

Challenges in Digital Teaching

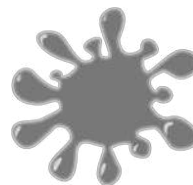
Carlos Delgado Kloos
Universidad Carlos III de Madrid
@cdk1oos



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Summary

1. Cloud education
2. Liquid education
3. Active education



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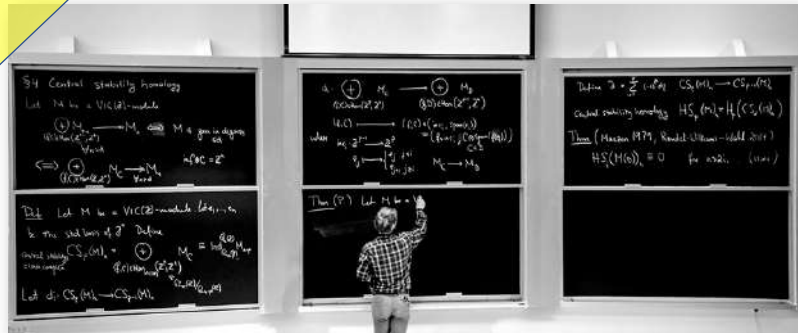
2



2

Quote

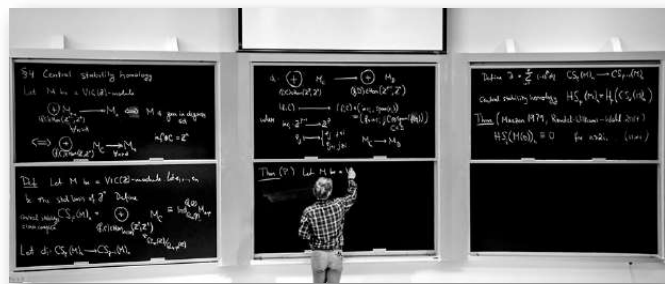
"A digital board is not good for all math and physics professors, because we need a lot of space"



Advantages

Traditional chalkboard

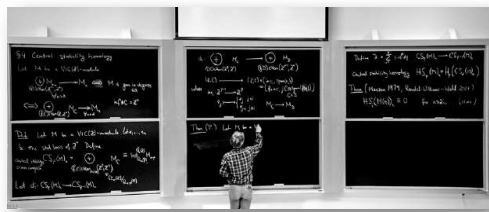
- Lots of space
- Easy to use
- Own handwriting



Advantages

Traditional chalkboard

- Lots of space
- Easy to use
- Own handwriting



Digital board

- Limited space,
 - but lots of pages
 - or limitless canvas
- Storable, recordable, shareable
- 1. "Smart" writing
- 2. Multimedia can be included
- 3. Collaborative



Smart
Rich
Connected



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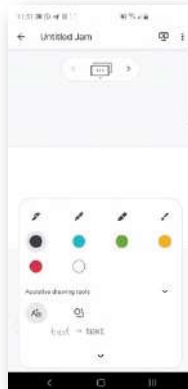
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1. Smart Writing

- Recognition of hand-written text



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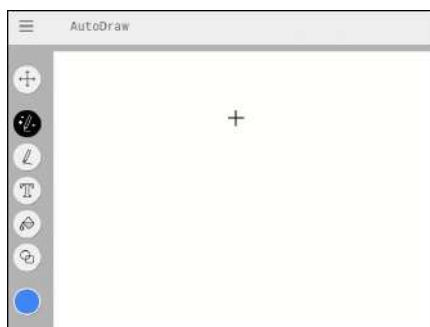
1. Smart Writing: Auto-Draw

- Draw perfect shapes

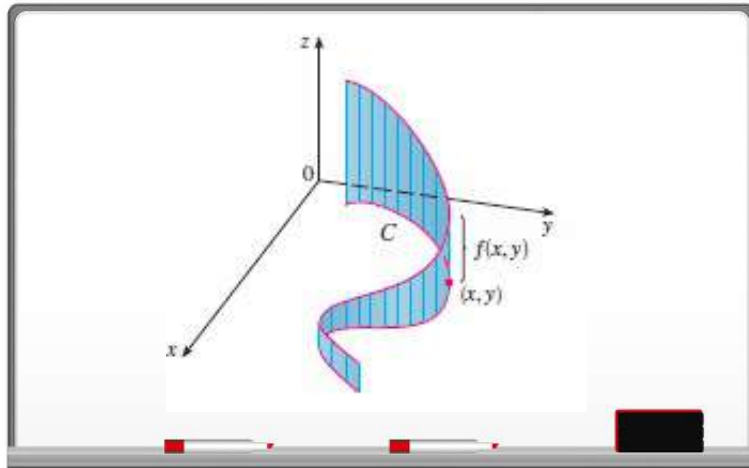


1. Smart Writing: Auto-Draw

- Recognition of predefined figures




2. Drawing → Multimedia



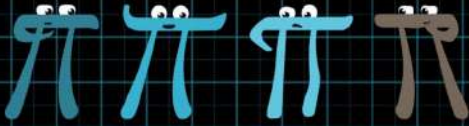
2. Drawing → Multimedia



3 blue 1 brown



3blue1brown.com

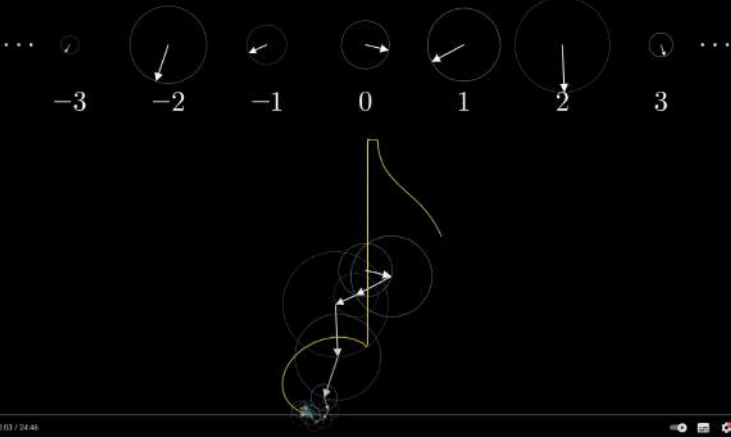


New video every day (with probability 0.05)

Home page

11

Fourier Transform



youtu.be/r6sGWTCMz2k

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3. Collaboration in the Cloud



Shared Board



Google Jamboard



- gsuite.google.es/intl/es/products/jamboard
- jamboard.google.com
- Web, Android, iOS
- Also physical board



Microsoft Whiteboard



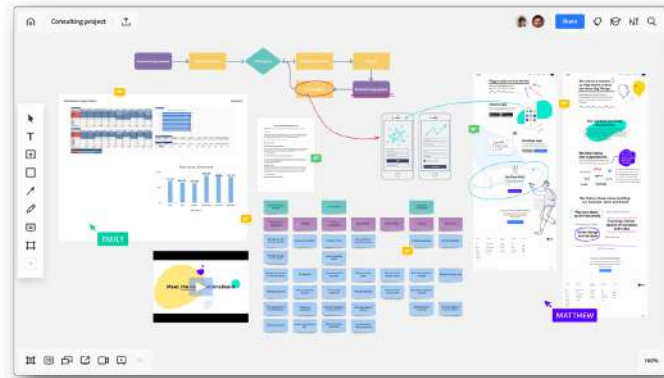
- whiteboard.microsoft.com
- Windows, web, iOS
- Free



Miro



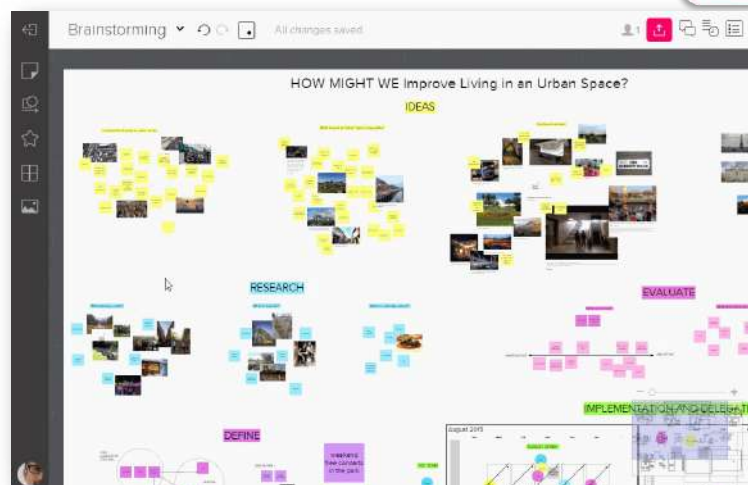
- **miro.com**
- Web, Mac, Windows, iOS, Android
- Templates, frames
- Chat, attachments
- Free: 3 boards



Mural

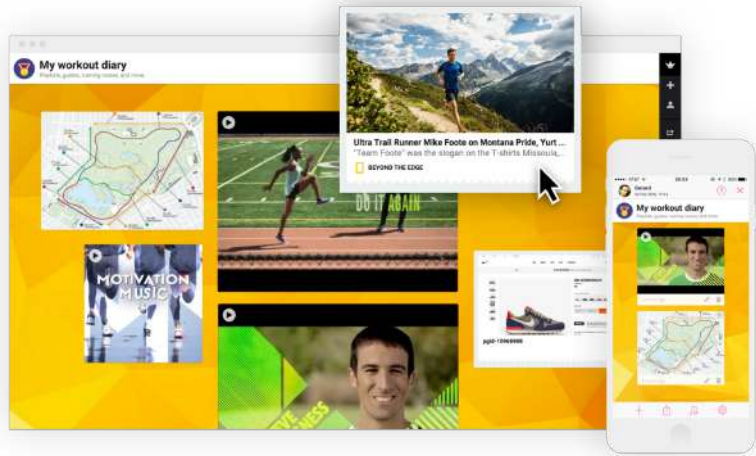


- **mural.co**
- Web
- Templates, spaces, timers, Polls
- Payment required

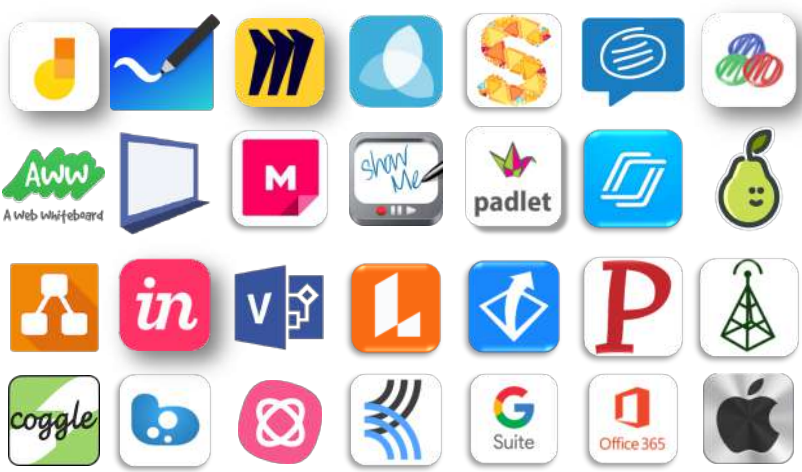


Padlet

- padlet.com
- Web
- Images, text on post-its
- Polls, likes, etc.
- Free: 3 boards



Collaboration in the Cloud



The Cloud as an Additional Meeting Space

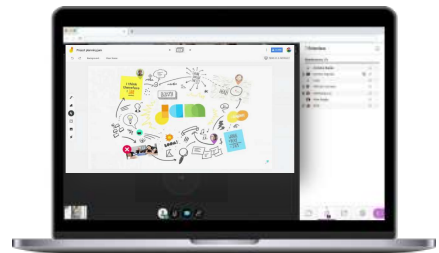


The Cloud as an Additional Meeting Space

Face-to-face students



Remote students



Engagement Apps



Face-to-face students



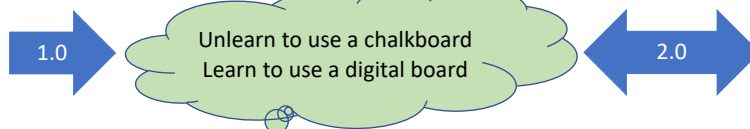
Remote students



Engagement through the Cloud



From the Chalkboard to the Digital Board



Got It!

OK, I must **adapt** to the **digital** medium,
which is different from the **physical** one.

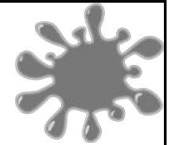


Got It!

OK, I must adapt to the **digital** medium, which is **different** from the **physical** one.



It's not Just Physical or Digital

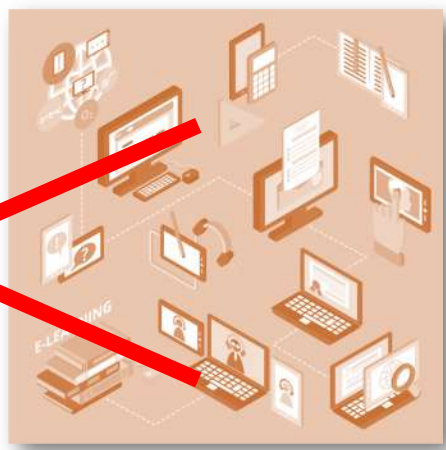


It's not a dichotomy!

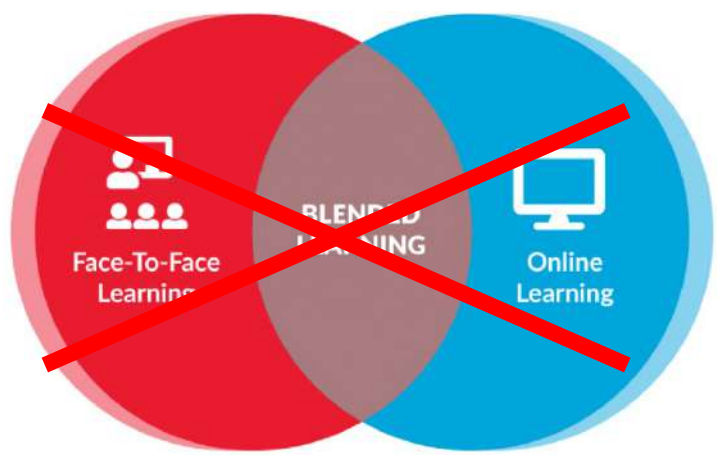
Traditional vs. Open University

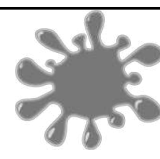


vs.



Blended and Hybrid Education

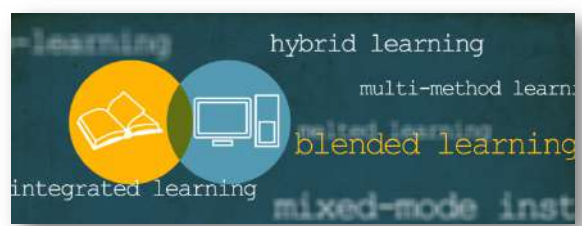
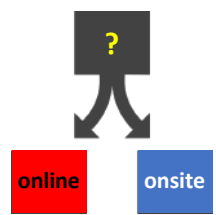




Problem of Terminology

What do these terms mean? How do they differ?

- Blended
- Hybrid
- Mixed-mode
- Bimodal

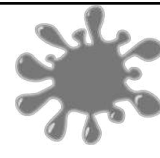


Do we all understand the same?

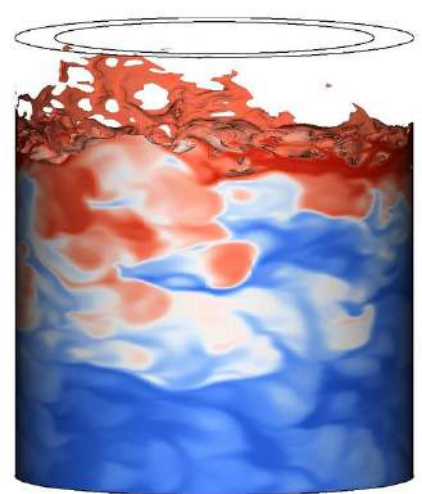


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Liquid Education



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Remixing Reality



Phil Libin
CEO of mmhmm



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Remixing Reality

The DJ-ification of the world



IRL+: Better than In Real Life



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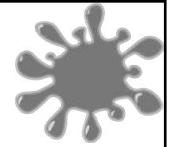
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DJ-ification of Education



Remixing Videos

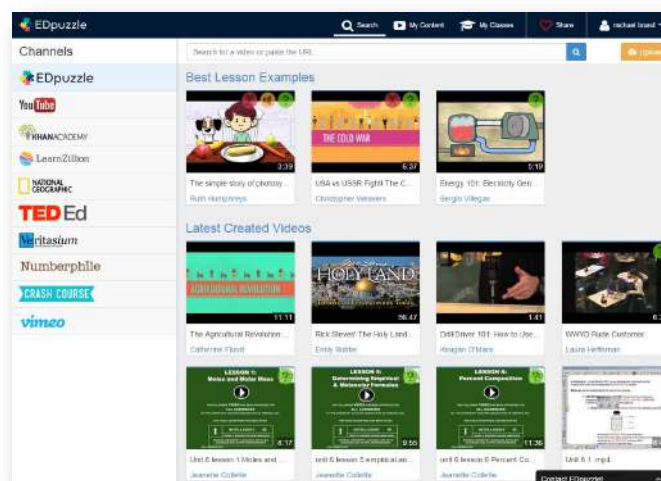


• edpuzzle.com



Make any video your lesson

Choose a video, give it your magic touch and track your students' comprehension.



Remixing Videos



Popular channels

- Edpuzzle
- YouTube
- Khan Academy
- National Geographic
- TED Talks
- Veritasium
- Numberphile
- Crash Course

02:12	Multiple-choice
03:08	Open-ended
04:40	Multiple-choice
05:19	Multiple-choice
05:59	Multiple-choice
06:49	Open-ended

Remixing Reality: Teaching with Videos



Active Viewing = Comprehension

Reactive Viewing = Critical Thinking

commonsense.org

Remixing Reality: Teaching with Videos

TIP #1: Take notes

- Real-time, collaborative
- Use a backchannel tool

Today's Meet

- Build knowledge while watching

TIP #2: Pause and ask questions

- Point back to essential questions
- Ask for arguments vs. answers

TIP #3: Multiple viewings

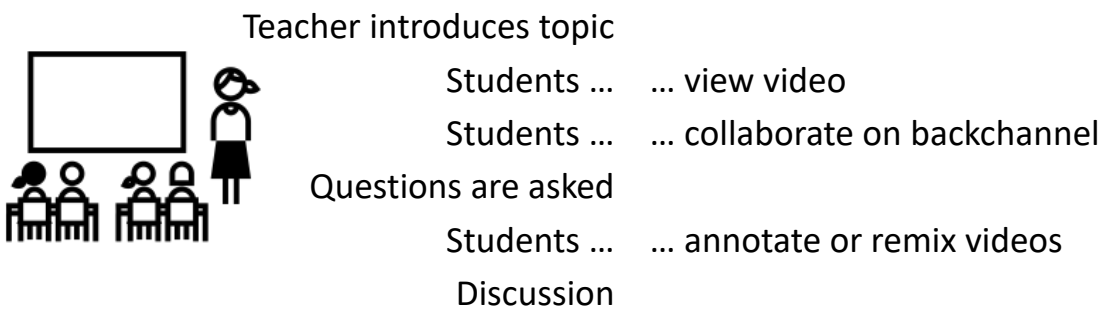
- Assign projects
- Annotate a video
- Remix a video

Edpuzzle Zaption MEDIA BREAKER

youtu.be/xSK4noPp1t8

Remixing Reality: Teaching with Videos

Onsite **Online**



(Zaption was acquired by Workday)



Remixing Reality: Teaching with Videos

But it can also be:

Online (live) **Online (recorded)**

Teacher introduces topic

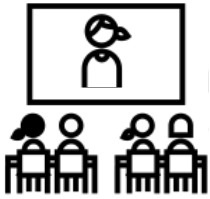
Students ... **... view video**

Students ... **... collaborate on backchannel**

Questions are asked

Students ... **... annotate or remix videos**

Discussion

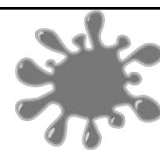


(Zaption was acquired by Workday)



Be Your Own Assistant

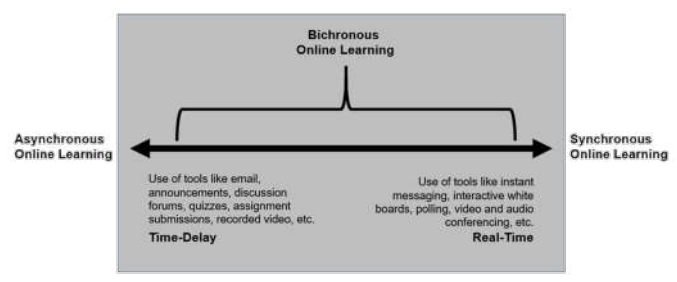




Bichronous?

Bichronous Online Learning: Blending Asynchronous and Synchronous Online Learning

Florence Martin, Drew Polly and Albert Ritzhaupt Tuesday, September 8, 2020



er.educause.edu/articles/2020/9/bichronous-online-learning-blending-asynchronous-and-synchronous-online-learning



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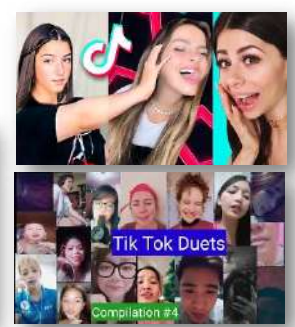
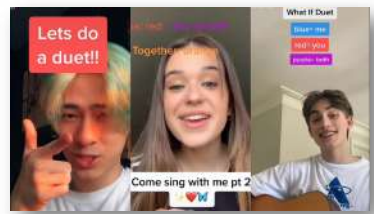
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Remixing Reality: Remixing Videos: Tik Tok Duets



- You can **record** a video with a **recorded** video
- You can have **online** inside of **onsite**



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Remixing Reality: TikTok Duets (Dancing)



youtu.be/1yY90IshKxQ



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Remixing Reality: TikTok Duets (Singing)



youtu.be/AIOTM1HwqsU



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Remixing Reality: TikTok Popcorn Duets



youtu.be/KB2nJOKYGUs



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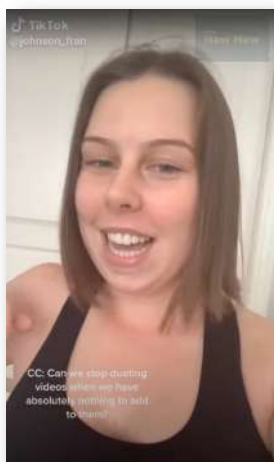
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Remixing Reality: TikTok Duet Chain



youtu.be/cwB8VN0F15E



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Remixing Reality: Simulive



Remixing Reality: Simulive

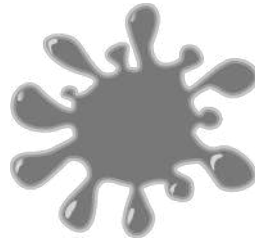
- onestream.live
- livereacting.com
- restream.io
- livecaster.in
- ecamm.com
- livepigeon.com

• and many more...



Liquid Education

Physical Digital



Unlearn the separation of concerns
Learn to mix concepts in many ways

Got It!

*OK, I must learn to **remix** online & onsite, synchronous & asynchronous in innovative ways to give my lectures*



Got It!

OK, I must learn to remix
online & onsite, synchronous & asynchronous
in innovative ways to give my **lectures**



From Lecturing to Active Learning



Teaching Continuity Successfully Achieved during Lockdown!



Teacher-side



Student-side



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Or Maybe It Was not so Good



Teacher-side



Student-side



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Or Even Worse

Teacher-side



Student-side



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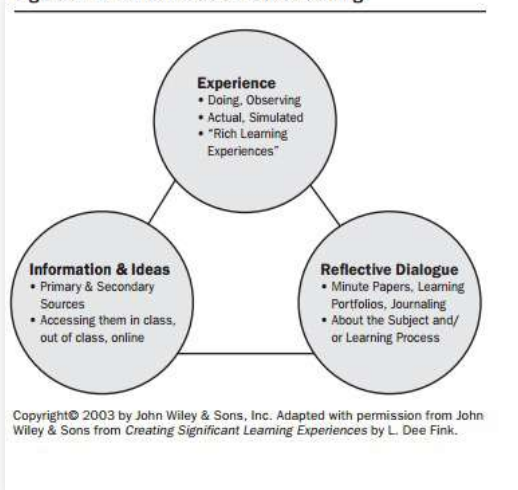


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Key: Active Learning

Figure 4 • A Holistic View of Active Learning



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Active Learning with Online Teaching



- Active learning methodologies translate well from face-to-face to online settings, in particular in relation to assessment



The 2 Aspects Match Well

Technological side: cloud computing

- Encounter in the cloud



Pedagogical side: active learning

- Learning by doing



Systems for Video-Conferences (not for Video-Classes)



From Video-Conferences to Video-Classes

- A class is not a conference
- Video-support for a class should be not the same as for a conference
- What other elements support a class that do not exist in video-conference systems?
- Some examples

- Engageli
- Class
- ClassIn







Engageli

• engageli.com



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Breakout Groups



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Class



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Tables



Physics Majors	English Majors	Math Majors	Business Majors	History Majors
<p>TABLE # 6</p> <ul style="list-style-type: none"> Hugo Walkers Katerina Gill Clarissa Dwyer Sufyan Hadjgros Miriam Gallegos Conita Sullivan Ariella Cain Pedro Ramirez 	<p>TABLE # 7</p> <ul style="list-style-type: none"> Janet Patton Beth Kaban Marley Mitchell Tanner Sloan Russell Hayth Melissa Poole Eric Thompson Janice Powers 	<p>TABLE # 8</p> <ul style="list-style-type: none"> Nolan Oliver Finian O'Reilly Rak Mathis Ross Doolan Preety Doshi Diane Chantill Mohsin Clifford 	<p>TABLE # 9</p> <ul style="list-style-type: none"> Halla Scott Mackie Fountain Eugene Smith Hannah Christie Emily Larsen Kate Parkinson Wesley Berts Rafaela Murray 	<p>TABLE # 10</p> <ul style="list-style-type: none"> Hugo Walkers Katerina Gill Clarissa Dwyer Sufyan Hadjgros Miriam Gallegos



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Presentation



The screenshot shows a Zoom meeting interface. The main window displays a presentation slide with the following content:

Statistical Inference

- **Inferential Statistics** deals with procedures for making inferences about the characteristics that describes the larger group of data, called **population**, from the knowledge derived from only a part of the data, known as **Sample**.
- Numerical quantities describing a population are called **parameters**. μ, σ, ρ
- A numerical quantity computed from a sample, is called a **statistic**. $\bar{x}, s, \hat{\rho}$

The slide also features the logo of 'THE UNIVERSITY OF ENGAGEMENT' on the left side. The Zoom interface includes a top bar with participant thumbnails and a bottom bar with controls like 'TABLE', 'NOTES', 'CHAT', and 'Q&A'.

Note Taking



The screenshot shows a Zoom meeting interface with a presentation slide and a notes application. The presentation slide is identical to the one in slide 67. The notes application is overlaid on the right side of the slide. A blue callout box with a red arrow points to a play button icon in the notes application, containing the text: "Clicking on a note replays class at the time when the note was taken".

The notes application interface includes a 'TABLE' tab, a 'NOTES' tab, and a 'CHAT' tab. The 'NOTES' tab is active, showing a list of notes with a play button icon next to each one. The notes include:

- Follow up with post. after class on the project calls group and how to get access to engage table group for project collaboration.
- Optimal reference

The presentation slide also has a red circle around the text "computed from a sample" in the third bullet point, and a red arrow pointing to the mathematical symbols $\bar{x}, s, \hat{\rho}$.

Shared Doc per Table



Support for collaborative group work via shared projects (docs, sheets, web resources)

	Q1	Q2	Q3	Q4
Stage 1	Identify go-to-market	Identify social media audiences	Start to quarterly blog posts	
Stage 2	Create programme launch plan	Launch social programme	Create communication plan	

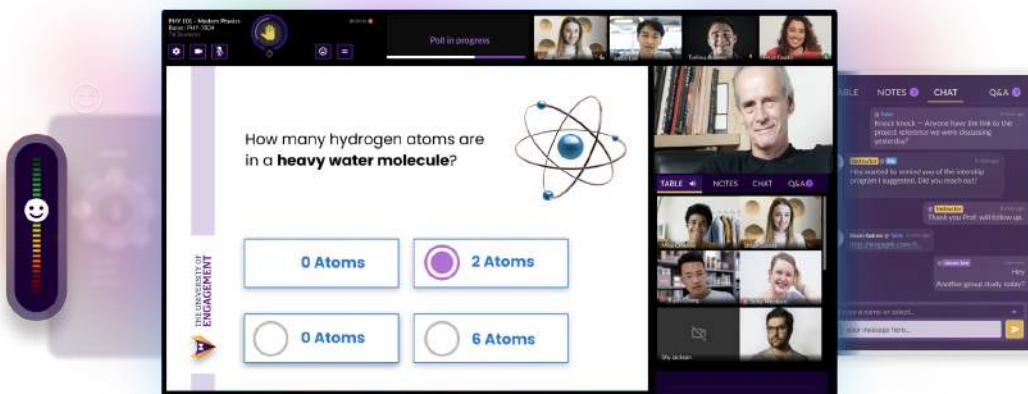
Engagement Level



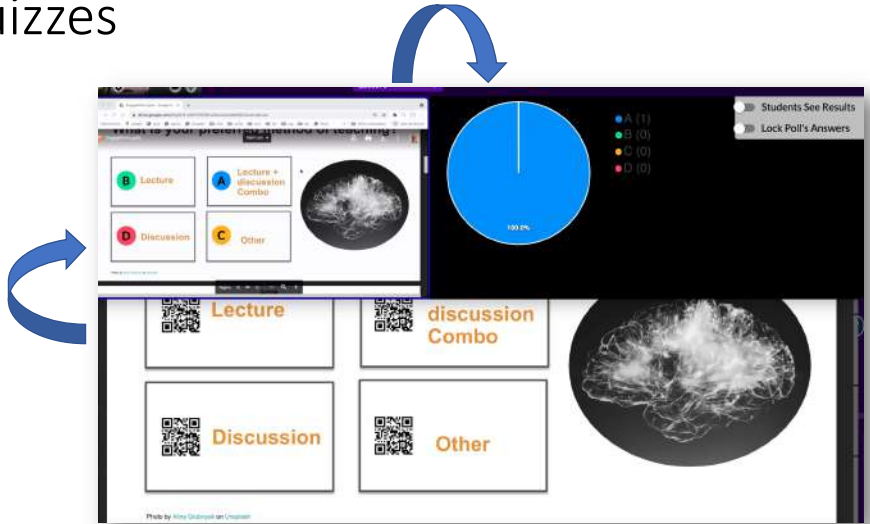
Hybrid Class



Quizzes



Quizzes



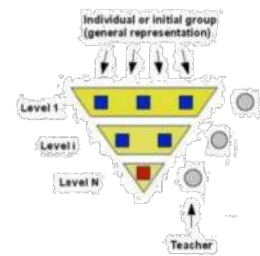
Collaboration Patterns



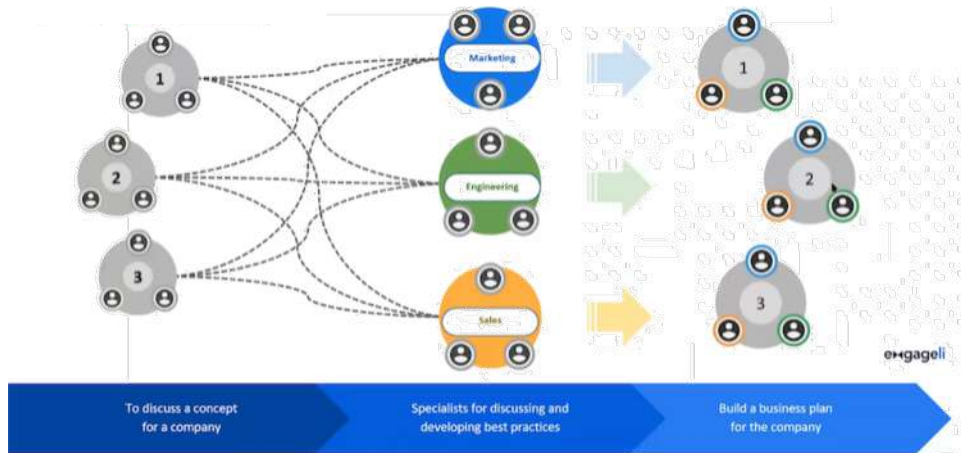
- Jigsaw

- Peer instruction

- Pyramid



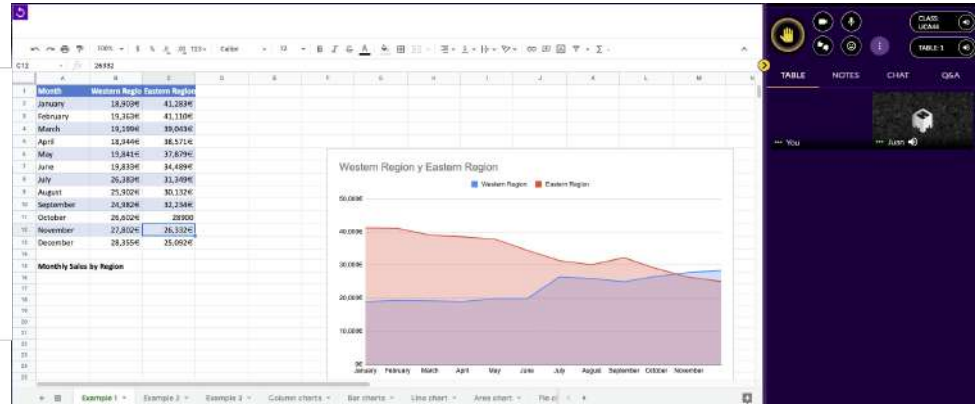
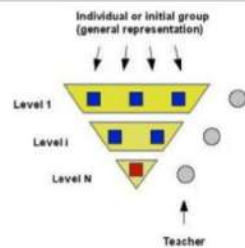
Jigsaw



Peer Instruction



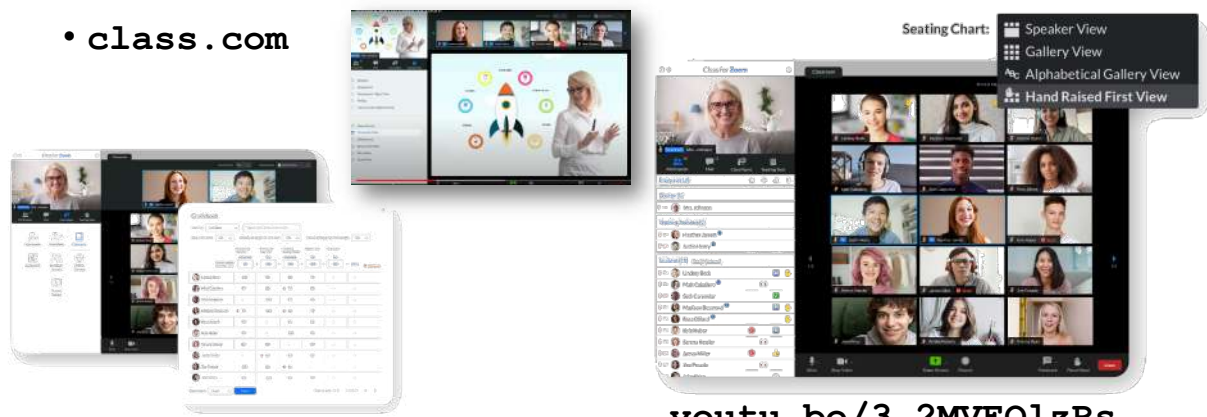
Pyramid



Class



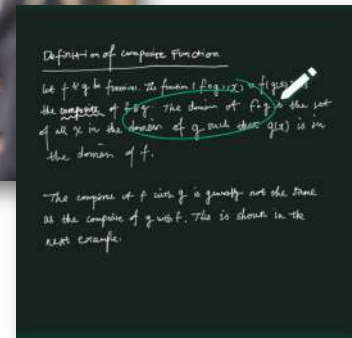
• class.com



youtu.be/3_2MVE01zRs

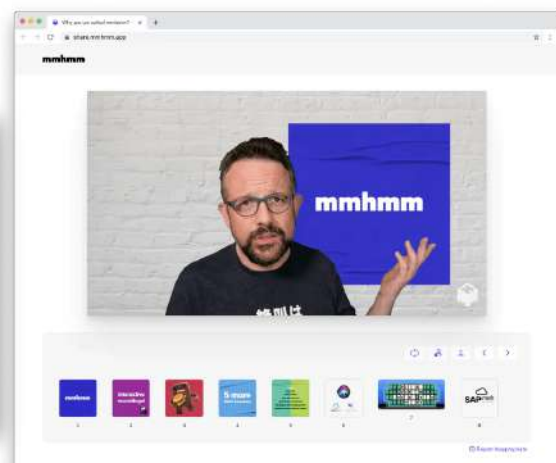
ClassIn

• **classin.com**



mmhmm

• **mmhmm.app**



Networking

- Wonder
 - wonder.me
- Gatherly
 - gatherly.io
- GatherTown
 - gather.town
- Remo
 - remo.co
- Circle
 - letscircle.co



From Lecturing to Active Learning



Unlearn the old way of instructing
Learn to facilitate learning



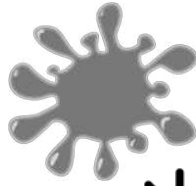
Challenges

1. Cloud education



Unlearn to use a chalkboard
Learn to use a digital board

2. Liquid education



Unlearn the separation of concerns
Learn to mix concepts in many ways

3. Active education



Unlearn the old way of instructing
Learn to facilitate learning

Quote

*The difficulty lies, not in the new ideas,
but in escaping the old ones,
which ramify,
for those brought up as most of us have been,
into every corner of our minds.*



-- John Maynard Keynes (1883-1946)

Thank you!

Bedankt!



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Erasmus+ Programme
of the European Union



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