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

Humbankind 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 stage for years to come. They will shape not just our present but our future.

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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Will remote teaching become a fixture of life?
March 2020

before (and just after) pandemic
Team based

before (and just after) pandemic
before (and just after) pandemic
Intrinsic motivation before (and just after) pandemic
before (and just after) pandemic
before (and just after) pandemic

no lectures
no exams
blend of 6 scaffolded “best practices”

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

**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
- bring device

**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
- bring device

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

bit.ly/ap50class
March 13, 2020

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

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

86% agreed

1 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

- Optimize face-to-face time
Changes implemented

- Optimize face-to-face time
- Personalize instruction
Changes implemented

• Optimize face-to-face time
• Personalize instruction
• Establish continuous accountability
Optimize face-to-face time

- instructional face-to-face time
- team face-to-face time
Optimize instructional face-to-face time

synchronous ↔ asynchronous
Optimize instructional face-to-face time

- **synchronous**
  - everybody together at the same *time*

- **asynchronous**
Optimize instructional face-to-face time

- synchronous
- asynchronous
- instructor-paced
- self-paced

reimagining course
Optimize instructional face-to-face time

everybody together at the same pace

synchronous  
asynchronous

instructor-paced  
self-paced
Optimize instructional face-to-face time

lecture

synchronous ↔ asynchronous

instructor-paced ↔ self-paced

reimagining course
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

lab

synchronous ↔ asynchronous
instructor-paced ↔ self-paced
Optimize instructional face-to-face time

homework/study

synchronous ↔ asynchronous

instructor-paced ↔ self-paced
Optimize instructional face-to-face time

synchronous  →  asynchronous

instructor-paced  ↔  self-paced

reimagining course
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!

2 reimagining course
Optimize team face-to-face time

synchronous

collaborative work

reimagining course
Optimize team face-to-face time

- 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

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

Reimagining course
Optimize team face-to-face time

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

asynchronous

individual work

synchronous

collaborative work

team work

team check

2 reimagining course
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

reimagining course
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

reimagining course
Personalize instruction
every student on front row & address each by their name
Establish continuous accountability

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

reimagining course
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

2 reimagining course
Establish continuous accountability

Does work meet specifications outlined for type of work?

YES

NO

if specifications not met, can try again

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*

Reimagining course
Establish continuous accountability

Does work meet specifications outlined for type of work?

Is there evidence of conscious effort to meet specifications?

No

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

Yes

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

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

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

YES

YES

No

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

68 micro units

reimagining course
Establish continuous accountability

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

2 reimagining course
Establish continuous accountability

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

2 reimagining course
Did it work?
Fall Content Learning Gain

![Bar chart showing FCI scores before and after intervention]

- **Pre:** 40%
- **Post:** 60%

**FC16/17**

Score (%)

0 10 20 30 40 50 60 70 80 90 100

PrePost

3 results
3 results

**FCI**

<table>
<thead>
<tr>
<th></th>
<th>F16/17</th>
<th>F20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Score (in person)</td>
<td>40%</td>
<td>60%</td>
</tr>
<tr>
<td>Score (remote)</td>
<td>50%</td>
<td></td>
</tr>
</tbody>
</table>

- **F16/17**: Pre: 40%, Post: 60%
- **F20**: Remote: 50%
Fall Content Learning Gain

![Bar chart showing FCI results for F16/17 and F20. The chart compares pre and post scores for in-person and remote learning.]

- F16/17:
  - Pre: 40%
  - Post: 60%
  - In person: Green bar
  - Remote: Blue bar

- F20:
  - Pre: 40%
  - Post: 60%
  - In person: Green bar
  - Remote: Blue bar

Results: 3
Fall Content Learning Gain

FCI

gain (%)

in person  remote

3 results
Spring Content Learning Gain

CSEM

<table>
<thead>
<tr>
<th></th>
<th>in person</th>
<th>remote</th>
</tr>
</thead>
<tbody>
<tr>
<td>gain (%)</td>
<td>10</td>
<td>30</td>
</tr>
</tbody>
</table>

3 results
Self Efficacy

self efficacy

0

5

10

3 results
Self Efficacy

belief in ability to succeed in a given domain
Self Efficacy

![Bar chart showing self-efficacy results for F16/17 with pre-scores.

The chart displays a bar indicating self-efficacy scores for the F16/17 period, with a focus on pre-results.

The y-axis represents self-efficacy scores ranging from 0 to 10, and the x-axis indicates the F16/17 period with a pre-score marker.

3 results

---

The bar chart illustrates the self-efficacy levels prior to the F16/17 period, with a notable score at the lower end of the scale.
Self Efficacy

3 results
Self Efficacy

SE down in lecture courses!

![Graph showing self-efficacy changes over F16/17]
Self Efficacy

results

in person
remote

pre
post

F16/17
F20

self efficacy

0
5
10
Self Efficacy

![Bar graph showing self-efficacy results for F16/17 and F20. The graph compares in-person and remote conditions, with post-tests showing higher self-efficacy compared to pre-tests.]
Self Efficacy

![Graph showing self-efficacy levels for F16/17, F20, and S21 periods, comparing in-person and remote learning.]
Self Efficacy

![Graph showing self efficacy results for different years and modes of delivery (in person vs. remote).](image)

- In person
- Remote

**Results:**

- **F16/17:**
  - Pre: [Value]
  - Post: [Value]

- **F20:**
  - Pre: [Value]
  - Post: [Value]

- **S21:**
  - Pre: [Value]
  - Post: [Value]
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 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. 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
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

3 results
challenge vs. support

---

3 results
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

![Bar chart showing agreement levels for challenges, support, growth, autonomy, and community in person (S20) and remote (F20, S21).]
Improved
• 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!
I did my best teaching ever remotely!

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.
I did my best teaching ever remotely!

So, now what?
Building together
Revert back?
Changes implemented

• Optimize face-to-face time

• Personalize instruction

• Establish continuous accountability
Changes implemented

• Optimize face-to-face time ✔
• Personalize instruction
• Establish continuous accountability
Changes implemented

• Optimize face-to-face time ✔
• Personalize instruction
• Establish continuous accountability ✔
(Post?) Pandemic changes

Sections -- in person or online (same experience, either way!)

You and your team can decide not only when, but also how to participate in the regular weekly class meetings for APSO. You can meet with your team and the TFS and me in the classroom (Pierce Hall 301), during one of the two section times. Alternatively, you can meet with us via Zoom, ideally during those same time slots.

In person: You and your teammates will be seated around a table in Pierce Hall 301 and share your work with each other using Zoom. Members of the teaching staff will check in with you at the table. (Note: Unlike in the picture, face coverings are mandatory in the classroom.)

Online: You and your teammates will meet in your team’s Zoom meeting room and communicate and share your work, with each other using Zoom. Members of the teaching staff will check in with you in your team’s Zoom room.

“Multimodal approach”

You don't need to commit to in-person or online in advance, and you can switch back and forth as you please, provided the entire team agrees to participate at the same time and in the same modality for a given activity (all in-person or all online). To facilitate that process, we will ask you for your preferences before we form teams and match you with people who have similar preferences.

Sections -- Logistics

Logistics will vary in Pierce Hall 301. If you participate online, begin your section by going to the APSO Teaching Team Room on the

in-person vs. remote

Attendance (%)

- Inperson
- Remote

Month:
- Sep
- Oct
- Nov
in-person vs. remote

![Graph showing attendance (%)](image)
attendance

gains (content & SE) unchanged!
attendance

![Graph showing attendance in person and remote for Sep, Oct, and Nov with 100% attendance.](graph.png)
time-shifts

In the chart, the percentage of in-person and remote work is shown for September, October, and November. The chart indicates a significant shift towards remote work in November.
“breaking down classroom walls”
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.
Improvements

- pedagogy and course outcomes
- efficiency
- flexibility
for a copy of this presentation:

mazur.harvard.edu

course Canvas page: bit.ly/erics_course

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