



Integrating OER in formal education

Image CC BY [girlingearstudio](#)

Welcome!



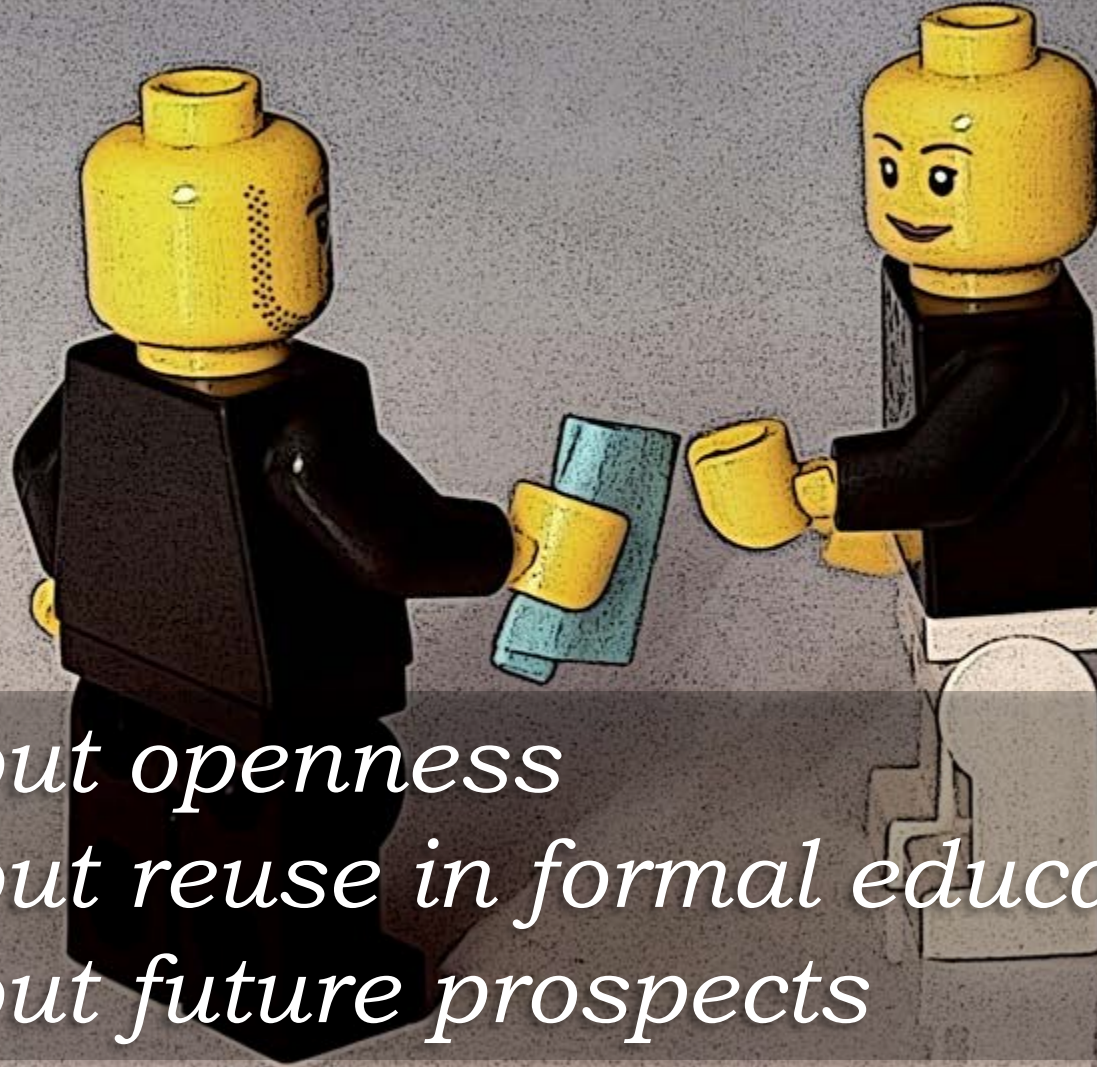
Martijn Ouwehand MSC



Open Education team

*OpenCourseWare
Online Distance Education*

Share knowledge



- *About openness*
- *About reuse in formal education*
- *About future prospects*

Image CC BY SA [Ewa Rozkosz](#)



**Increase
accessibility
&
Increase quality of
education**

Image CC BY Ekebus



5R

<http://www.opencontent.org/definition/>

Retain Reuse Revise

Remix Redistribute







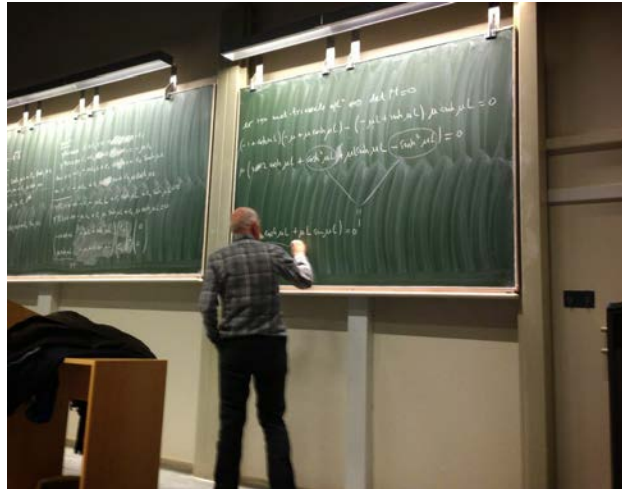


Image CC BY [Enlil Casablanca](#)

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Angle of twist

Enabled: Statistics Tracking

The angle of twist is the angle over which a beam rotates about its longitudinal axis due to torsion. Shear can also have a torsion component which causes a beam to twist. The angle of twist is related to the rate of twist by

$$\theta = \int \frac{d\theta}{dz} dz$$

The rate of twist does not have to be constant over the beam. Different cross-section geometries, different materials, or different loading cases all change the local rate of twist. For more information, see the topic Rate of Twist

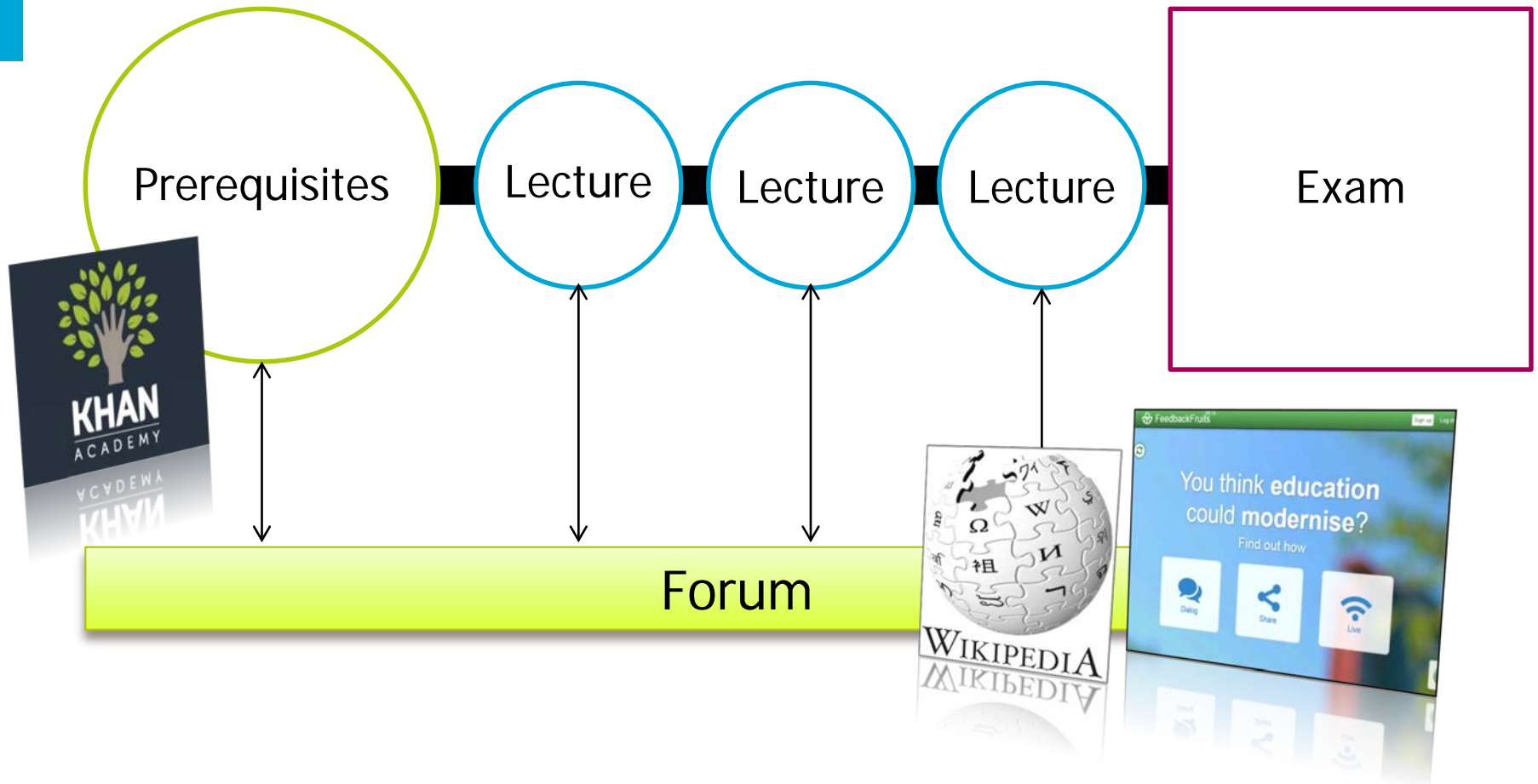
Bending, idealised cross-sections

Enabled: Statistics Tracking

See Section 20.3.1 in Megson. Also, see slides 21-24 of [Lecture 9](#).
Alternatively, see the collegerama recording of Lecture 9 from [\[50:19\]](#) onwards.

Bending of multiple-material beams

Alternatively, see the collegerama recording of Lecture 9 from [\[20:16\]](#) onwards.



MOOCs in class

- Honours Class '*Attacking Complexity*'
 - 20 students
- MOOC VanderBilt University
 - Thinklabs & Actionlabs



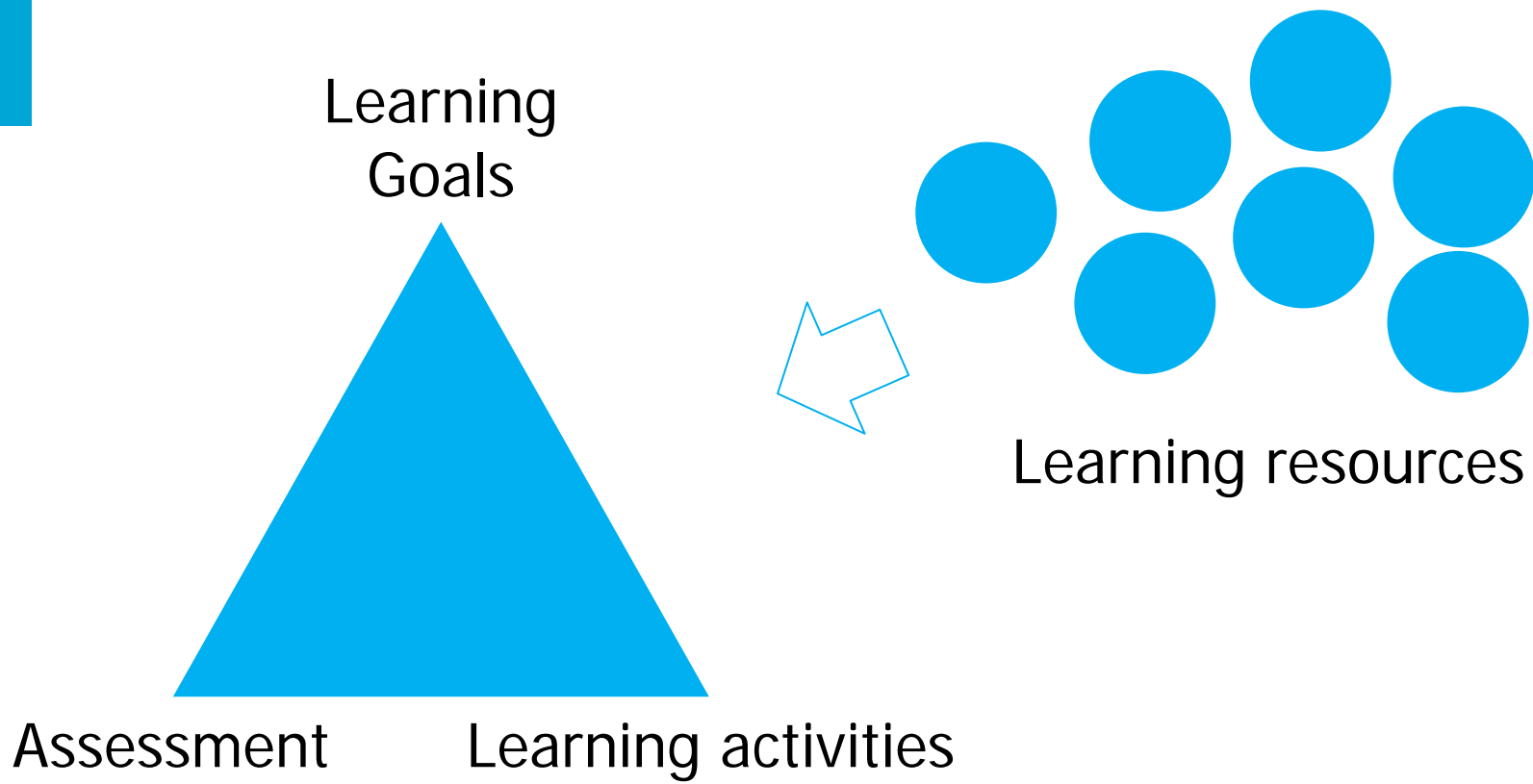
Universiteit Leiden

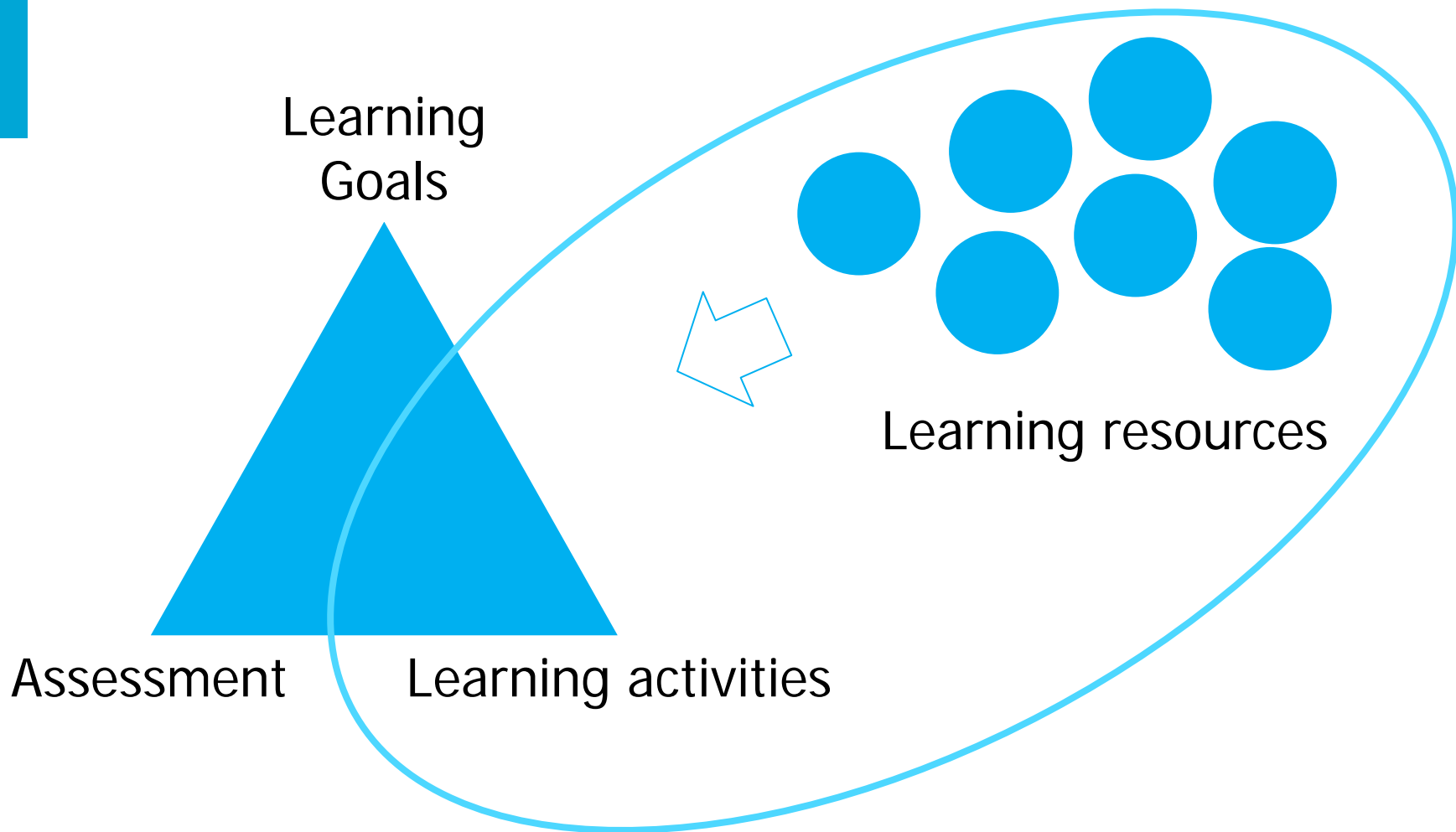
Universiteitsbibliotheek ←
University Library

Letteren *Arts*

Wijsbegeerte *Philosophy* →

Godgeleerdheid *Theology* ↑





Flip/blend/reverse/...



Reversed Teaching

Prof. Mr. Dr. Ir. Sicco Santema
TU Delft



Youtube Fridays

Prof. Matthew W. Liberatore, Prof. Charles Vestal
Colorado School of Mines



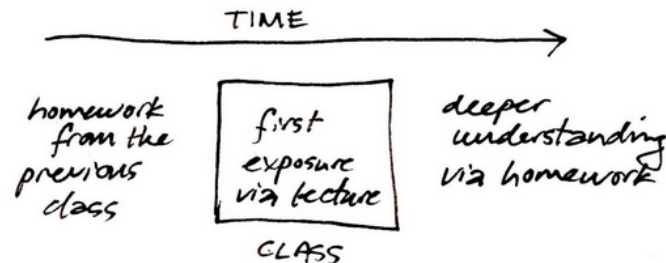
Peer Instruction

Prof. Eric Mazur
Harvard

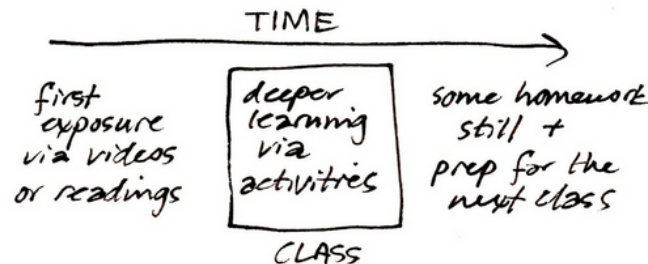
Flipped Classroom Field Guide



Traditional Classroom:



Flipped Classroom:



[Maya Adam flipped report](#)

University: Stanford
Class: Child health and nutrition
Strategies: [Applications](#), [Extensions](#), [Experiential learning](#)
Size: 85 students



[Dan Boneh's flipped report](#)

University: Stanford
Class: Cryptography
Strategies: [Sequence of questions](#), [Applications](#)
Size: 150 students



[Doug Fisher's flipped report](#)

University: Vanderbilt
Class: Machine Learning, Databases
Strategies: [Student-generated content](#), [Small group problem solving](#), [Applications](#)
Size: 10 students, 30 students



[Scott Klemmer flipped report](#)

Name: Scott Klemmer
University: Stanford
Class: Human-Computer Interaction
Strategies: [Small group problem solving](#), [Experiential learning](#)
Size: 250 students



[Dan McFarland flipped report](#)

University: Stanford
Class: Organizational Theory
Strategies: [Experiential learning](#), [Applications](#)
Size: 44 students



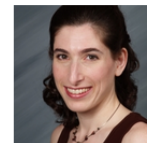
[Mohamed Noor flipped report](#)

University: Duke
Class: Genetics and Evolution
Strategies: [Just-in-time teaching](#), [Packet of problems](#), [Sequence of questions](#), [Small group problem solving](#)
Size: 450 students



[Scott Rixner/Joe Warren flipped report](#)

University: Stanford
Class: Introduction to Python
Strategies: [Extensions](#), [Small group problem solving](#), [Peer feedback](#), [Applications](#)
Size: 70 students



[Kristin Sainani flipped report](#)

University: Stanford
Class: Writing in the Sciences
Strategies: [Collaborative Learning](#), [Activities Peer feedback](#), [Discussion activities](#)
Size: 12 students



[Adrienne Williams flipped report](#)

University: UCI
Class: Introductory Biology
Strategies: [Applications](#), [Extensions](#), [Just-in-time teaching](#), [Small group problem solving](#)
Size: 75 students



[Philip Zelikow flipped report](#)

University: UVA
Class: Global History
Strategies: [Applications](#), [Discussion activities](#)
Size: 76 students



[Steve Everett flipped report](#)

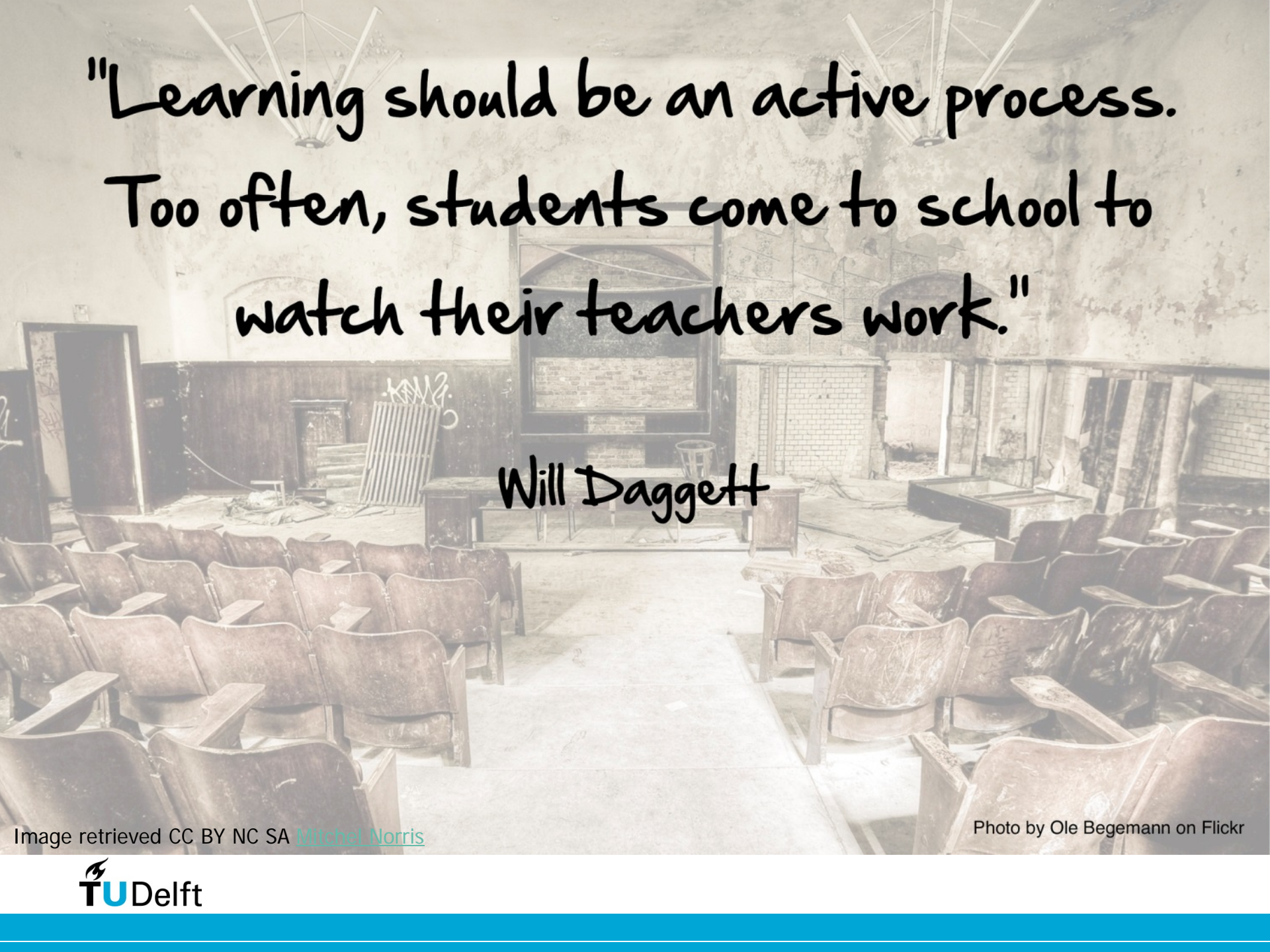
University: Emory



[Larry Diamond flipped report](#)

University: Stanford

[Flipped Classroom Field Guide](#)

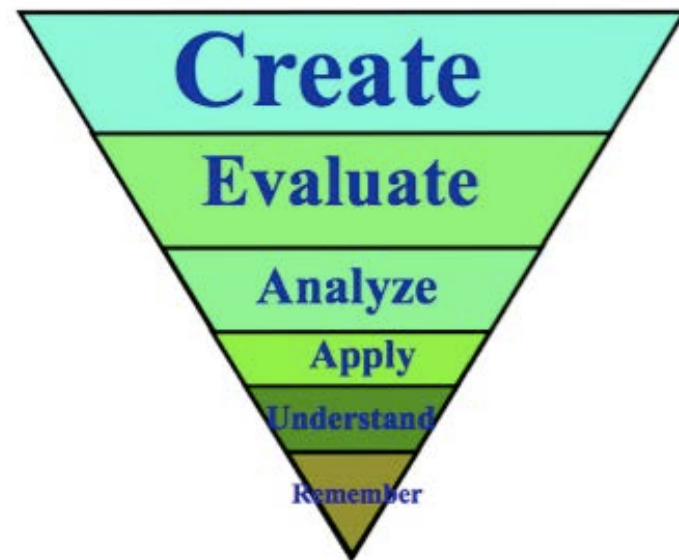


"Learning should be an active process.
Too often, students come to school to
watch their teachers work."

Will Daggett

Image retrieved CC BY NC SA [Mitchel Norris](#)

Photo by Ole Begemann on Flickr



Photo's: CC BY-NC-SA 2.0 by Darren Kuropatwa



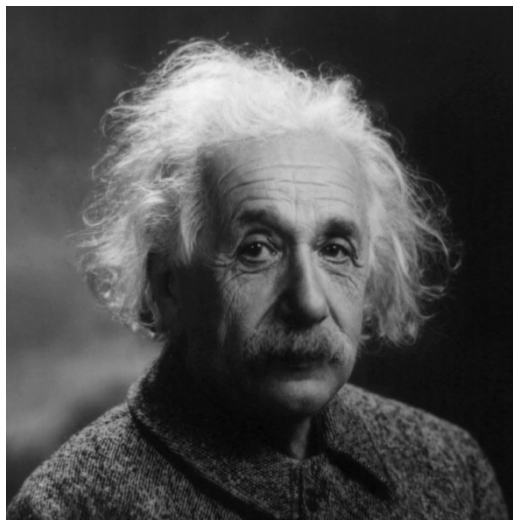
*“What if we treat content as a byproduct of learning” and focus instead on the experience -
@Gsiemens #opened13*

@Audrey Watters, 06-1-13 17:51



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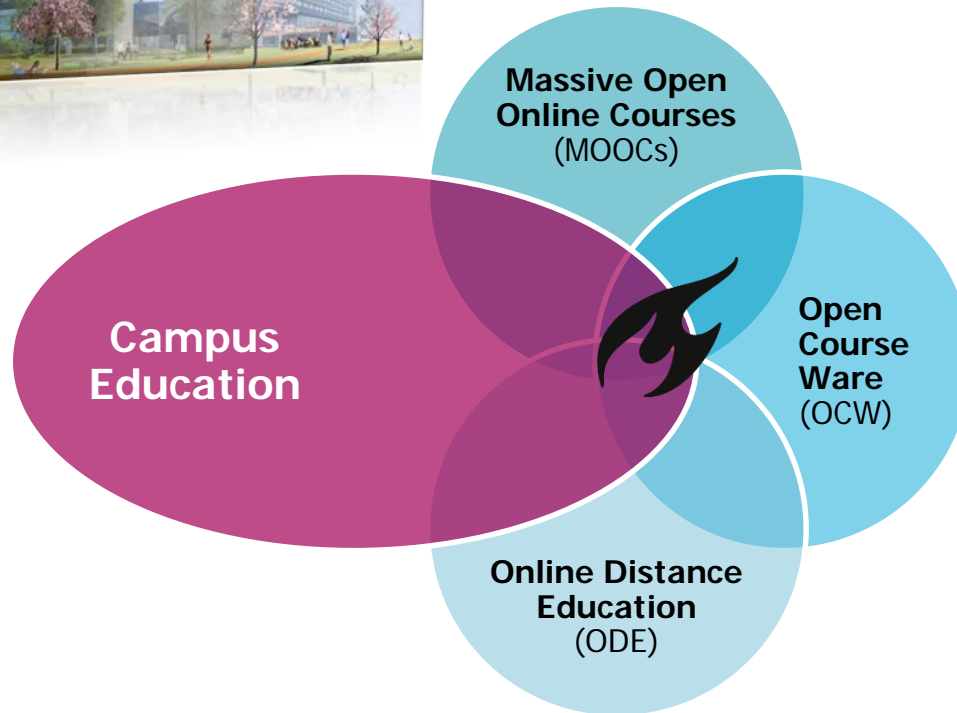


“Education is not the learning of facts, but the training of the mind to think”

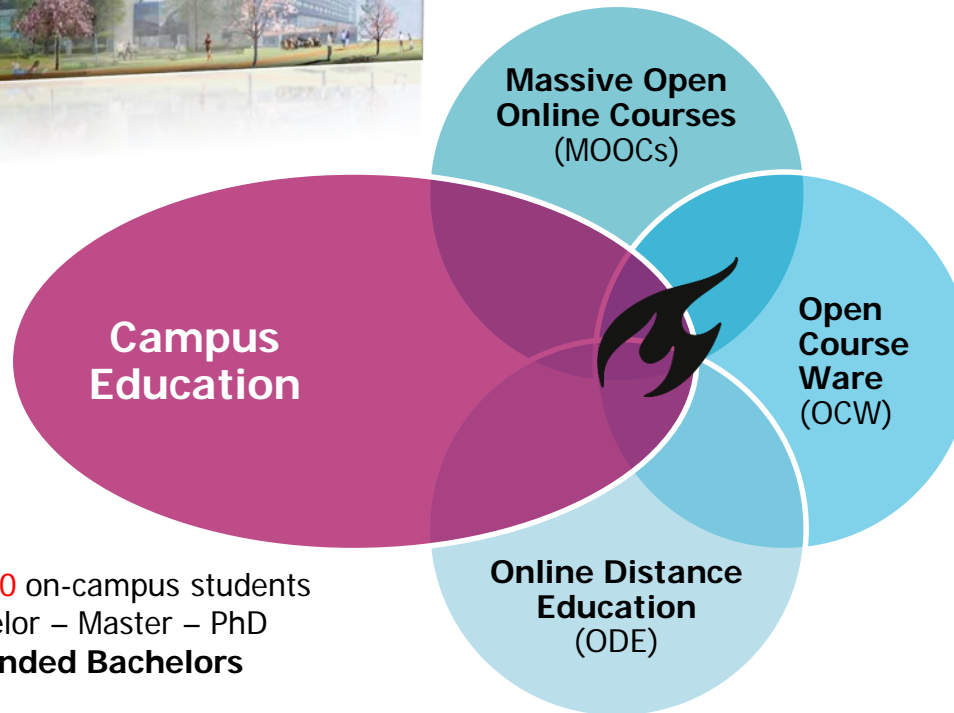
Albert Einstein

Image CC BY NC [Thomas Thomas](#)

Open & Online portfolio

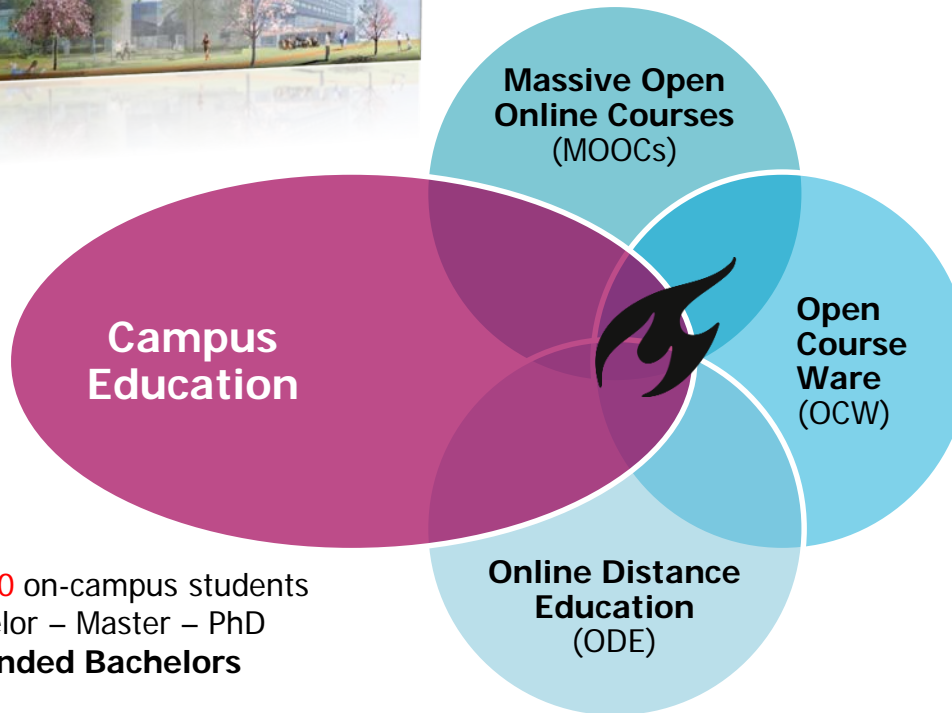


Open & Online portfolio



- **19.000** on-campus students
- Bachelor – Master – PhD
- **2 blended Bachelors**

Open & Online portfolio



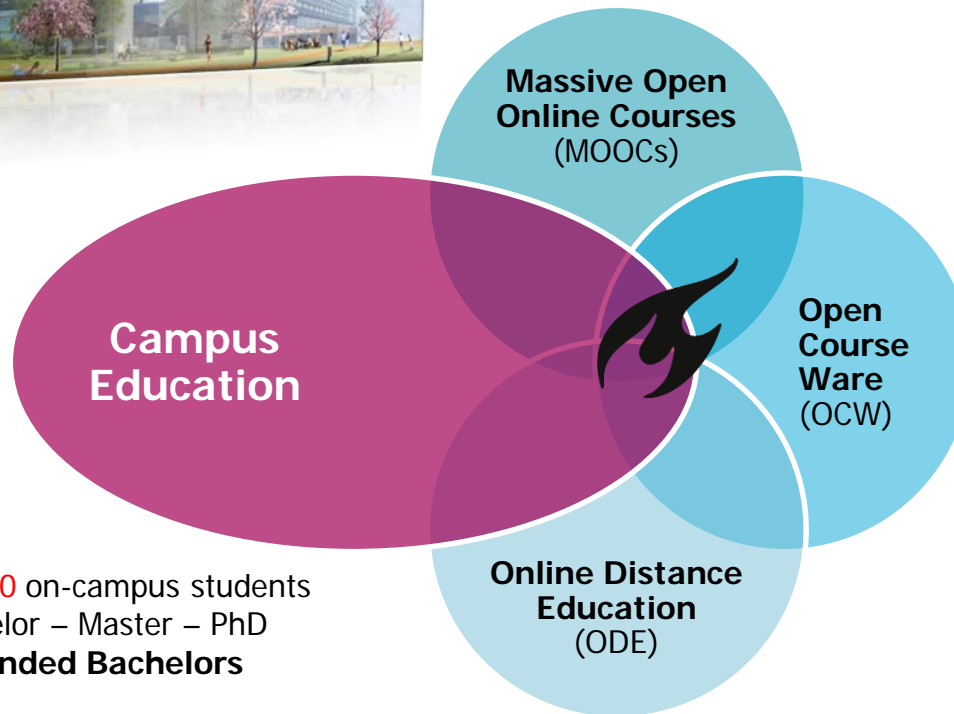
- **19.000** on-campus students
- Bachelor – Master – PhD
- **2 blended Bachelors**

- **More than 120 courses online & 10.000 weblectures recorded**
- Unique visitors > **800 /day**
- *No interaction with faculty*
- *No accredited certificate*

Open & Online portfolio



- 2 MOOCs (> 80.000 enrollments)
- ≈ 5.000 Certificates of Completion
- 3 MOOCs starting
- *No Credits*



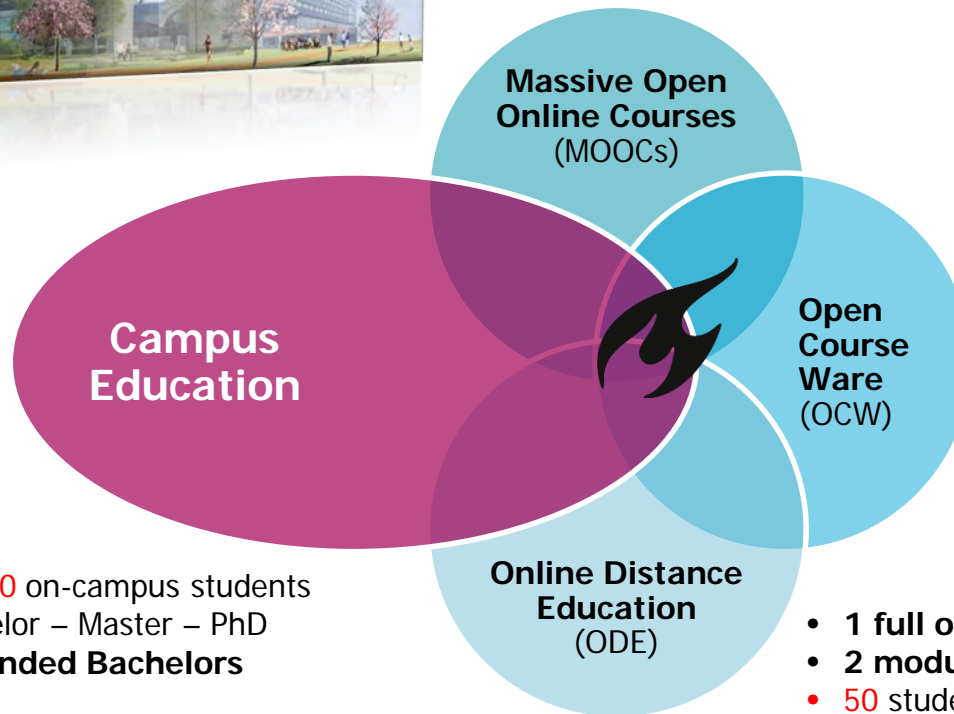
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- Unique visitors > 800 /day
- *No interaction with faculty*
- *No accredited certificate*

- 1 full online master (25 courses)
- 2 modules, 1 minor, 1 master (6 courses)
- 50 students (30 on-campus)
- Full Master Degree / Accredited Course Certificate

MOOC

- Open Access
- Bachelor level
- Single course
- No EC
- Certificate of Completion

Course

- Pay per course
- Bachelor and master
- Single Course
- <10 EC
- Course Certificate

Serie

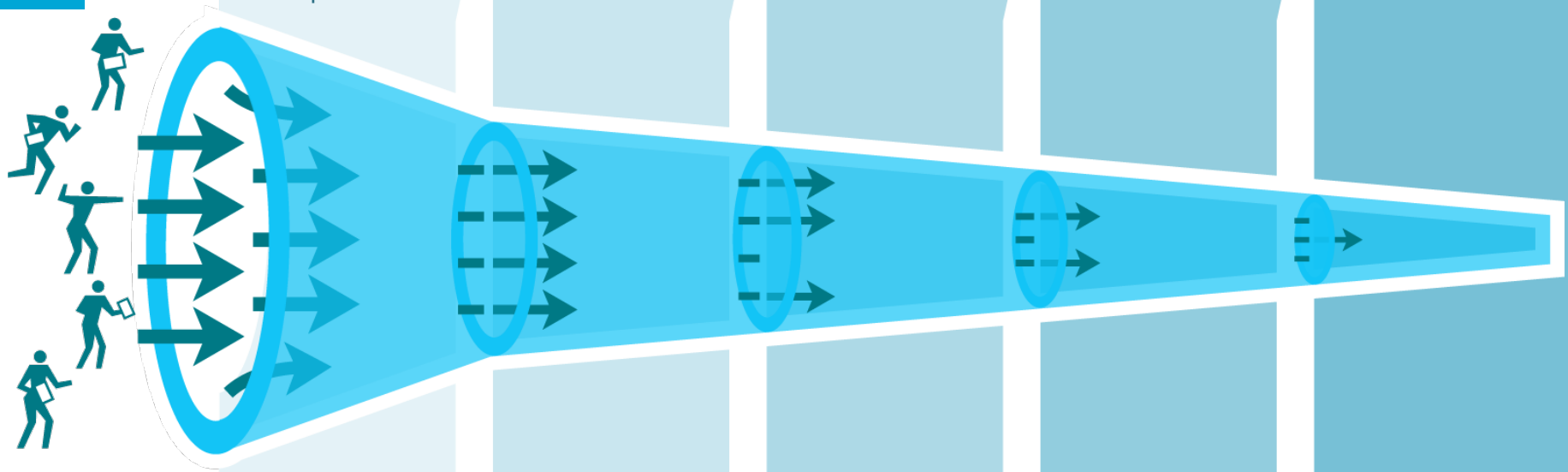
- Pay per course
- Bachelor and Master
- Couple of courses
- 10 -15 EC
- Formal Certificate

Module

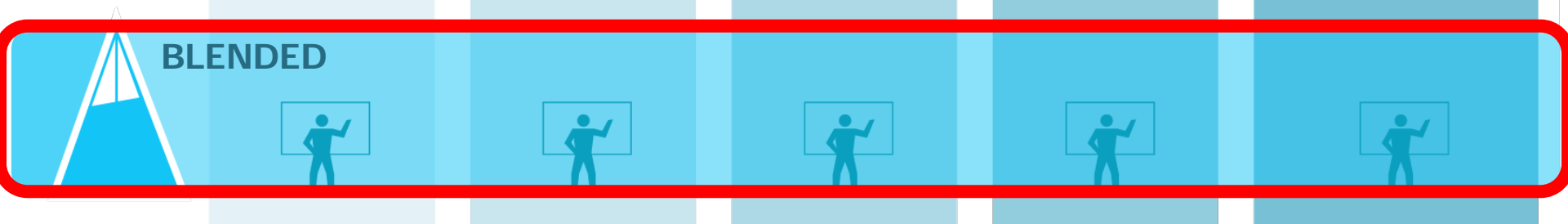
- Pay per course
- Bachelor & Master
- Couple of courses/series
- 30 EC
- Formal Diploma

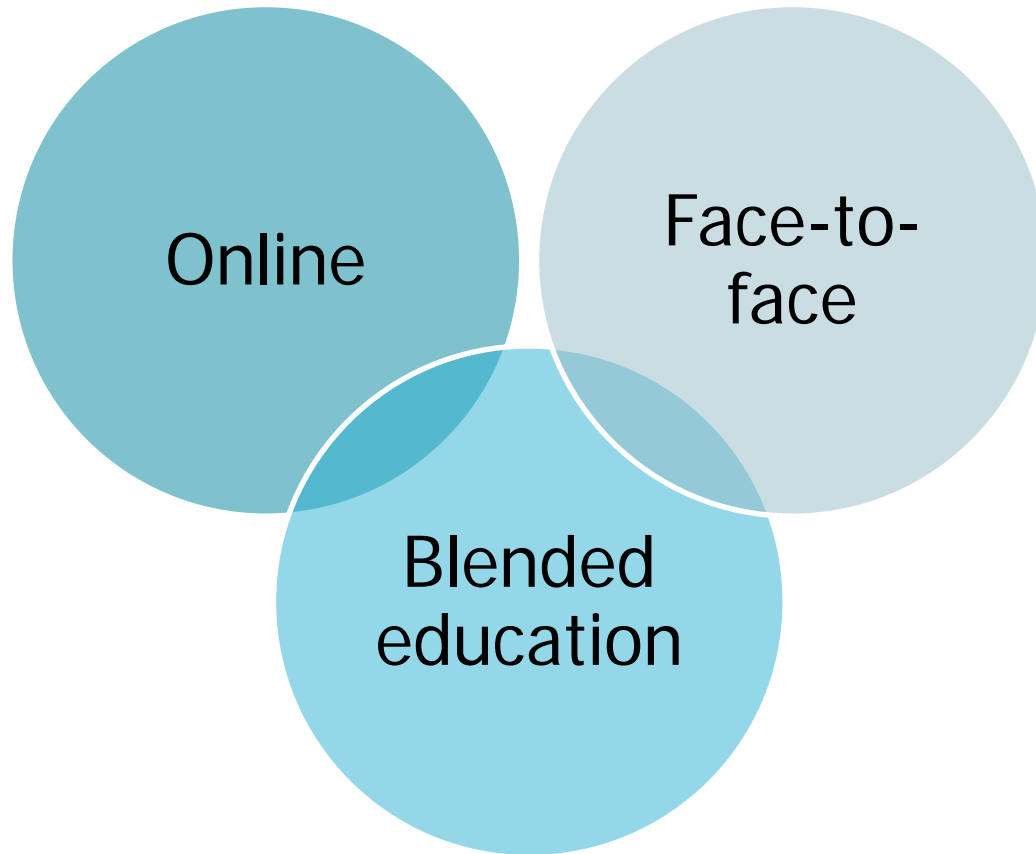
Programme

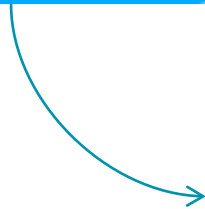
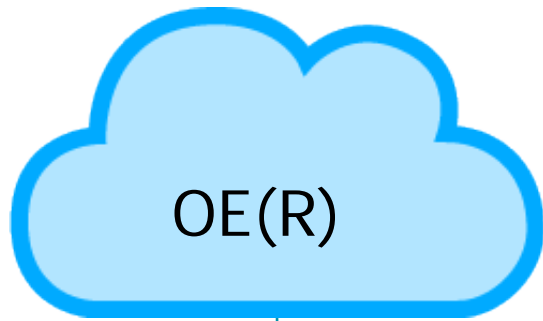
- Pay per course
- Master
- Couple of courses/series/modules
- > 60 EC
- Formal Master



BLENDED









Feedback**Fruits**

FeedbackFruits BETA

Demo Course

Course home

What's new in Demo

FeedbackFruits commented on a document

FAQ over FeedbackFruits doco

Show all (3)

@p1 Hier gaat mijn vraag over

New comment...

Anjo van Drie commented on a video

5min Student Tutorial

Show all (2)

AD @0:57 mijn vraag

New comment...

Roland de Jong commented on a video

13 days ago

FeedbackFruits Dialog

Show all (4)

JV 1:22 Bingo!

Course Heroes

Martijn

Course Reward

Topics

What's new

Lecture on Dialog

Lecture on Share

Lecture on Live

Feedback

FeedbackFruits Tools

Page 2 of 6

Automatic Zoom

Tools

emerge

Student

Student

Docent

@p2 question

Your comment...

Post

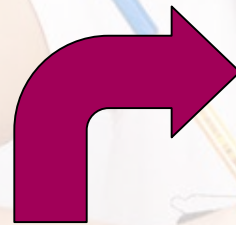
FeedbackFruits

Openness in formal education

Learning Goals



Assessment Learning activities



**Activate
students**

Image CC BY SA [CollegeDegrees360](https://www.collegedegrees360.com/)

What I'm thinking...



OER enable new ways of teaching and learning.

Success in flipped learning is measured in terms of student engagement and motivation.

Teachers' open practices can help student engagement and motivation.

iet



Using OER the same way we used commercial textbooks misses the point. It's like driving an airplane down the road. Yes, the airplane has wheels and is capable of driving down on the road (provided the road is wide enough). But the point of an airplane is to fly at hundreds of miles per hour – not to drive.

[David Wiley, October 21, 2013](#)

OER Usage

Learning Architecture

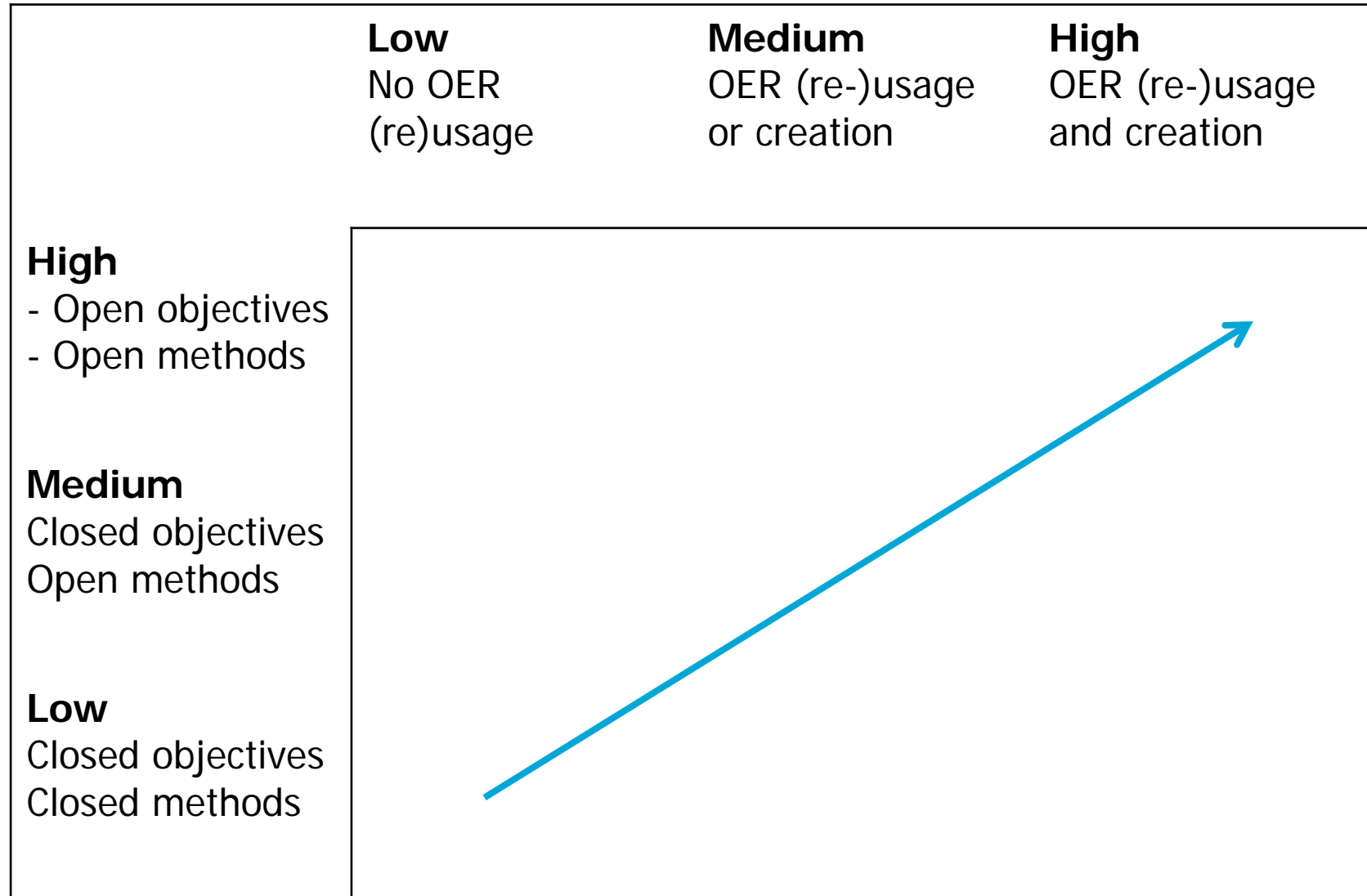


Figure CC BY NC SA OEP Guide, Guidelines for open educational practices in organisations (Vs. 2011),

How

What

Christine Redecker, Jonatan Castaño Muñoz, Riina Vuorikari, Yves Punie Open Education 2013 scenario Synthesis (in review)

Where

When

How

What


Christine Redecker, Jonatan Castaño Muñoz, Riina Vuorikari, Yves Punie Open Education 2013 scenario Synthesis (in review)



Characteristics:

- Intrinsically motivated
- Self steering
- **Willing** and **Able** to learn like this

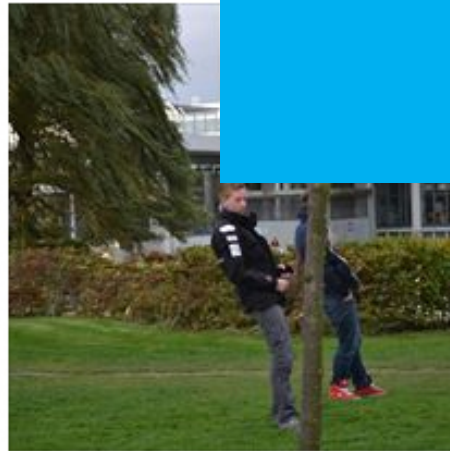
Image CC BY SA [CollegeDegrees360](#)



"Education is a self
organizing System,
where learning is an
emergent
phenomenon..."

- Sugata Mitra

TU Delft Challenge



TU Delft challenge



Solve our challenge and win a TU Delft Sweater!

Do you know what the wind speed was that caused the warning sign to break?

The dimensions can be found in the simplification at the right, the material is a 7075 aluminium alloy.

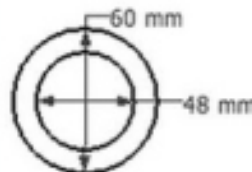
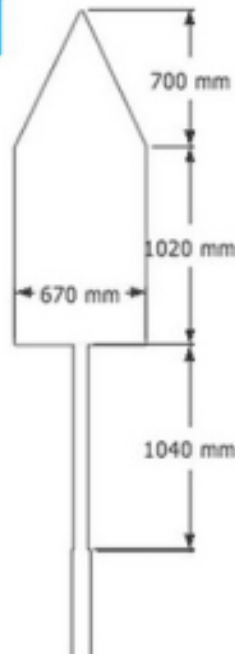
To compete for the sweater:

- Post your answer as a comment
- Make a picture of your solution, and send it as a private message to the TU Delft facebook page.

The competition ends on Friday 1 November 10 pm.

The winner & the answer will be announced on 4 November.

Good luck!



Challenge the future



TU Delft

Liked · 18 hours ago · Edited

Join the competition and win a TU Delft sweater!

- Photo by Tom Verhoeff

Tag Photo Add Location Edit

Like · Comment · Share · Edit

Willem Van Valkenburg, Jaap van Grinsven, Sander Brodchus and 493 others like this.

118 shares

Wolf Cavens 7075? Expensive sign
Unlike · Reply · 30 · 18 hours ago

Sander Pasterkamp Galvanized structural steel S235 is more likely.
Like · 12 hours ago

Write a reply...

Ladislav van Rijen What is the weld quality or do we assume breaking on UTS? Because from this picture it looks that the weld was the problem here if you look to the place of the fracture. A fatigue analysis may be necessary.

Like · Reply · 5 · 18 hours ago

TU Delft replied · 3 Replies

Write a comment...

“I Expect a question about this on my fatigue of structures and materials exam coming Wednesday”



D:DREAM





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nl.linkedin.com/in/ocwtudelft



twitter.com/TUDelftOCW



slideshare.net/DelftOpenEr



open.tudelft.nl