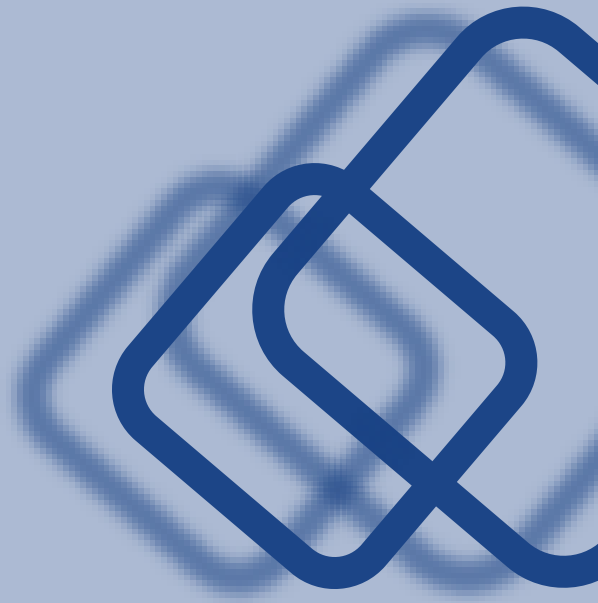
SDG4 - Could online teaching be the solution?

Exploring the impact that tools and techniques used in online teaching have on education quality

Milestone Project Presentation



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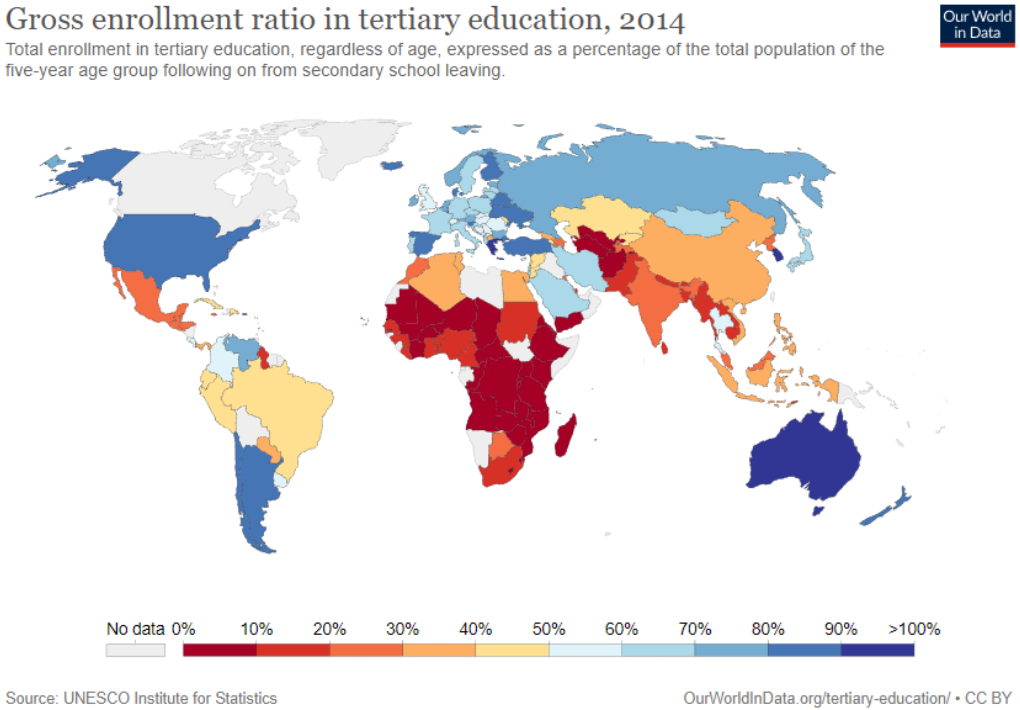
SUSTAINABLE DEVELOPMENT GOAL 4

“Ensure Inclusive and equitable quality education and promote lifelong opportunities for all.”

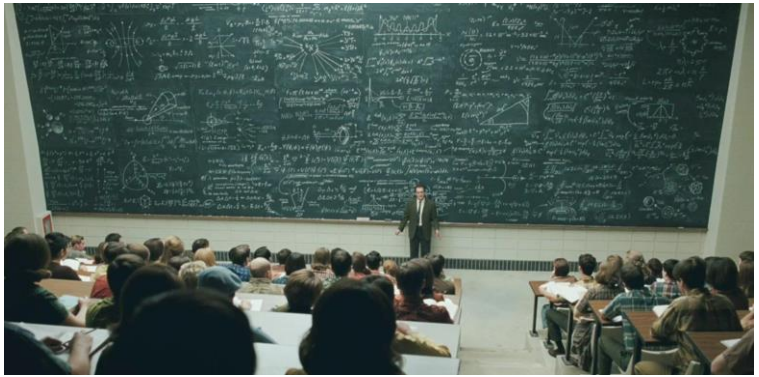
PROBLEM: ACCESS TO HIGHER EDUCATION

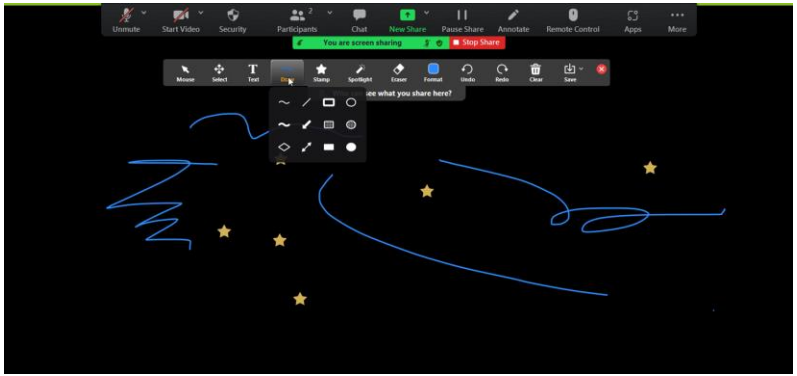
- Higher Education is not yet easily accessible to everyone in the world
  - lack of financial support
  - need to travel long distances
  - course of study not offered



SOLUTION: ONLINE TEACHING?

- Advantage: **Accessible anywhere**
- COVID-19 pandemic
  - increasing numbers of online lectures
    - -> only needs an internet connection
    - existing tools and techniques are translated to fit the new digital area of operation





RESEARCH QUESTION - HYPOTHESIS

- Does the translation of tools and techniques negatively impact the quality of education?
- Focus:
  - **academic performance**
  - **usability**

Hypothesis

1. *Tools and techniques used for online collaboration impact **academic performance***
2. *The **usability** of online tools and techniques used for collaboration is different*

PROCEDURE - STUDY DESIGN

- Conducted an online survey to investigate our hypothesis
- Survey had following sections:
  - Demographics
  - In-Person teaching
  - Online teaching
  - Direct Comparison In-Person Vs Online
- Types of questions:
  - 5-point Likert Scale
  - Open answer questions
- Within-Group Design

PROCEDURE - STUDY DESIGN

- Independent variables:
  - In-Person
  - Online
- Dependent variables:
  - Academic performance
    - Grades
    - Frequency of participation
  - Usability
    - Encouragement to participate in class
    - Motivation to attend class on a regular basis
    - Comfort while participating
    - Effectiveness of collaboration
    - Ease of use

ANALYSIS

- Quantitative analysis using a Wilcoxon Signed-rank test for within-group comparisons

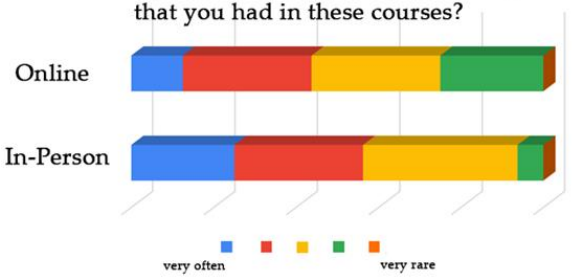
- Qualitative evaluation of the open answer questions via the Grounded Theory analysis method

RESULTS

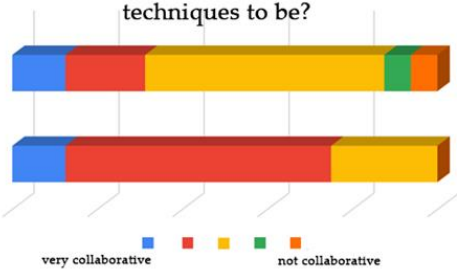
- Demographics:
  - 16 participants (13 male, 3 female)
  - Average age 25.06 years (SD=1.88)
- Wilcoxon Signed Rank test showed no significant difference:
  - Encouragement to participate in class (W=16, p=0.1576, Z =1.4132)
  - Motivation to attend class regularly (W=16, p=0.3573, Z =0.92057)
  - Comfort of participation (W=16, p=0.9167, Z=-0.10461)
  - Level of Collaboration (W=16, p=0.05422, Z=1.9251)
  - Ease of use (W=16, p=0.6234, Z=0.49097)
- Statistically significant difference noticed for
  - Frequency of participation (W=16, p=0.03481, Z =2.1106)

RESULTS

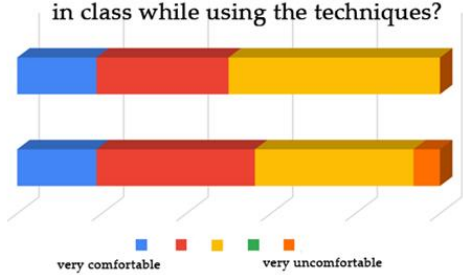
How would you rate the frequency of participation that you had in these courses?

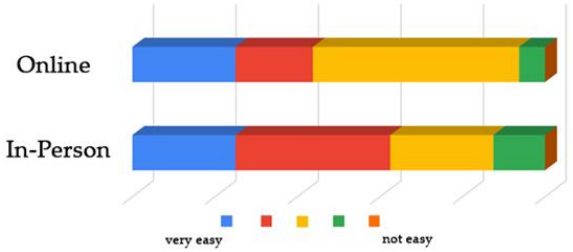


How collaborative would you describe the techniques to be?

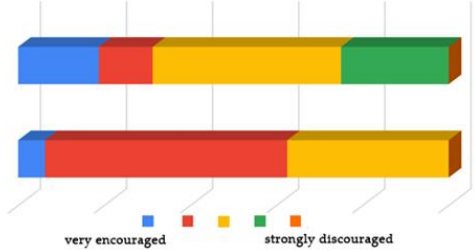


How comfortable did you feel participating in class while using the techniques?

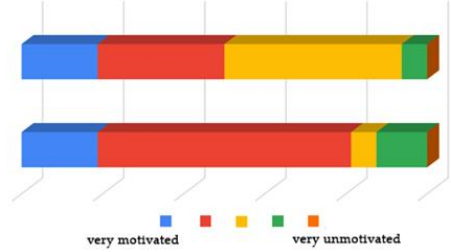




How easy did the usage of the techniques feel to you?



How encouraged did you feel to participate in class?



How motivated did you feel to attend class on a regular basis?

RESULTS

	In-person	Online
Interaction	+ personal interaction (11)	+ anonymous questions
Performance	+ obligated to attend + fewer distractions (3)	
Comfort	+ familiar	

DISCUSSION

Quantitative Analysis:

- no significant difference regarding DV *usability* of tools & techniques
  - cannot reject the null-hypothesis stating no difference for online and in-person
- no conclusion on the DV *performance* due to insufficient data

Qualitative Analysis:

- preferred form of teaching: combination of online and in-person (hybrid form)

LIMITATIONS

- misconception of our aim
  - lack of precision in our questions
- sample size not large enough
- discarded possible confounding variable “academic field of study”
  - **!=>** strong internal validity
- sample not demographically diverse enough, e.g. educational level, gender, etc.
  - **!=>** strong external validity

CONCLUSION AND FUTURE WORK

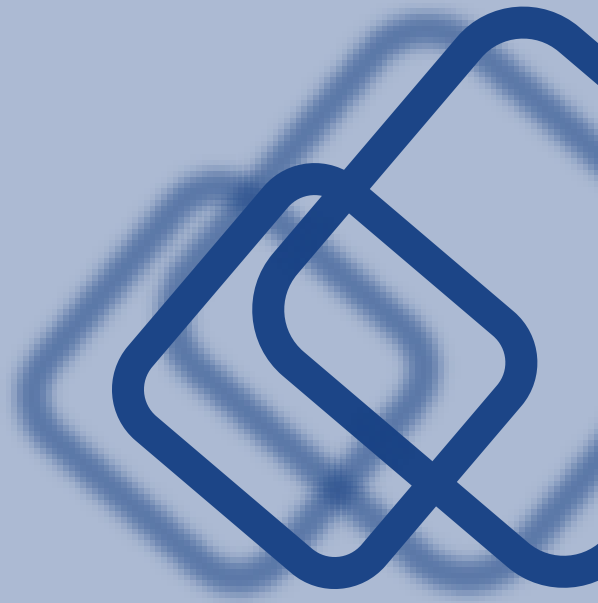
- no detectable drawbacks regarding online teaching based on used tools and techniques.

- tendency towards hybrid form of teaching
  - **possible proposal:** introducing hybrid classes to enable disadvantaged parties to participate in class.

- Helpful future approaches: in-person interviews and on-site experiments.

THANK YOU FOR YOUR ATTENTION!

Any further questions?



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