Remote learning was a disaster. Was it? Reflections on a year of remote teaching.

Formação de Gestores - Sthem
16 June 2021
Remote learning was a disaster. Was it? Reflections on a year of remote teaching.
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 2020

Humankind is now facing a global crisis. Perhaps the biggest crisis of our era. The decisions people and governments take in the next few weeks and months will set the course for many years to come. They will shape not just our lives but the lives of future generations to come. We must act now.
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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Will remote teaching become a fixture of life?
America’s great remote-learning experiment: What surveys of teachers and parents tell us about how it went

By Matt Barnum and Claire Bryan  |  Jun 28, 2020, 12:19pm EDT
HIGHER EDUCATION

How higher education leaders tried to stave off disaster in 2020
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 Ćuratolo-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
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
Remote learning has been a disaster and it can't continue

Randy Feldman
Published 5:30 a.m. ET Jun. 9, 2020

Perspective. Few public policy issues are about one's own personal predisposition to live with risk and uncertainty than how we approach the coronavirus pandemic in the coming months. Scientific facts notwithstanding, how each of us evaluates the probability of contracting or spreading coronavirus reflects the weighing of our personal risk versus the collective risk that we, as a society, are prepared to accept.
Remote Learning Is a Catastrophe. Teach Share the Blame.

By Jonathan Chait
Why Emergency Online Learning Got Low Grades From Many College Students

By Robert Ubell (Columnist)  Mar 8, 2021
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.
Online distance learning for schools and colleges has been a great disaster.

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.
Was it really *that* bad?

*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.
Higher Education with Purpose

Prepare to make a positive impact with our unique approach to university education.
Higher Education with Purpose

An online university helping individuals achieve success.

Find your degree
March 2020

before (and just after) pandemic
Team based

before (and just after) pandemic
before (and just after) pandemic

Project based
Intrinsic motivation before (and just after) pandemic
Setting learning goals

Grant Wiggins and Jay McTighe, *Understanding by Design* (Prentice Hall, 2001)
Backward design

desired outcomes

Grant Wiggins and Jay McTighe, *Understanding by Design* (Prentice Hall, 2001)
Backward design

Grant Wiggins and Jay McTighe, *Understanding by Design* (Prentice Hall, 2001)
Backward design

desired outcomes

acceptable evidence

instructional approach

Grant Wiggins and Jay McTighe, *Understanding by Design* (Prentice Hall, 2001)
Course goals

- self-directed learning
- content mastery
- team work
- professionalism

before (and just after) pandemic
before (and just after) pandemic
information transfer

faculty-centered

before (and just after) pandemic
before (and just after) pandemic
before (and just after) pandemic

interaction

student-centered
no lectures
no exams

before (and just after) pandemic
before (and just after) pandemic
turn out-of-class component also into a social interaction!

Solution

before (and just after) pandemic
what about class activities?

1 before (and just after) pandemic
blend of 6 scaffolded “best practices”

- **LC: Learning Catalytics** (90 min)
  - Instructor poses question
  - Answer alone
  - Discuss in team
  - Answer again

- **Tutorial** (60 min)
  - Work on worksheet with team
  - Explore concepts
  - Discuss with staff

- **EA: Estimation Activity** (30 min)
  - Estimate quantities
  - Develop individual strategy
  - Discuss and solve as team

- **EDA: Experimental Design Activity** (90 min)
  - Conduct experiment with team
  - Take measurements
  - Analyze data
  - Carry out simulations

- **Problem Set & Reflection** (90 min)
  - Work problems alone BEFORE class
  - Discuss with team, mark up
  - Self-assess & turn in

- **RAA: Readiness Assurance Activity** (90 min)
  - Part 1: solve problems alone
  - Open book, open internet
  - Part 2: solve with team

---

1 before (and just after) pandemic
before (and just after) pandemic
March 13, 2020

before (and just after) pandemic
instructional continuity between first and second half?

before (and just after) pandemic
86% agreed

Instructional continuity between first and second half? before (and just after) pandemic
Summer 2020
Moving online

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

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

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

(challenge)
Moving online

“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)
Changes implemented

- Minimize sync/instructor-paced
- Personalize instruction
Changes implemented

• Minimize sync/instructor-paced

• Personalize instruction

• Specifications Grading
Minimize sync/instructor-paced
Minimize sync/instructor-paced

synchronous  asynchronous

everybody together at the same *time*
Minimize sync/instructor-paced

synchronous ↔ asynchronous

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

synchronous ↔ asynchronous

instructor-paced ↔ self-paced

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

lecture

synchronous ↔ asynchronous

instructor-paced ↔ self-paced

reimagining course
Minimize sync/instructor-paced

recorded lecture

synchronous <-> asynchronous

instructor-paced <-> self-paced
Minimize sync/instructor-paced

recorded lecture

synchronous ↔ asynchronous

1.5x! instructor-paced ↔ self-paced

reimagining course
Minimize sync/instructor-paced

lab

synchronous  <->  asynchronous

instructor-paced  <->  self-paced
Minimize sync/instructor-paced

homework/study

synchronous ↔ asynchronous

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

synchronous ↔ asynchronous
instructor-paced ↔ self-paced

2 reimagining course
Minimize sync/instructor-paced

synchronous → asynchronous

instructor-paced → self-paced
Minimize sync/instructor-paced

synchronous → asynchronous
instructor-paced → self-paced

more time to help students where it really matters!
Personalize instruction

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

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

...instructional staff visits each team’s own room
Personalize instruction

80 students in one room → 20 rooms with 4 students

reimagining course
Personalize instruction every student on front row
Personalize instruction

every student on front row & address each by their name
Personalize instruction
every student on front row & address each by their name

Shuffle teams

2 reimagining course
Personalize instruction

Use Slack to provide (nearly) continuous support
Personalize instruction

Use Slack to provide (nearly) continuous support

2 reimagining course
Specifications grading

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

Does work meet specifications outlined for type of work?

NO

YES

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
Specifications grading

Does work meet specifications outlined for type of work?

NO

Does work meet specifications outlined for type of work?

YES

if specifications not met, can try again

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

Does work meet specifications outlined for type of work?

Is there evidence of conscious effort to meet specifications?

NO

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

YES

Does work go significantly beyond specifications?

NO

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

YES

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.

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YES

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NO

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

YES

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

Exemplary

Revision needed

Meets specifications

Not assessable

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

68 micro units

reimagining course
Inside Higher Ed, Yes, Virginia, there is a better way to grade
Did it work?
Fall Content Learning Gain

![Bar chart showing FCI score (%)]
Fall Content Learning Gain

- F16/17
  - Pre
  - Post

Score (%)

Results: 3
Fall Content Learning Gain

![Bar chart showing FCI pre and post scores for in person and remote learning.](image)
Fall Content Learning Gain

![Bar chart showing FCI scores for F16/17 and F20, comparing in person and remote learning.]

- Pre: F16/17 in person 40%, post 60%
- Post: F16/17 in person 60%, post 80%
- Remote: F20 100%
Fall Content Learning Gain

![Chart showing learning gain comparison between in-person and remote FCI results. The remote group shows a higher gain compared to the in-person group.]

3 results
Spring Content Learning Gain

[Diagram showing learning gain (%): CSEM results for in-person and remote methods.]

3 results
Self Efficacy

0

self efficacy

5

10
Self Efficacy

belief in ability to succeed in a certain domain
Self Efficacy

![Graph showing self-efficacy results for F16/17 with pre-marked value]
Self Efficacy

SE down in lecture courses!

![Bar chart showing self efficacy pre and post F16/17](chart.png)
Self Efficacy

![Bar Chart](chart)

- **Pre vs Post:**
  - F16/17: In person 7 vs Remote 6
  - F20: In person 8 vs Remote 7

**Results:**
- F16/17: In person 7 vs Remote 6
- F20: In person 8 vs Remote 7
Self Efficacy

Results for F16/17 and F20 show a comparison between in-person and remote settings.

- **F16/17**:
  - Pre: Moderate self-efficacy
  - Post: High self-efficacy

- **F20**:
  - Pre: Low self-efficacy
  - Post: Very high self-efficacy

The graph indicates a significant increase in self-efficacy post-intervention for both groups.
Self Efficacy

![Bar chart showing self-efficacy levels](image)

- **F16/17**: Pre and post-comparison for in-person and remote settings.
- **F20**: Comparison for in-person and remote settings.
- **S21**: Comparison for in-person and remote settings.

The chart illustrates the change in self-efficacy levels over time, with a notable difference between in-person and remote settings.
Self Efficacy

- Pre F16/17
- Post F16/17
- Pre F20
- Post F20
- Pre S21
- Post S21

Results

- in person
- remote
Doubling of

• content learning gains
• physics self-efficacy gains
What do students say?

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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
Agile Feedback Survey (Talbert)

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
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
challenge vs. support
challenge vs. support

- challenge
- support

- target
challenge vs. support

![Bar chart showing agreement for challenge vs. support in person (S20).]
challenge vs. support

![Graph showing agreement in challenge and support scenarios]

- In person (S20)
- Remote (F20, S21)

3 results
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

3 results
What do you predict?
self-determination
“about you” exercise
“about you” exercise

“...this will be my very first physics class that I will have ever taken in my life,
“about you” exercise

“...this will be my very first physics class that I will have ever taken in my life, so that is both equally exciting
“about you” exercise

“…this will be my very first physics class that I will have ever taken in my life, so that is both equally exciting and also a bit anxiety-inducing
“...this will be my very first physics class that I will have ever taken in my life, so that is both equally exciting and also a bit anxiety-inducing, given that I have never felt too confident in my mathematical abilities...”
Our machine....
“Physics seems less “scary” to me now, because of the format of this course.
“Physics seems less “scary” to me now, because of the format of this course. I have really severe testing anxiety, but having no ‘sit-down exams’ has allowed me to actually learn physics because I want to, not because I need to do well on an exam...”
“...this semester is the first time — since high school — that I’ve been able to remember why I even wanted to go to college (to learn for learning’s sake)
“...this semester is the first time — since high school — that I’ve been able to remember why I even wanted to go to college (to learn for learning’s sake) ... over the past 3 years it’s mostly just been about how to scrape by academically and not let my testing anxiety ruin my GPA.
“...this semester is the first time — since high school — that I’ve been able to remember why I even wanted to go to college (to learn for learning’s sake) ... over the past 3 years it’s mostly just been about how to scrape by academically and not let my testing anxiety ruin my GPA. I love this class.”
unsolicited comments
“this course is amazing because the goal is learning, trying to solve hard problems, and learning from mistakes. I enjoyed the struggle of facing hard problems whether I solved them correctly or not.”
unsolicited comments

“favorite course at Harvard”
unsolicited comments

“favorite course at Harvard”

“the critical thinking-focused learning from the class has been truly something that has changed the way I view the way I learn and approach problems”
unsolicited comments

“favorite course at Harvard”

“the critical thinking-focused learning from the class has been truly something that has changed the way I view the way I learn and approach problems”

“I wish my other classes had a similar structure”
course evaluation

3 results
course evaluation
course evaluation
course evaluation

3 results
course evaluation

3 results
• sense of growth and autonomy

• sense of support and community

• course evaluation
Improved

- sense of growth and autonomy
- sense of support and community
- course evaluation

It worked for students too!
Remote/online can be better! 

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I did my best teaching ever remotely!

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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.
I did my best teaching ever remotely!

So, now what?
Building together
Revert back?
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. Remote teaching may well become a fixture of life.
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