Open Online Education: An Ongoing Challenging Journey With Global Opportunities

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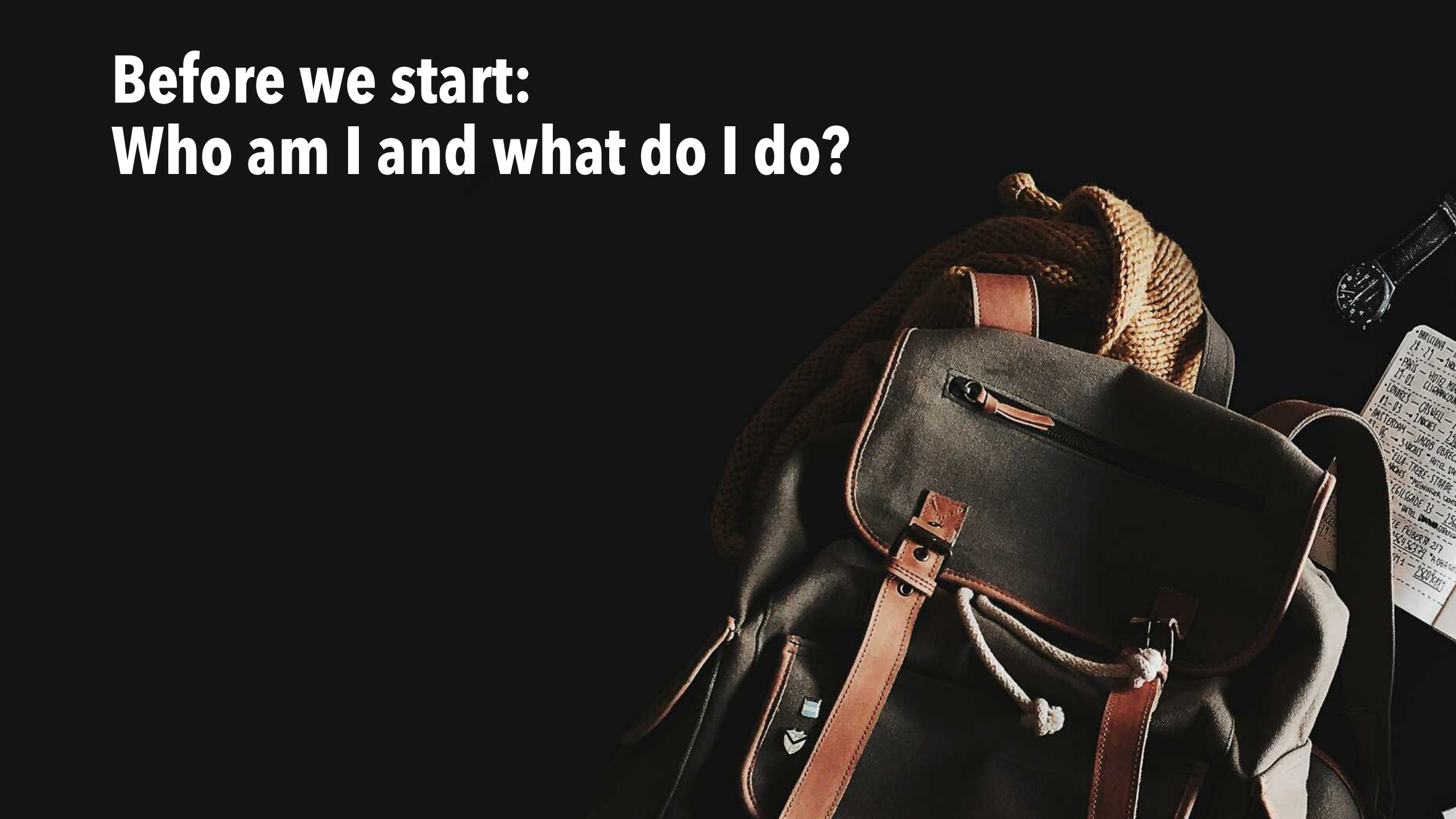
Guest Lecture - 21st of May 2019

M.Sc. Double-degree Programme: Public Policy and Human Development
University Nations University-MERIT & Maastricht University Graduate School of Governance
Specialization track: Innovation, Institutions and Development
Course: Science, Technology and Innovation Policy

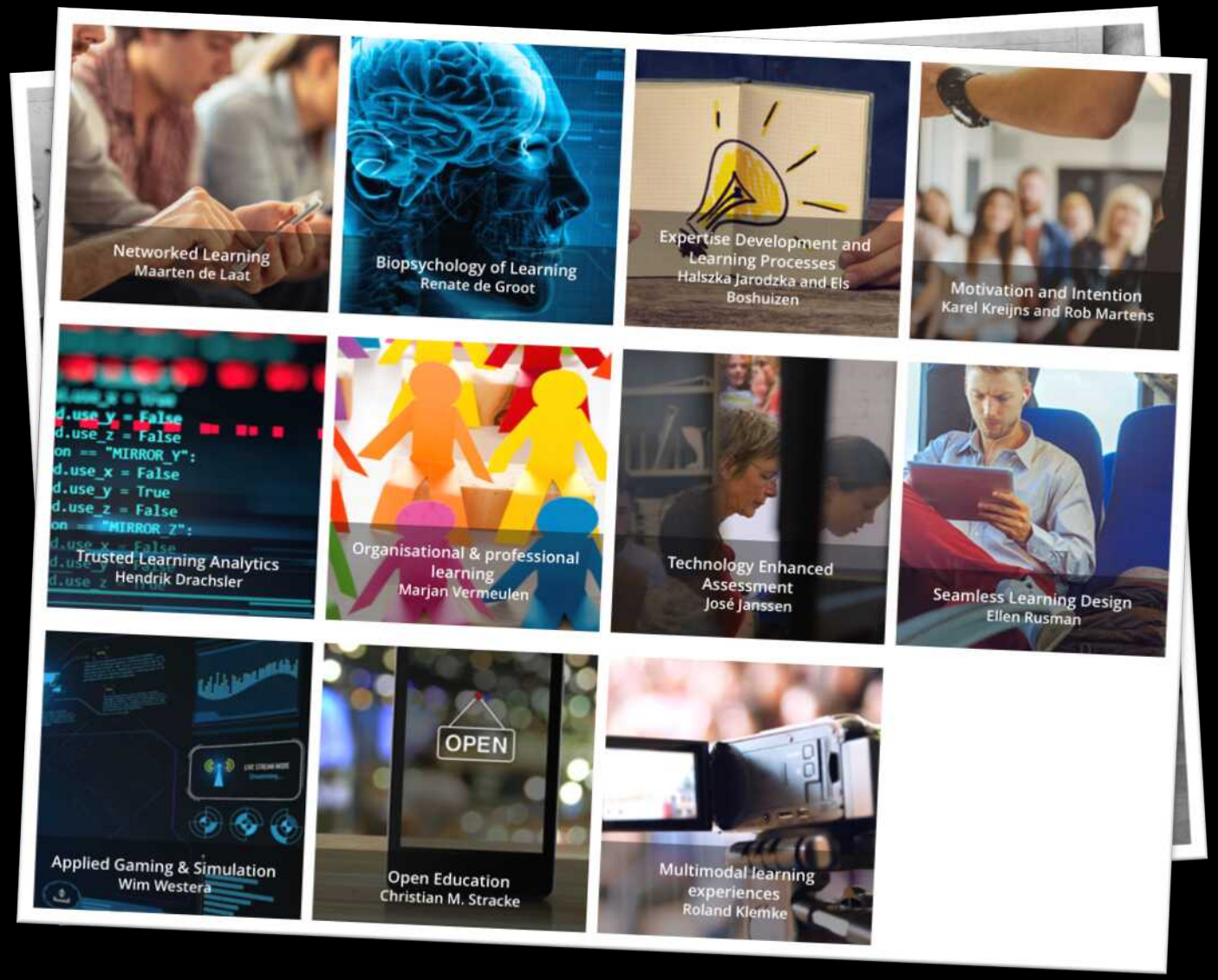
Before we start:
Who am I and what do I do?



- BSc Cognitive Psychology (FPN) - 2012
- MSc in management of Learning (SBE) – 2013

- 2016 – now: PhD candidate, Welten Institute
- SOONER research project

The Welten Institute



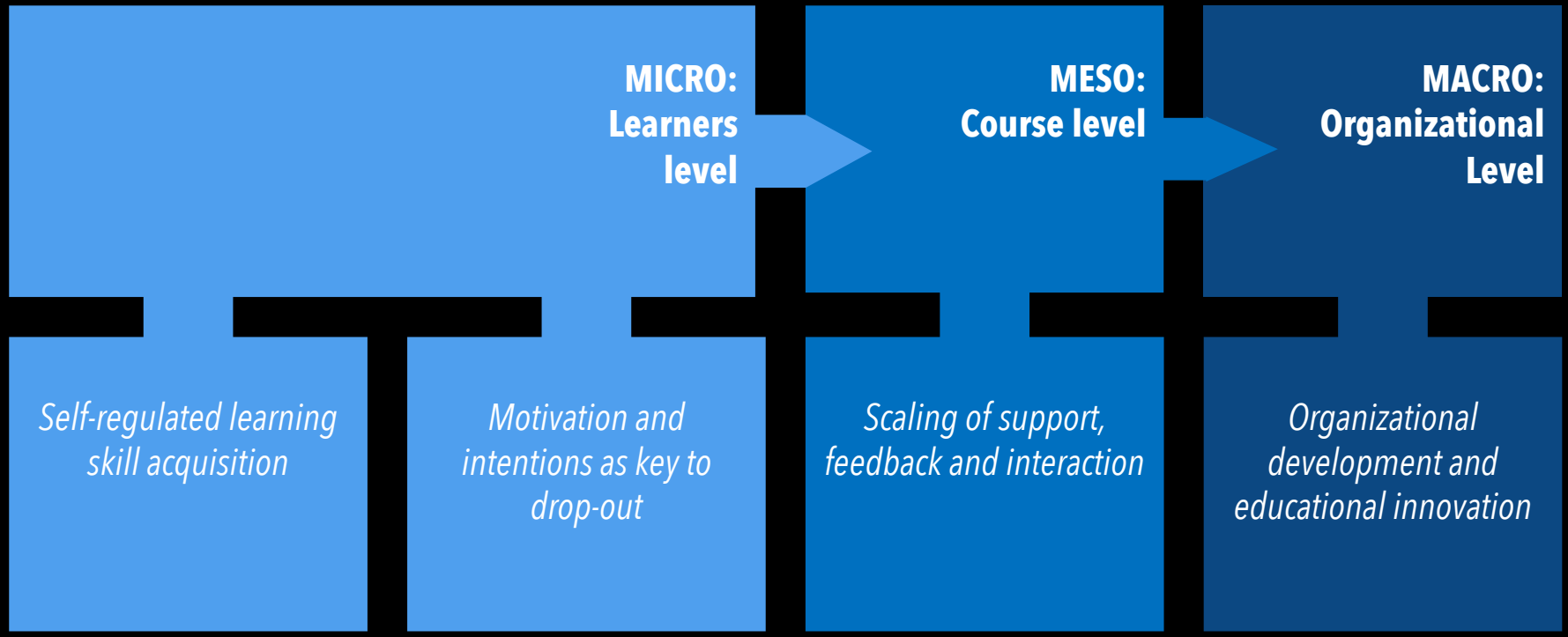
The research center for learning, teaching and technology of the Open University of the Netherlands.

Department: **Technology enhanced learning innovations (TELI)**

Research project: **SOONER**
The structuration of open online education in The Netherlands
www.sooner.nu

The SOONER project

The SOONER project

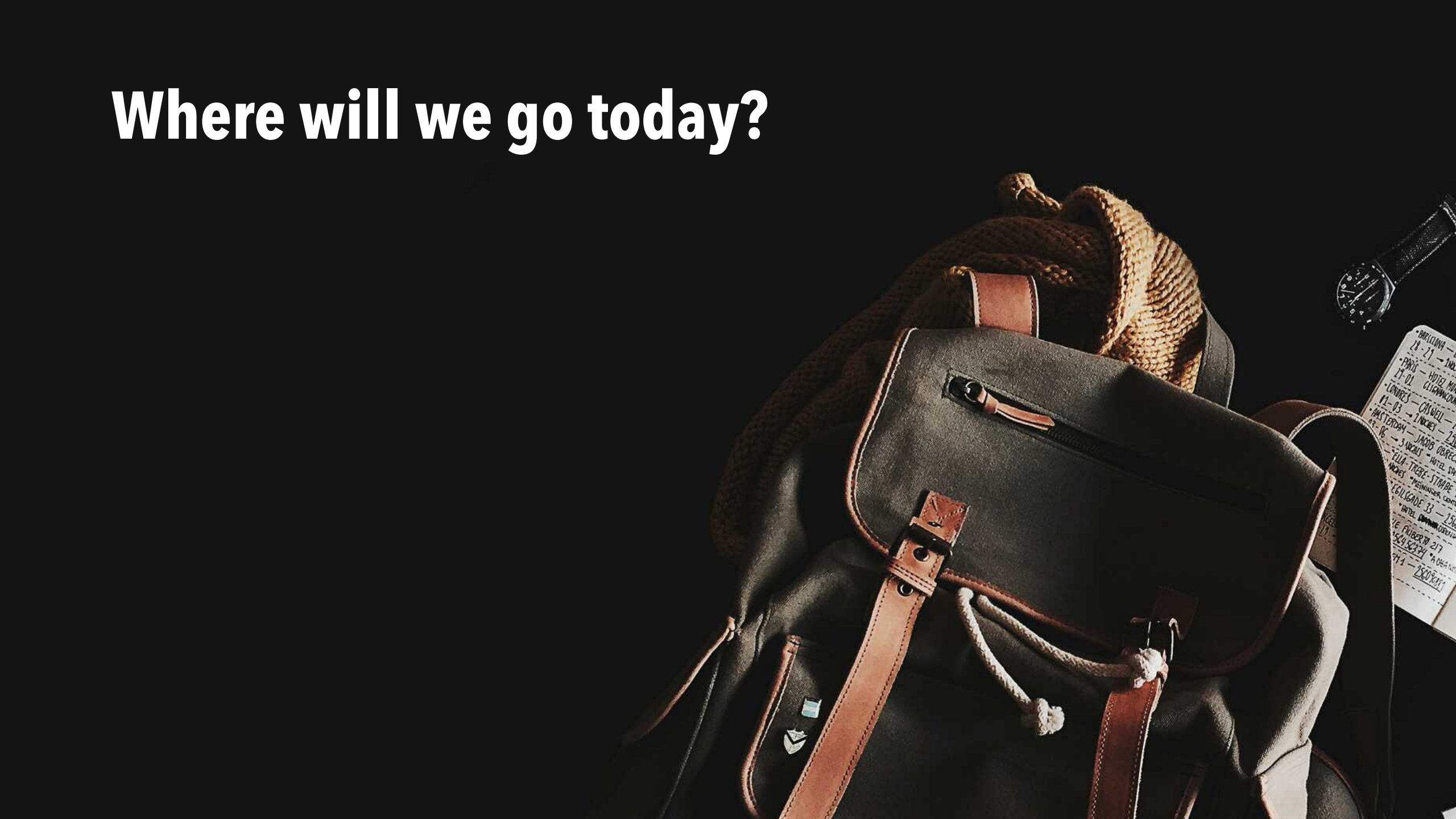


Maastricht University

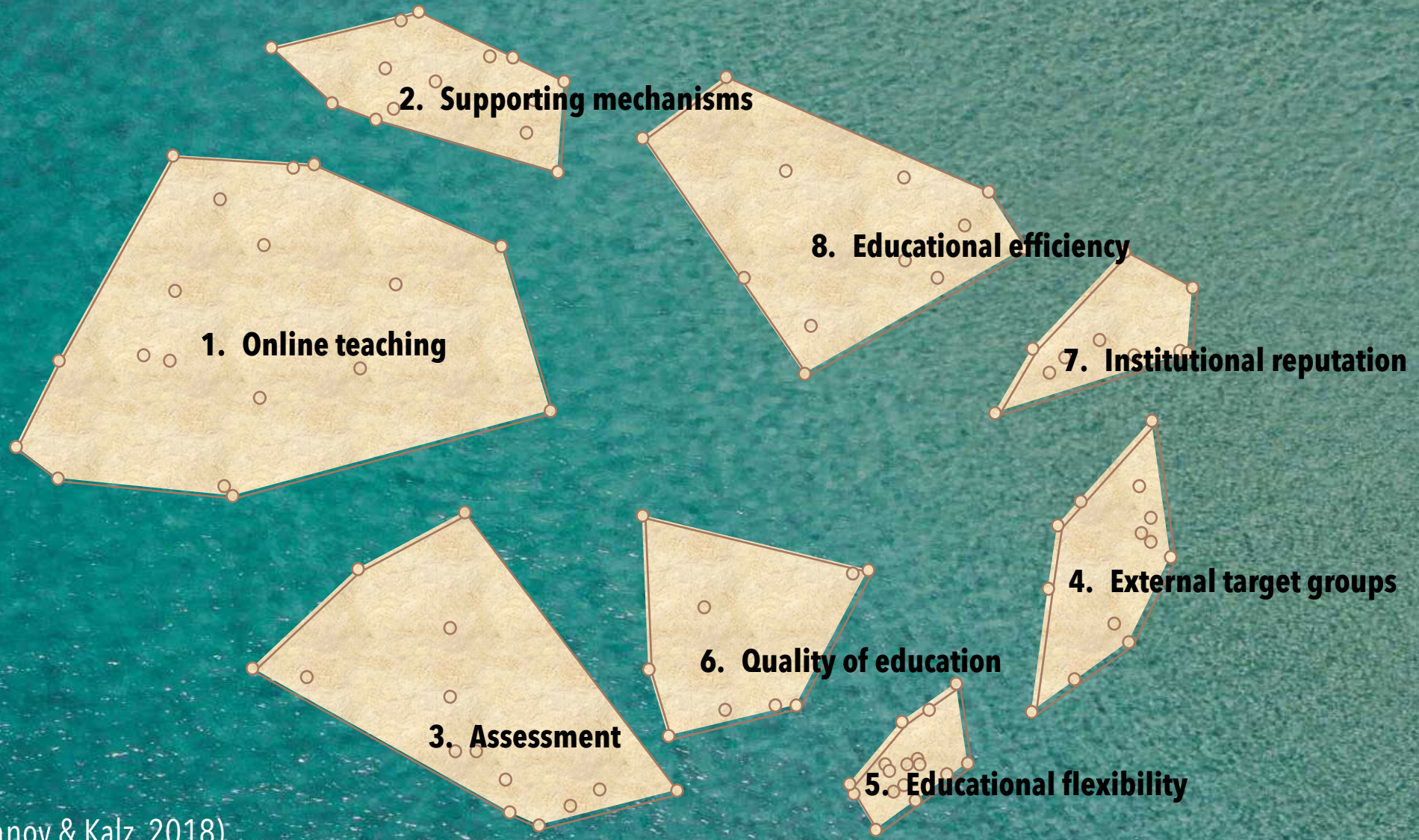
Universiteit Utrecht

Pädagogische Hochschule HEIDELBERG University of Education

Where will we go today?



A journey…

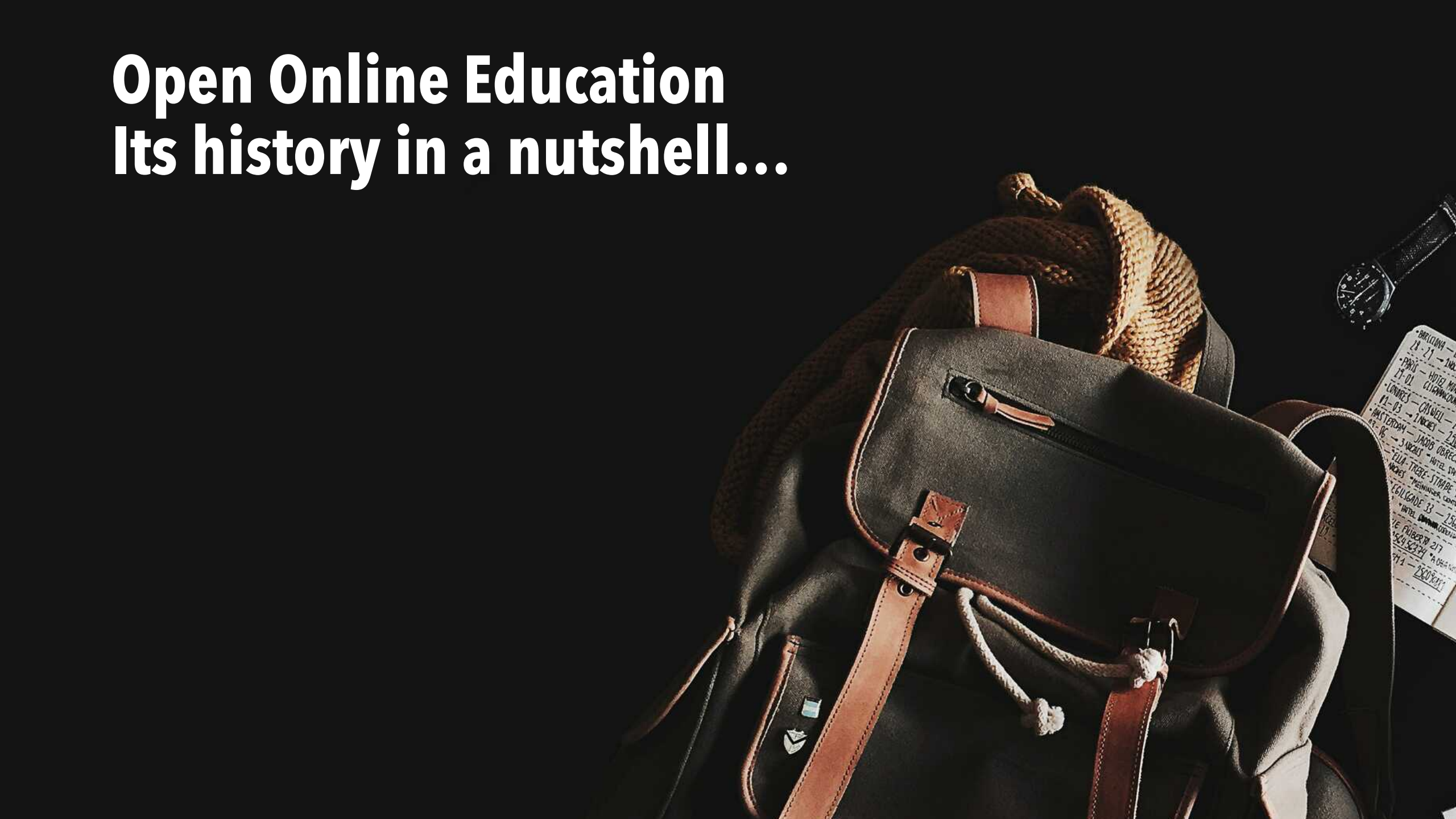


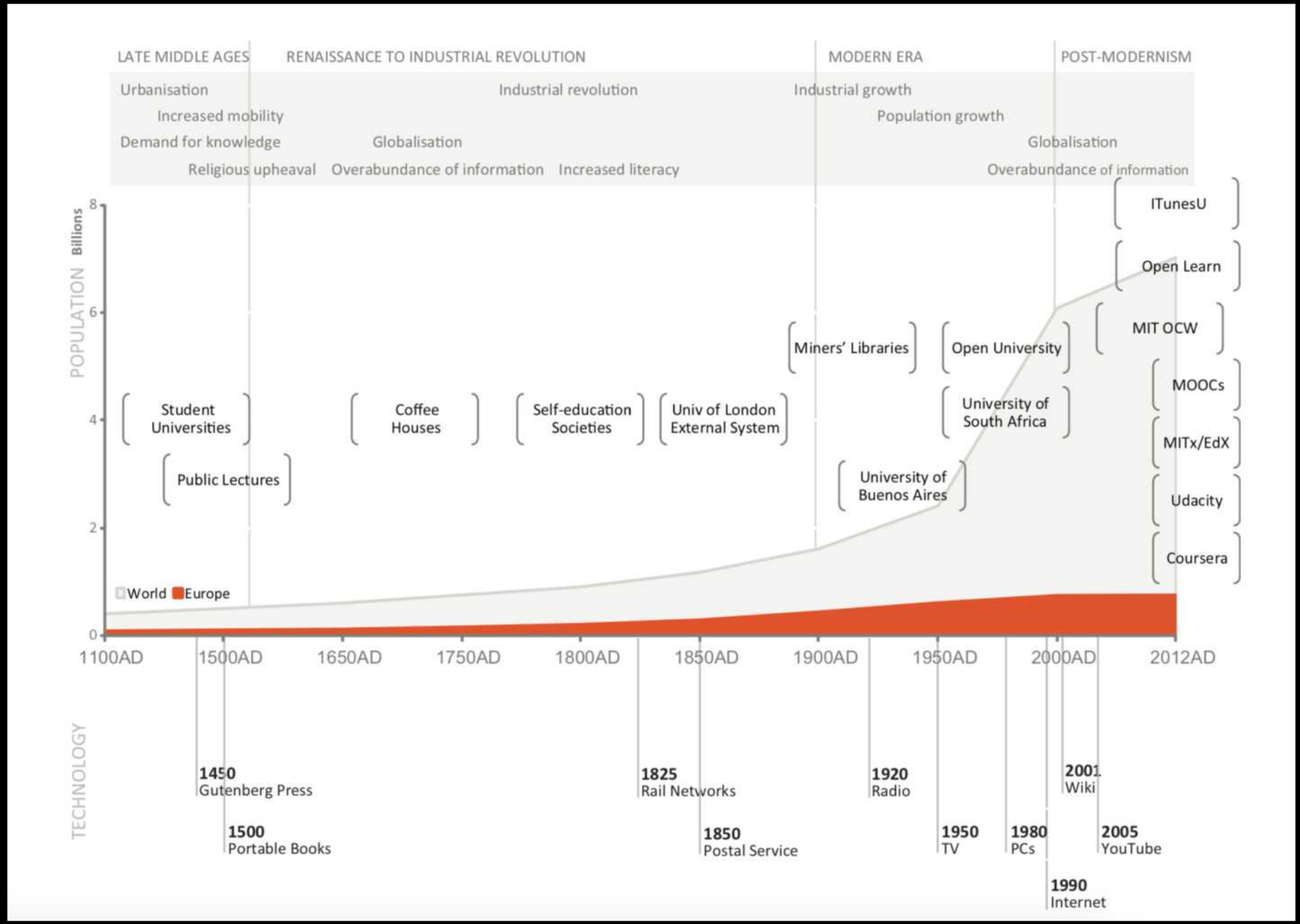
(Schophuizen, Kreijns, Stoyanov & Kalz, 2018)

Where will we go today?

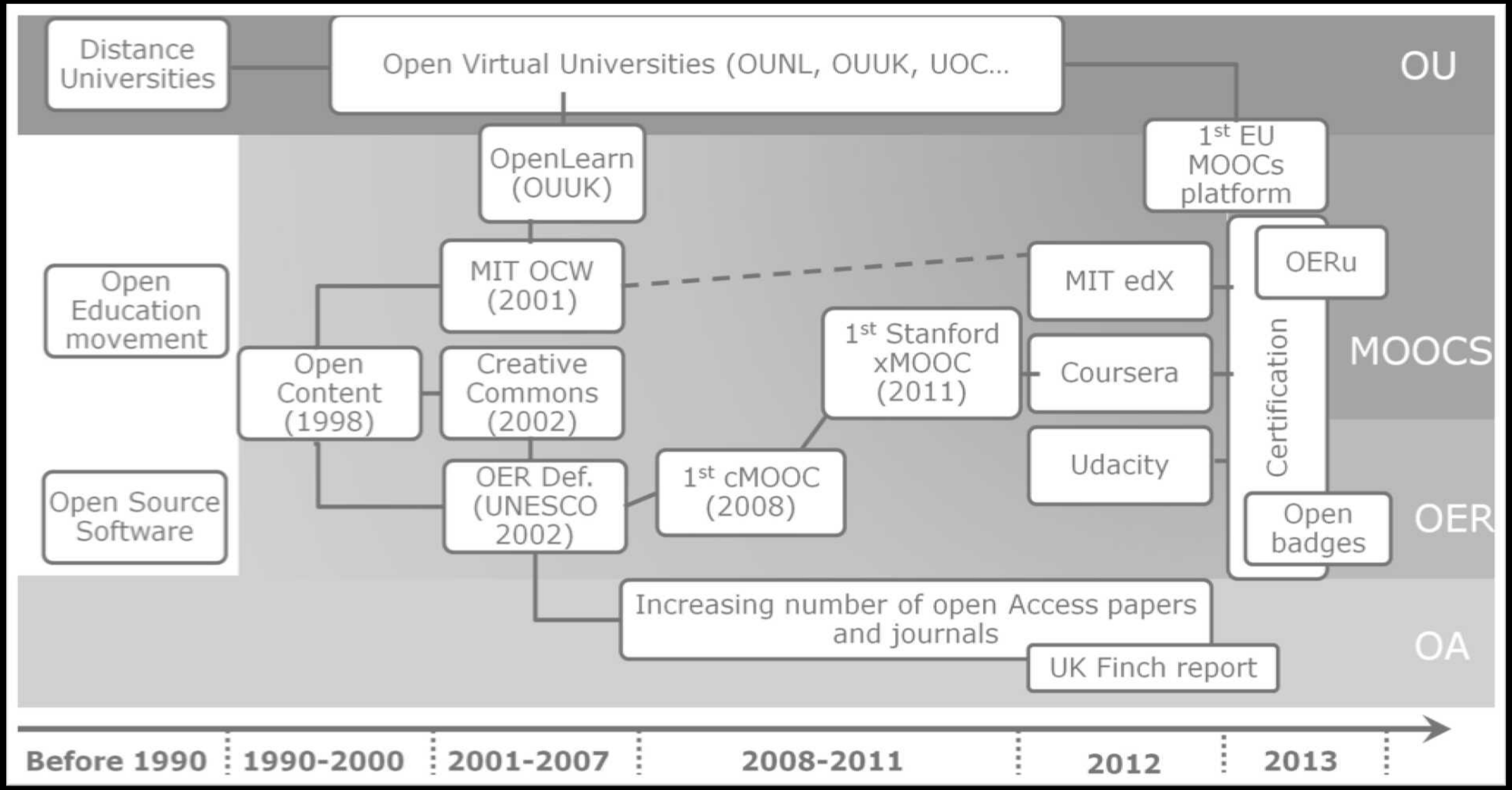
- What is open online education (OOE)?
- The journey:
  - Some main challenges for OOE
  - Some opportunities for OOE
- Wrap up…

Open Online Education
Its history in a nutshell…



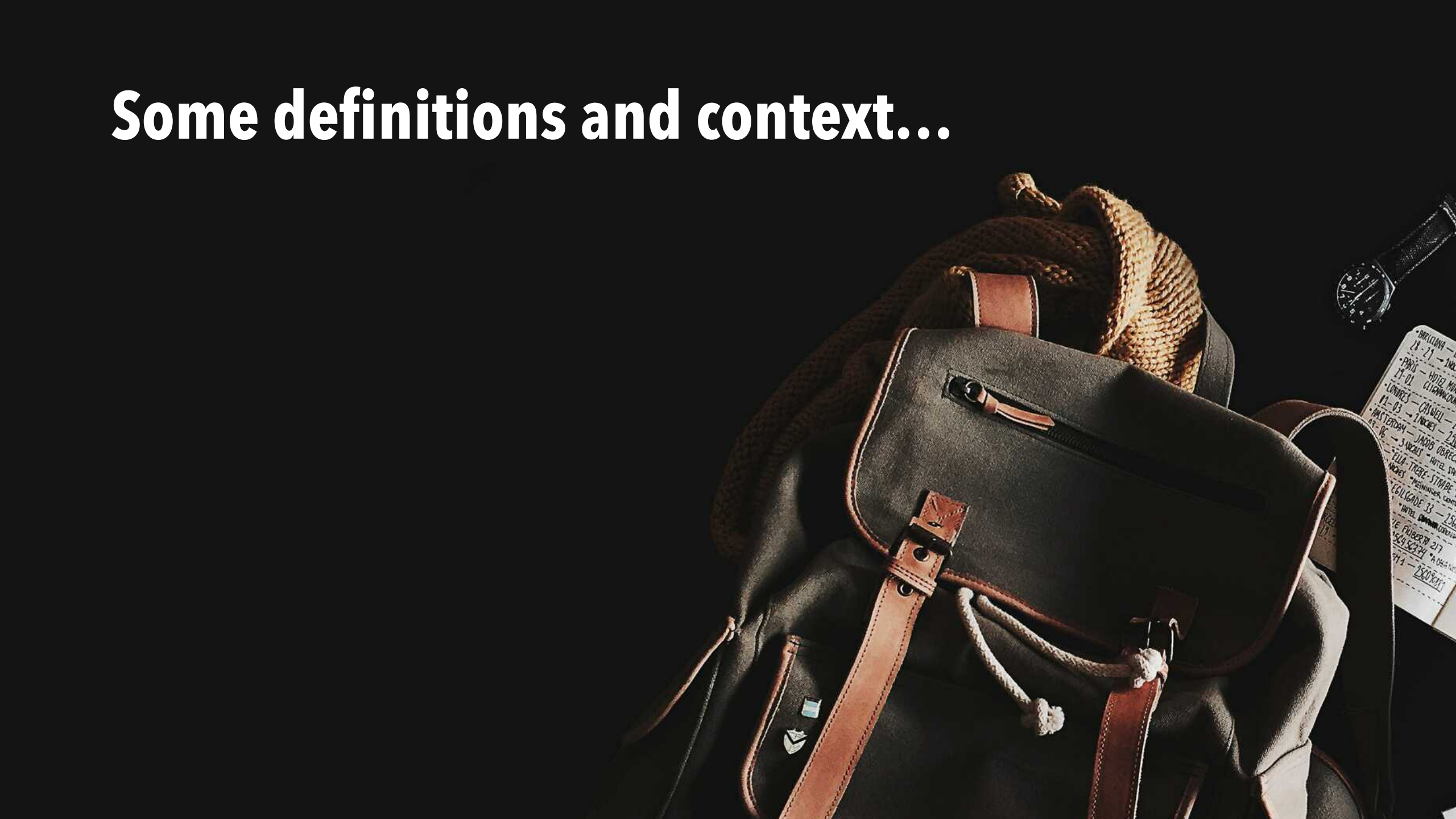


(Peter & Deimann, 2013)

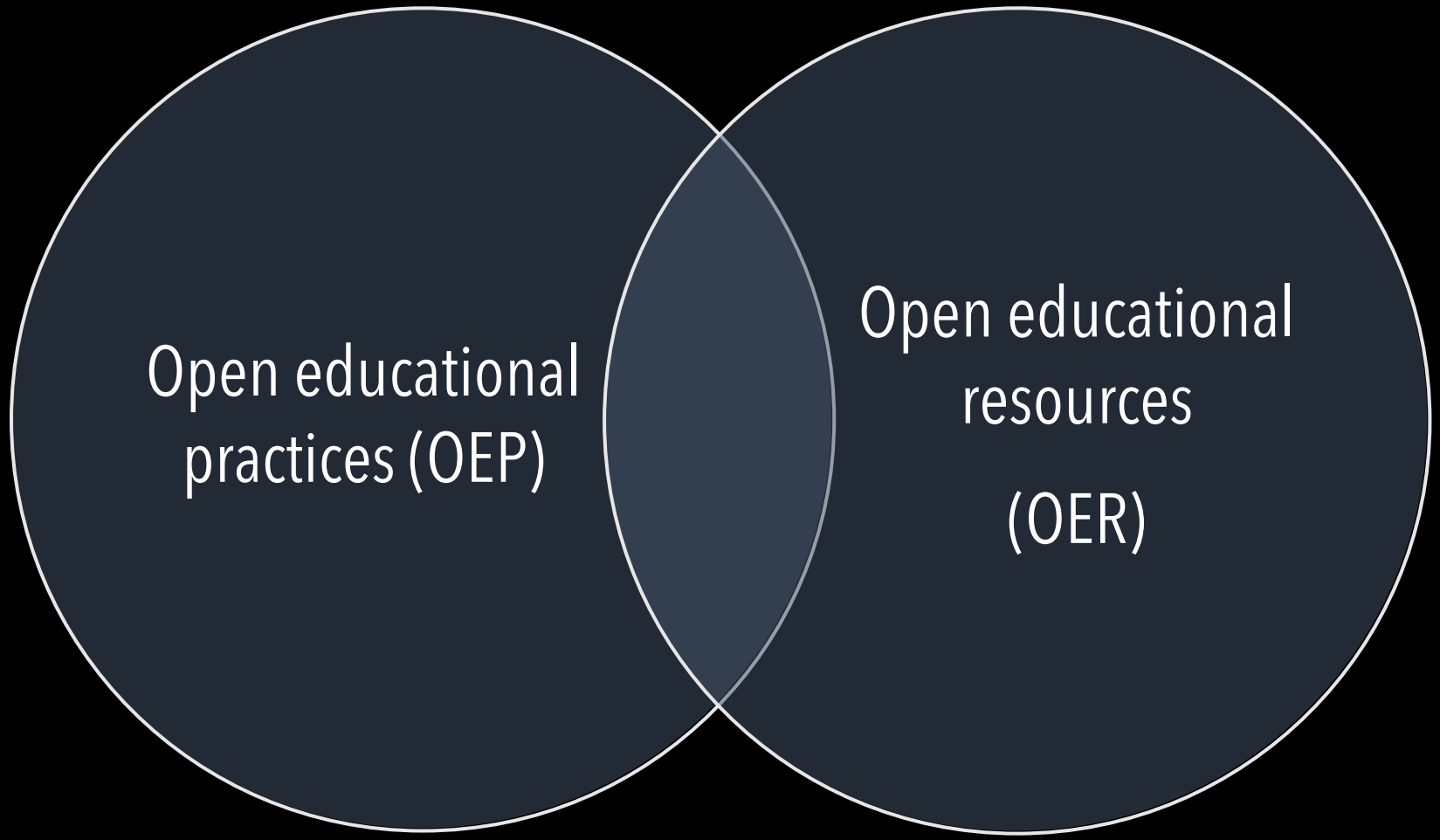


(Sabadie, Castaño-Munoz, Punie, Redecker, & Vuorikari, 2014)

Some definitions and context…



Two directions for open education…



Open Educational Resources

OER are teaching, learning and research materials that make use of appropriate tools, such as open licensing, to permit their free reuse, continuous improvement and repurposing by others for educational purposes.

Open educational resources:
Open, but lack of education

What are the educational approaches that make the use of OER effective?

Which models serve as good examples to interface between the institution and the individual?

The value proposition of Open Education…

…is the release of learning material under open licenses?

…is the design of educational and social environments in which a global population can participate in (higher) education without restrictions of access, prior knowledge and costs?

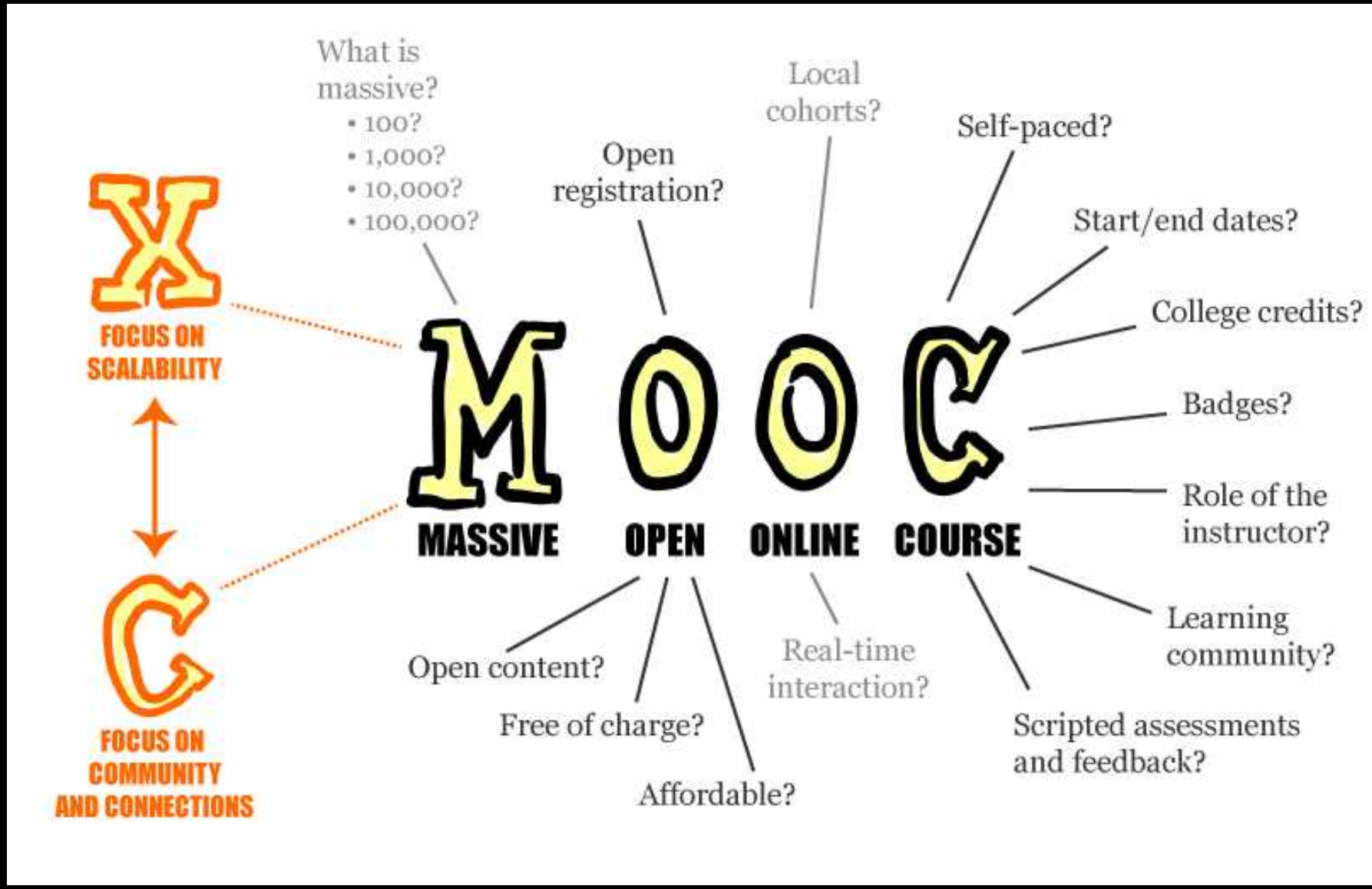
Open Educational Practices

Open Educational Practices (OEP) are the set of activities and support around the creation, use and repurposing of Open Educational Resources
(Conole, 2010)

Open Educational Practices (OEP) is the (gradual) opening and sharing of instructional design implementations/ courses beyond initial target groups.

Massive Open Online Courses

MOOCs are examples of OEP since they provides access to a (full) learning experience in a social context. Their value proposition is not only on sharing resources, but on enabling learning effects.

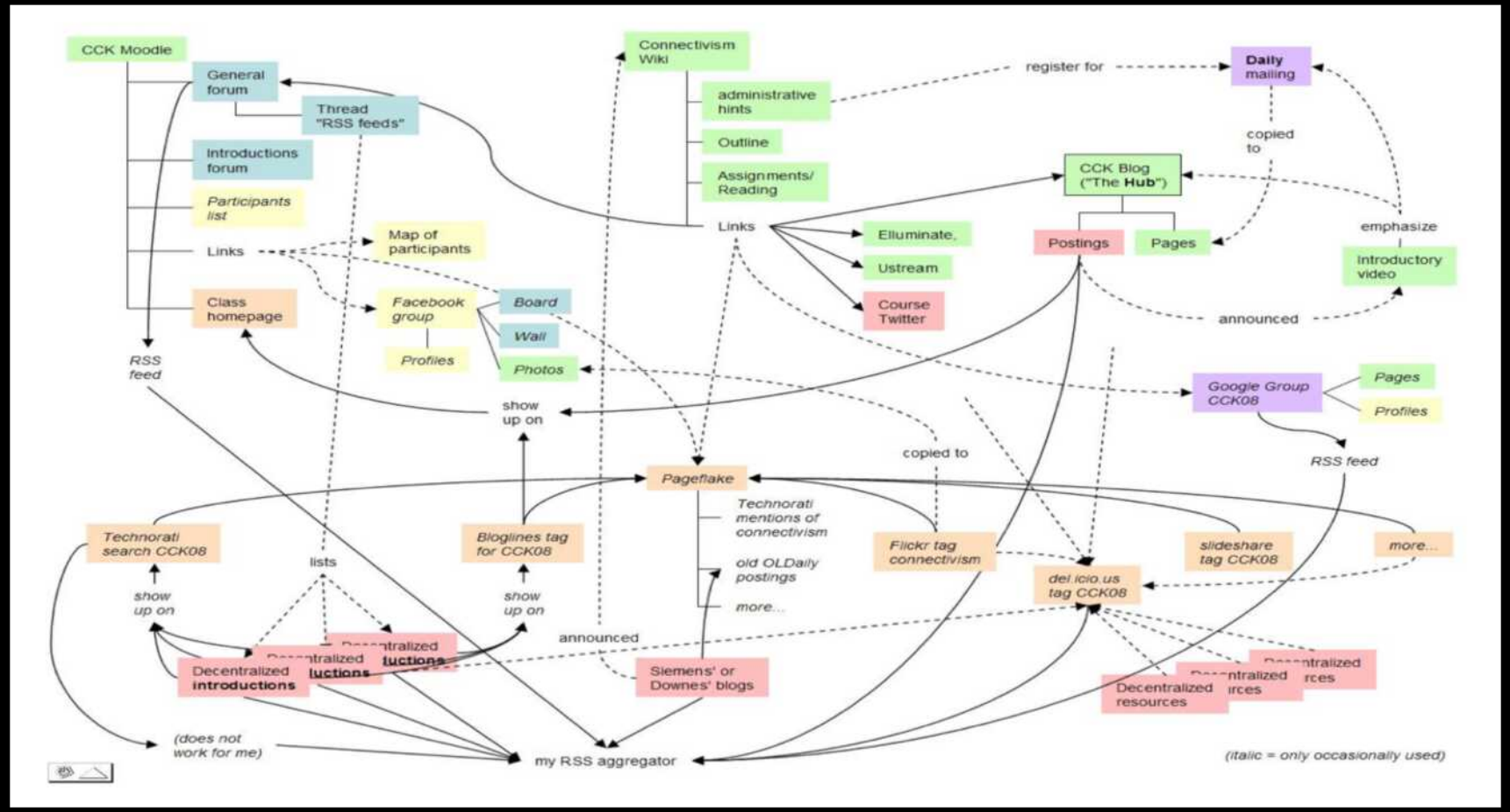

What is massive?
• 100?
• 1,000?
• 10,000?
• 100,000?
Open registration?
Local cohorts?
Self-paced?
Start/end dates?
College credits?
Badges?
Role of the instructor?
Learning community?
Scripted assessments and feedback?
Real-time interaction?
Affordable?
Free of charge?
Open content?
X
FOCUS ON SCALABILITY
C
FOCUS ON COMMUNITY AND CONNECTIONS
MOOC
MASSIVE OPEN ONLINE COURSE

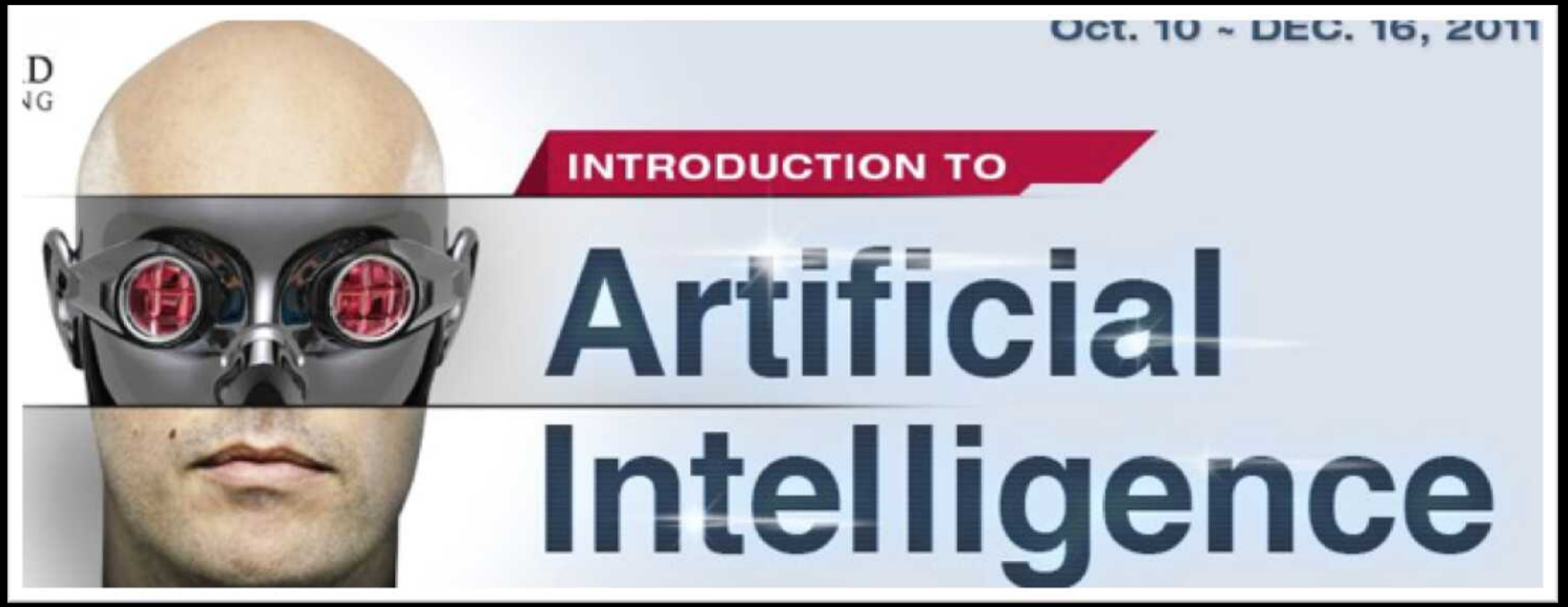
First cMOOC: CCK08

2008:

- The term "cMOOC" was coined in relation to the first ever "massive open online course" developed by Stephen Downes an George Siemens
- The course "Connectivism and Connective Knowledge" (CCK08) eventually enrolled 2,300 globally distributed students online and 23 campus students (university of Manitoba).
- Course was build on ideas of networked learning and distributed resources
- No central place for resources, but rather a network of actors

cMOOC visualization (CCK08)




Oct. 10 ~ DEC. 16, 2011
INTRODUCTION TO
Artificial
Intelligence

First xMOOC: Artificial Intelligence MIT

2011:

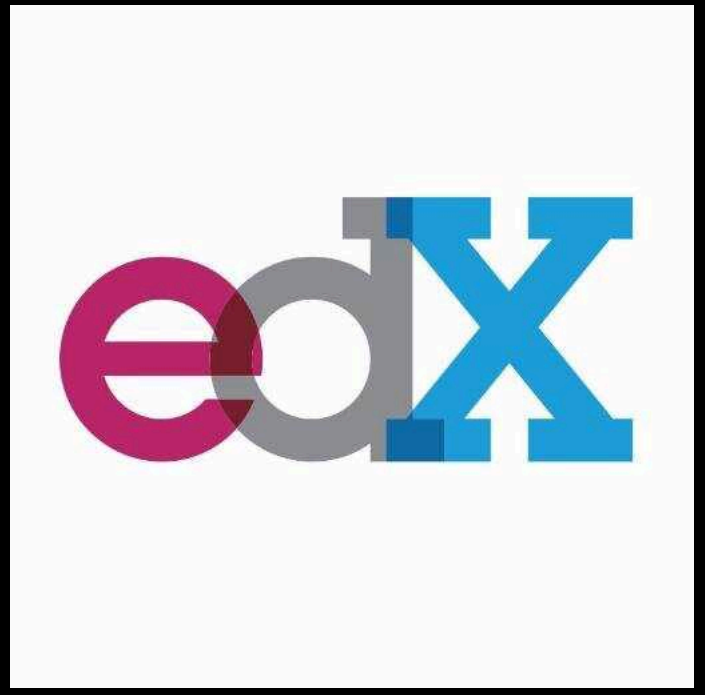
- 160,000 students from around the world. Over 20,000 students completed the course.

- These xMOOCs focused less on interaction between students and more on exploiting the possibilities of reaching a massive audience.

- This leads to development of MOOC platforms, initiated Prof. Sebastian Thrun (MIT) that also offered the AI MOOC


UDACITY


coursera


edX

cMOOC vs xMOOC

xMOOCs		cMOOCs
Scalability of provision	**Massive**	Community and connections
Open access - Restricted license	**Open**	Open access & licence
Individual learning in single platform	**Online**	Networked learning across multiple platforms and services
Acquire a curriculum of knowledge & skills	**Course**	Develop shared practices, knowledge and understanding

(Yuan, Powell & Olivier, 2014)

cMOOC vs xMOOC

- **Shared goal: providing open and free education to the public**

- cMOOCs focus on **knowledge creation and generation**
- xMOOCs focus on **knowledge duplication**

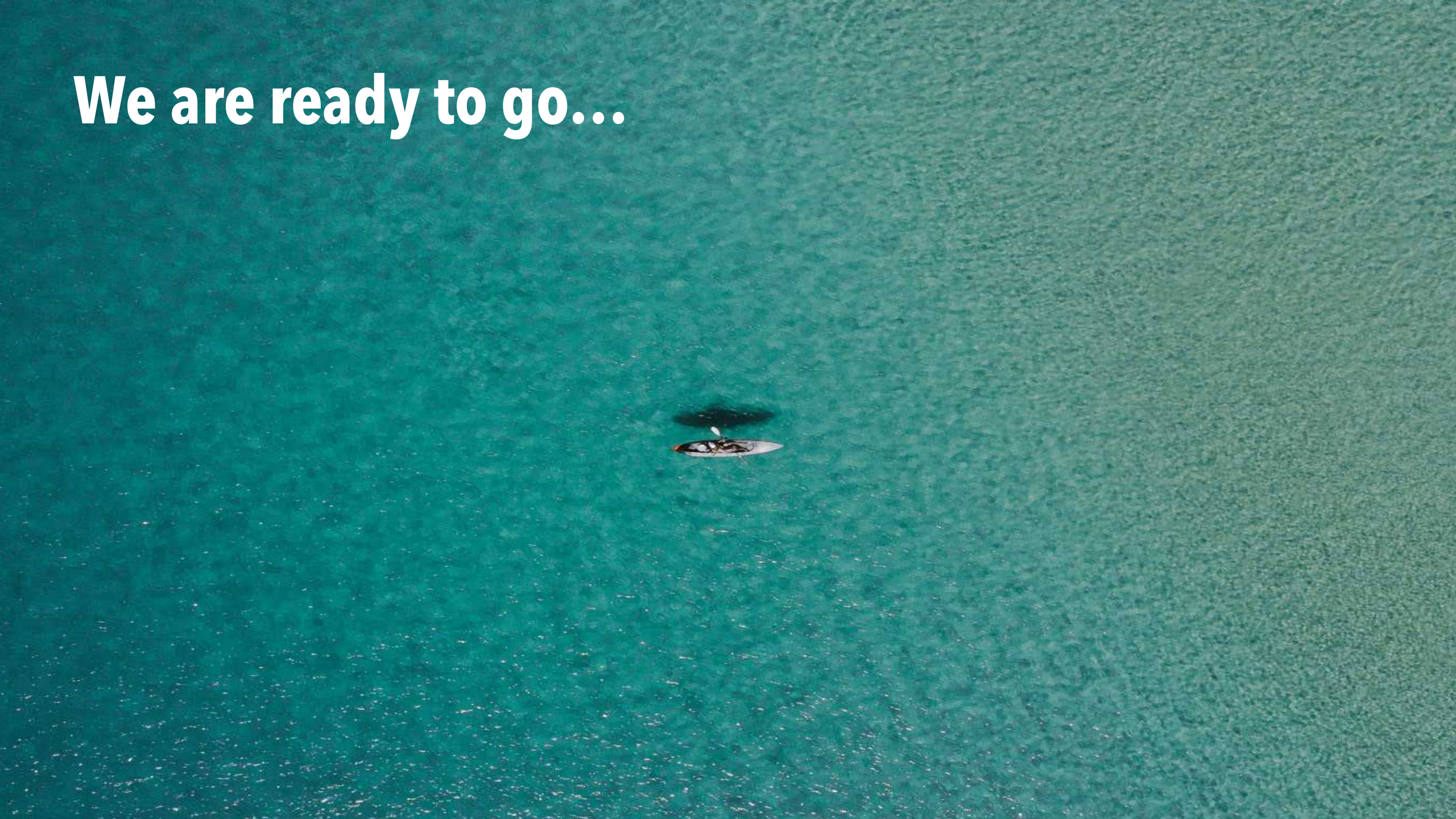
- Each form of MOOC establishes a different type of learning environment due to different structures and qualities and is appropriate for distinct methods of knowledge acquisition.

So note: this broad distinction between xMOOCs and cMOOCs already tells us to carefully consider the pedagogical design for specific learning requirements.

Open
Educational
Resources

Open Courses/
MOOCs

We are ready to go…



Global Open Policy Report 2016 (EADTU):

"Policy and decision makers of all stakeholders involved need to be in a better position to understand the "MOOC phenomenon," capitalize on the advantages of these large-scale courses and use them as a strategic opportunity to help meet local needs and develop related capacities."

Eliciting challenges and opportunities for OOE

- **Research question:**

What are challenges and opportunities for (OOE) innovation projects within higher learning institutions in The Netherlands?

- **Method:**

Group concept mapping

- **Sample:**

OOE innovation projects in The Netherlands (2015 & 2016) N=22

Preparation

Data collection

Generation of statements
Brainstorm

Structuring of statements
Sorting
Rating

Data interpretation

Focus prompt:
"My institution has with regard to open online education the following challenge OR chance…"

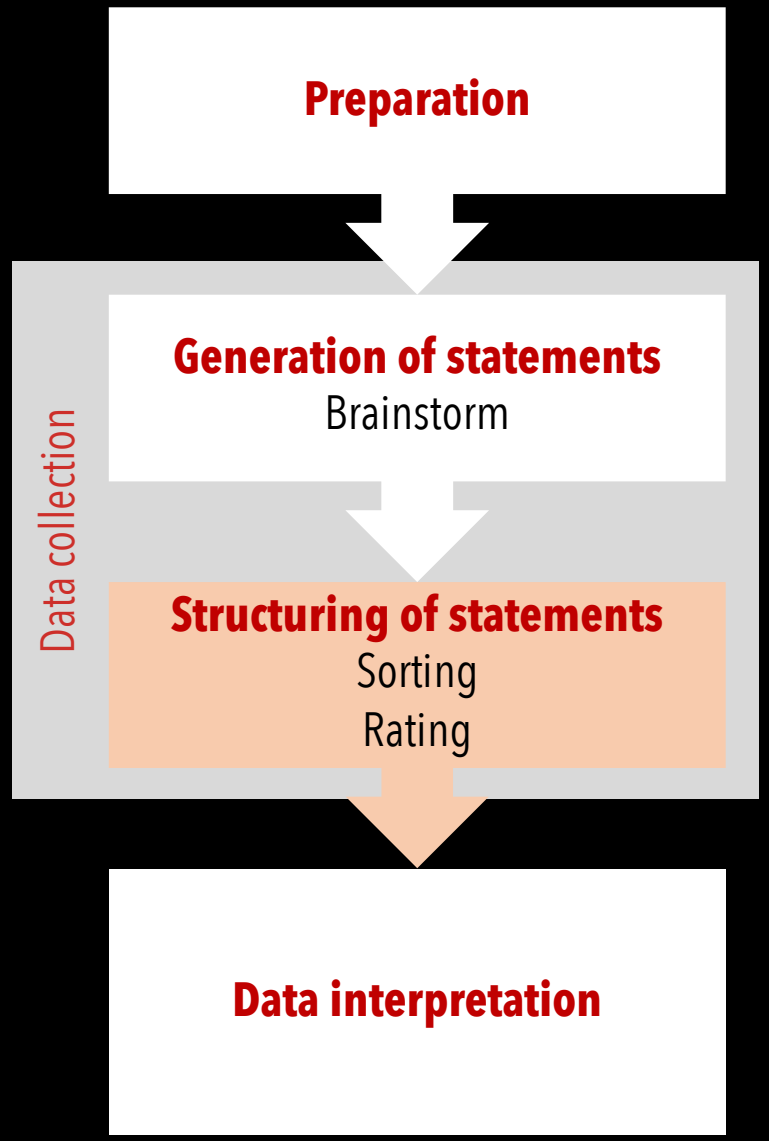
"Giving students the chance to learn at their own pace"

"Improvement of re-use/exchange of learning materials"

"Lack of a central platform for OOE"

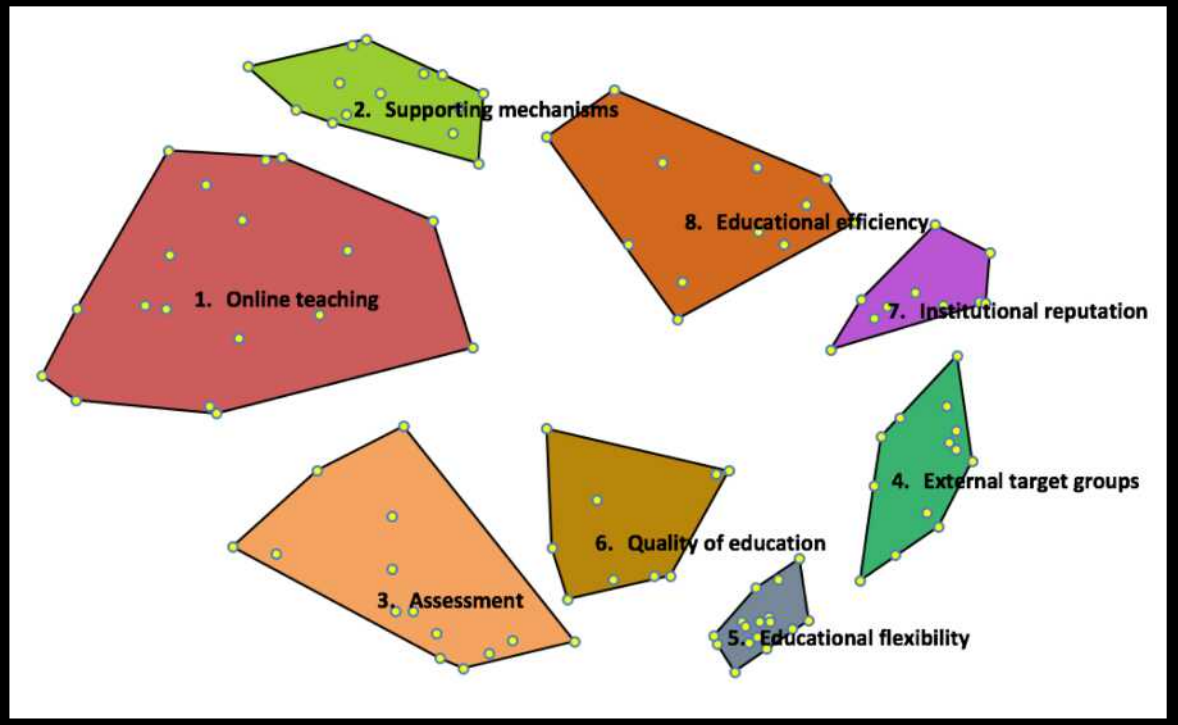
"Underestimation of teacher interaction in OOE"

#	Statement
1	Veel bestaand materiaal dat in huidig onderwijs gebruikt wordt is gelicenceerd en niet geschikt om te delen in OOO
6	Content ontsluiten voor niet-studenten om ze zo bij de opleidingen te betrekken
7	Goede technische faciliteiten voor opnames en editing
8	Tijdsonafhankelijk kunnen leren
9	Koploper in vakgebied worden
10	Betere samenwerking met andere instellingen wordt bevorderd
11	Kunnen aanbiec
12	Verhogen interi
13	Er is onvoldoen
14	Profileren van de instelling als expert op bepaalde vakgebieden
15	Ontbreken van formele kwaliteitscriteria om OOO op te beoordelen zoals wel bij traditioneel onderwijs het geval is (bijvoorbeeld: accreditaties)
16	Een ontbrekend wettelijk kader voor online onderwijs
17	Kennisdeling niet alleen binnen maar ook buiten de instelling
18	Het kunnen gebruiken van learning analytics om onderzoek te doen naar leren
19	Bredere doelstelling van het onderwijs kunnen verwerkelijken
20	Een mogelijkheid om onderwijs en onderzoek te combineren
21	Studenten meer keuzevrijheid bieden
22	Het onderhouden van digitaal lesmateriaal kost potentieel meer tijd dan klassiek lesmateriaal
26	Geen brede erkenning (formeel en informeel) van de kwaliteit van MOOCs en hun bijdrage aan onderwijs in Nederland
27	Kosten van OOO verlagen door samenwerking met bedrijven en bedrijfsopleidingen
28	Metadatering van OOO
29	Terughoudend om onderwijsmaterialen te delen
30	Werken met learning analytics om onderwijs te optimaliseren
31	De verdiensten van OOO (in welke vorm dan ook) zijn onduidelijk voor docenten
32	Gepersonaliseerd kunne
33	Ontdekken waar de eige
34	De kwaliteit van toetsin
35	Concept "flipping the classroom" uitbreiden binnen de opleiding
36	Studenten leren zelf open materiaal te zoeken en te beoordelen op kwaliteit/bruikbaarheid
37	Meer met beoordeling door peers werken
38	Testmethodes ontwikkelen die op afstand valide en betrouwbaar zijn
39	Docenten kunnen bredere erkenning krijgen voor meer dan alleen hoorcolleges
40	Er is geen duidelijk beleid op instellingsniveau m.b.t. OOO
41	De rol van de docent veranderd
42	Kwaliteit student interactie in online omgeving
43	Keuzeonderwerpen gemakkelijker aan te bieden
44	Kennis ter beschikking stellen aan de gemeenschap
45	Organisatie van IT-ondersteuning



- **Sorting 106 statements**
- **Rating 106 statements**
  - **Importance (5 point scale)**
  - **Influence (5 point scale)**

Thematic results

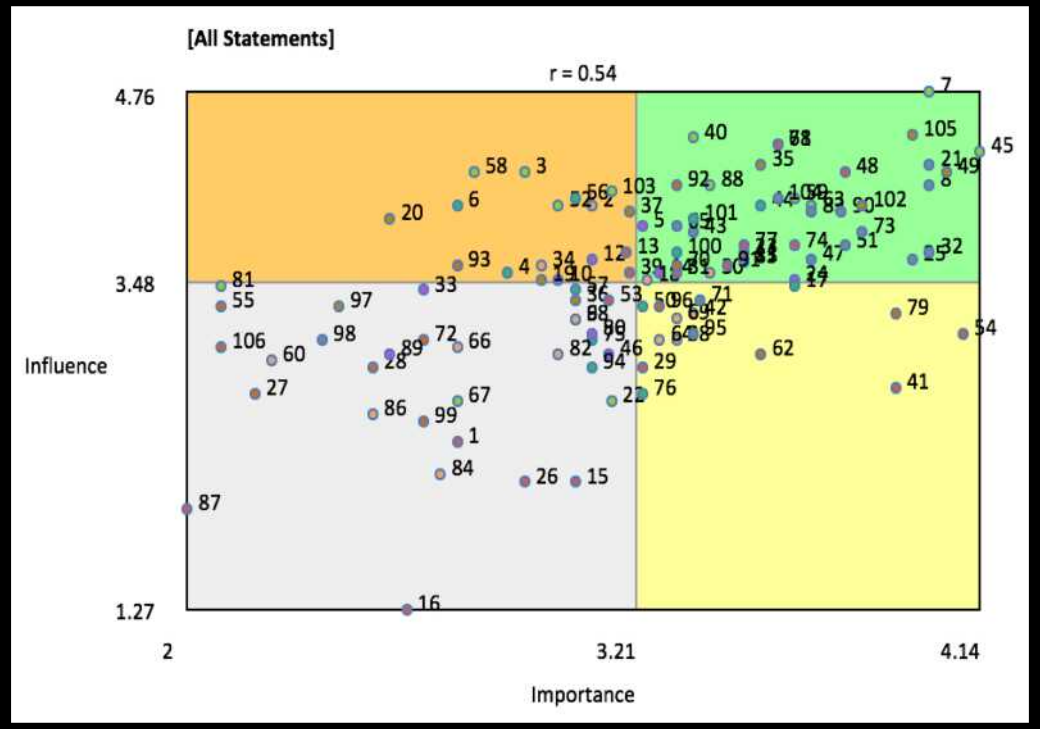


1. Online teaching
2. Support mechanisms
3. Assessment
4. External target groups
5. Educational flexibility
6. Quality of education
7. Institutional reputation
8. Educational efficiency

"Sustainable publication of existing educational resources"
"Unclear return on investment unclear for open online education"
"Improvement of re-use/exchange of learning materials"

(Schophuizen, Kreijns, Stoyanov & Kalz, 2018)

Priorities of challenges and opportunities

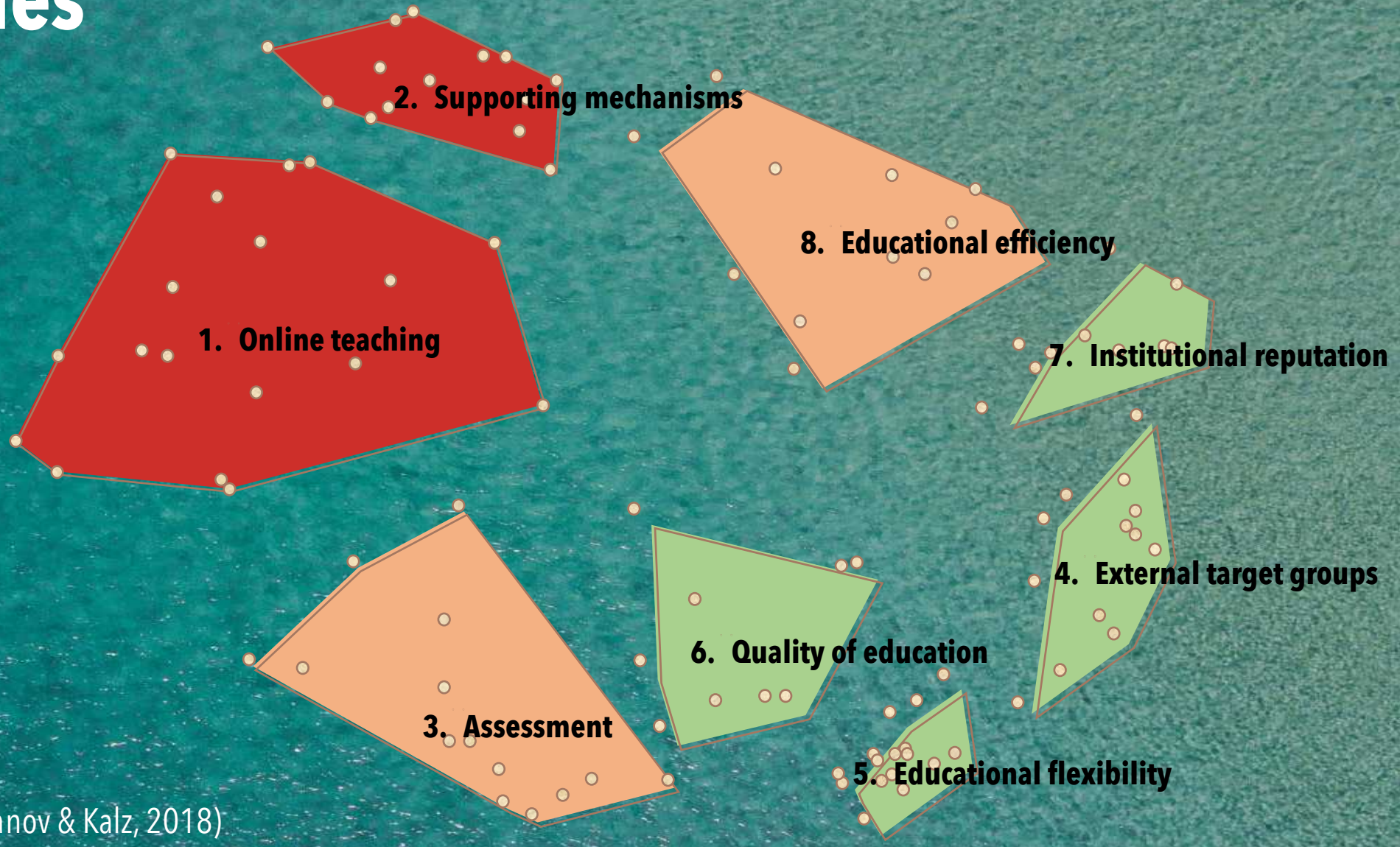


Proportion of clusters in go-zone:

1. Educational flexibility 81%
2. Supporting mechanisms 50%
3. Quality of education 44%
4. Online teaching 39%
5. External target groups 31%
6. Institutional reputation 30%
7. Educational efficiency 17%
8. Assessment 14%

(Schophuizen, Kreijns, Stoyanov & Kalz, 2018)

Results in terms of challenges and opportunities



(Schophuizen, Kreijns, Stoyanov & Kalz, 2018)

Conclusions

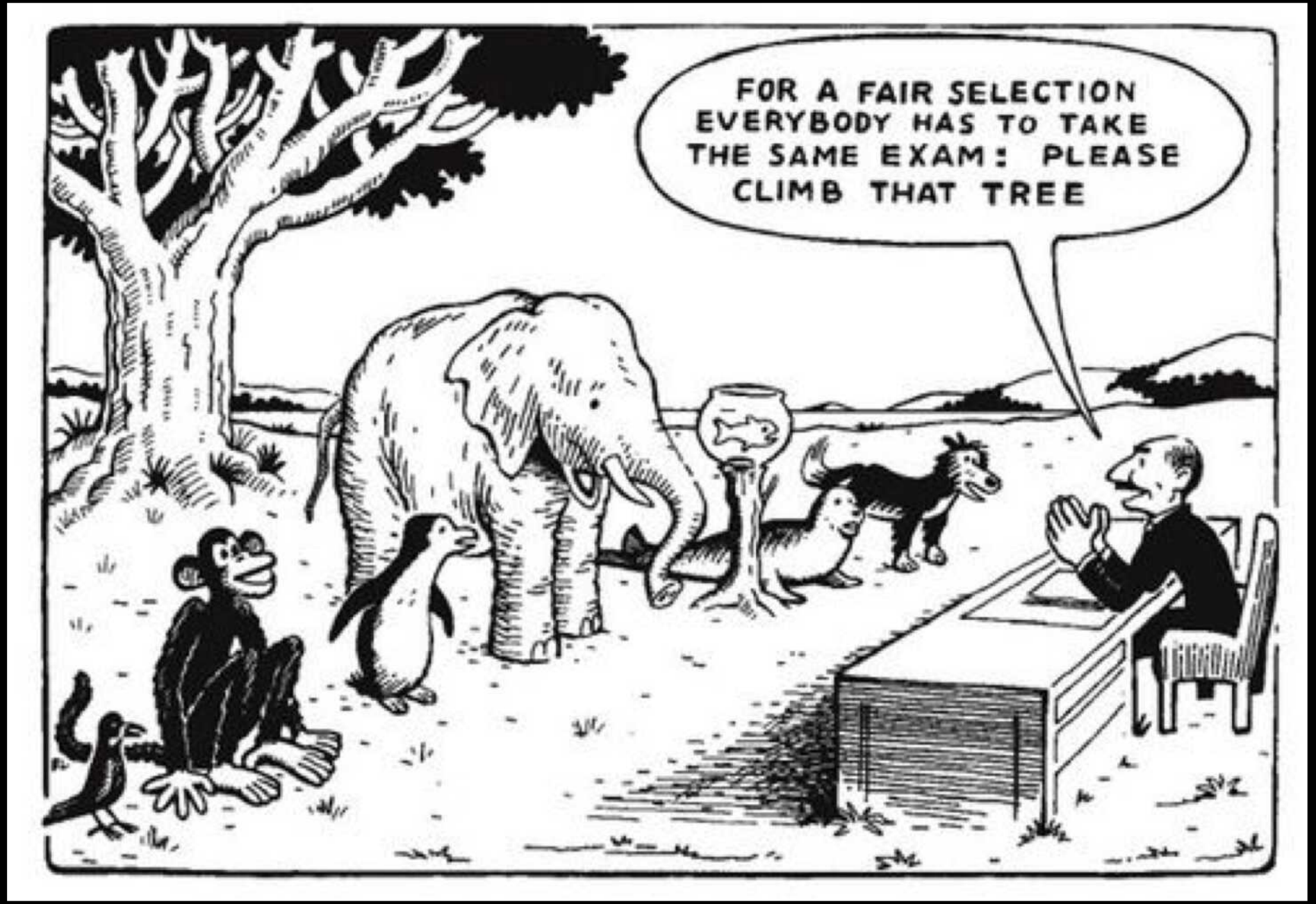
- Opportunities for open online education are recognized, the following clusters are prioritized:
- **Educational flexibility**
- **External target groups**

- **Online teaching** is experienced as a big challenge
  - *What are main challenges towards designing and teaching in OOE?*
- **Support mechanisms** on various levels of the university is missing
  - *How to benefit from opportunities of OOE if support is missing?*

SOME CHALLENGES FOR OOE DESIGN & IMPLEMENTATION…

- ***Online Teaching:*** The self-regulated learner
- ***Support mechanisms:*** Scalability of educational practices

THE SELF-REGULATED LEARNER


FOR A FAIR SELECTION EVERYBODY HAS TO TAKE THE SAME EXAM: PLEASE CLIMB THAT TREE

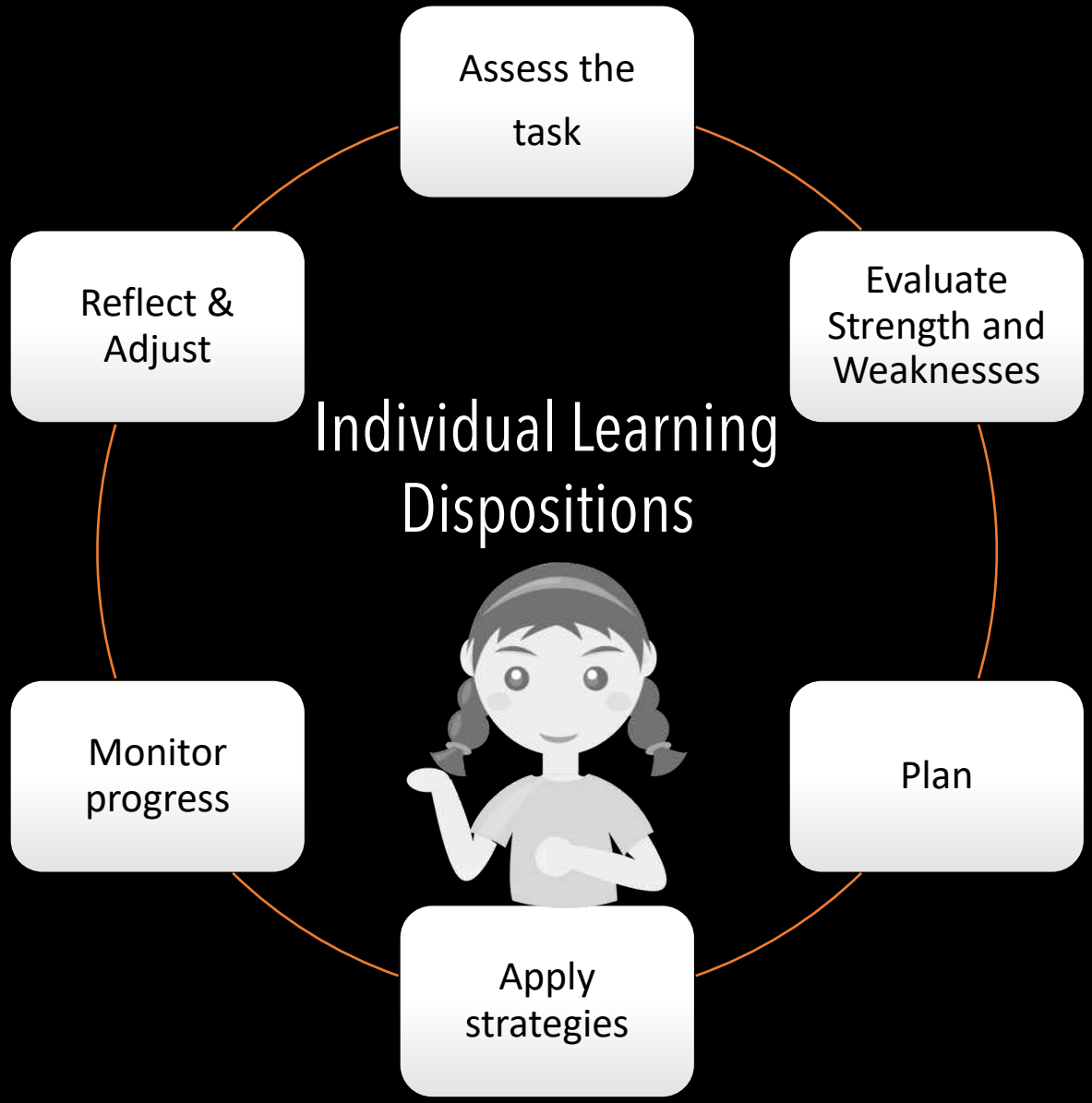
Self-regulated learning in OOE

"Students that self-regulate their learning are actively involved in their learning process before, during, and after learning"

(Zimmerman, 2002).

So what are some examples from you? How do you regulate your learning?

Self-regulated learning in OOE



(Ambrose et al., 2010)

Self-regulated learning in OOE

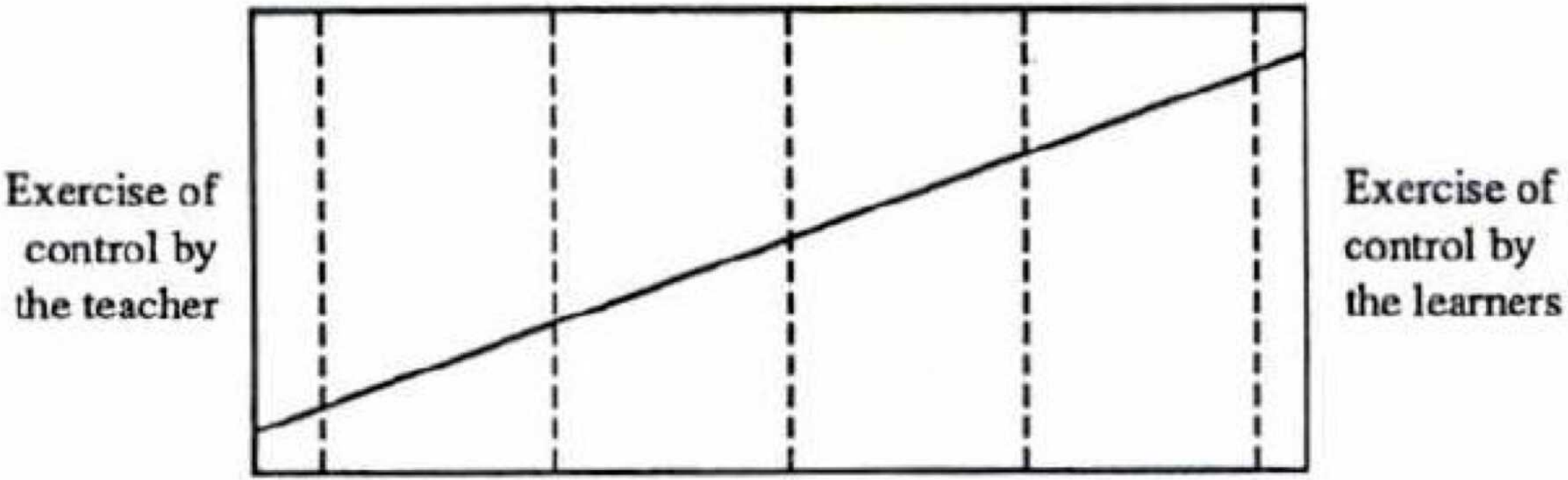
- **Learners in a MOOC setting:**
  - Have **more autonomy** (e.g. open in access, location, time and pace of completion).
  - Are required to **regulate** their learning to a greater extent than students in traditional, face-to-face education.
  - Need to **take control** of their own learning process
  - Need to engage **more and differently in strategies** to regulate their study behavior.

Self-regulated learning in OOE

- **Research shows:**
  - **Prior experiences with SRL** and technology impact self-efficacy and motivation (Lee, Tsai, Chai & Koh, 2014)
  - SRL in a technology-rich context requires **step-wise introduction** and support (Lee, Tsai, Chai & Koh, 2014)

  - Weak regulators strongly follow the suggested path in the course. They are therefore best to assist with **support integrated into the course**. (Jansen, Van Leeuwen, Janssen & Kester, in review)

Figure 1.1. A Hypothetical Learner-Control Continuum.



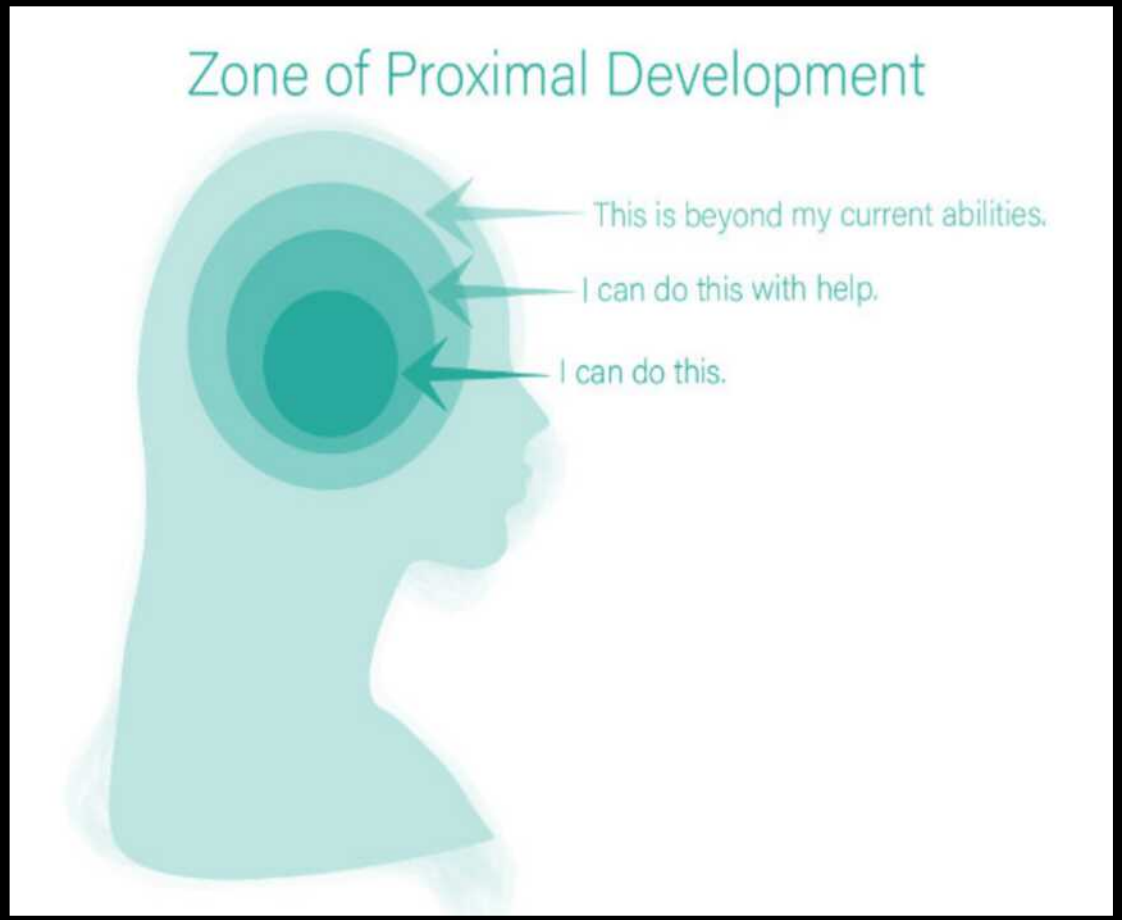
Source: Adapted from Millar, Morphet, and Saddington, 1986, p. 437. Reprinted with permission.

So what could be a solution to facilitate learners in SRL?

Scaffolding:

a combination of providing learner guidance and gradually fading that guidance as learner expertise increases.

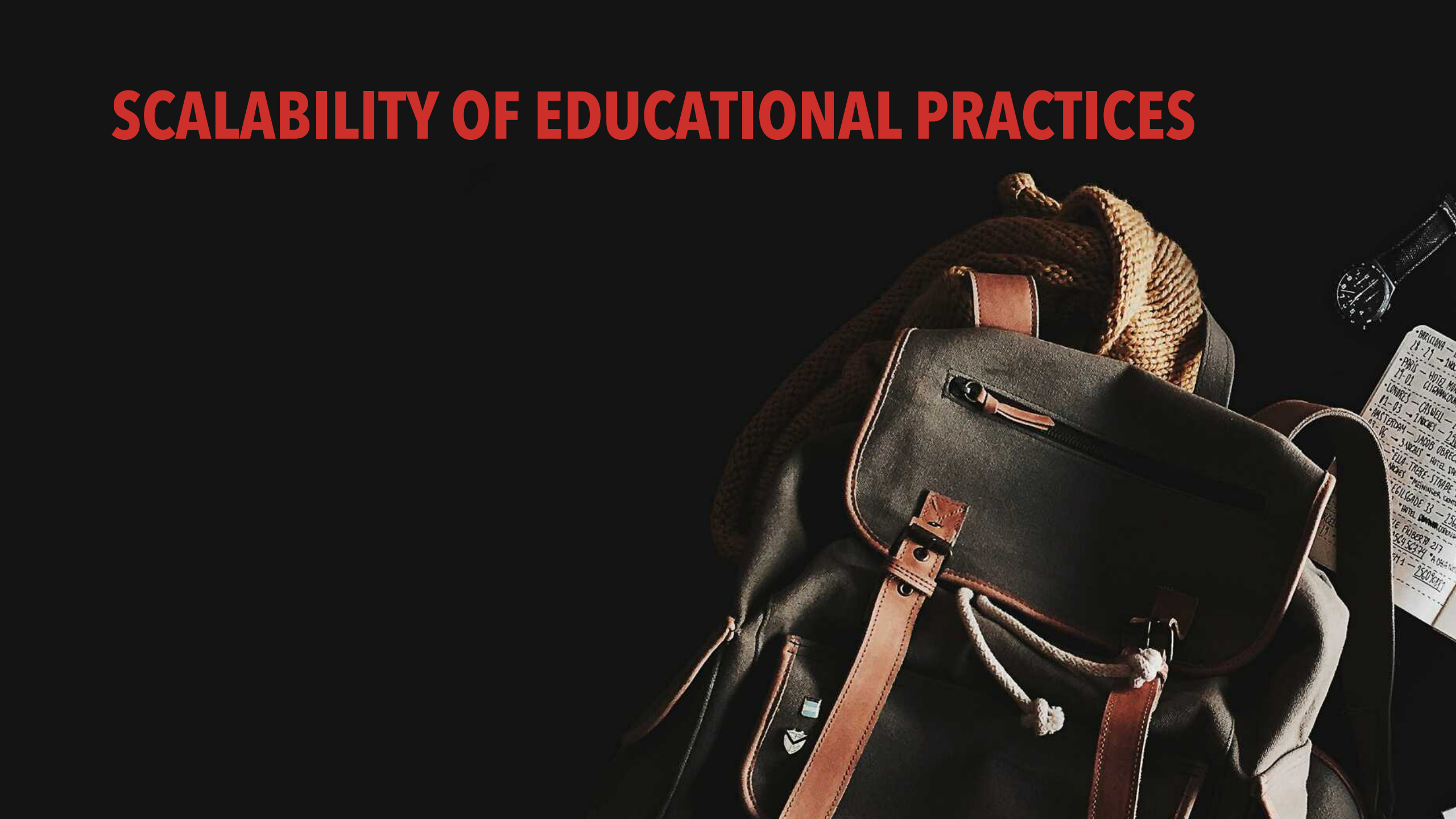
Scaffolding self-regulated learning in OOE



- Breaking tasks down into manageable subtasks
- Modeling the kind of participation you want to see
- Asking students to engage in self-reflection
- Connecting new knowledge to prior knowledge
- Creating opportunities for peer-to-peer learning and collaboration (e.g. online forum)

So the next challenge for OOE is: how to organize this for thousands of learners online

SCALABILITY OF EDUCATIONAL PRACTICES



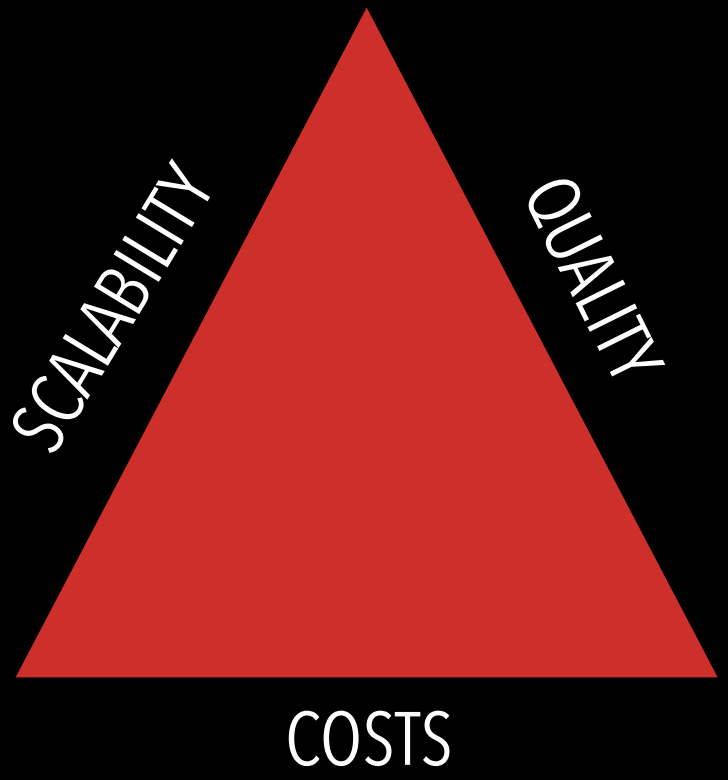
You all know who this is…

What are teaching practices dr. Serdar Türkeli uses in your course?

PollEv.com/martineschop737

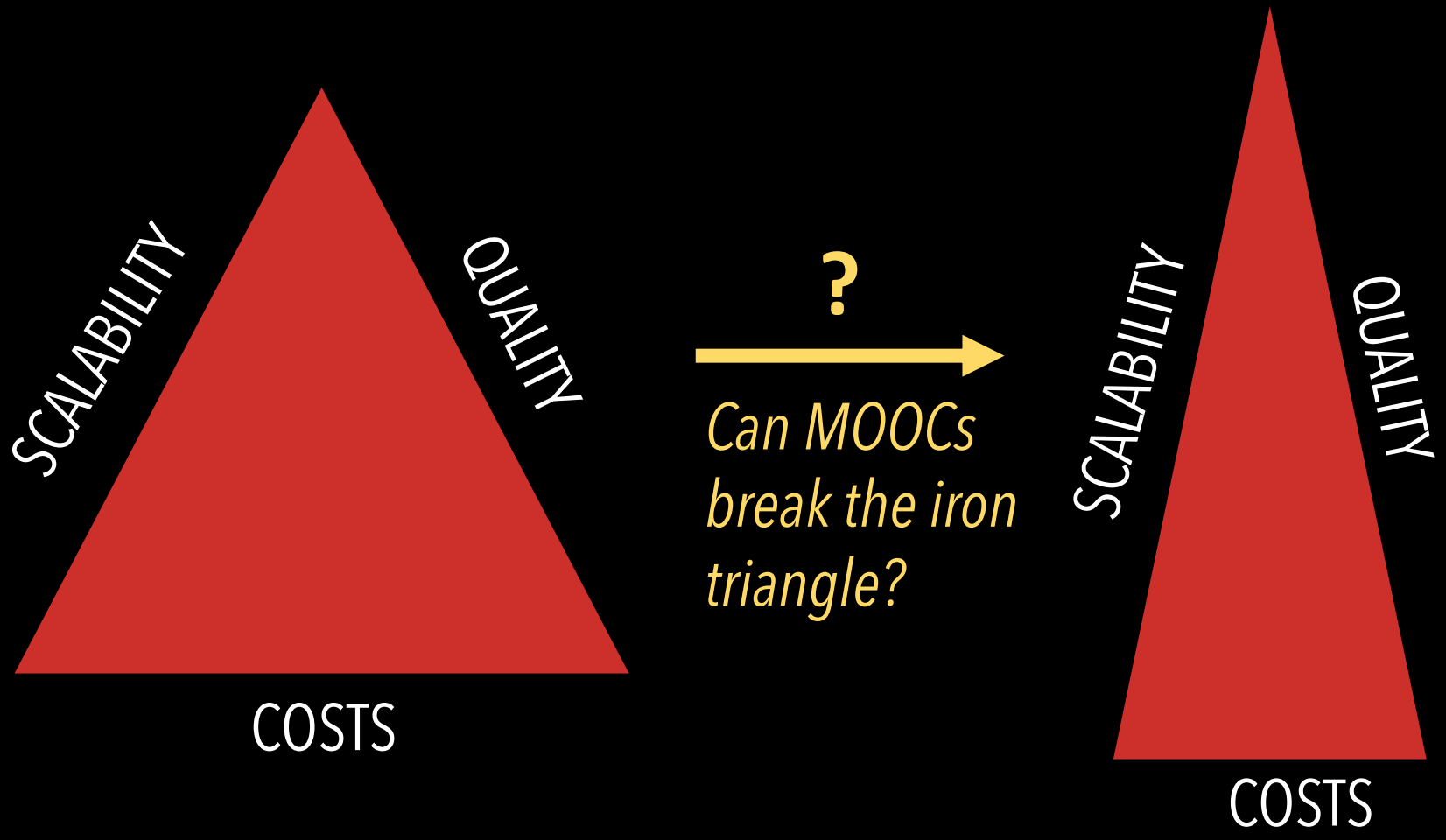
Could dr Türkeli also serve 1000+ students if the course was a MOOC with these practices?

Scalability of educational practices in OOE: The iron triangle



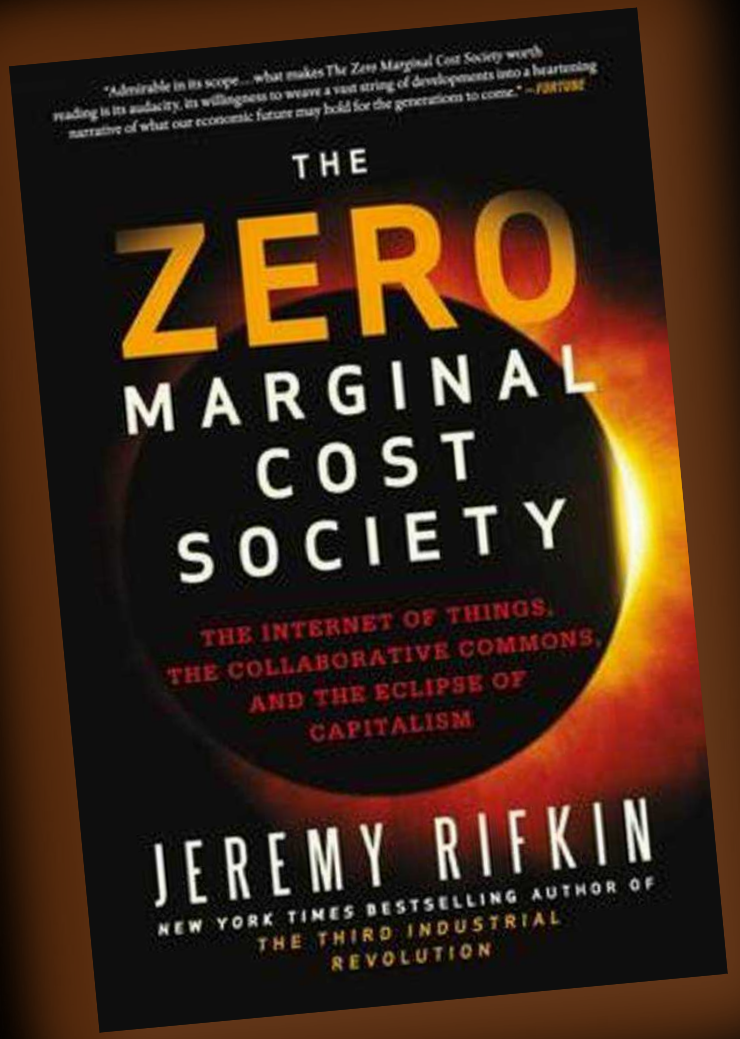
(Lane, 2014)

Scalability of educational practices in OOE

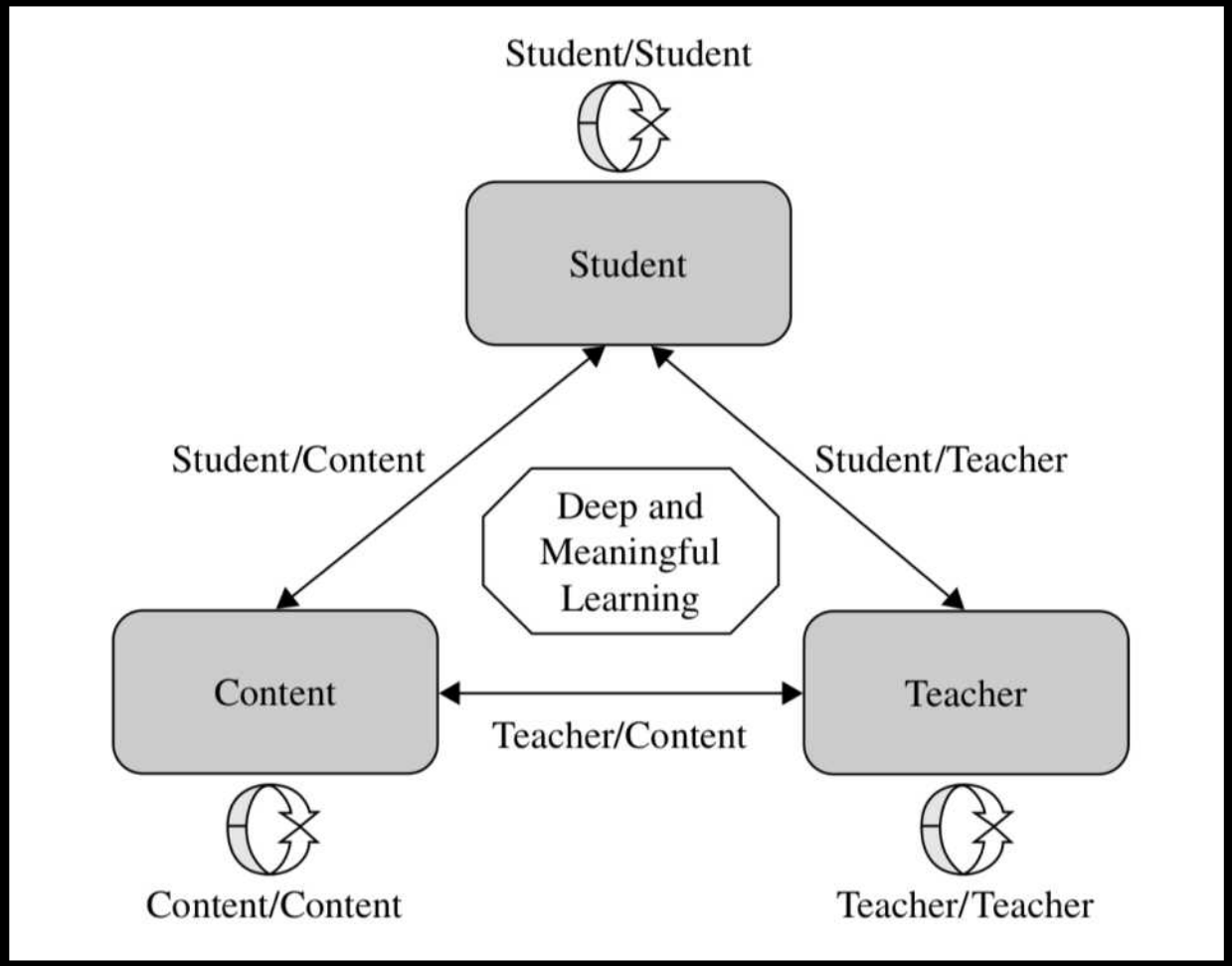


(Lane, 2014)

Confusion of tongues…



Interactions in online/distance education



(Anderson, 2003a; 2003b)

- Independence vs. interaction
- It's about getting the mixture right!

Scalability of educational practices in OOE

- The interaction types may take place in either **synchronous** or **asynchronous** time and be delivered through one or a combination of **communication genres**.
- Unfortunately, many educators argued for superiority of the technology and instructional design most in harmony with their **current delivery model and practice**.
- Such "**technocentrism**" is becoming less justifiable as the convergence of media on the Internet allows teachers and institutions to create or select **any combination** of mediated interaction possible in synchronous or asynchronous time.

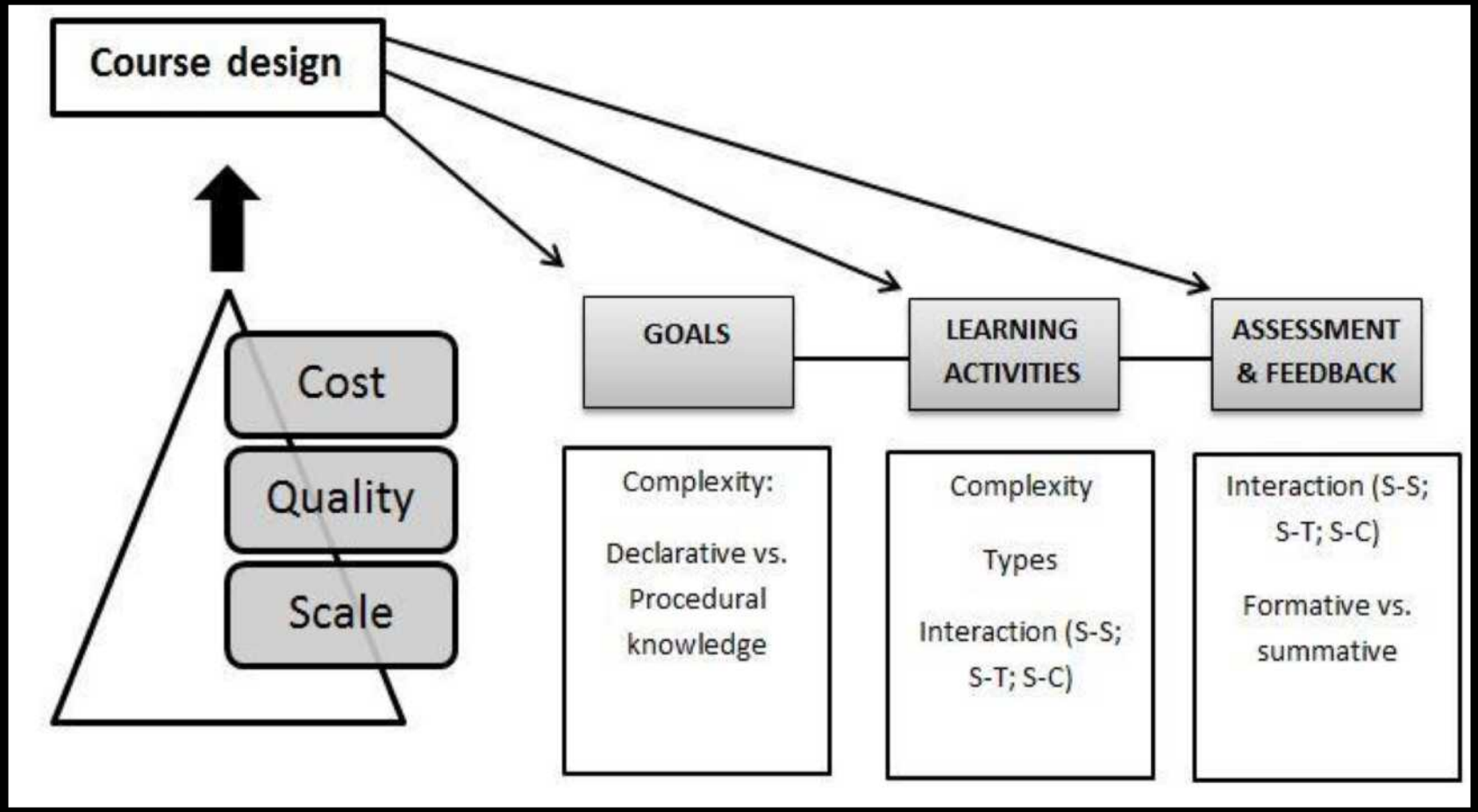
So how to support new ways of interaction types on a bigger scale?

Scalable educational design & technology

SCALABLE DESIGN	SCALABLE TECHNOLOGY
Worked out examples	Bots and virtual tutors
Self-organised groups	Matchmaking (question-answering)
Peer-Assessment	Recommender Systems
Self-Assessment	Prediction-Algorithms

(Kasch, Van Rosmalen & Kalz, 2017)

Heuristic framework to analyse educational scalability



(Kasch, Van Rosmalen & Kalz, 2017) **Educational Scalability Analysis Instrument:** http://dspace.ou.nl/handle/1820/8845

A framework towards educational scalability of open online course

- By using the analysis instrument (Educational Scalability Analysis Instrument) it is found that:

  - The concept of scale is not operationalized and is usually an implicit quantitative concept
  - MOOC design has a focus on low complexity learning activities with little interaction and cooperation
  - There is a challenge with regard to setting up complex and interactive learning activities where there are also no high costs for teachers

(Kasch, Van Rosmalen & Kalz, 2017)

Educational scalability: Recommendations for policy & practice

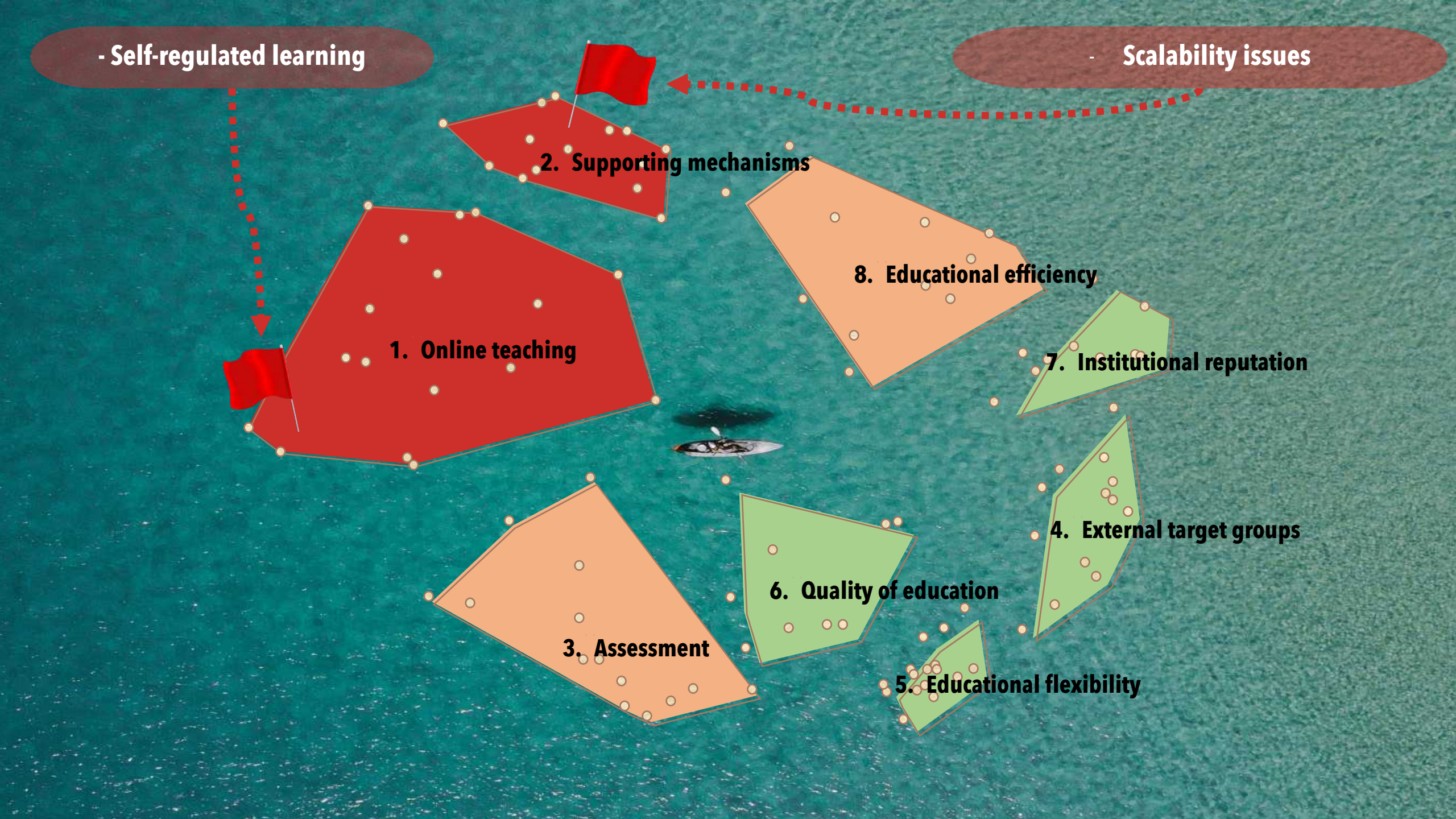
- Course design should focus on quality and quantity:

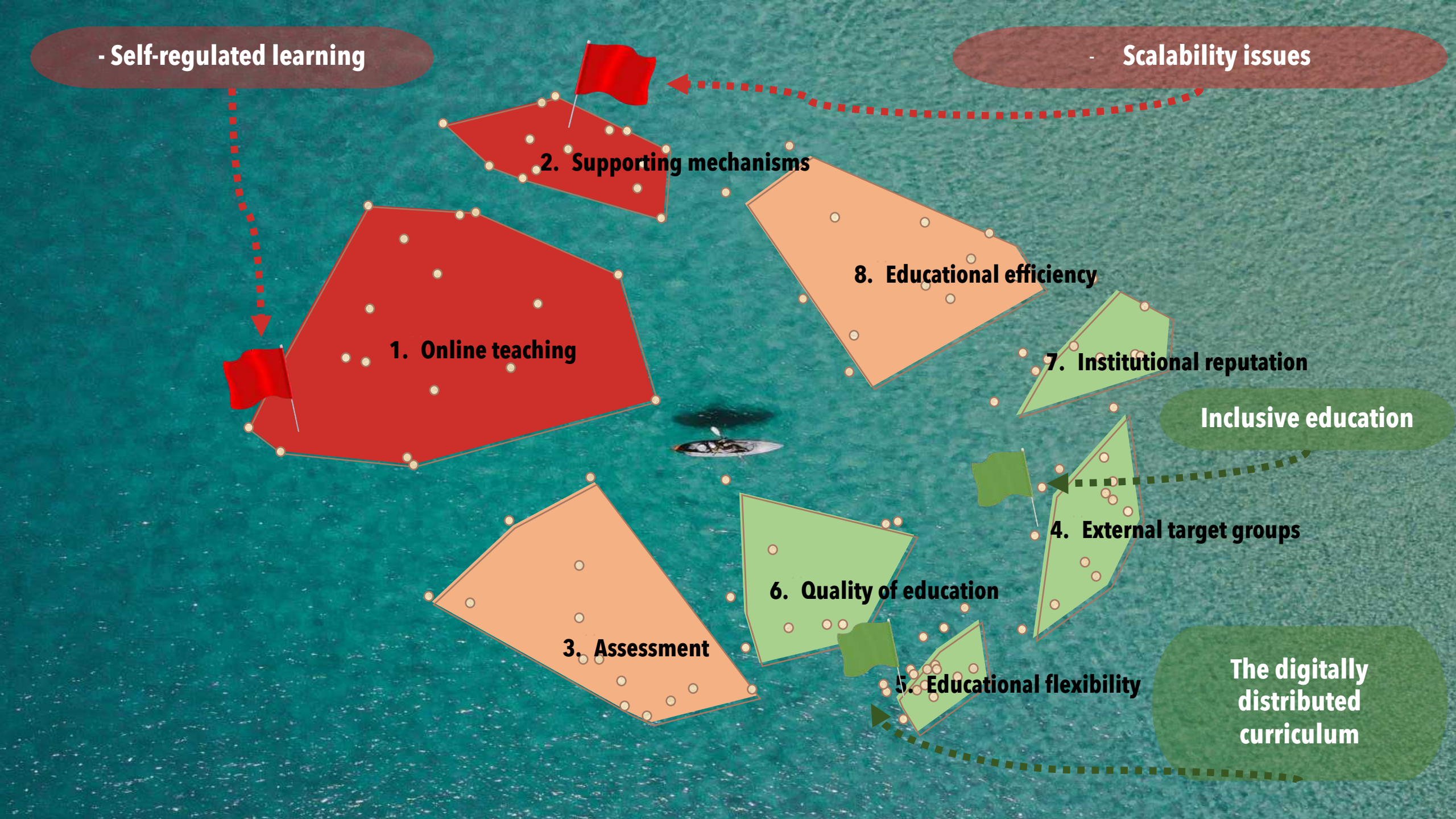
OER ≠ Education

Scale ≠ educational scalability

- Large courses (offline and online) can benefit from design guidelines for formative assessment and feedback.

(Kasch, Van Rosmalen & Kalz, 2017)


- Self-regulated learning
- Scalability issues
2. Supporting mechanisms
1. Online teaching
8. Educational efficiency
7. Institutional reputation
4. External target groups
6. Quality of education
3. Assessment
5. Educational flexibility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The digitally distributed curriculum

SOME GLOBAL OPPORTUNITIES FOR OOE…

- ***External target groups:*** Inclusive education
- ***Flexible education:*** Open digitally distributed curriculum

INCLUSIVE EDUCATION AND OOE

Inclusive education and OOE

- Massive open online courses are considered a means for democratizing education
- However: Research shows that MOOCs are reaching a fairly **homogeneous population** and that those thought to benefit most from these courses are underrepresented in course enrollments

So, although the opportunity is there, why are MOOCs contribution to inclusive education and lifelong learning not happening on a global scale?

Inclusive Education: The digital divide

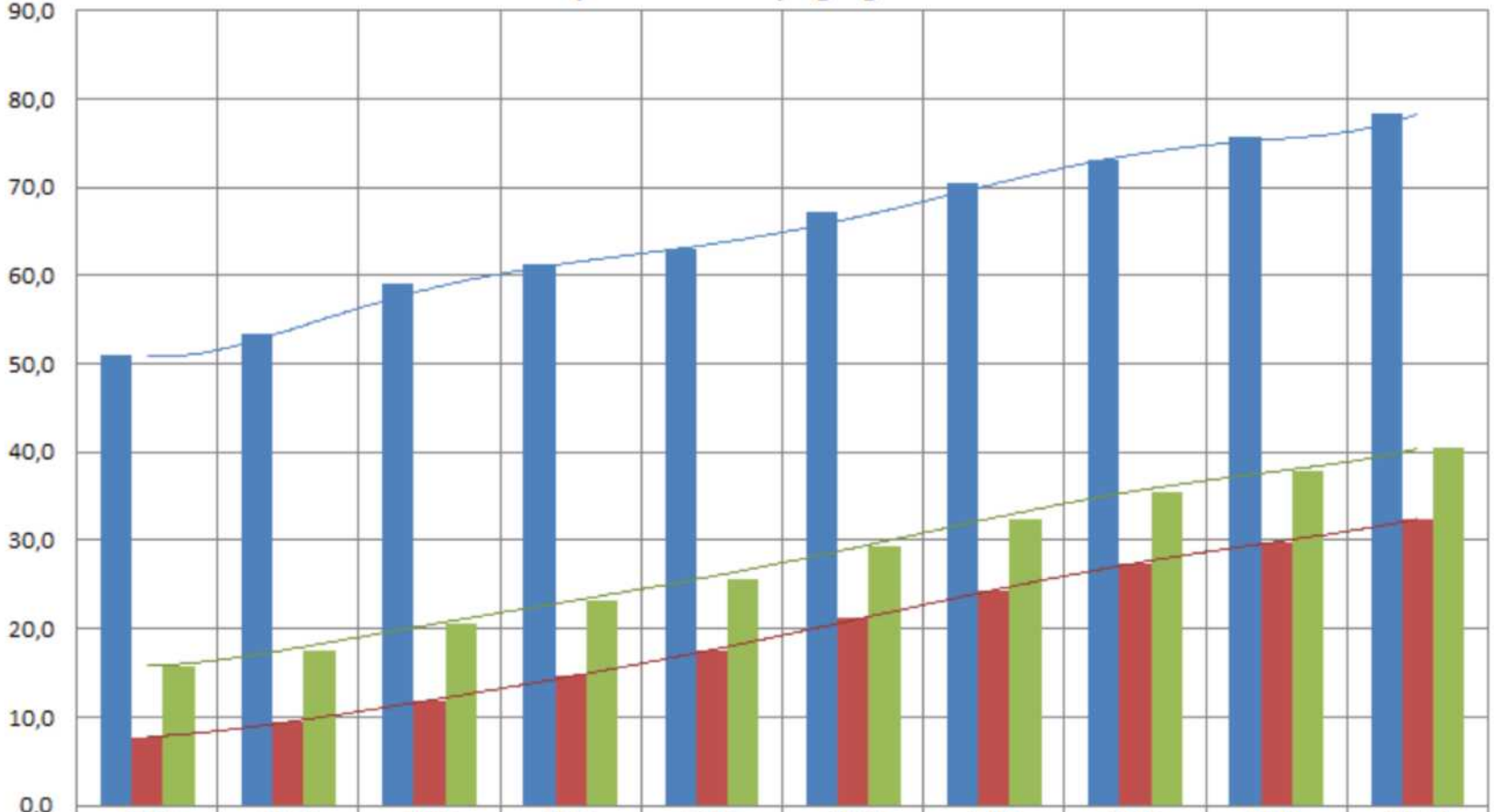
"As the infusion of mass media information into a social system increases, segments of the population with higher socioeconomic status tend to acquire this information at a faster rate than the lower status segments, so that the gap in knowledge between these segments tends to increase rather than decrease"

(Tichenor, Donohue & Olien, 1970, p. 159).

- There are risks of an increase of inequalities as a consequence of hyping MOOCs
- Knowledge Gap theory
- There differences between developing and developed countries, but also that socioeconomic factors within industrial countries influence access to the internet (Zhang, 2013).

Individuals using the internet

developed and developing regions



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014*
	Per 100 inhabitants									
Developed	50,9	53,5	59,0	61,3	62,9	67,1	70,5	73,1	75,7	78,3
Developing	7,8	9,4	11,9	14,6	17,4	21,2	24,3	27,4	29,9	32,4
World	15,8	17,6	20,6	23,1	25,6	29,4	32,5	35,5	37,9	40,4

Inclusive Education: The digital divide

The access gap

There differences between developing and developed countries & socioeconomic factors within industrial countries

The usage gap

Information and educational usage can be identified within higher status groups

Reception gap

People with higher socioeconomic status are able to derive a higher benefit from a wide variety of educational possibilities provided by digital media, specifically the internet

Inclusive Education: The digital divide

Possible answers to make MOOCs an instrument of education for all

It is necessary to become active on three different levels:

a. **Didactics**: By providing offers enabling better access for educational disadvantaged people in terms of content and didactics.
b. **Organization**: Integration of MOOCs in a strategy that is addressing non-traditional learners.
c. **Society**: Stronger political and monetary support of MOOCs on the background of a) and b).

(Rohs & Ganz, 2015)

Overcoming the access gap…

An off-grid, offline virtual classroom where learners can still benefit from digital resources and learning networks.

Commonwealth of learning: intergovernmental organisation with the mandate to promote open and distance learning https://www.col.org

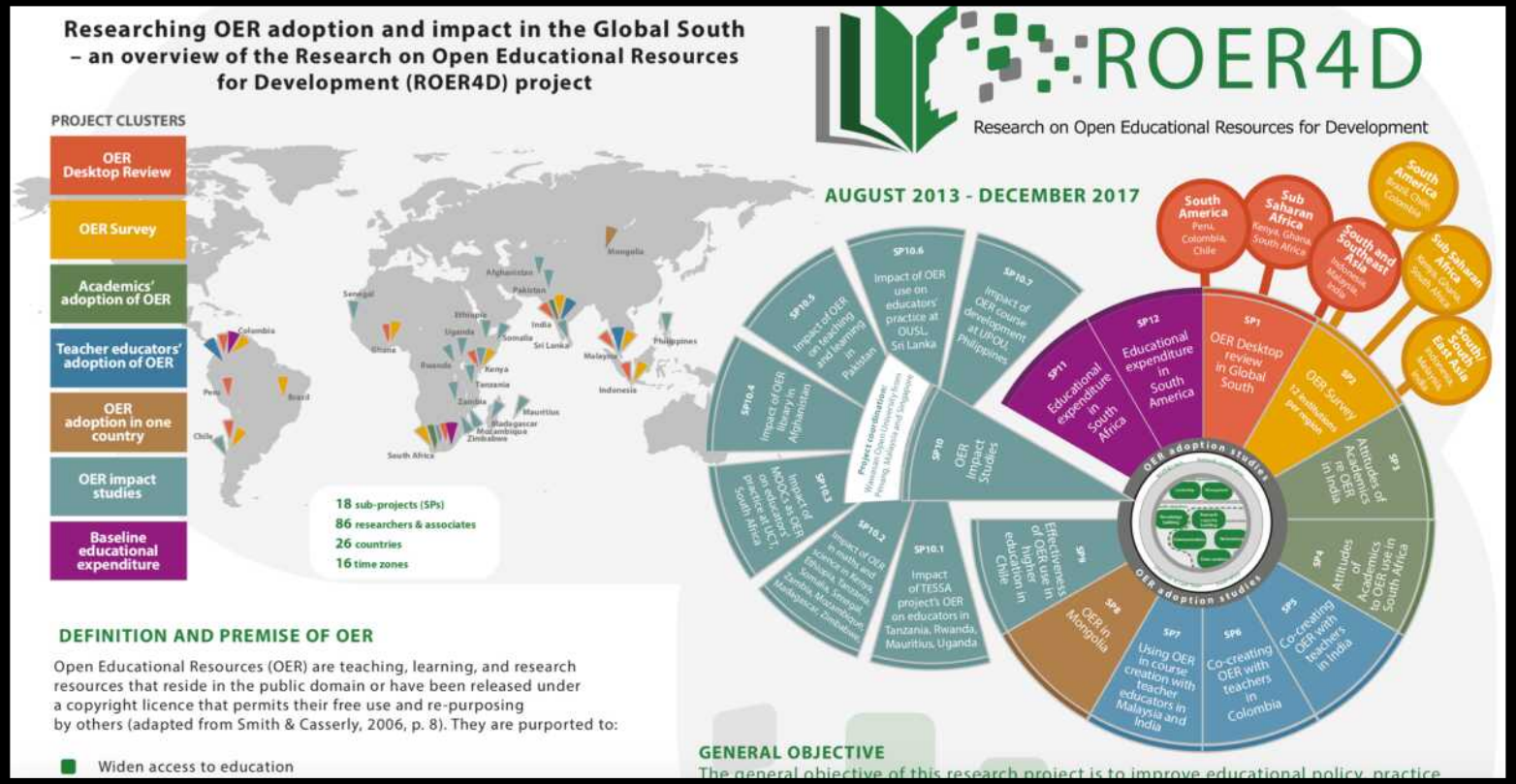
Overcoming the usage gap…

- MOOCs4inclusion: Commissioned by the EC, the Directorate General Joint Research Centre (DG JRC)
- Mapping & analysis of MOOCs & free digital learning for inclusion of migrants & refugees
- Project demonstrated that:
  - There are many open learning initiatives for migrants/refugees that vary in nature, design and purpose.
  - This landscape is changing almost daily, which makes it difficult to pinpoint how effective they are.

(Colucci, Castaño-Muñoz & Devaux, 2017)

Identifying what this profile of migrants is, what specific needs they have enables a more efficient and effective learning design for this target group.

Overcoming the reception gap…



Cross-regional surveys on OER in

- South-America
- Africa
- Asia

Research on co-authoring and cross-cultural aspects of Open Education

http://roer4d.org/

So what about SDG 4?

SUSTAINABLE DEVELOPMENT GOAL 4

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Open
Educational
Resources

Open Courses/
MOOCs

What about SDG 4?

Target 4.1: Free primary and secondary education
Target 4.2: Equal access to quality pre-primary education
Target 4.3: Equal access to affordable technical, vocational and higher education
Target 4.4: Increase the number of people with relevant skills for financial success
Target 4.5: Eliminate all discrimination in education
Target 4.6: Universal literacy and numeracy
Target 4.7: Education for sustainable development and global citizenship
Target 4.A: Build and upgrade inclusive and safe schools
Target 4.B: Expand higher education scholarships for developing countries
Target 4.C: Increase the supply of qualified teachers in developing countries

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What about SDG 4?

SDG INDICATOR 4.3.1
Equal access to further education

Definition: Indicator 4.3.1 is the participation rate of youth and adults in formal and non-formal education and training in the previous 12 months, by sex.

It is **not clear how this is supposed to be tracked.** Here we show the total enrollment in tertiary education, regardless of age, expressed as a percentage of the total population of the five-year age group following on from secondary school leaving. **Data on non-formal further education and training is not available.**

Open
Educational
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What about SDG 4?

SDG INDICATOR 4.7.1
Education on sustainable development and global citizenship

Definition: Indicator 4.7.1 is the extent to which (i) global citizenship education and (ii) education for sustainable development, including gender equality and human rights, are mainstreamed at all levels in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment.

We are currently not aware of data for this indicator.

Discussion question

- What would be indicators for the contribution of open online education towards SDG 4?

- Can we measure impact of open online education for sustainability?

THE OPEN DIGITALLY DISTRIBUTED CURRICULUM

The digitally distributed curriculum: A conceptualization

What is the nature and the purpose of the curriculum in higher education?

The bounded curriculum

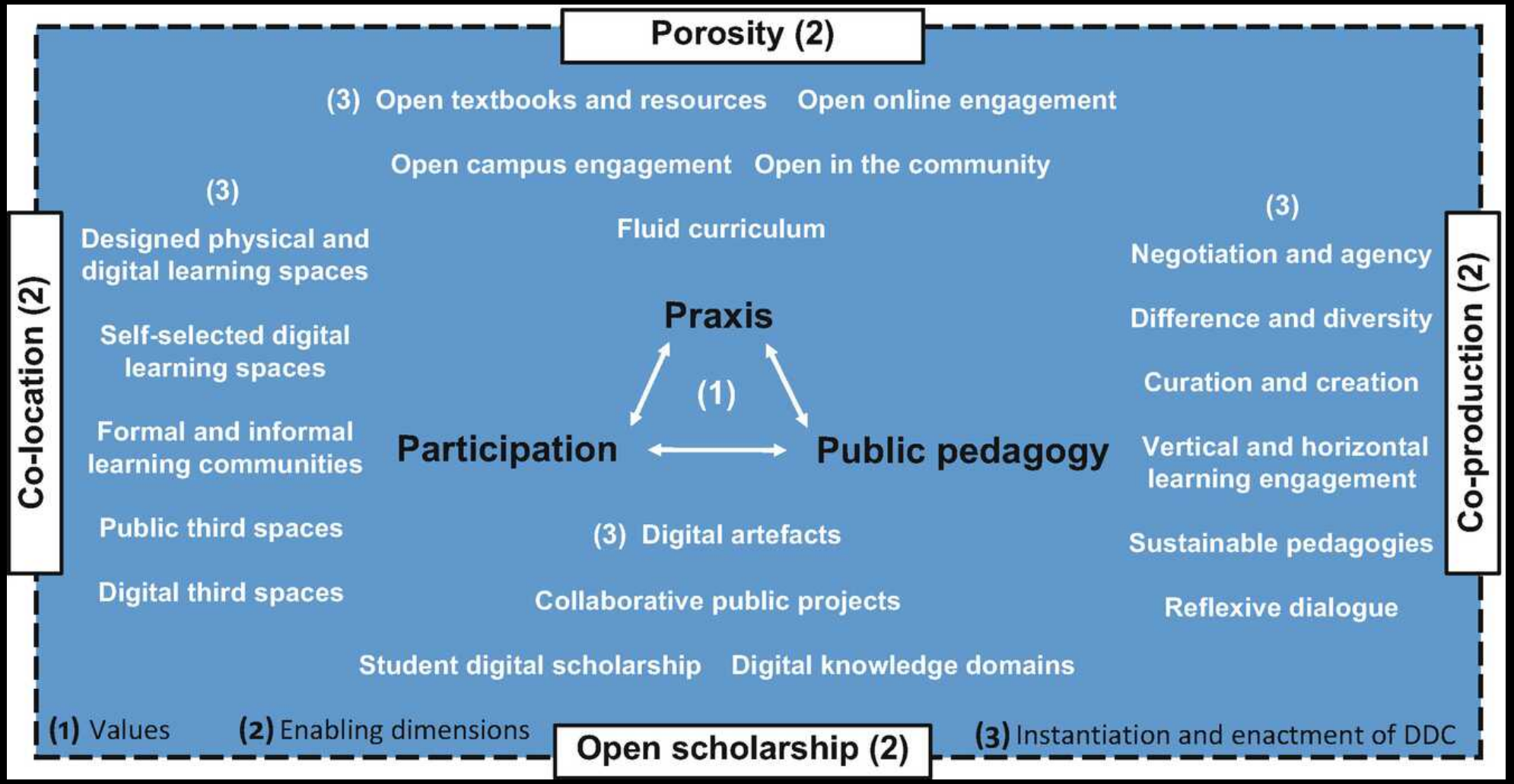
- **The curriculum as a product** → provide customers with higher "earning power"
- **Modularisation** → cohorts confined
- **Institutional digital silos** → space and distance between learners

(Johnston, MacNeill & Smyth, 2018)

Towards relocating the curriculum…

With the mentioned opportunities and examples from this lecture, what could enable a relocation for the curriculum?

The digitally distributed curriculum



(Johnston, MacNeill & Smyth, 2018)

The digitally distributed curriculum: In the case of social justice

The digitally distributed curriculum: In the case social justice

- "Decolonizing the curriculum"

- Includes a fundamental reconsideration of who is teaching, what the subject matter is and how it's being taught

- If higher education is a **key social instrument** to build socially just societies, it is important to explore action steps as a way to instigate appropriate transformations of the curriculum.

What if curricula where reformed based on social justice, what could be key steps to take?

The digitally distributed curriculum: The example of Kiron education

- https://youtu.be/9XGgD_IvzCA

The digitally distributed curriculum: The example of Kiron education

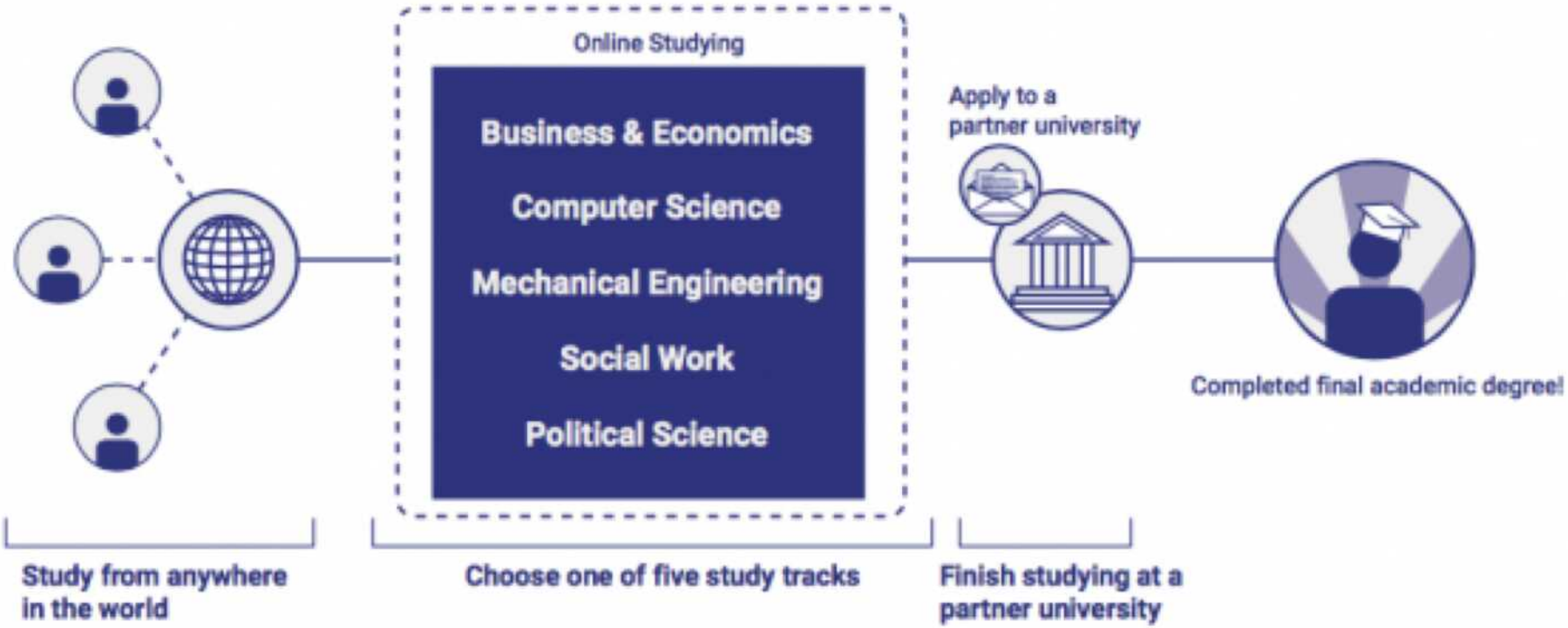
- Two volunteers working with refugees in Berlin set out to create a solution to the challenges that stop refugees accessing higher education. In 2015 they founded Kiron Open Higher Education.

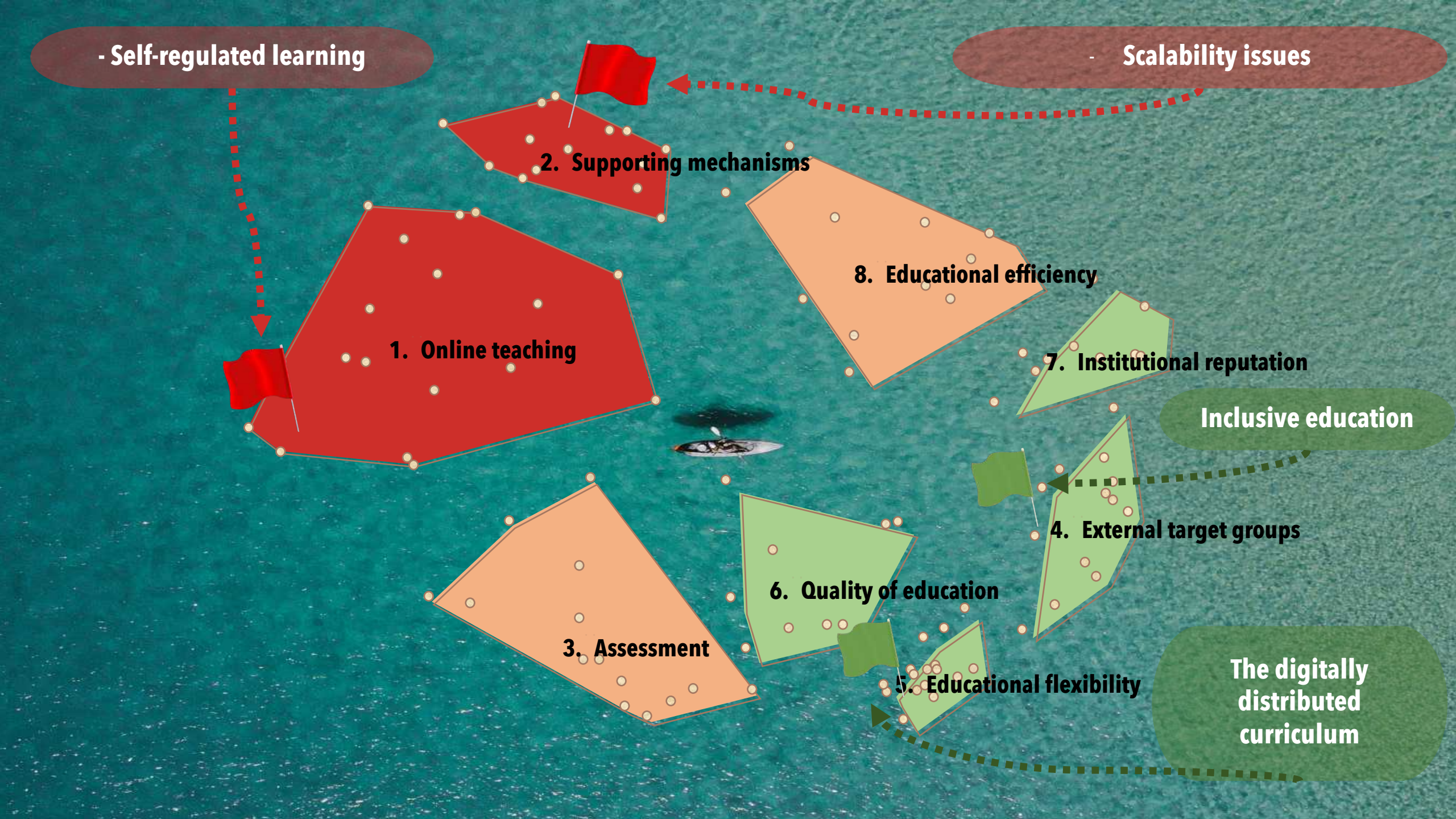
- Based on a digital curriculum that clusters MOOCs created and provided primarily by higher education institutions.

- Courses are bundled on Kiron Campus and independent of the MOOC provider.

- All Kiron curricula meet the standards of the European Higher Education Area and thus offer a coherent educational program.

The Kiron Solution




- Self-regulated learning
- Scalability issues
2. Supporting mechanisms
1. Online teaching
8. Educational efficiency
7. Institutional reputation
Inclusive education
4. External target groups
6. Quality of education
3. Assessment
5. Educational flexibility
The digitally distributed curriculum

Thank you!

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