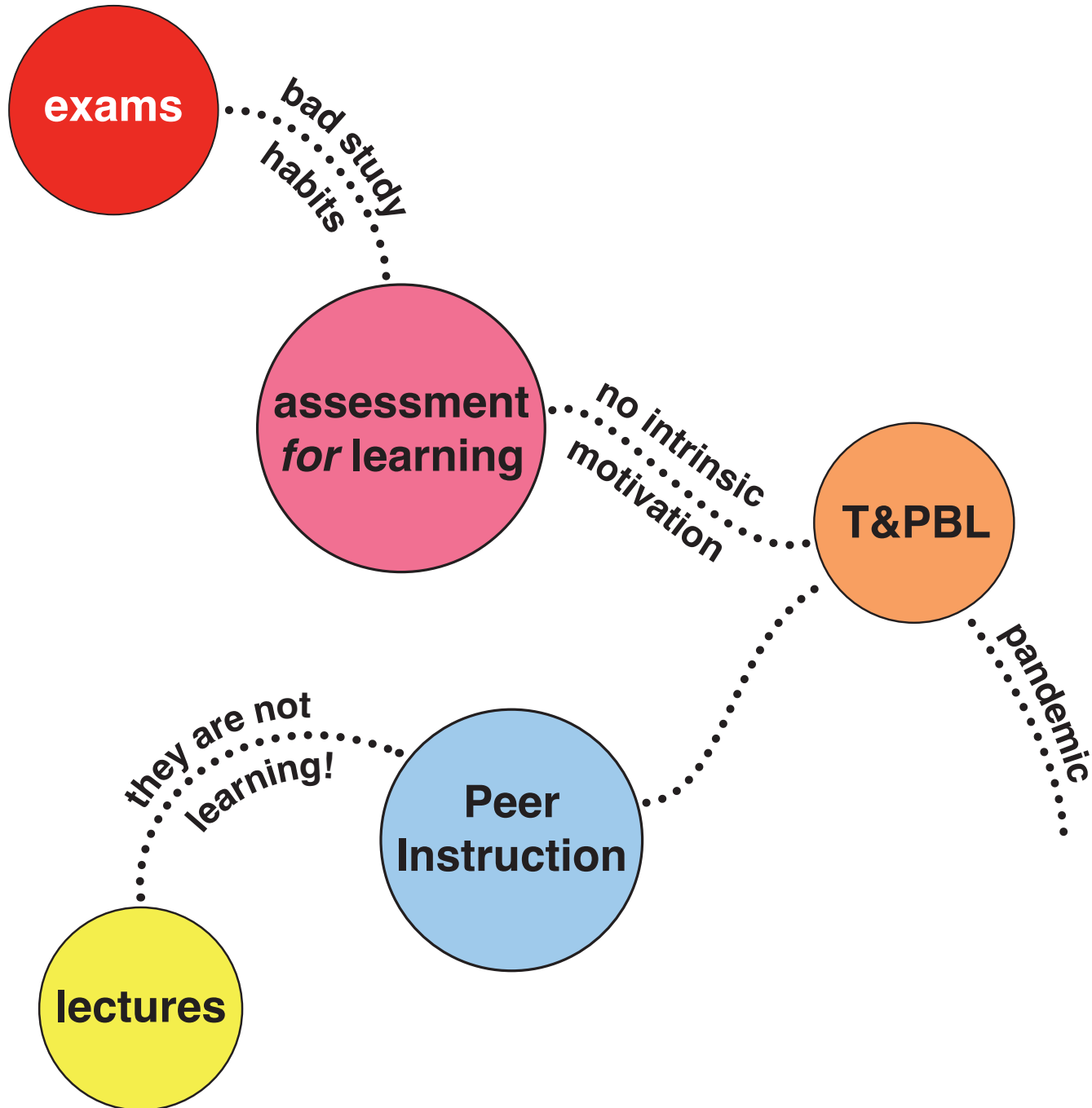
class

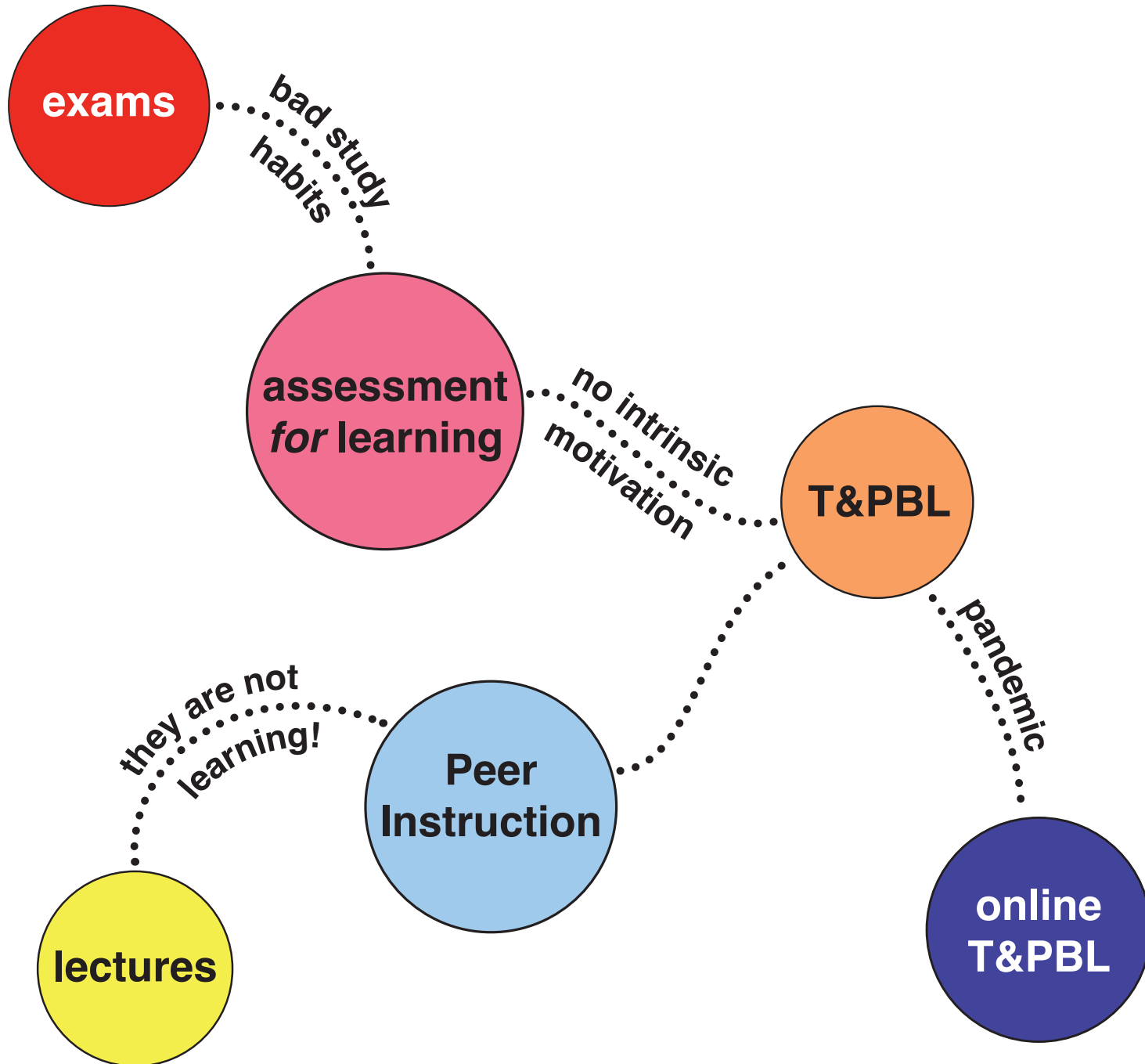
sense-making

instructor-led
synchronous
& **interactive**

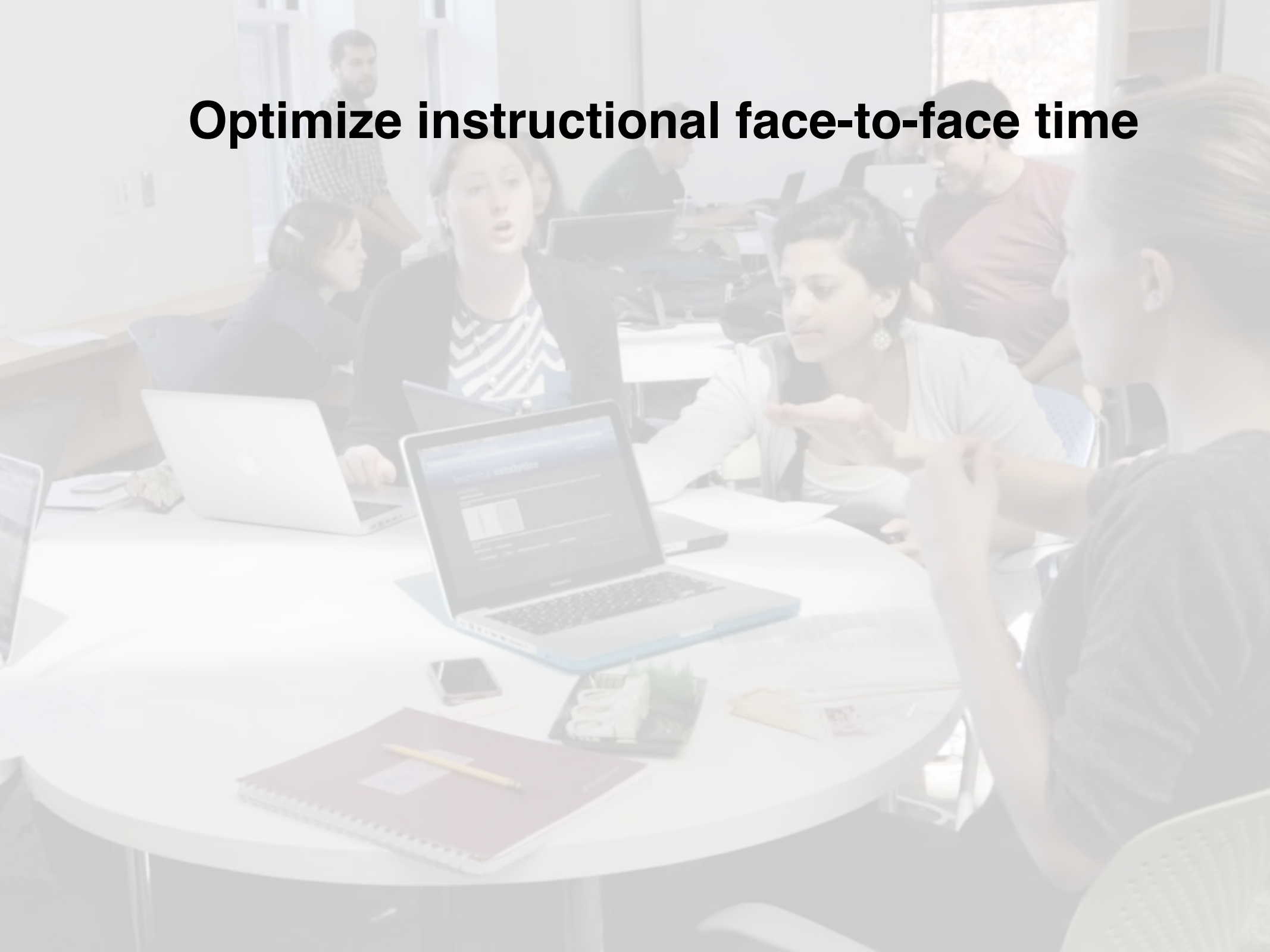
Flipped model online



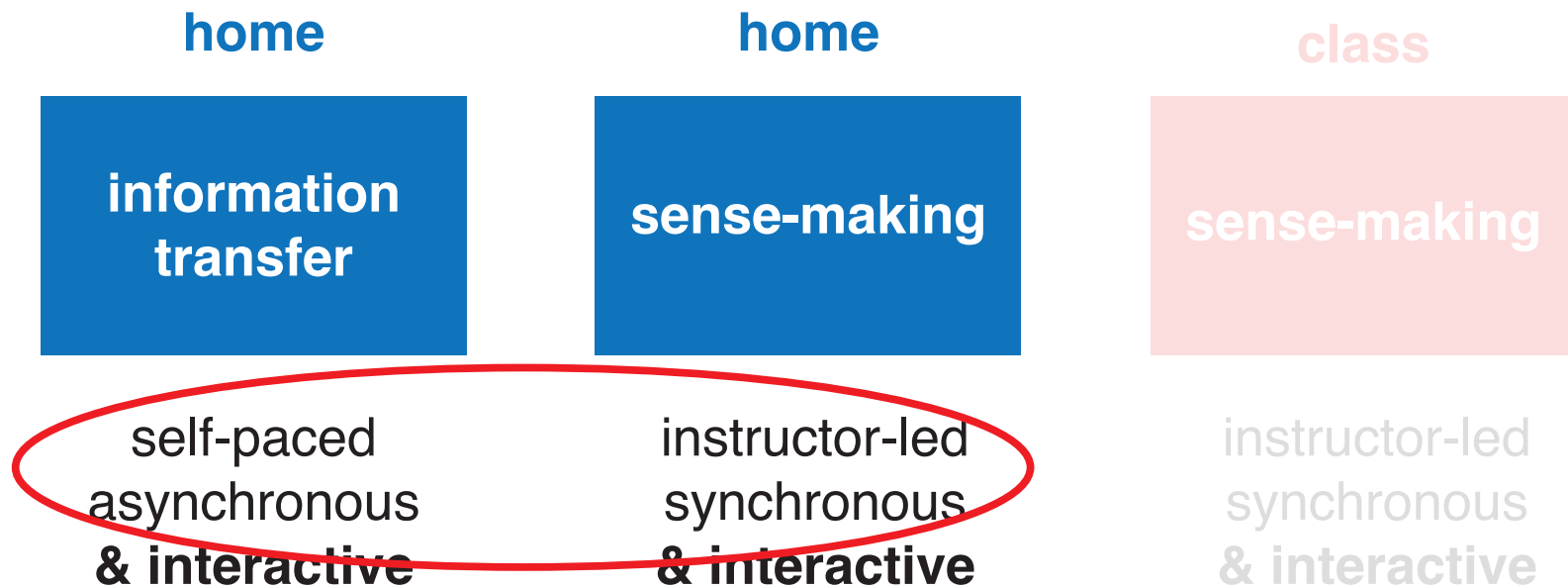




Optimize instructional face-to-face time



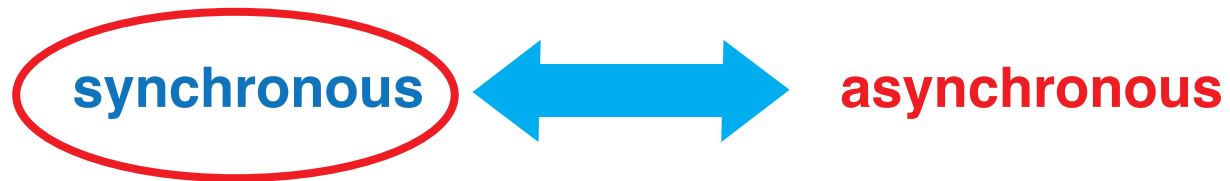
Optimize instructional face-to-face time



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

synchronous



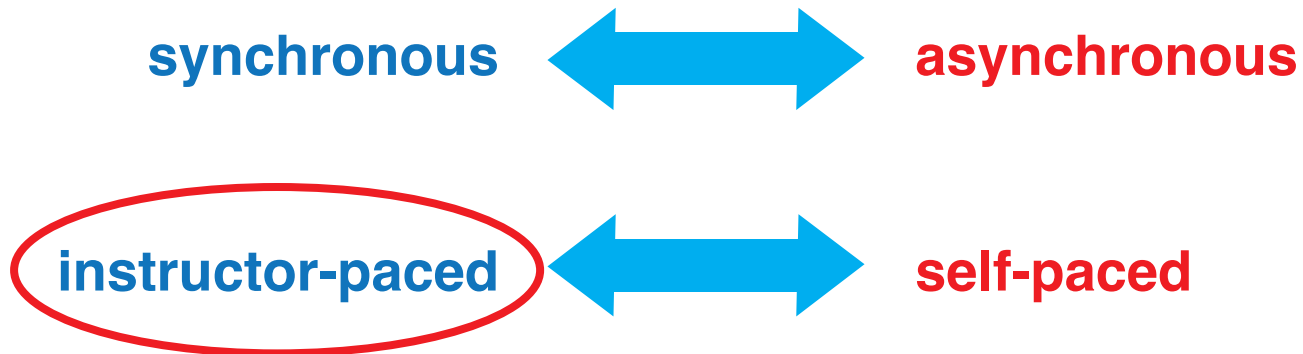
asynchronous

instructor-paced



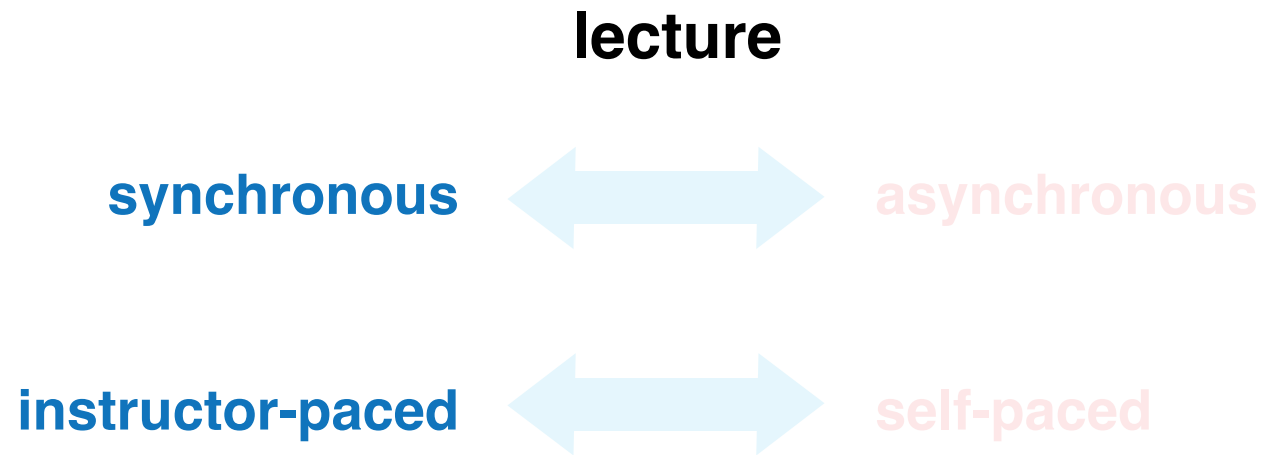
self-paced

Optimize instructional face-to-face time



**everybody together
at the same *pace***

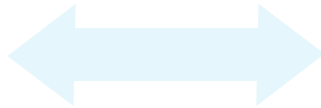
Optimize instructional face-to-face time



Optimize instructional face-to-face time

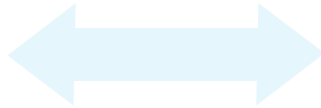
recorded lecture

synchronous



asynchronous

instructor-paced

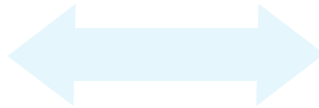


self-paced

Optimize instructional face-to-face time

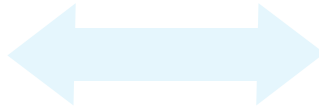
recorded lecture

synchronous



asynchronous

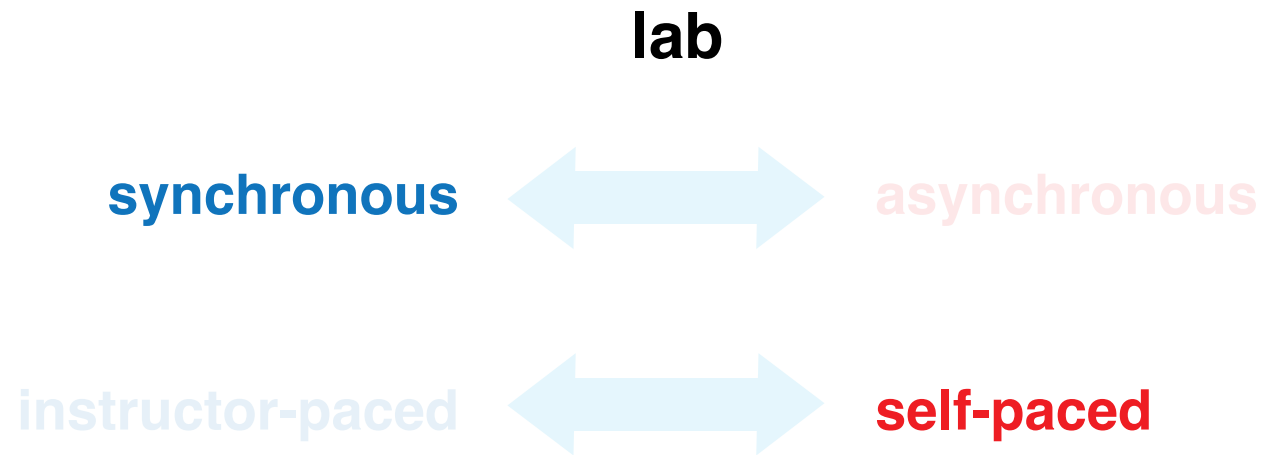
instructor-paced



self-paced

1.5x!

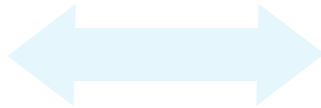
Optimize instructional face-to-face time



Optimize instructional face-to-face time

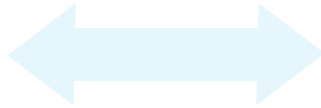
homework/study

synchronous



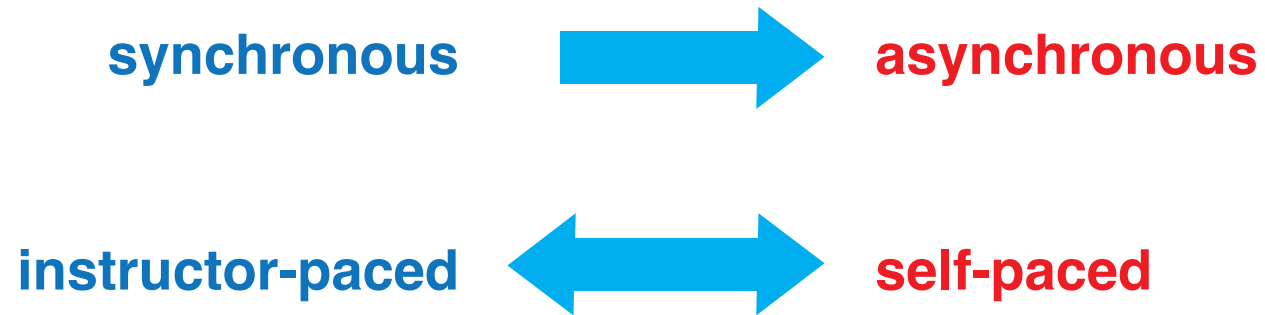
asynchronous

instructor-paced



self-paced

Optimize instructional face-to-face time



Optimize instructional face-to-face time

synchronous



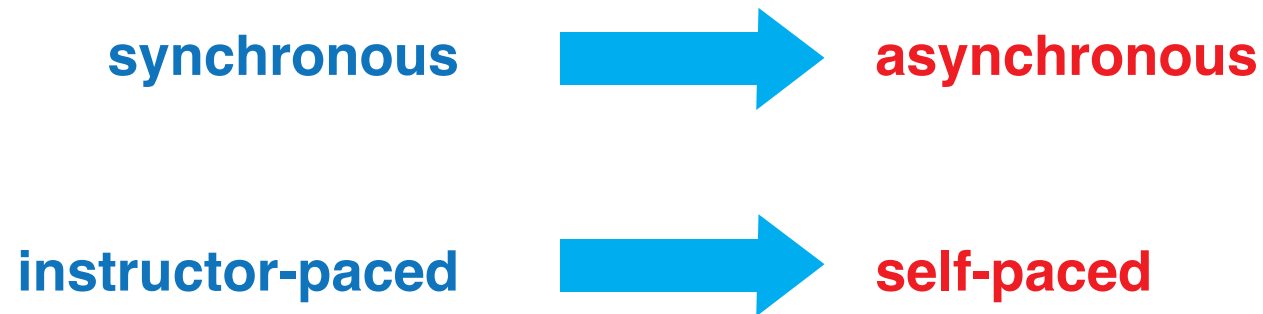
asynchronous

instructor-paced

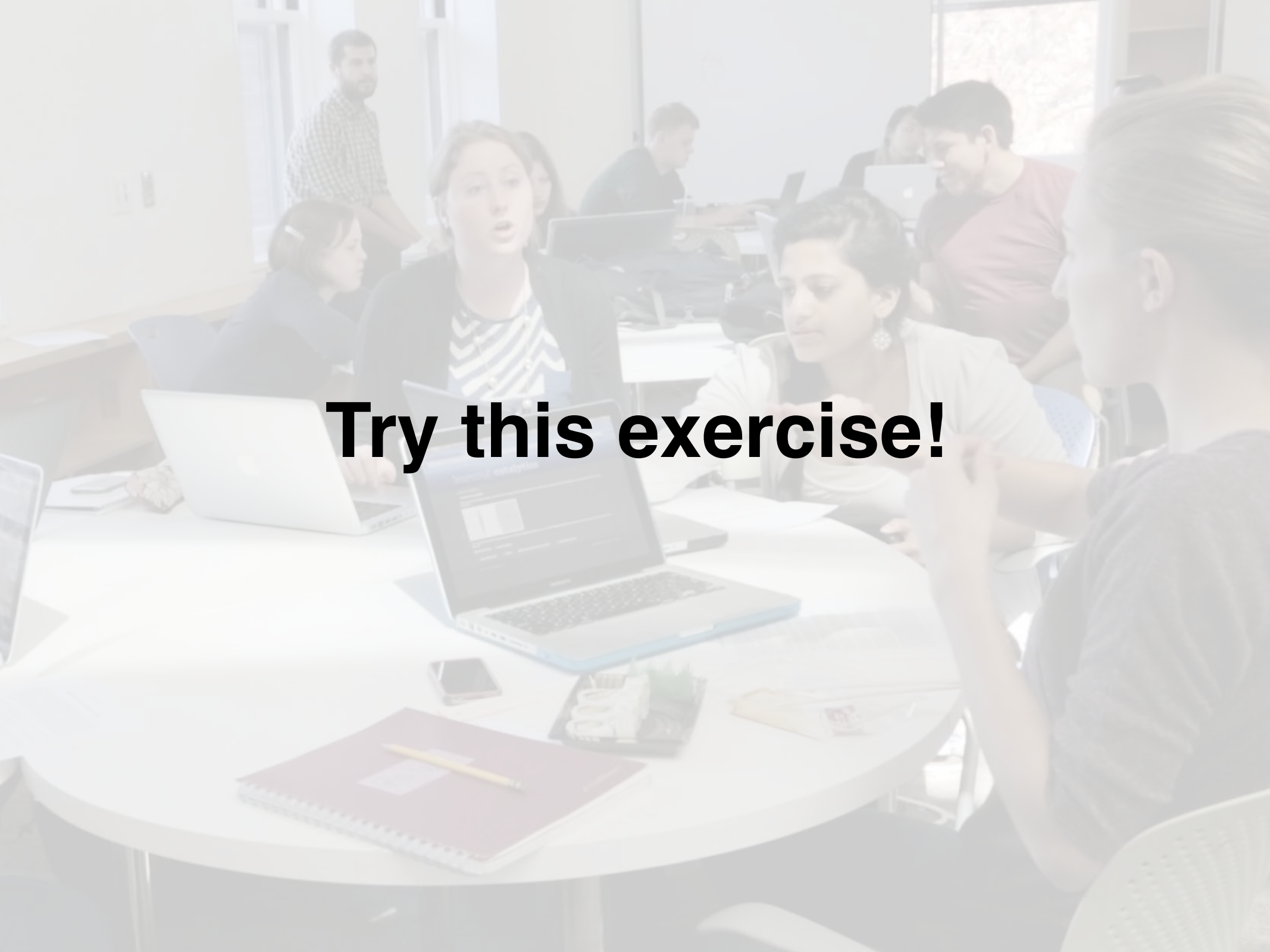


self-paced

Optimize instructional face-to-face time



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



Try this exercise!

Optimize team face-to-face time

synchronous

collaborative work

Optimize team face-to-face time

asynchronous



synchronous

collaborative work

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

Optimize team face-to-face time

asynchronous



synchronous

collaborative work

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

asynchronous

**individual
work**



synchronous

**team
work**

Optimize team face-to-face time

asynchronous



synchronous

collaborative work

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

asynchronous

**individual
work**

all engaged



synchronous

**team
work**

efficient team work

Optimize team face-to-face time

asynchronous



synchronous

collaborative work

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

asynchronous

**individual
work**

all engaged



**team
work**

**efficient
team work**



**team
work**



**team
work**

synchronous

Optimize team face-to-face time

asynchronous



synchronous

collaborative work

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

asynchronous

**individual
work**

all engaged



**team
work**



**team
work**



**team
work**

**efficient
team work**



quality control

synchronous

Optimize team face-to-face time

asynchronous



synchronous

collaborative work

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

asynchronous

**individual
work**

all engaged



**team
work**

**efficient
team work**



**team
work**



**team
work**



quality control & optimize staff time

Establish continuous accountability

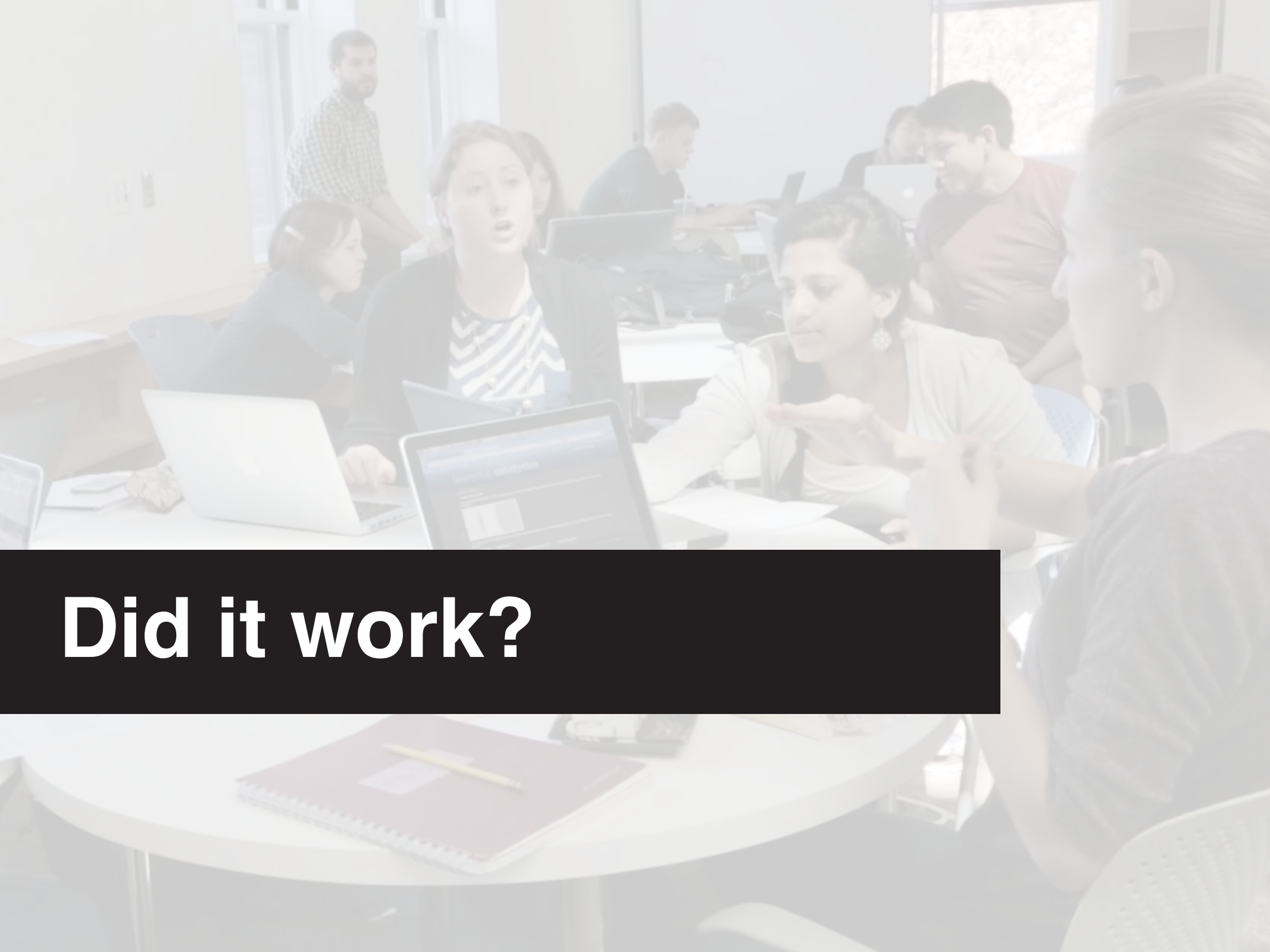


A group of people in a modern office setting, working on laptops and discussing projects. The image is faded and serves as a background for the text.

Establish continuous accountability

Specifications grading

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



Did it work?

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 gaps. Catching up in the fall won't be easy.



What did 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. Catching up in the fall 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**

A group of students in a modern classroom setting, working on laptops and discussing concepts. The students are diverse in age and ethnicity, and they are engaged in collaborative learning. The background shows a bright, open-plan space with large windows and modern furniture.

challenge vs. support

1. I was challenged intellectually

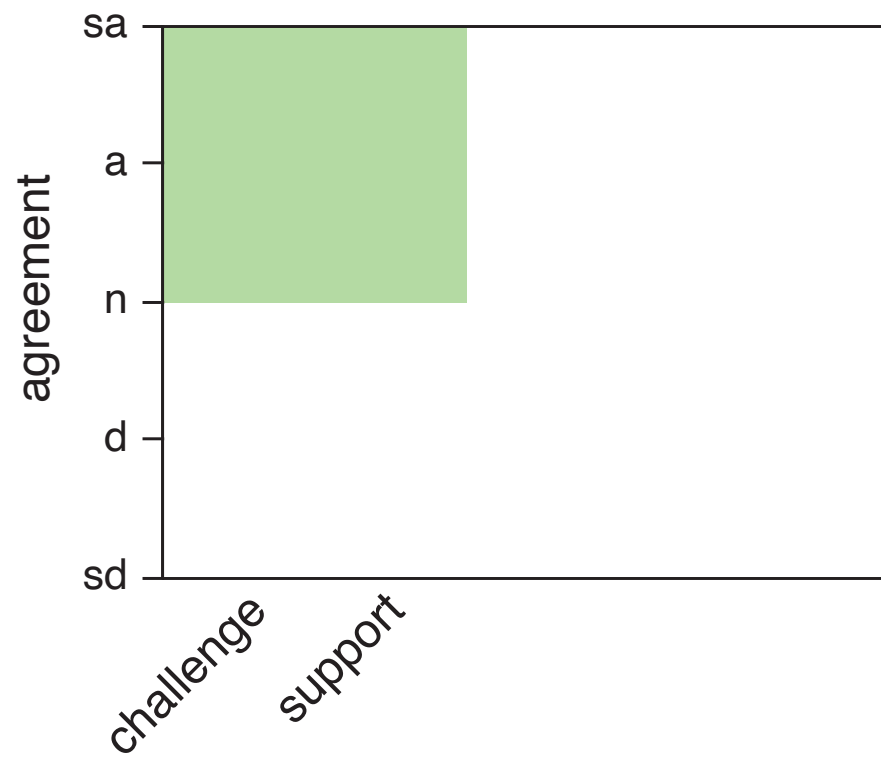
2. I had plenty of support

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

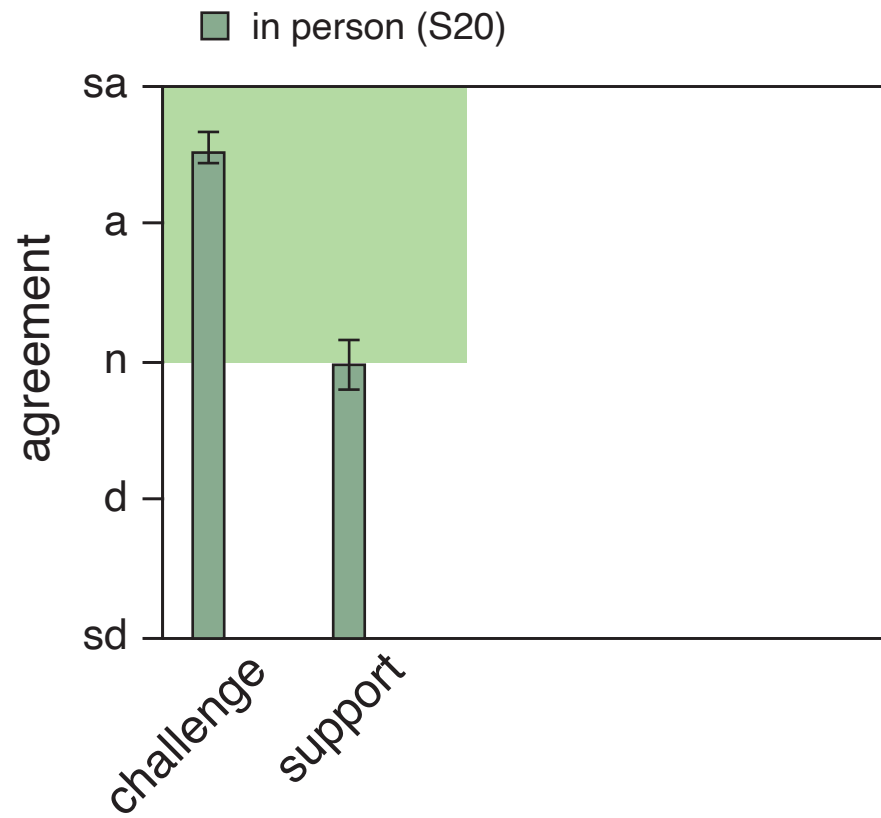
4. I made progress because of my own efforts and choices

5. I felt I was part of a community of learners

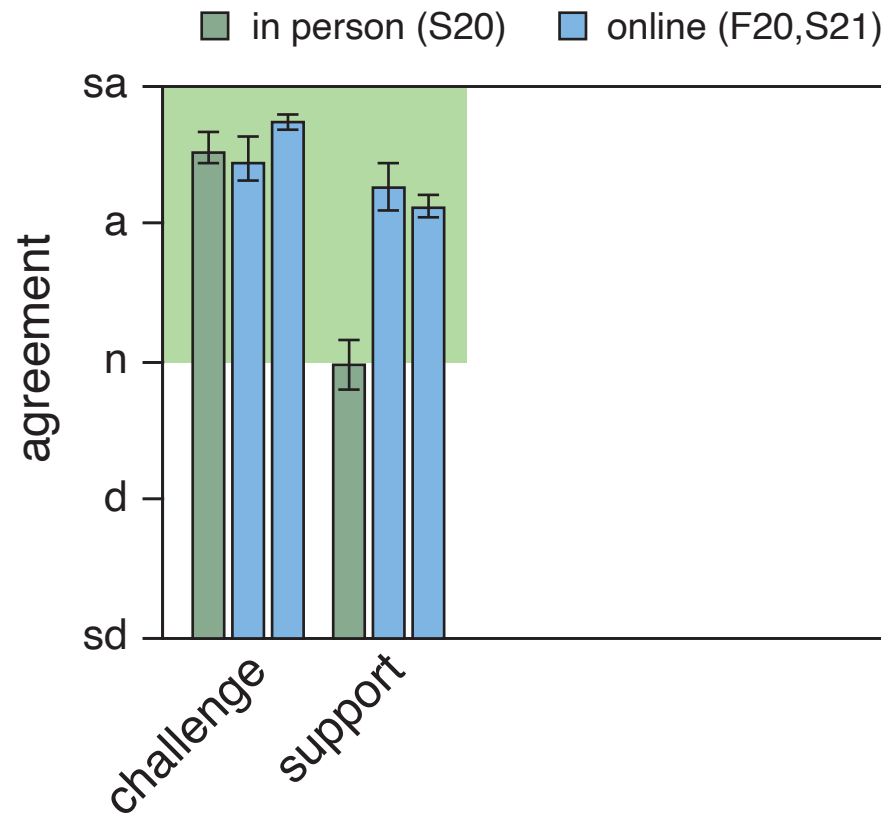
challenge vs. support



challenge vs. support



challenge vs. support





self-determination

1. I was challenged intellectually (challenge)

2. I had plenty of support (support)

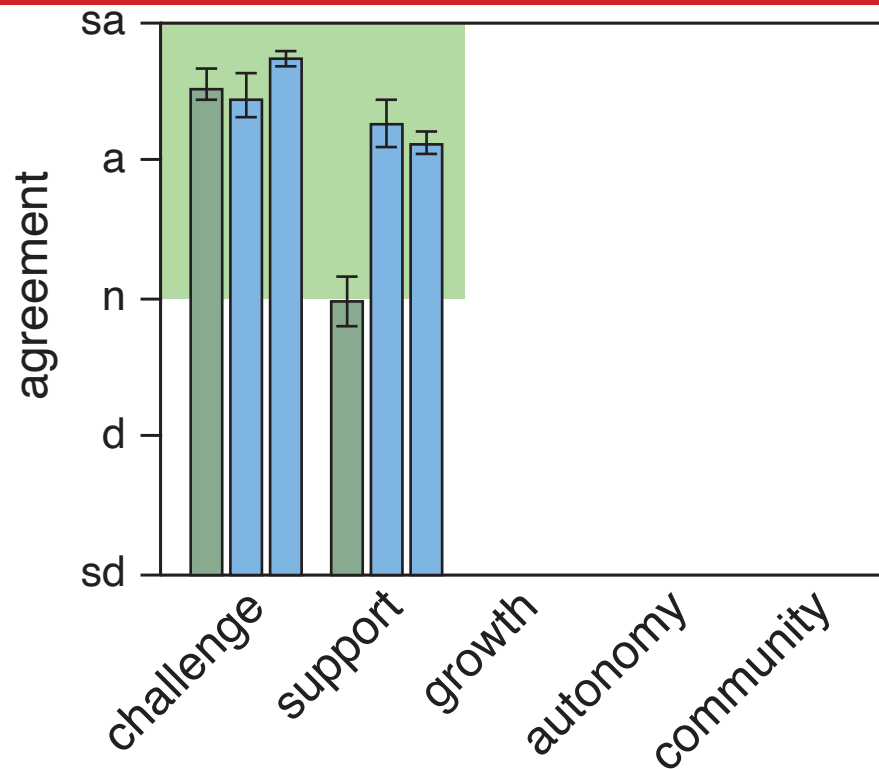
3. I am closer to mastering the ideas of the course now (growth)

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

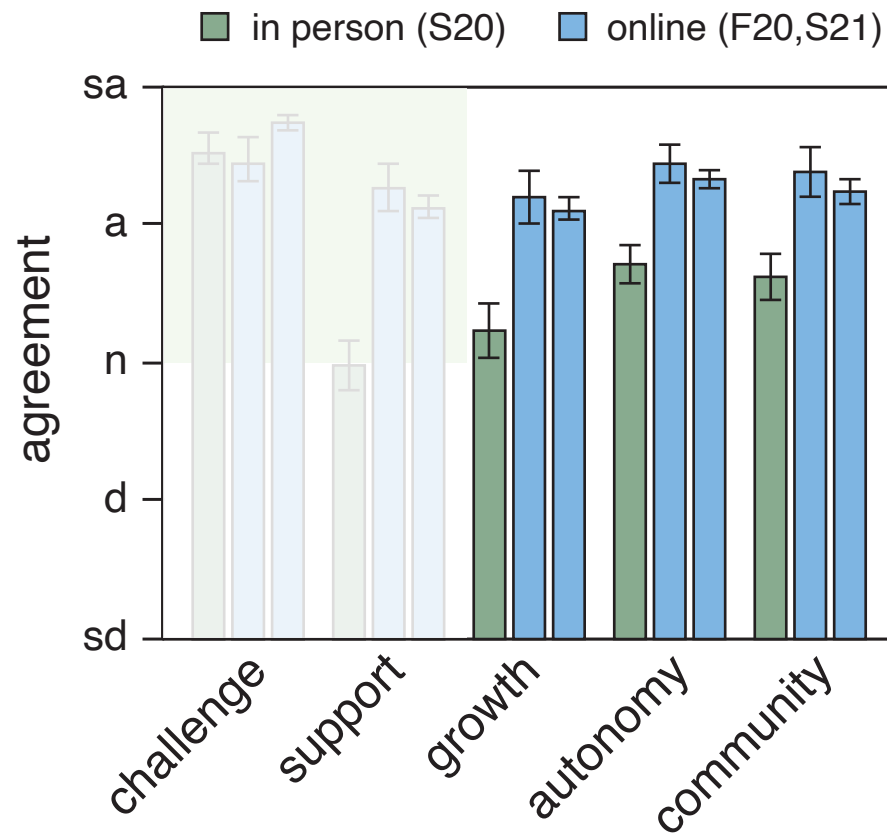
5. I felt I was part of a community of learners (relatedness)

self-determination

What do you predict?



self-determination

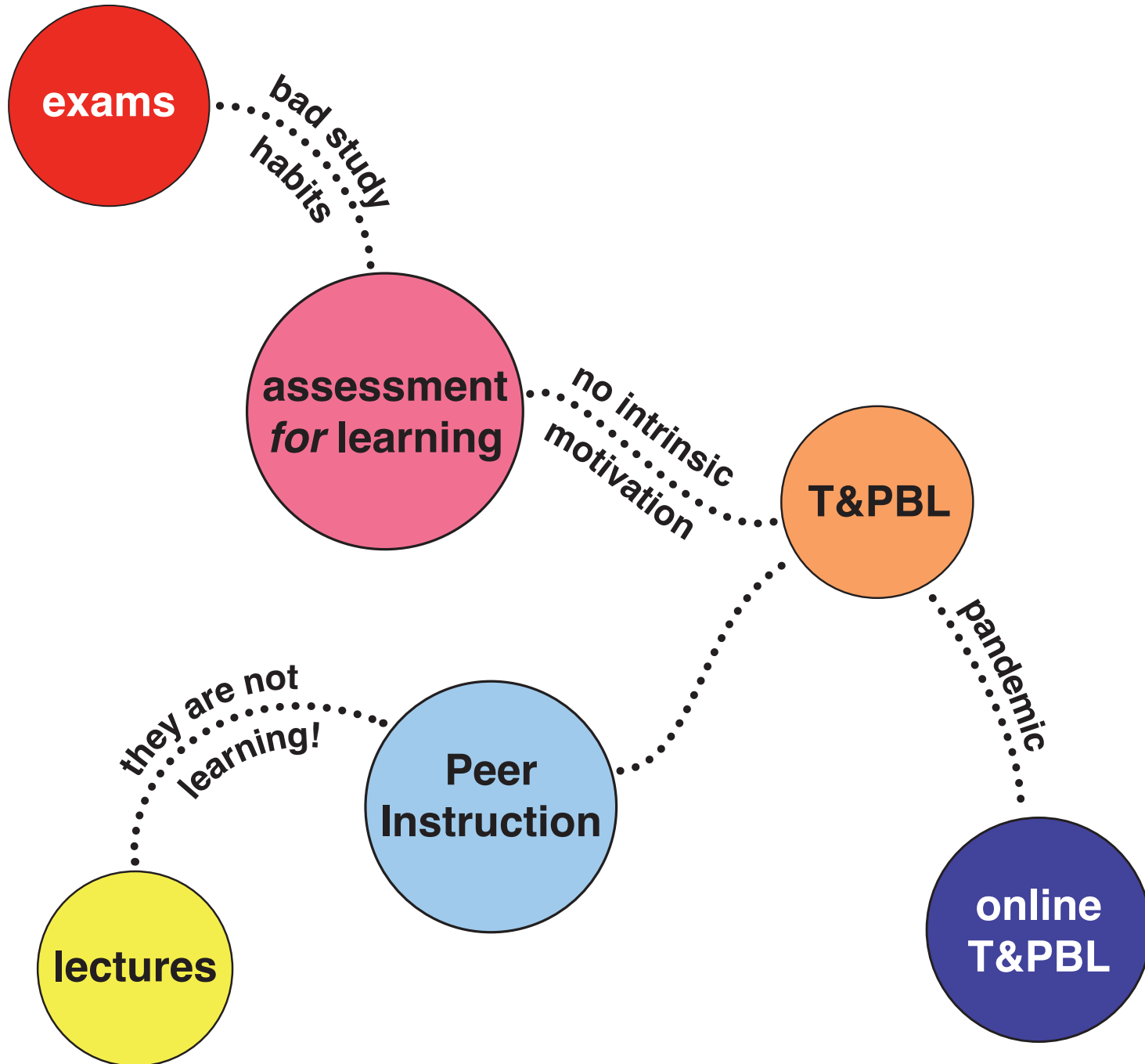


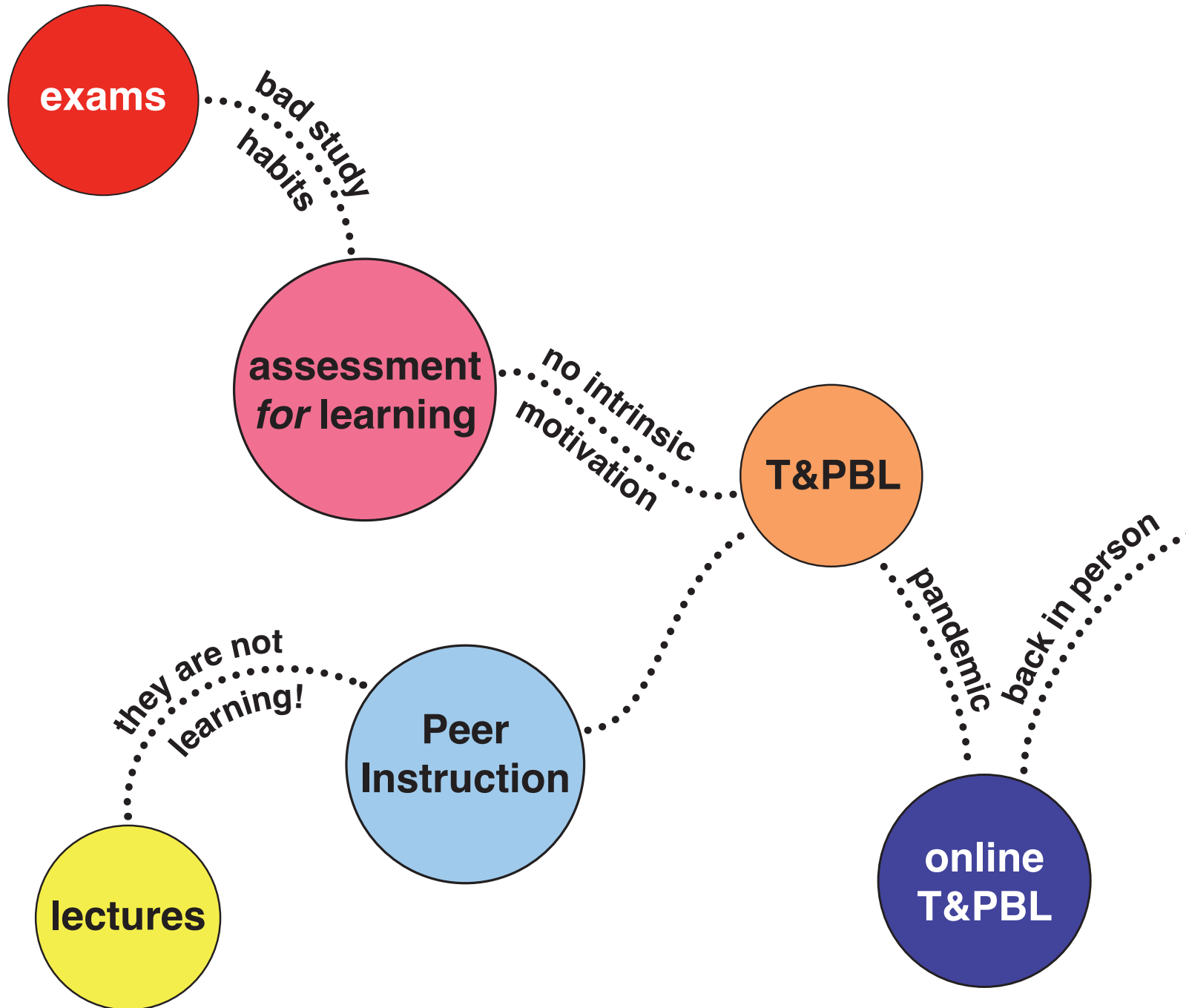


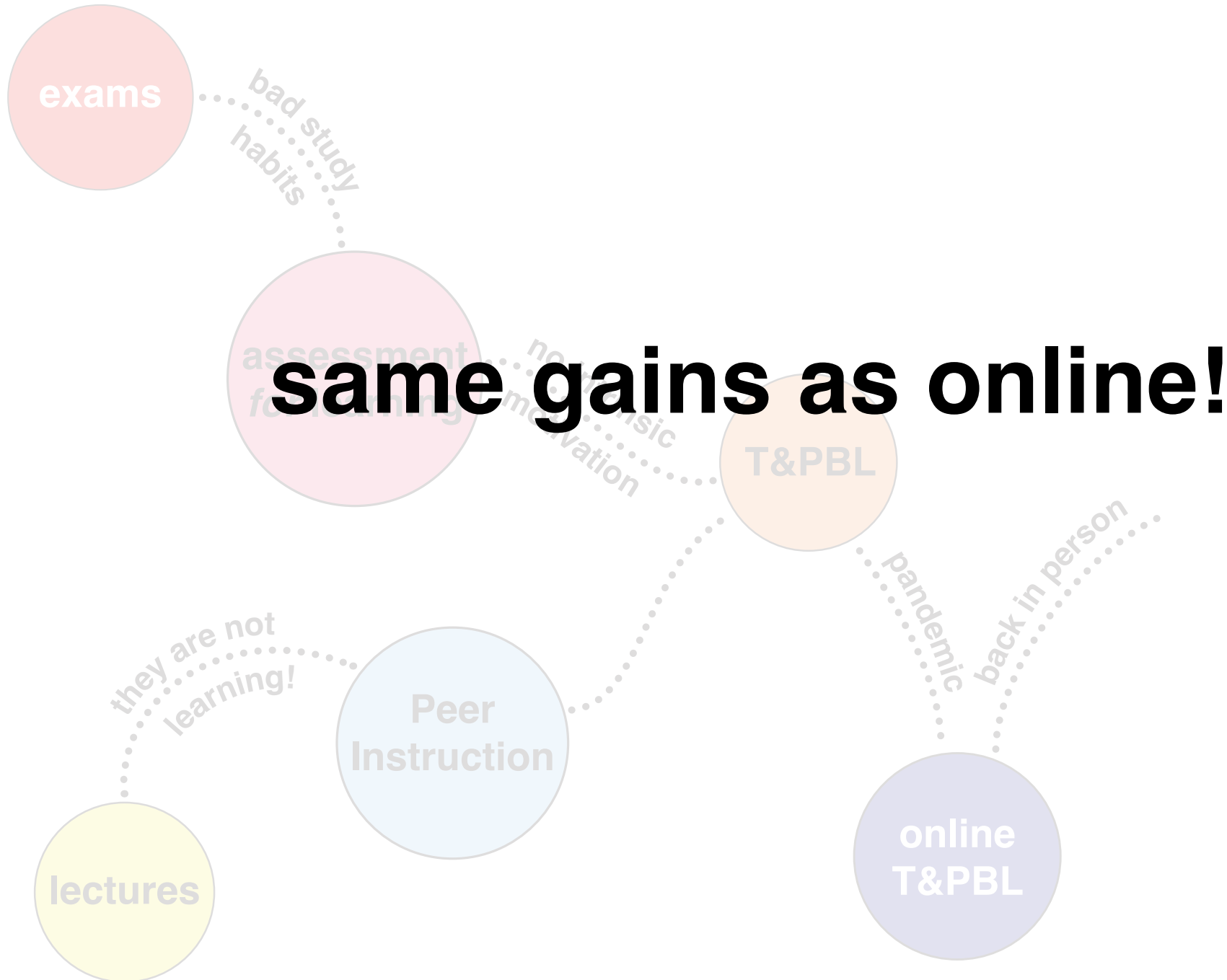
I did my best teaching *ever* online!

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. Catching up in the fall won't be easy.









bad study
habits



classrooms are a constraint

no intrinsic
motivation

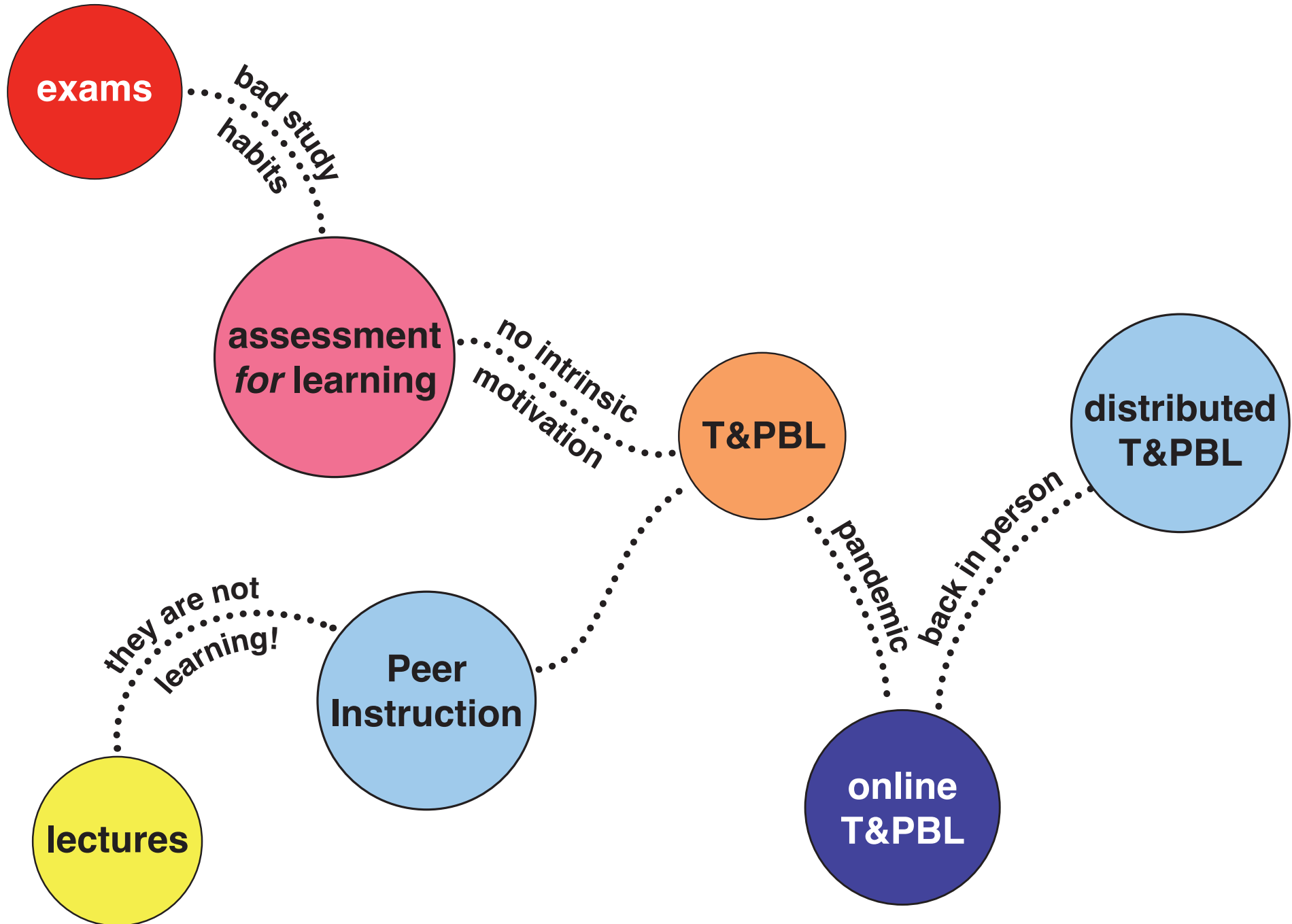


pandemic
back in person



they are not
learning!





Coffee shop



Atrium



Collaboration space



Flexible space



Workshop



The image shows a Zoom video conference with five participants. The main window displays a grid of five video feeds. The bottom-right window is a browser displaying a physics assignment page with handwritten notes and a diagram.

Participants:

- Top-left: A man with dark skin wearing a red shirt and headphones.
- Top-middle: A man with light skin wearing a white shirt.
- Top-right: A woman with dark skin wearing glasses and a black top.
- Bottom-left: A woman with light skin and long blonde hair.
- Bottom-right: A man with light skin wearing a black shirt.

Assignment Page (gradescope.com):

Problem 25a

$n_1 = 1.50, n_2 = 1.33$
 $\theta_1 = 45^\circ$ angle for which total internal reflection occurs
 $\theta_2 = 90^\circ$
 $n_1 \sin \theta_1 = n_2 \sin \theta_2$
 $1.50 \sin 45^\circ = 1.33 \sin 90^\circ$
 $\sin \theta_2 = \frac{1.50}{1.33} \sin 45^\circ$
 $\theta_2 = \sin^{-1}\left(\frac{1.50}{1.33} \sin 45^\circ\right)$
 $\theta_2 = 90^\circ$

Diagram: A right-angled triangle with vertices A, B, and C. A light ray enters at A, reflects at B, and exits at C. The angle of incidence is θ_1 and the angle of reflection is θ_2 .

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)

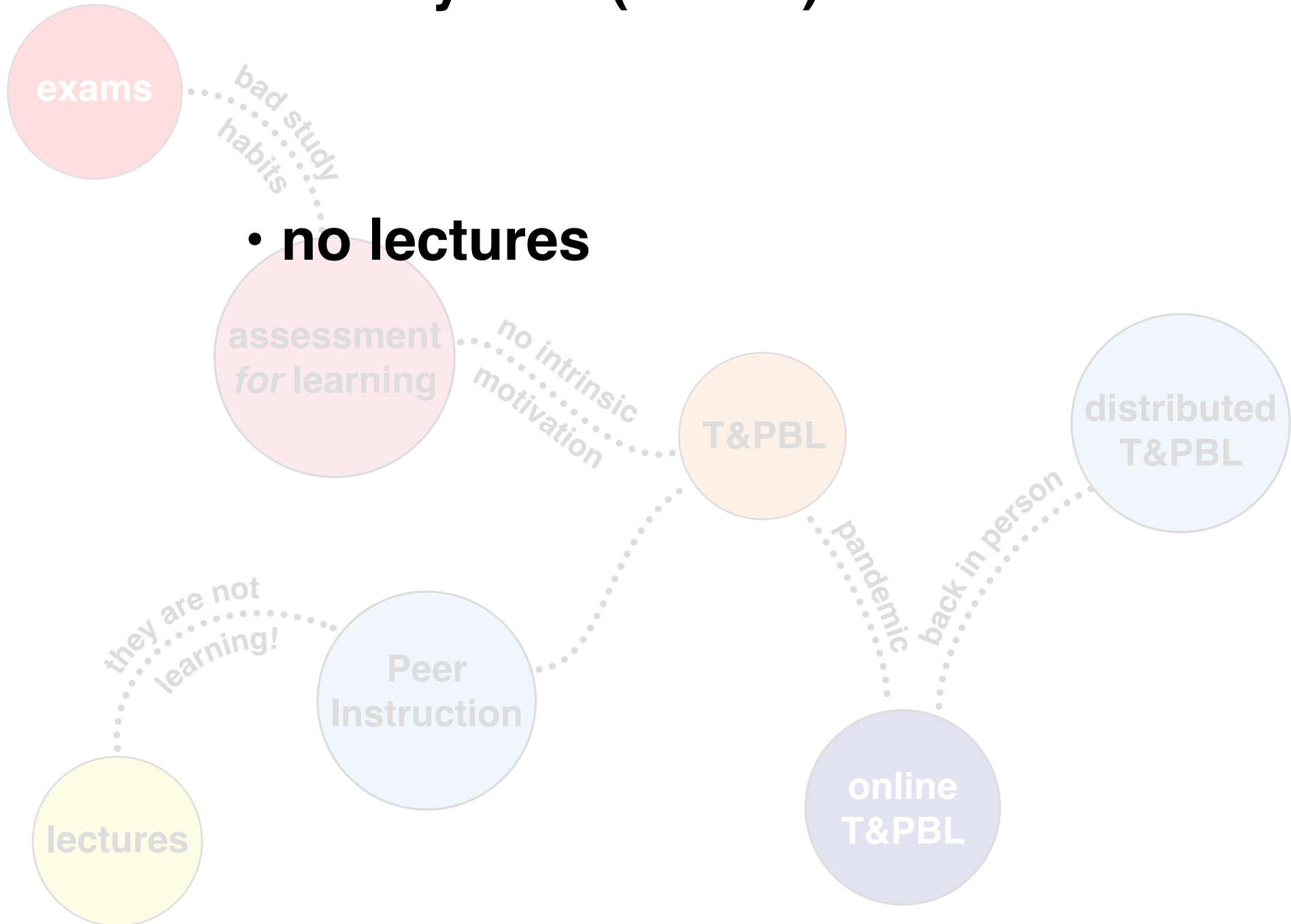
3: Question 2 (Reset Pages, Download Original, Submission History, Resubmit)

InnoBreakCafe

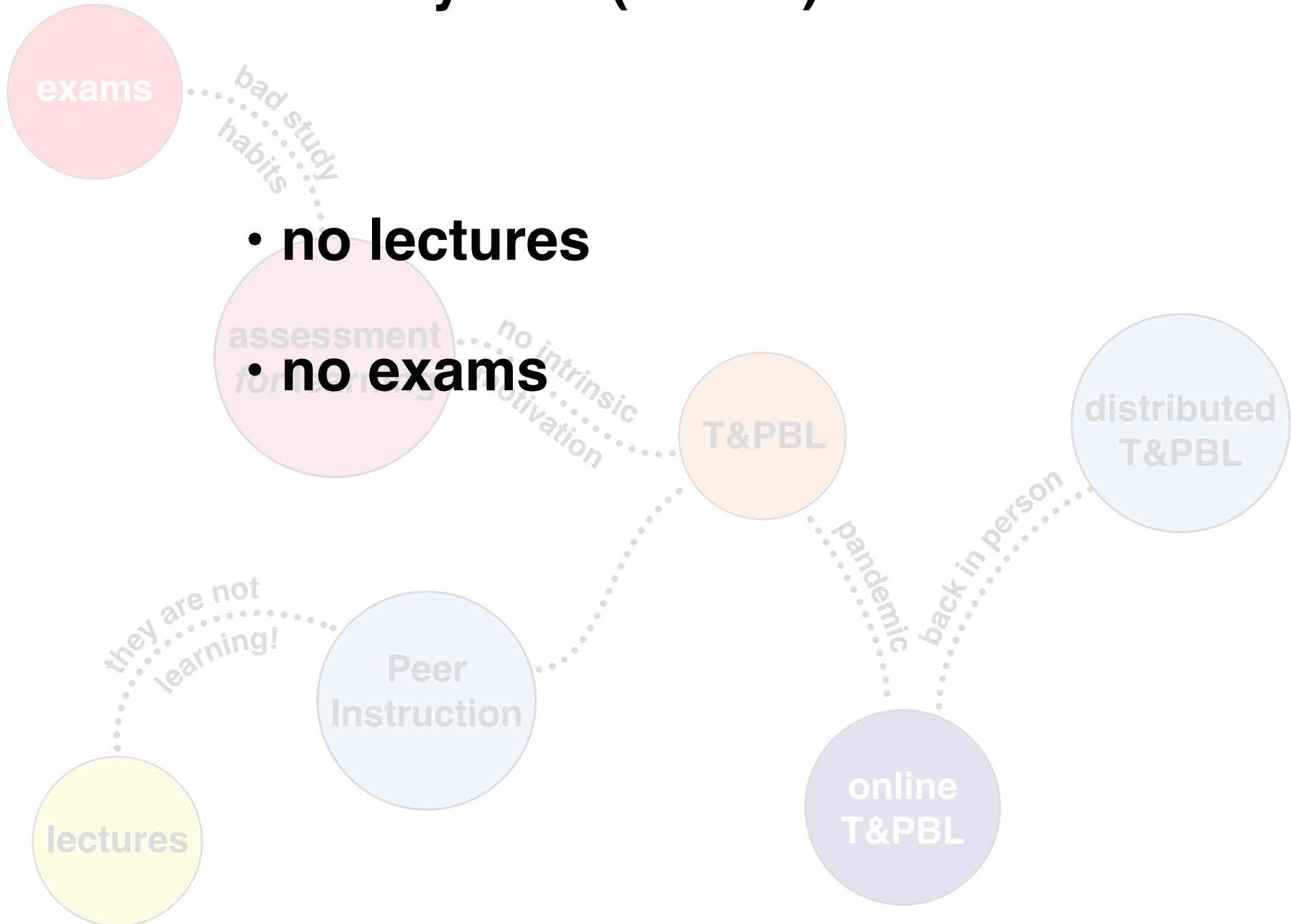
Hi

“breaking down classroom walls”

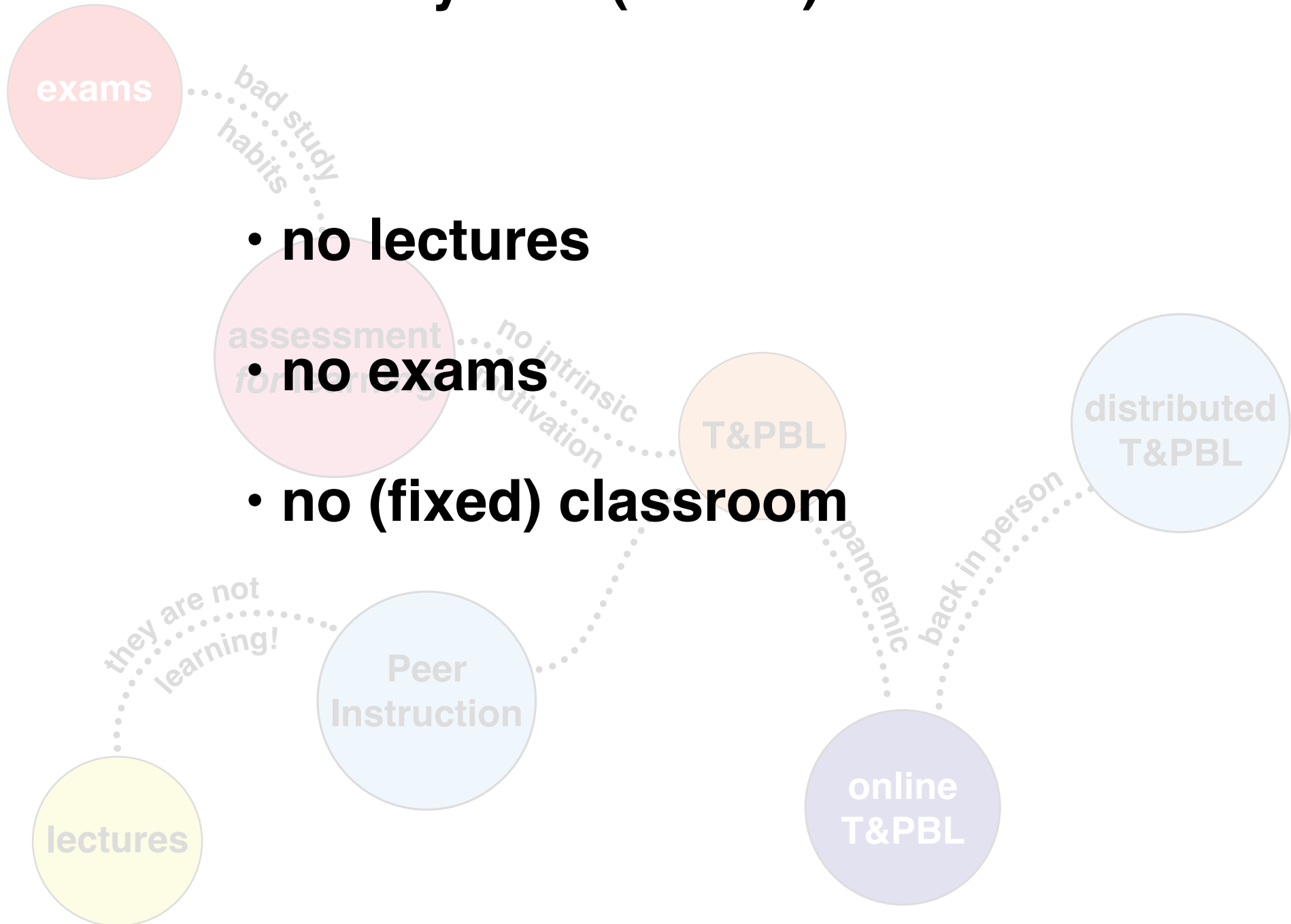
my new (not so) normal



my new (not so) normal



my new (not so) normal



my new (not so) normal

exams

bad study
habits

- no lectures

- no exams

- no (fixed) classroom

- no (fixed) start or end time

assessment

for learning

no intrinsic
motivation

T&PBL

distributed
T&PBL

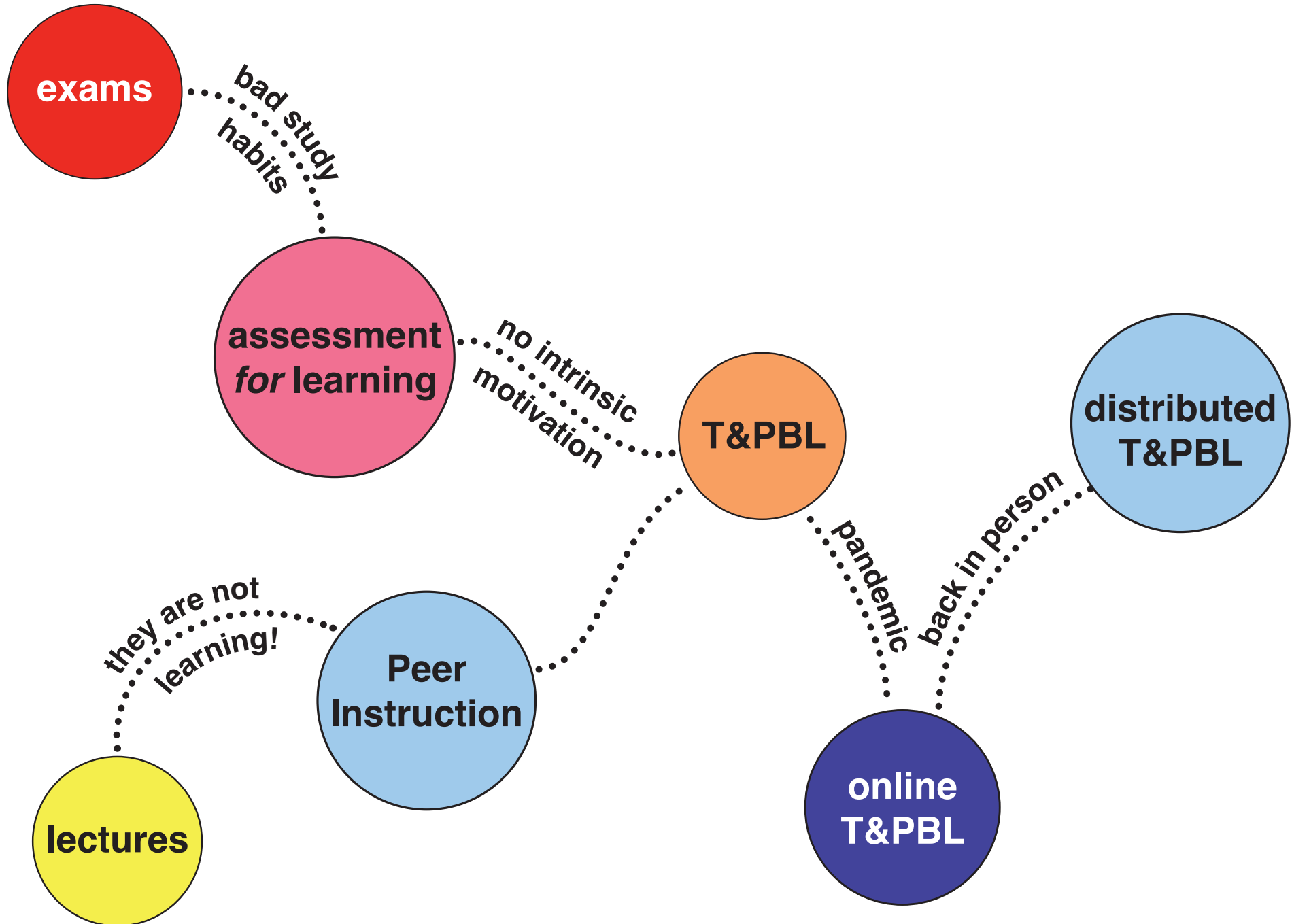
pandemic
back in person

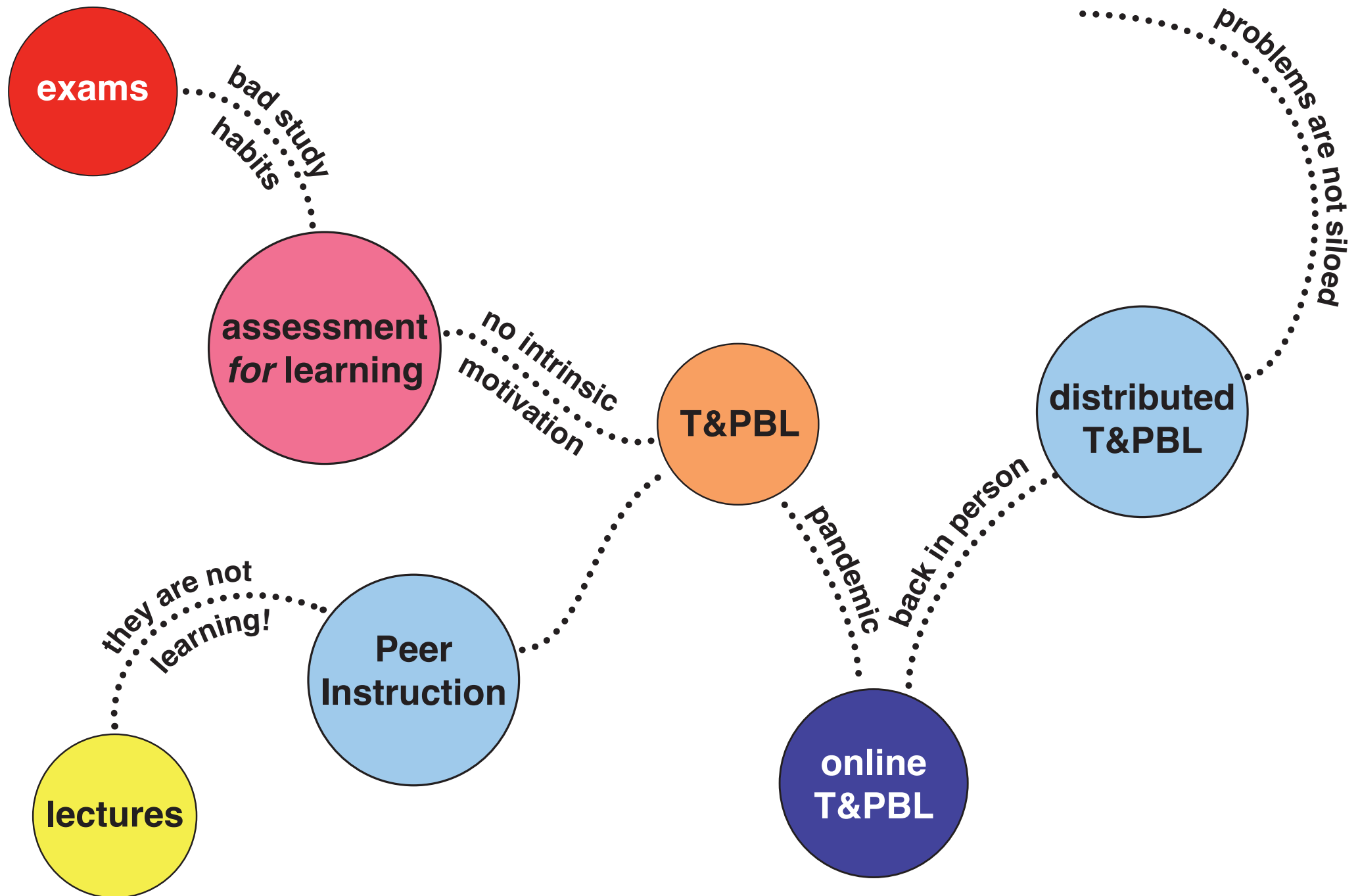
online
T&PBL

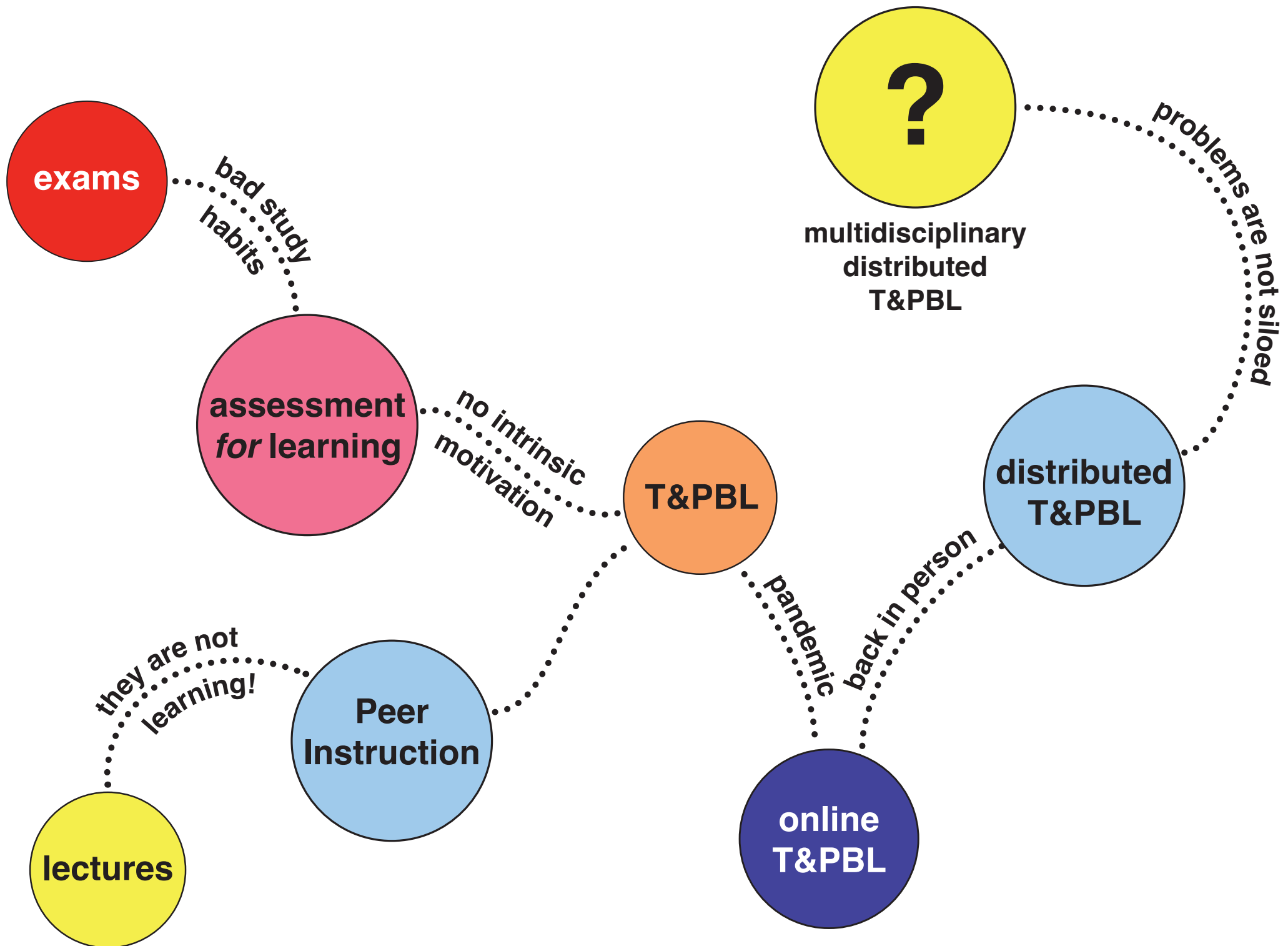
Peer
Instruction

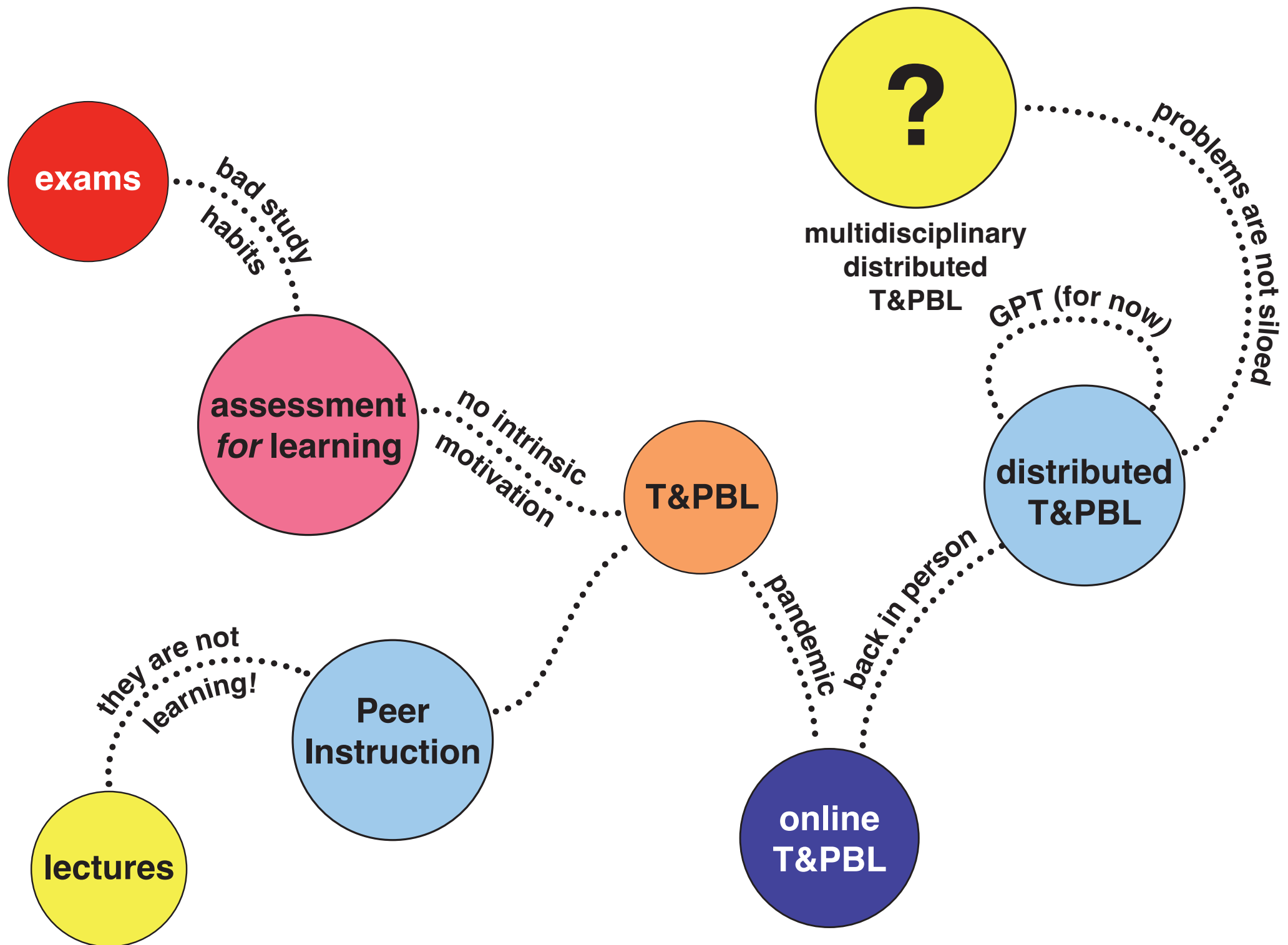
lectures

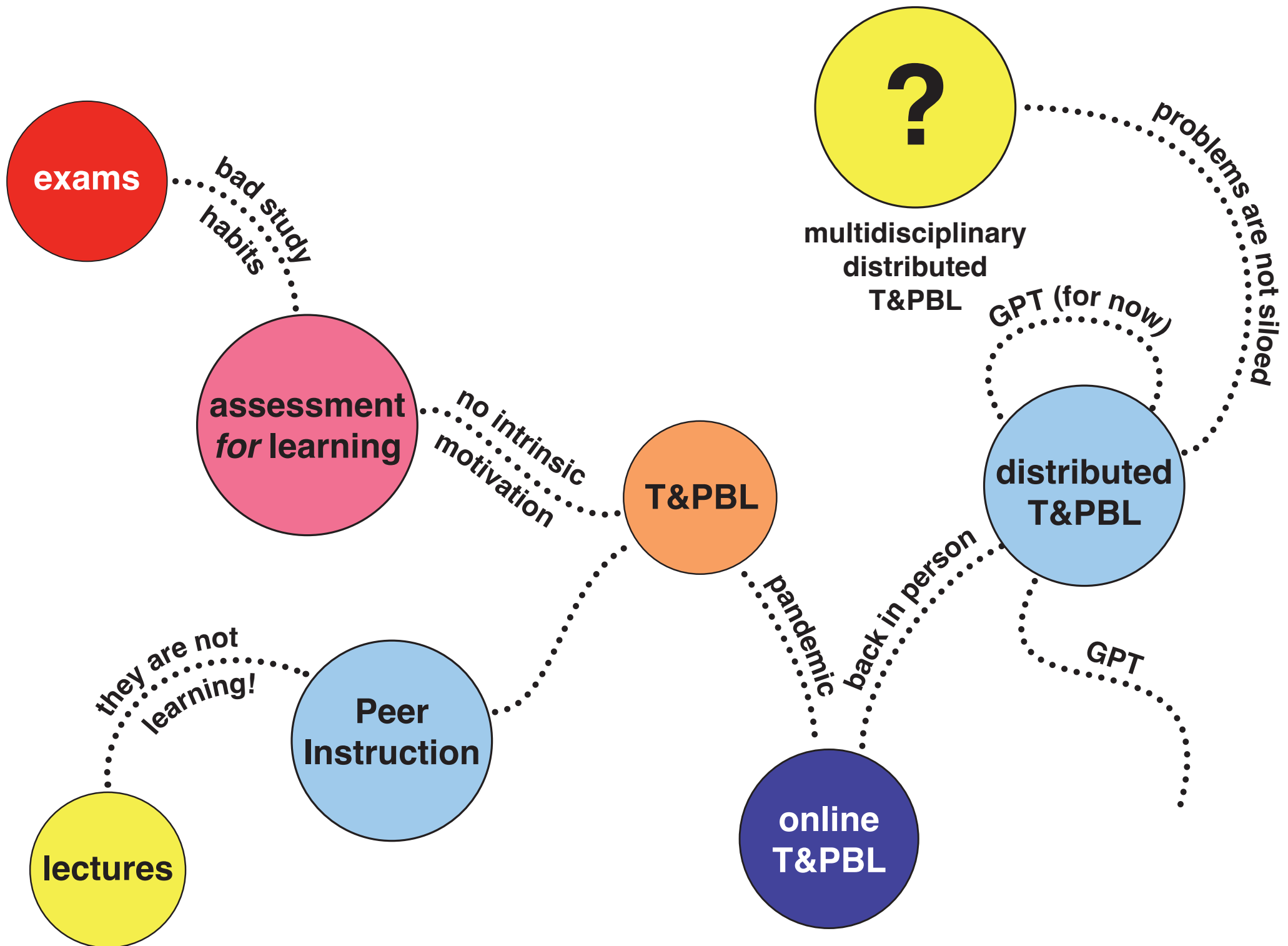
they are not
learning!

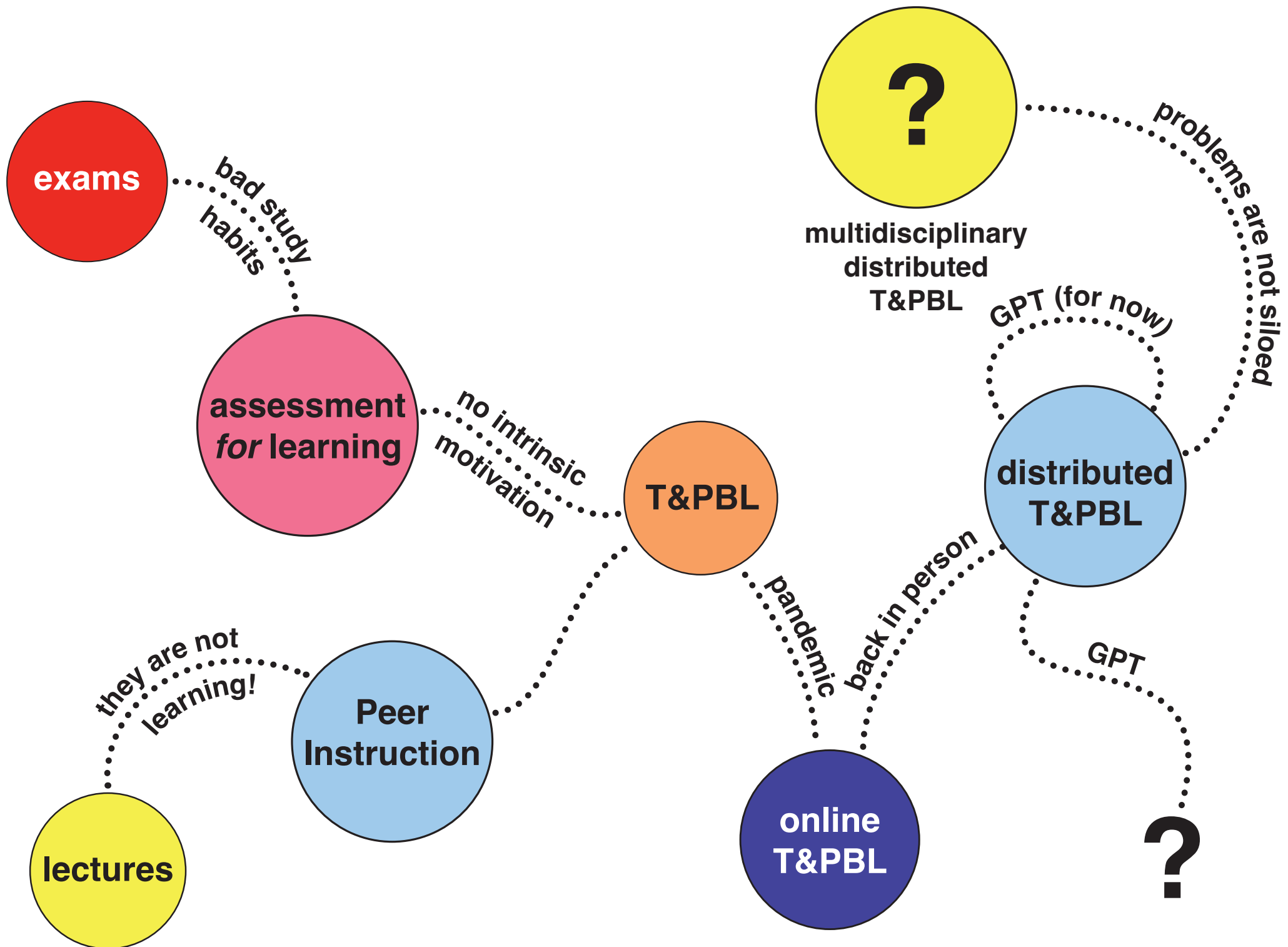




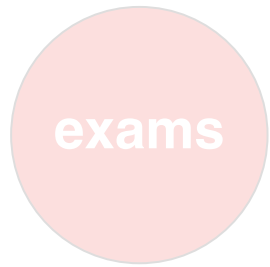








• rethink pedagogy & assessment



bad study
habits



no intrinsic
motivation



they are not
learning!



pandemic

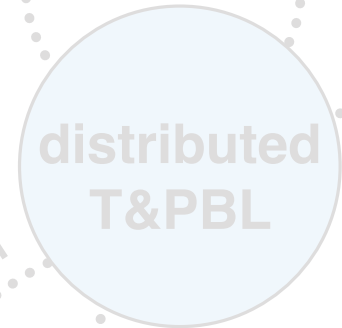


back in person



multidisciplinary
distributed

T&PBL GPT (for now)

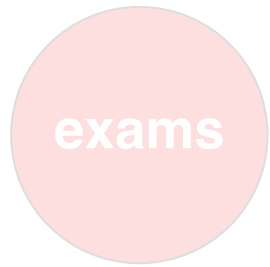


GPT



problems are not siloed

- rethink pedagogy & assessment
- optimize face-to-face time



bad study
habits



multidisciplinary
distributed

T&PBL GPT (for now)

problems are not siloed

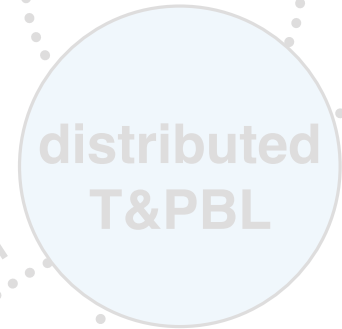


no intrinsic
motivation



pandemic

back in person



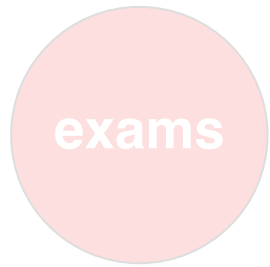
GPT



they are not
learning!



- rethink pedagogy & assessment
- optimize face-to-face time
- reimagine learning space



bad study
habits



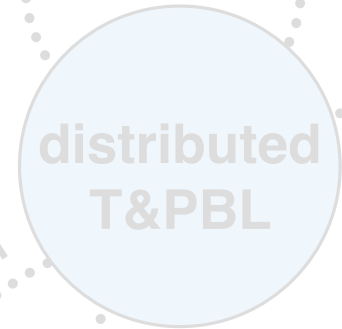
multidisciplinary
distributed

T&PBL GPT (for now)

problems are not siloed



no intrinsic
motivation



GPT



they are not
learning!



bandemic
back in person

for a copy of this presentation:

mazur.harvard.edu

course Canvas page: bit.ly/erics_course

Follow me!



@eric_mazur