ACTIVE LEARNING SUPPORTED BY MEDIA

Peter Musaeus & Mads Ronald Dahl, Aarhus Universitet, Denmark
Four phases of video streaming - A case study of medical teaching

AARHUS
UNIVERSITY
CENTRE FOR EDUCATIONAL DEVELOPMENT - CED

15 NOVEMBER 2021

MADS RONALD DAHL
MSC, PHD, MI, SPECIAL CONSULTANT

CENTRE FOR EDUCATIONAL DEVELOPMENT
AARHUS UNIVERSITY, DENMARK

VIDEO -

AARHUS
UNIVERSITY
CENTRE FOR EDUCATIONAL DEVELOPMENT - CED

15 NOVEMBER 2021

MADS RONALD DAHL
MSC, PHD, MI, SPECIAL CONSULTANT

Four phases of video streaming

A case study of medical teaching

Mads Ronald Dahl, Aarhus University, CED, Centre for Educational Development
Kasper Lauritzen, Aarhus University, CED, Centre for Educational Development
Peter Musaeus, Aarhus University, CED, Centre for Educational Development

Background: 2018-2021

- Faculty of Health, medicine
- 3 semesters teaching
- 3 x 100+ lectures / semester
- 3 x 200+ students / semester
- 3 x 75+ teachers / semester
- Adobe Connect, Kaltura and Blackboard

- Streaming and lecture capture recordings
- Active learning activities (Mentimeter, SRS)

AARHUS
UNIVERSITY
CENTRE FOR EDUCATIONAL DEVELOPMENT - CED

15 NOVEMBER 2021

MADS RONALD DAHL
MSC, PHD, MI, SPECIAL CONSULTANT

VIDEO OUTPUT USING AC – KALTURE - BB

AARHUS
UNIVERSITY
CENTRE FOR EDUCATIONAL DEVELOPMENT - CED

15 NOVEMBER 2021

MADS RONALD DAHL
MSC, PHD, MI, SPECIAL CONSULTANT

RESULTS FROM IMPLEMENTATION

DATA pilot (N= 218 students)	Day 1	Day 2	Day 3	Day 4
Students in auditorium	150	100	50	30
Students streaming (on average)	11.2	56.5	89.2	106
Highest number of students streaming	12	61	101	109
Number of inputs to teacher on Mentimeter*	1	3	23	30
Number of unique students providing input	1	2	9	18

AARHUS
UNIVERSITY
CENTRE FOR EDUCATIONAL DEVELOPMENT - CED

15 NOVEMBER 2021

MADS RONALD DAHL
MSC, PHD, MI, SPECIAL CONSULTANT

TPACK.ORG AND SAMR MODELS

Technological Pedagogical Content Knowledge (TPACK)

Technological Pedagogical Knowledge (TPK)

Technological Knowledge (TK)

Technological Content Knowledge (TCK)

Pedagogical Knowledge (PK)

Content Knowledge (CK)

Pedagogical Content Knowledge (PCK)

Contexts

Transformation

Redefinition
Tech allows for the creation of new tasks, previously inconceivable

Modification
Tech allows for significant task redesign

Enhancement

Augmentation
Tech acts as a direct tool substitute, with functional improvement

Substitution
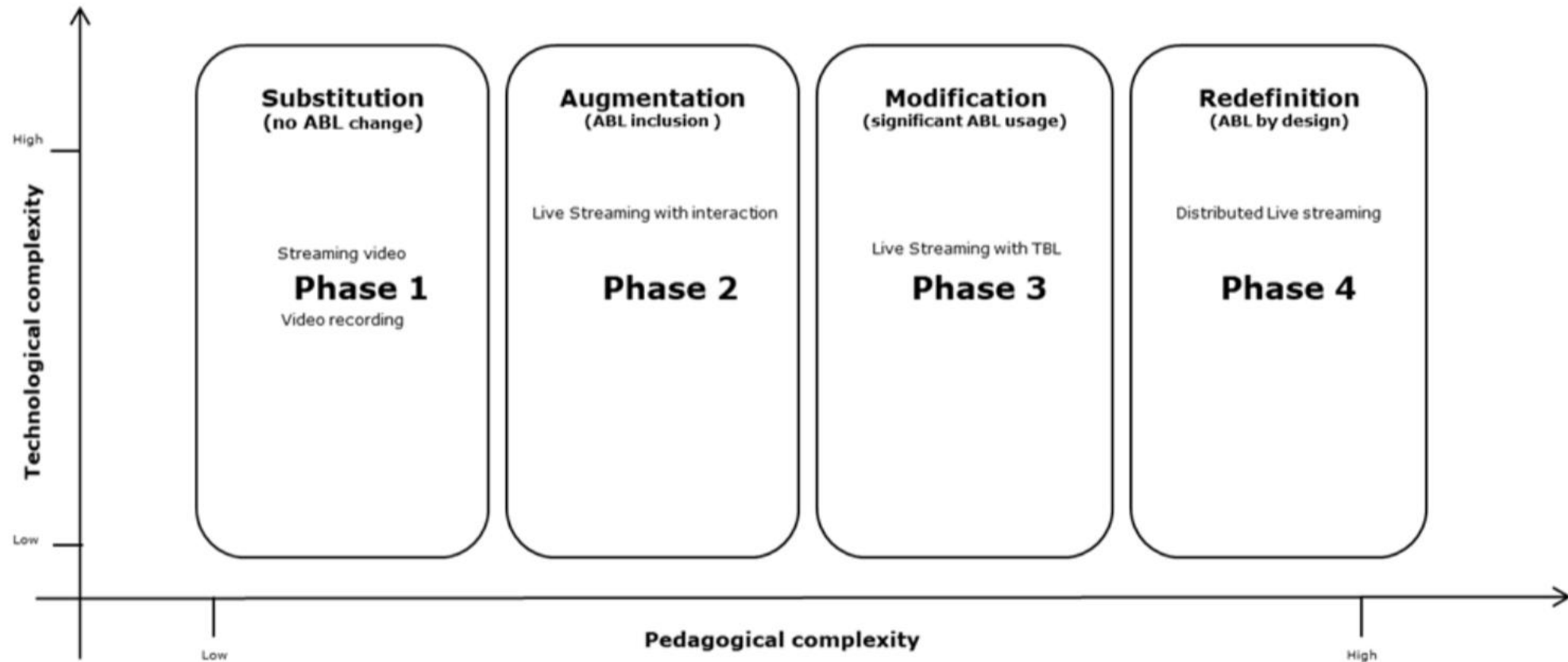Tech acts as a direct tool substitute, with no functional change

Figur 1: SAMR-modellen (www.hippasus.com)
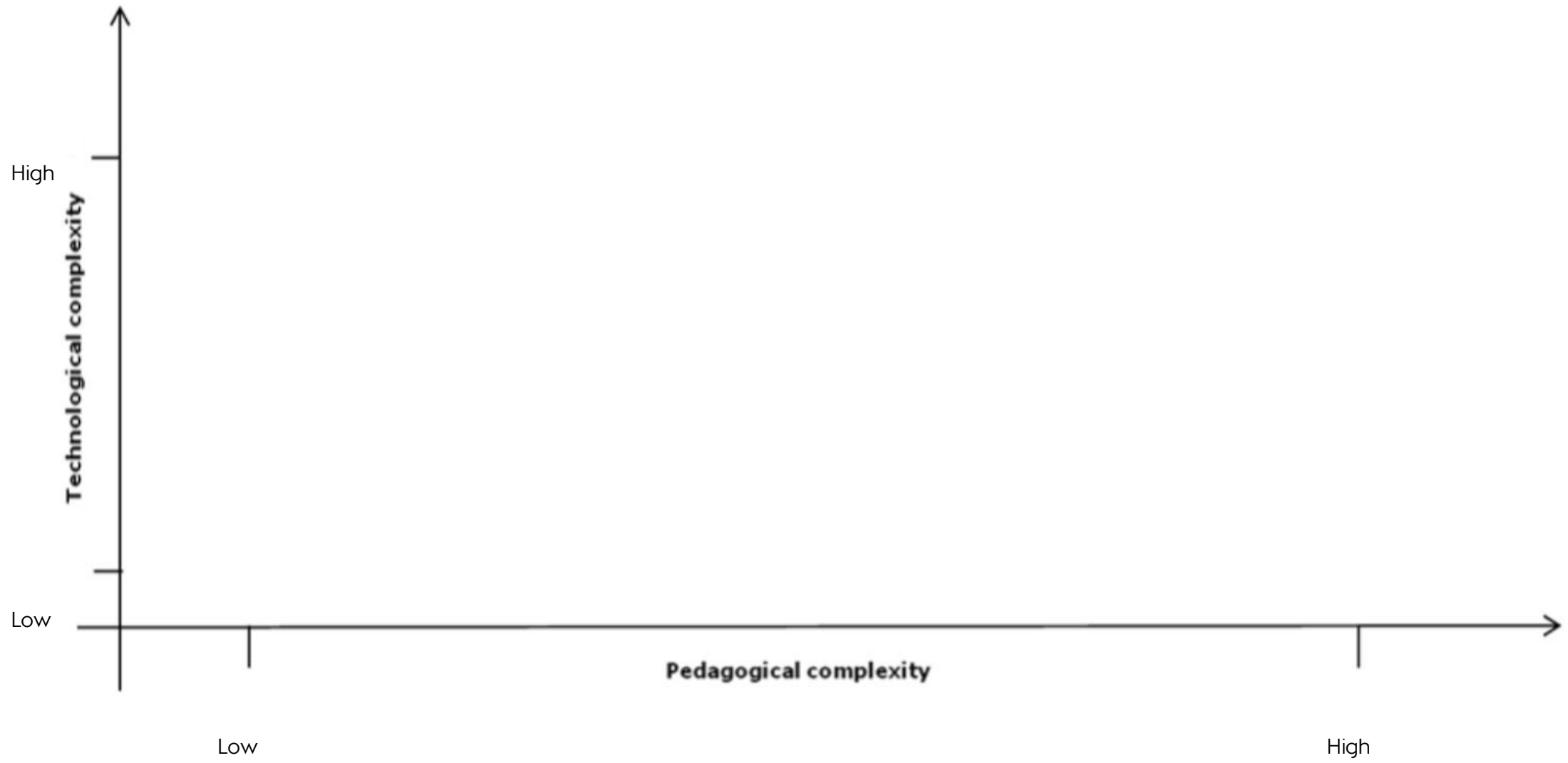
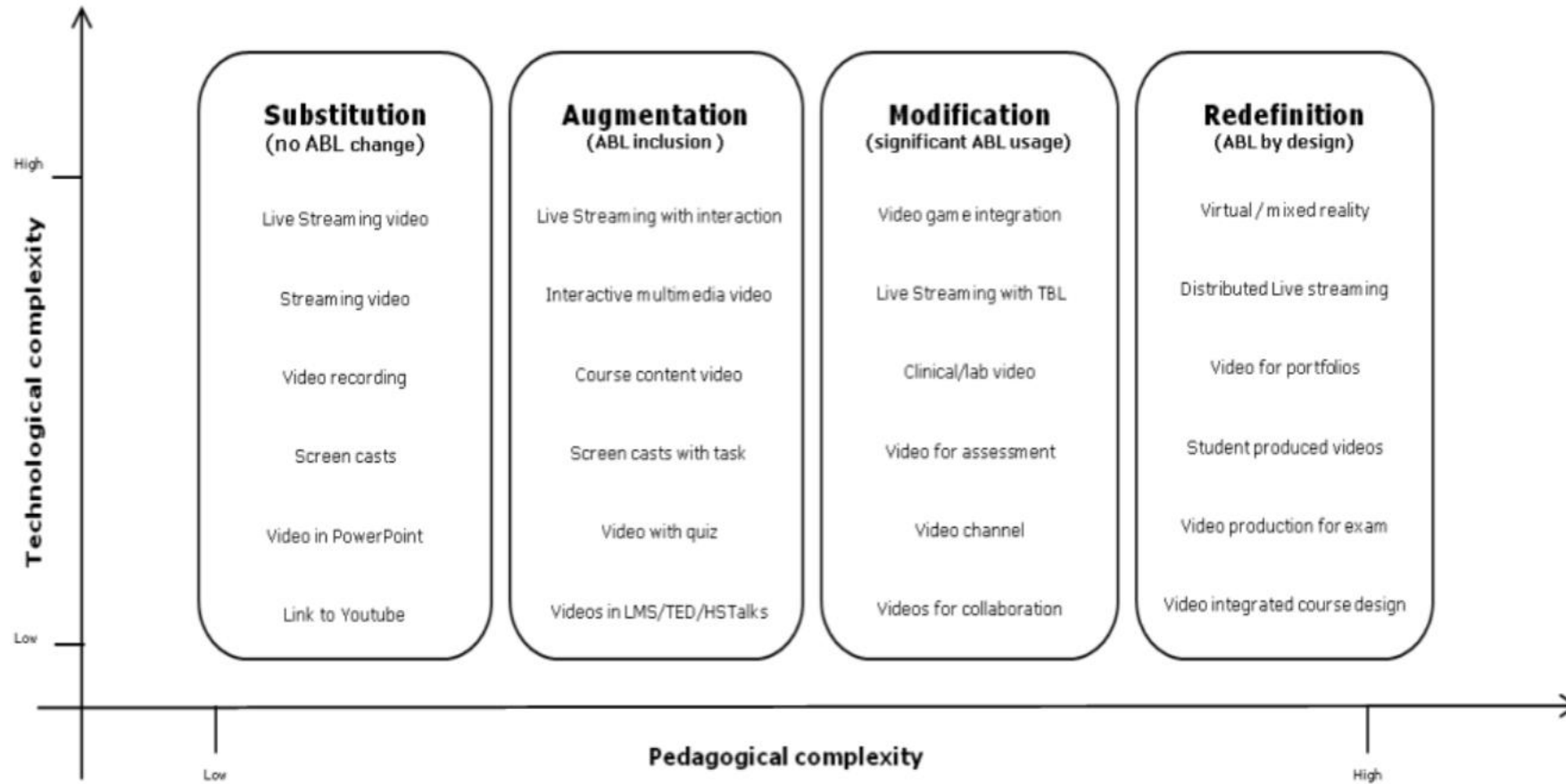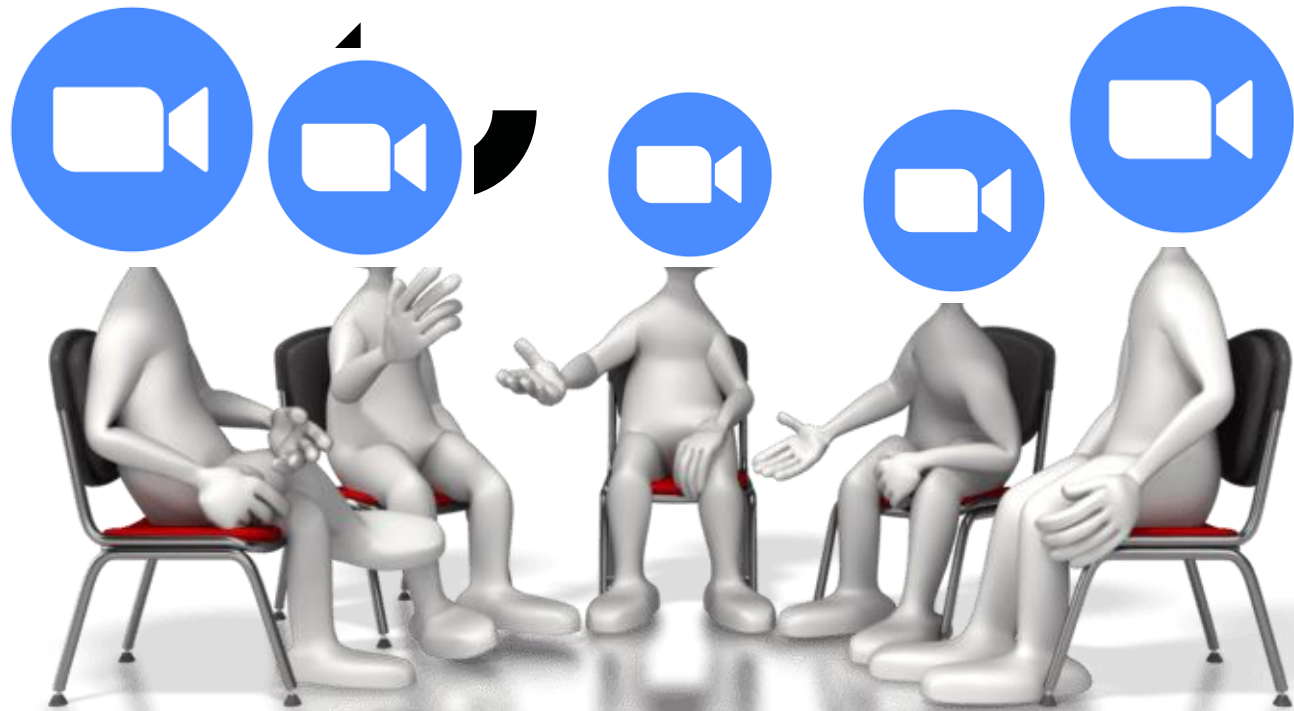Figure 3. SAMR and TPACK model matrix with the four case examples inserted for video usage in education.

AARHUS
UNIVERSITY
CENTRE FOR EDUCATIONAL DEVELOPMENT - CED

15 NOVEMBER 2021

MADS RONALD DAHL
MSC, PHD, MI, SPECIAL CONSULTANT

Figure 4. Facilitating discussion around key topics for each phase.

AARHUS
UNIVERSITY
CENTRE FOR EDUCATIONAL DEVELOPMENT - CED

15 NOVEMBER 2021
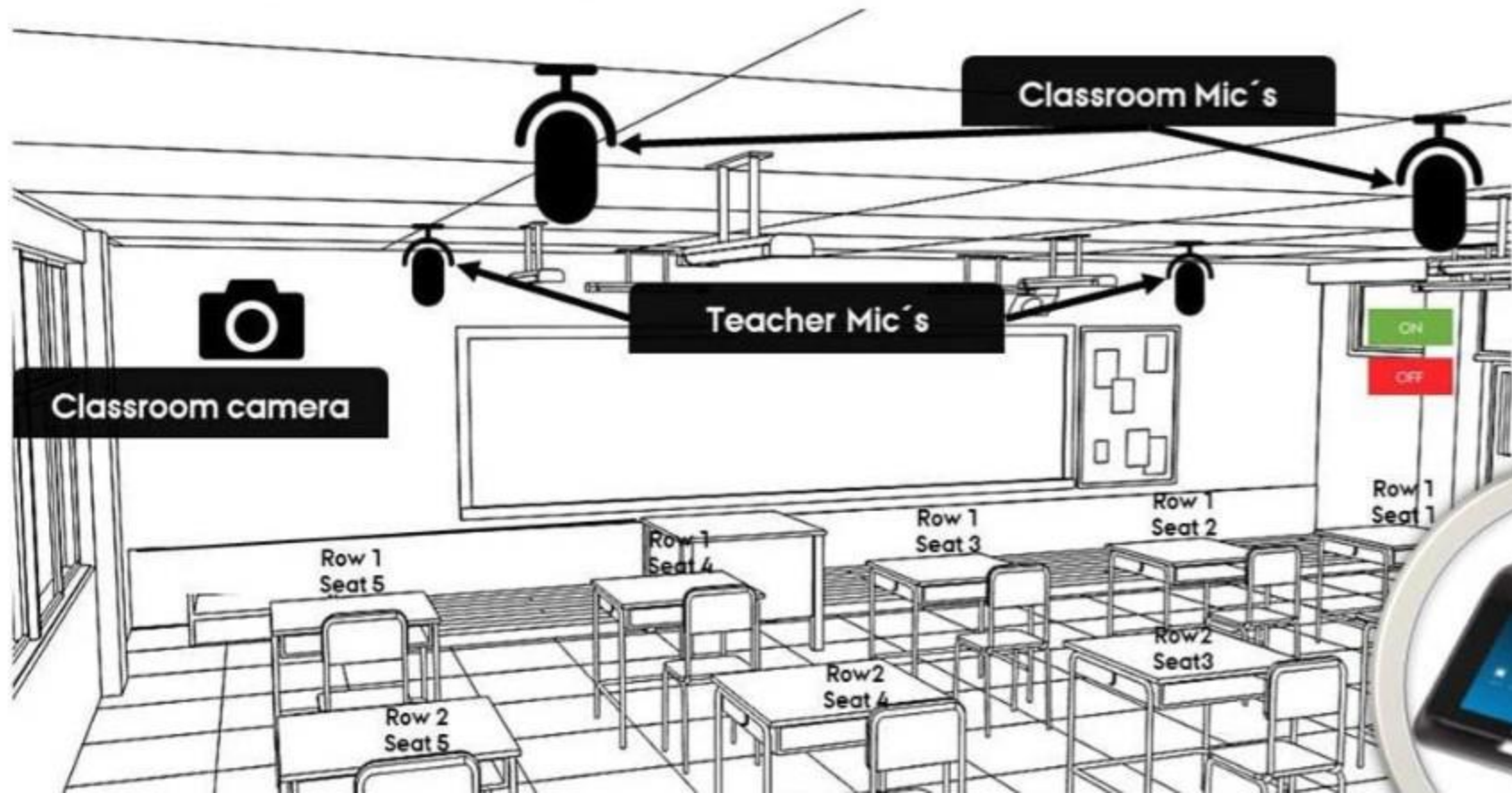
MADS RONALD DAHL
MSC, PHD, MI, SPECIAL CONSULTANT

PHASES 1 AND 2

PHASE 3

2. Individual readiness assurance test (IRAT)

3. Team readiness assurance test (IRAT) with immediate feedback

AARHUS
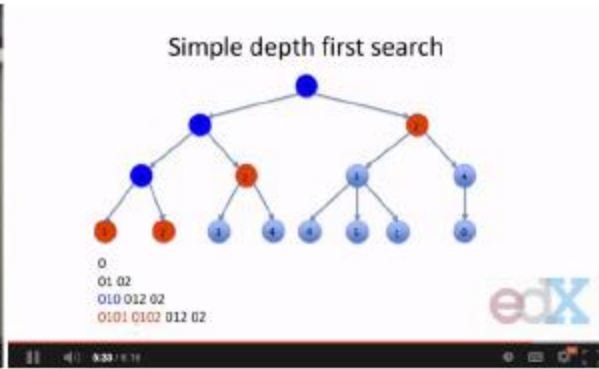UNIVERSITY
CENTRE FOR EDUCATIONAL DEVELOPMENT - CED
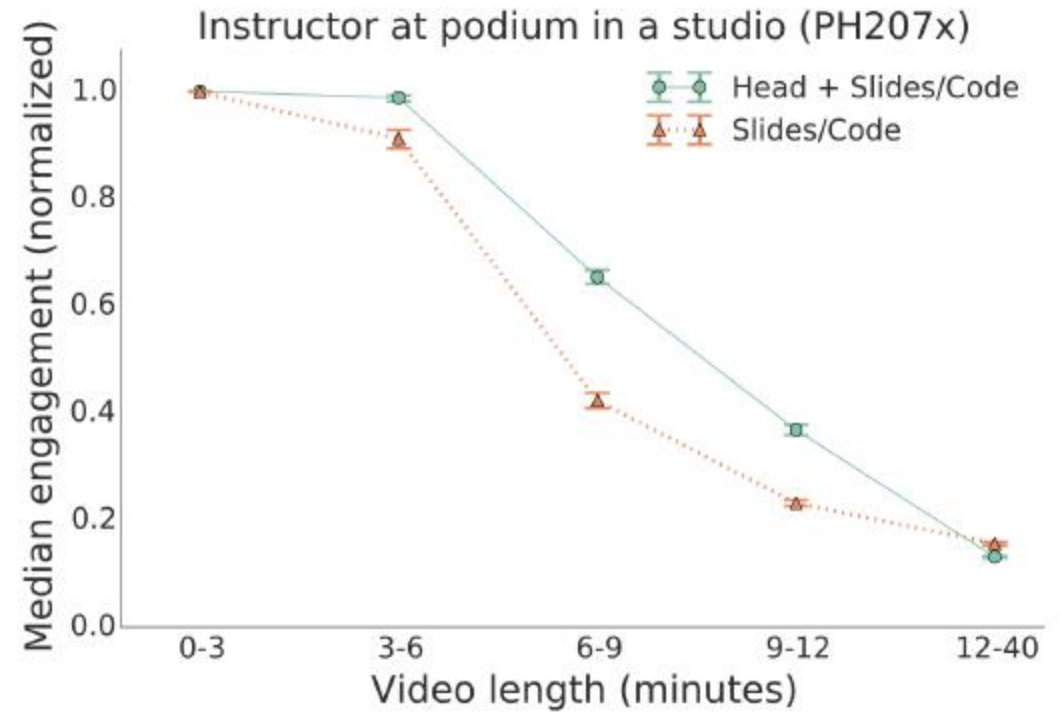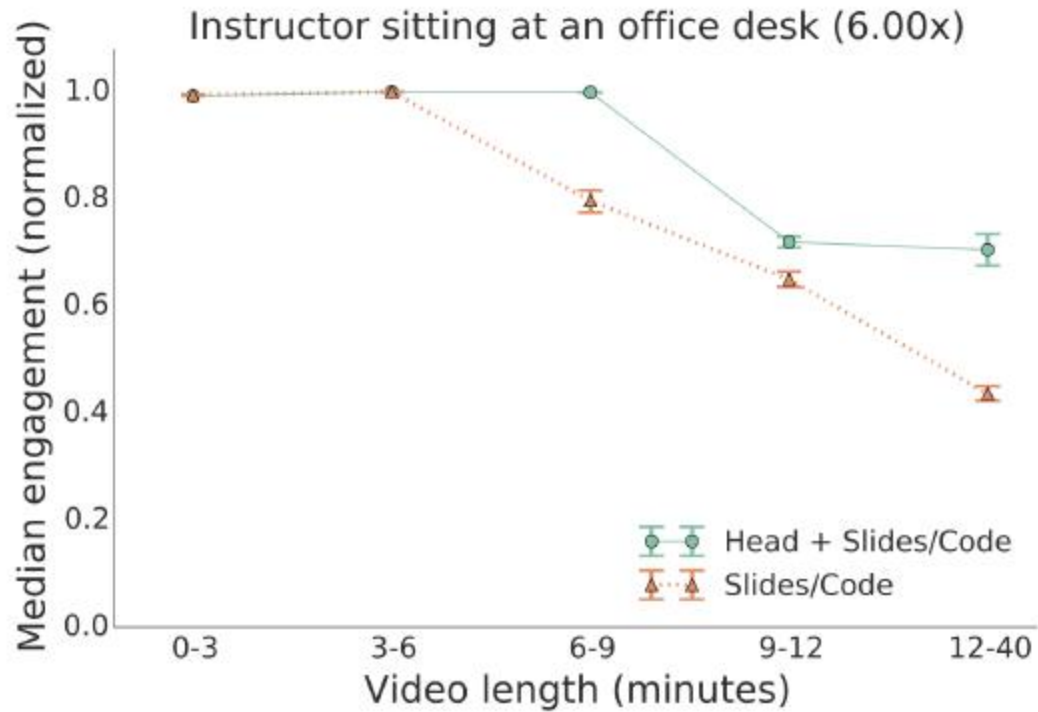
15 NOVEMBER 2021

MADS RONALD DAHL
MSC, PHD, MI, SPECIAL CONSULTANT

Teacher camera

Classroom ca

Classroom Mic´s

Teacher Mic´s

Teacher Mic´s

Classroom camera

ON

OFF

ON

OFF

Row 1
Seat 5

Row 1
Seat 4

Row 1
Seat 3

Row 1
Seat 2

Row 1
Seat 1

Row 2
Seat 5

Row 2
Seat 4

Row 2
Seat 3

AARHUS
UNIVERSITY

Instructor sitting at an office desk (6.00x)

Instructor at podium in a studio (PH207x)

Guo, Philip J., Juho Kim, and Rob Rubin. "How video production affects student engagement: An empirical study of MOOC videos." *Proceedings of the first ACM conference on Learning@ scale conference*. 2014.

AARHUS
UNIVERSITY
CENTRE FOR EDUCATIONAL DEVELOPMENT - CED

15 NOVEMBER 2021

MADS RONALD DAHL
MSC, PHD, MI, SPECIAL CONSULTANT

Hours of video uploaded to YouTube every minute as of February 2020

Additional Information

Show source
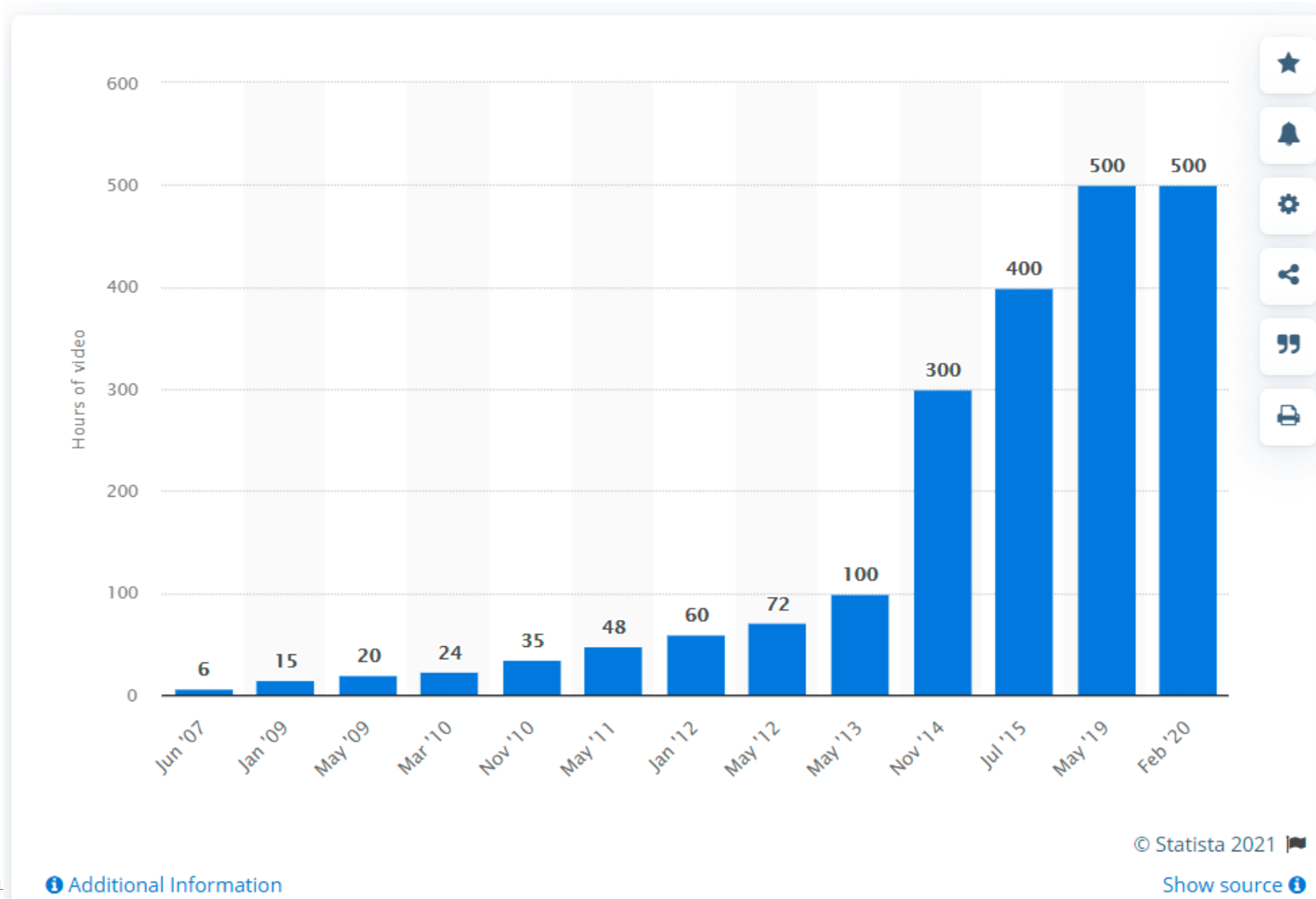
DIGITAL TV: THE NEED FOR SPEED

	Standard Definition DTV	High Definition (HD) TV	4K Ultra-HD (UHD) TV	8K UHDTV
Screen resolution (pixels)	720 x 480	1920 x 1080	4096 x 2160	7680 x 4320
Pixels per frame	345K	2.1M	8.8M	33M
Megapixels per second	10.4	124	531	1,991
Video signal bandwidth required (Gbps)	0.25	3	16	60

https://i1.wp.com/semiengineering.com/wp-content/uploads/2015/01/Screen-Shot-2015-01-14-at-8.41.50-AM.png