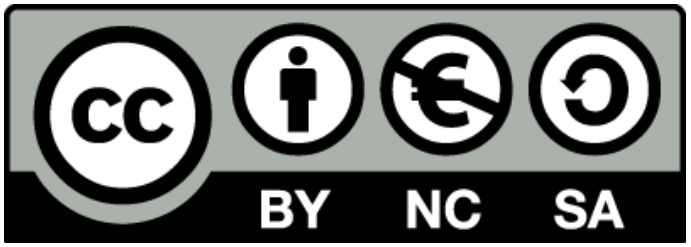
Innovative STEM Education
The Pedagogical Model
Learn STEM

by Christian M. Stracke
Open University of the Netherlands
@ Learn STEM Online Course 2020
Live event: 2020-04-21

Open Universiteit
www.ou.nl



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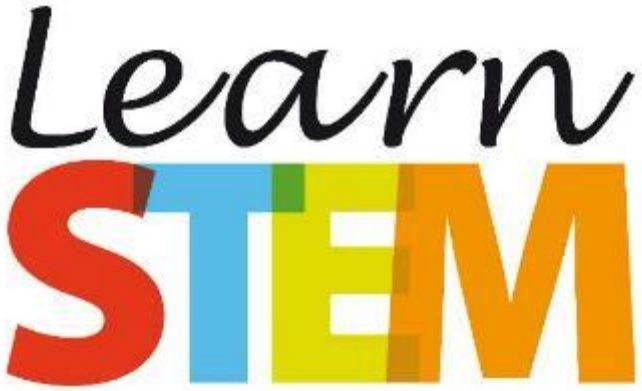
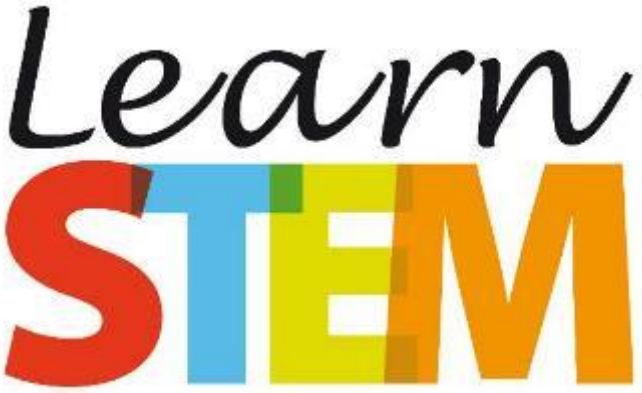
Welcome to our



Online Course!

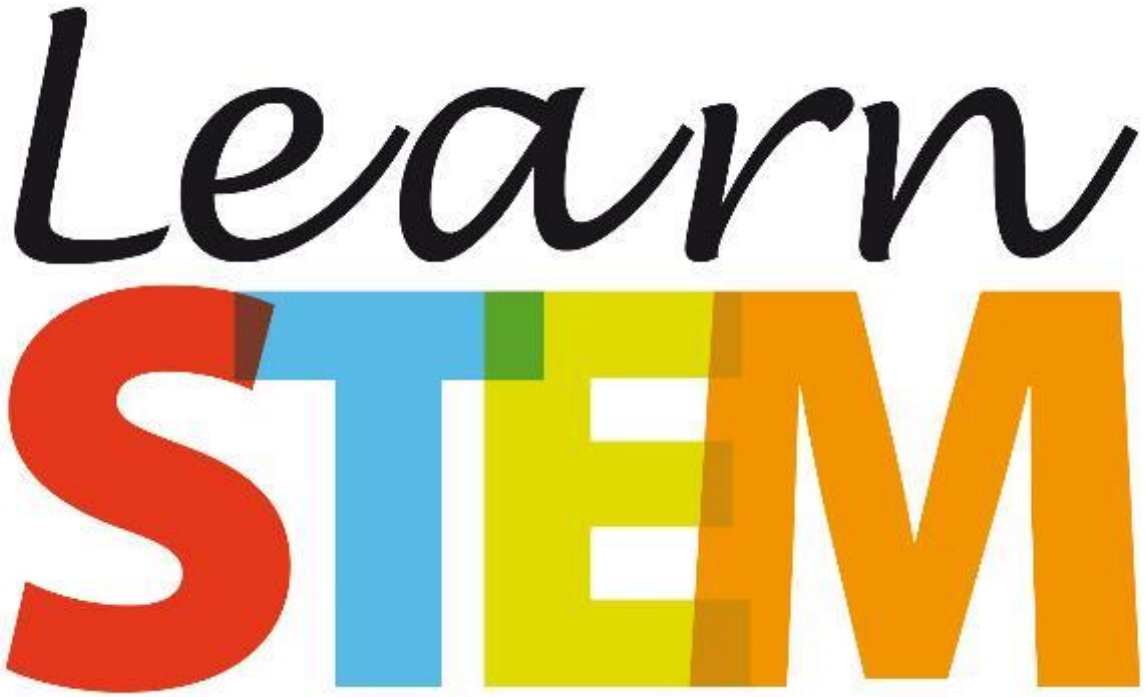
What is



?

STEM = Science, Technology, Engineering, & Mathematics (= MINT)

We are



We are Learn STEM

Learn STEM network

madan parque de ciencia

Kaunas Science and Technology Park

KAUNO SIMONO DAUKANTO PROGIMNAZIJA

Technische Hochschule Wildau Technical University of Applied Sciences

EEKHOUT ACADEMY

Learn STEM

www.Learn-STEM.org

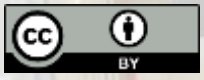
Open School Education

www.Learn-STEM.org

Learn STEM for you

Results from Mixed Methods research:

- **Pedagogical Model**
- **Teacher Training Programme**
- **Open Online Course (March 2020)**



Free to use & to adapt!

www.Learn-STEM.org

Learn STEM Online Course

Started: 26th of March 2020

4 weeks plus intro (started 12th of March 2020)

www.competencedevelopment.eu

www.Learn-STEM.org

Learn
STEM

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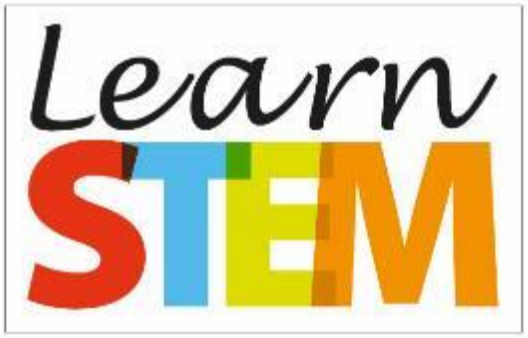
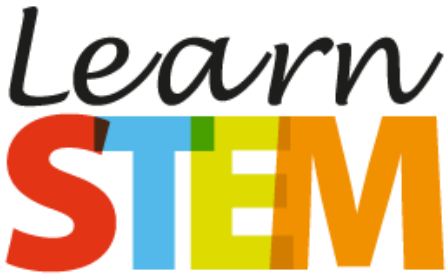


How do you GRADE our Learn STEM Online Course?

Please go online to: www.menti.com and use the code: 34 82 52



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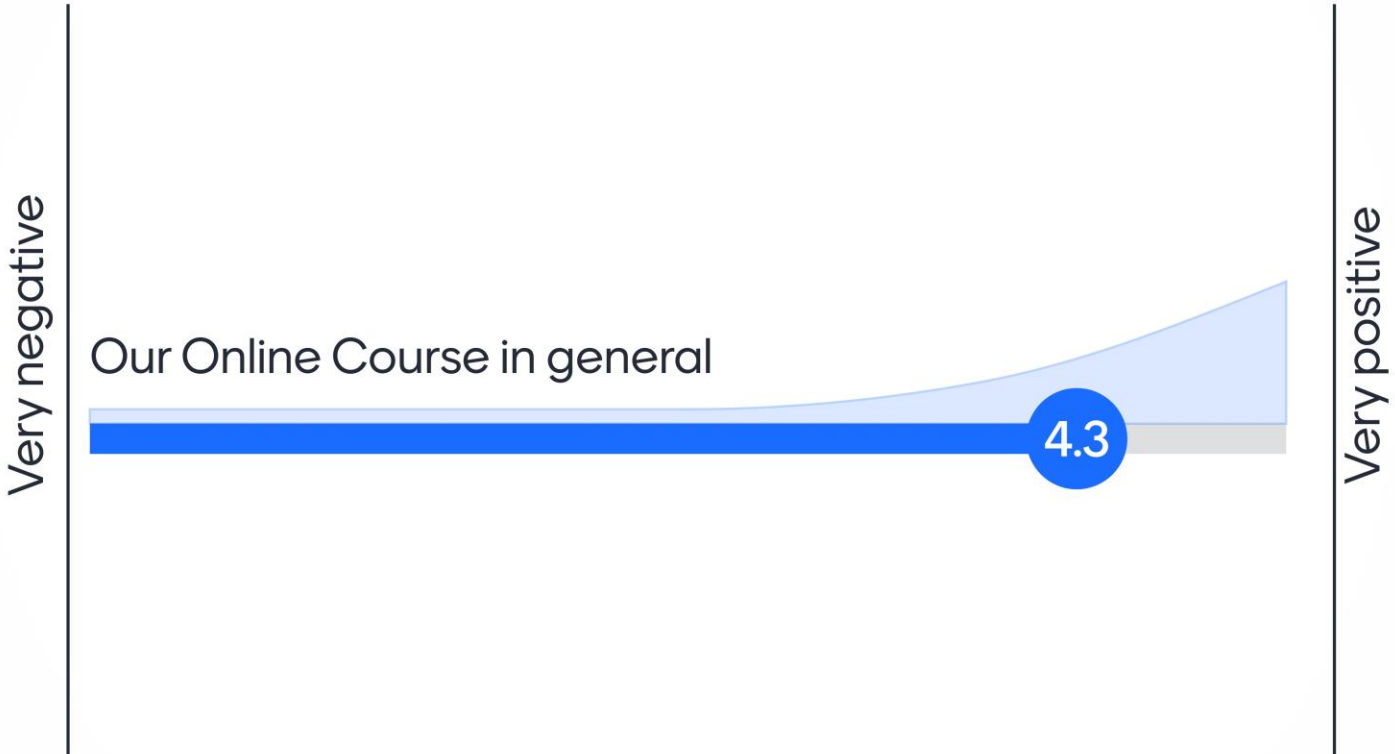
How do you grade our Online Course today?



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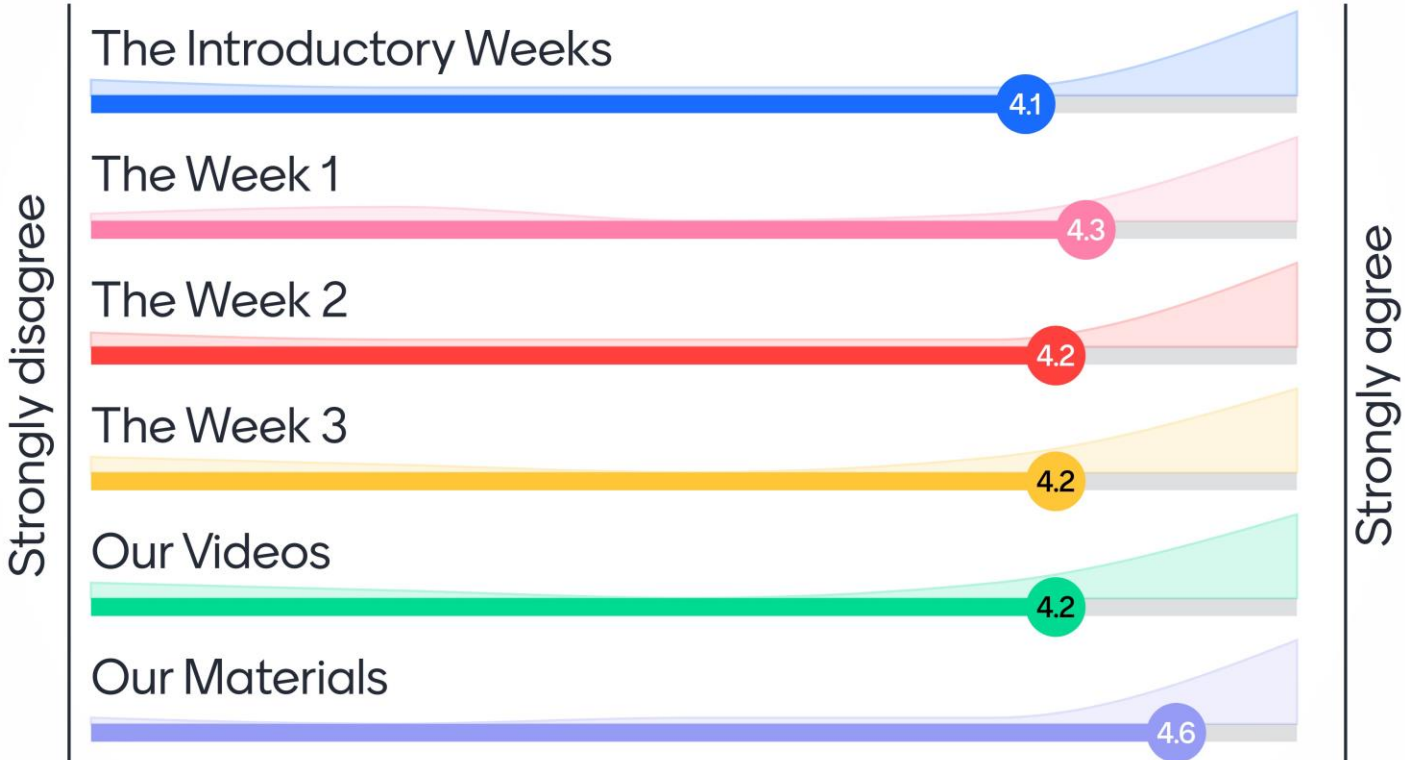
How do your grade our Online Course in details?



Pedagogical Model

COMPLEX
PROCESS-ORIENTED
HOLISTIC
PRACTICAL
SOCIAL

Free & open download:
www.Learn-STEM.org/Model

CC BY

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Phases for Learners

Oh, DEAR! Model:

Iterative cycles:

- **D iscover**
- **E xplore**
- **A pply**
- **R eflect**

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Phases for Teachers

Oh, DEAR! Model:

Iterative cycles:

- **D esign**
- **E xperiment**
- **A nalyse**
- **R ethink**

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What do you THINK about our Phases and Teacher-centred STEM Education?

Please add your comments, opinions, questions, etc. online to:
https://padlet.com/christian_stracke/LearnSTEM2020_Teachers

or use:

Our two projects

Teacher-centred STEM education:

1. **Go-Lab**
   for Inquiry-Based STEM Learning

2. **Scientix –**
   the community for science education

Free & open up- & download:
https://surfdrive.surf.nl/files/index.php/s/rnMYuH1kh8gBiPv

Our experts today

Diana Dikke

from Go-Lab (www.golabz.eu)

Agueda Gras-Velazquez

from Scientix (www.scientix.eu)

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https://surfdrive.surf.nl/files/index.php/s/rnMYuH1kh8gBiPv

Diana Dikke

from Go-Lab (www.golabz.eu)

"Go-Lab Ecosystem for inquiry learning with online labs"

Free & open up- & download:
https://surfdrive.surf.nl/files/index.php/s/rnMYuH1kh8gBiPv

Agueda Gras-Velazquez

from Scientix (www.scientix.eu)

"Integrated STEM in a Ferris Wheel"

Free & open up- & download:
https://surfdrive.surf.nl/files/index.php/s/rnMYuH1kh8gBiPv

Our free online tools

1. Our tools for online learning
2. Complex environments
3. Creating websites
4. Collection of other tools

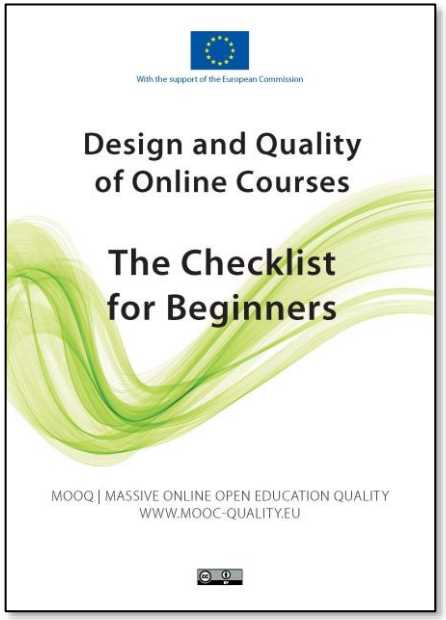
Free & open up- & download:
https://surfdrive.surf.nl/files/index.php/s/rnMYuH1kh8gBiPv

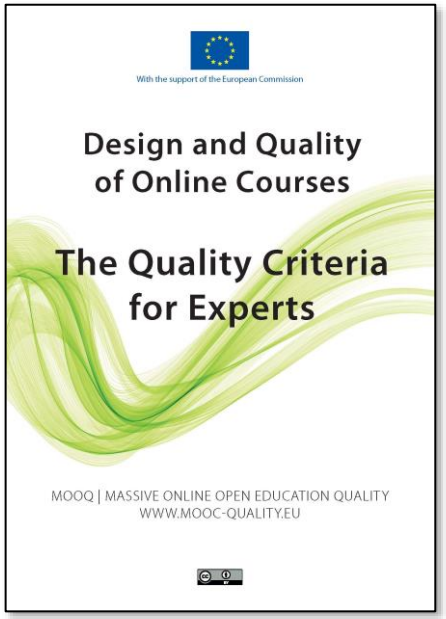
Tools for online learning

Design & Quality:

1. Checklist for Beginners

2. Quality Criteria for Experts





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Complex environments

Microsoft Teams (recommended):
https://www.microsoft.com/en-us/education/products/teams
Microsoft Office 365 Education:
https://www.microsoft.com/en-us/education/products/office
Microsoft Remote learning:
https://www.microsoft.com/en-us/education/remote-learning

Google G Suite for Education:
https://edu.google.com
Google Docs:
https://docs.google.com

Free & open up- & download:
https://surfdrive.surf.nl/files/index.php/s/rnMYuH1kh8gBiPv

Creating websites

Wordpress is THE standard for websites but not easy to install: https://wordpress.org (Worth to consider a third-party service)

A simple way to start with your own website: https://www.wix.com

Alternative for the collection & aggregation of different sources: https://scoop.it

Or you can simply use one of the online boards: http://board.net or: http://padlet.com or: https://bitpaper.io

Free & open up- & download: https://surfdrive.surf.nl/files/index.php/s/rnMYuH1kh8gBiPv

Collection of other tools (1)

Powerful for creating & re-using any content types, recommended:
https://h5p.org

Collaboration, communication & documentation for you (& pupils):
https://trello.com

Creating your own recordings and live streamings, recommended:
https://obsproject.com

Two platforms with great and many license-free photos:
https://pixabay.com (big) or: https://unsplash.com

Free & open up- & download:
https://surfdrive.surf.nl/files/index.php/s/rnMYuH1kh8gBiPv

Collection of other tools (2)

Voting with your pupils on any devices (online and offline):
https://kahoot.com

Other voting, testing and assessment tools:
https://socrative.com or: https://www.sli.do

Adding quizzes, voting and tests to your videos:
https://vizia.co

Convert any video into your own lesson:
https://edpuzzle.com

Free & open up- & download:
https://surfdrive.surf.nl/files/index.php/s/rnMYuH1kh8gBiPv

Your free online tools

Have you uploaded your own good practice examples and cases?

Free & open up- & download:
https://surfdrive.surf.nl/files/index.php/s/rnMYuH1kh8gBiPv

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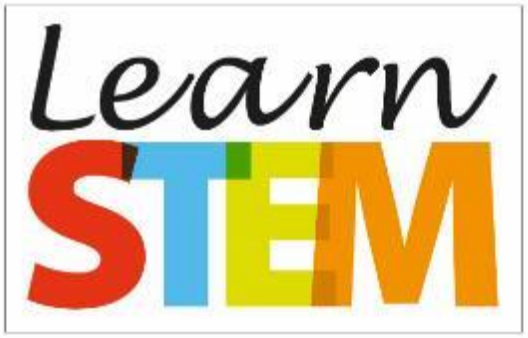

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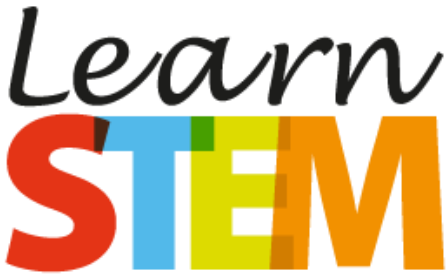

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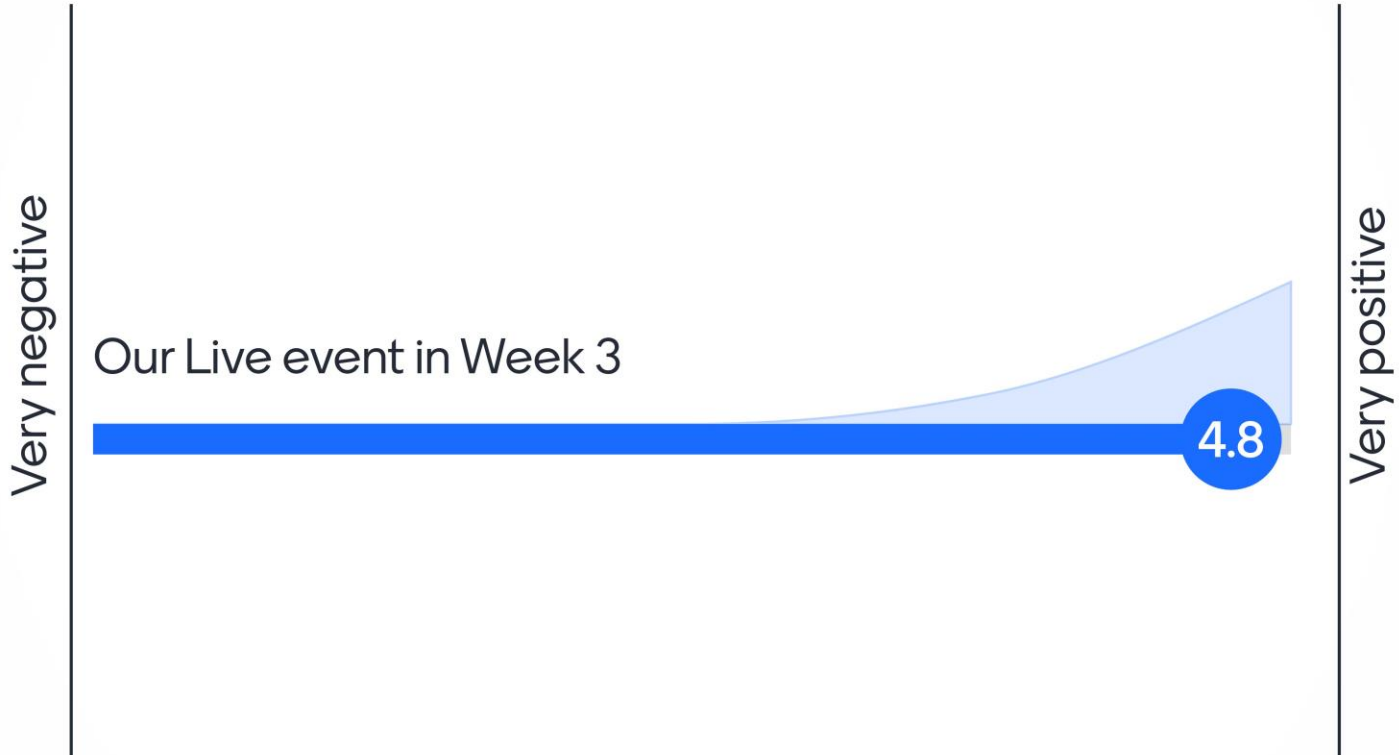
Please grade our Live event in Week 3 today!



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All also online available at: http://www.opening-up.education

Let us cooperate!

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My affiliations

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Open University of the Netherlands

Adjunct Professor for E-Learning
Korean National Open University

Advisory Professor for E-Learning
East China Normal University

Founder & Director of eLC, the European Institute for Learning, Innovation & Cooperation

My experiences

> 20 years E-Learning in business & academia

Research Institute leadership and strategic development

> 20 years design, realization, evaluation & optimization of study programs and courses

100+ International Projects: with > € 50 Mio. budgets and > € 4.8 Mio. own funding

Let us collaborate!

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