Challenges in Digital Teaching

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Summary

1. Cloud education

2. Liquid education

3. Active education
"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

1. Smart Writing

• Recognition of hand-written text
1. Smart Writing: Auto-Draw

- Draw perfect shapes

- Recognition of predefined figures
2. Drawing → Multimedia
Fourier Transform

\[ \ldots, -3, -2, -1, 0, 1, 2, 3, \ldots \]

[YouTube link:youtu.be/r6sGWTCMz2k]
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

Face-to-face students

Remote students

C. Delgado Kloos, 2021-05-28

UNESCO Chair on Scalable Digital Education for All
Spain
United Nations Educational, Scientific and Cultural Organization

The Cloud as an Additional Meeting Space
Engagement Apps

**Face-to-face** students **Remote** students

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Engagement through the Cloud

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From the Chalkboard to the Digital Board

Unlearn to use a chalkboard
Learn to use a digital board

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

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?

Liquid Education
Remixing Reality

Phil Libin
CEO of mmhmm

The DJ-ifcation of the world

IRL+: Better than In Real Life

Phil Libin
CEO of mmhmm
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

Remixing Reality: Teaching with Videos

Active Viewing = Comprehension
Reactive Viewing = Critical Thinking

commonsense.org
Remixing Reality: Teaching with Videos

Onsite
Teacher introduces topic
Students ...
Questions are asked
Discussion

Online
Students ... view video
Students ... collaborate on backchannel
Students ... annotate or remix videos

(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 Pollo, and Albert Ritzhaupt  Tuesday, September 8, 2020

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**Remixing Reality: Remixing Videos: TikTok Duets**

• You can **record** a video with a **recorded** video
• You can have **online** inside of **onsite**
Remixing Reality: TikTok Duets (Dancing)

Remixing Reality: TikTok Duets (Singing)
Remixing Reality: TikTok Popcorn Duets

Remixing Reality: TikTok Duet Chain
Remixing Reality: Simulive

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

• and many more...
Liquid Education

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

Physical  Digital

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

1.0

2.0
Teaching Continuity Successfully Achieved during Lockdown!

Teacher-side

Student-side

Or Maybe It Was not so Good

Teacher-side

Student-side
Or Even Worse

Teacher-side  
Student-side

Key: Active Learning

Figure 4 • A Holistic View of Active Learning

Experiences
- Dialog, Observing
- Act, Rehearse
- "Rich Learning Experiences”

Information & Ideas
- Primary & Secondary Sources
- Accessing them in class, out of class, online

Reflective Dialogue
- Mini Papers, Learning Portfolios, Journaling
- Need the "richest and/orlearning Process"
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

Breakout Groups
Presentation

Statistical Inference

- **Inferential Statistics** deals with procedures for making inferences about the characteristics that describe 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* $\mu$, $\sigma$.
- A numerical quantity computed from a sample is called a *statistic* $\bar{x}$, $s$, $p$.

Note Taking

Clicking on a note replays class at the time when the note was taken.

- **Inferential Statistics** deals with procedures for making inferences about the characteristics that describe 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* $\mu$, $\sigma$.
- A numerical quantity computed from a sample is called a *statistic* $\bar{x}$, $s$, $p$. 
Shared Doc per Table

Engagement Level
Hybrid Class

Quizzes
Quizzes

Collaboration Patterns

- Jigsaw
- Peer instruction
- Pyramid
Jigsaw

Peer Instruction
Pyramid

Class

• class.com

youtu.be/3_2MVEOlzRs
ClassIn

• classin.com

mmhmm

• mmhmm.app
Networking

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

From Lecturing to Active Learning

Unlearn the old way of instructing
Learn to facilitate learning
Challenges

1. Cloud education

2. Liquid education

3. Active education

Unlearn to use a chalkboard
Learn to use a digital board

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

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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