

**GRE@T-
PIONEER**



GGraduate Education Alliance for **T**eaching the Physics and safety of **NuclE**ar Reactors

C. Demazière
Project coordinator

Chalmers University of Technology
demaz@chalmers.se

presented by **M. Szieberth**

Budapest University of Technology and Economics

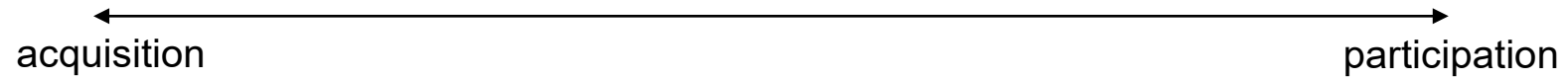


This project has received funding from the European Union's Euratom research and innovation programme 2014-2018 under the Grant Agreement n°890675. The content of this document reflects only the author's view. The European Commission is not responsible for any use that may be made of the information it contains.

WHAT IS GRE@T-PIONEER?

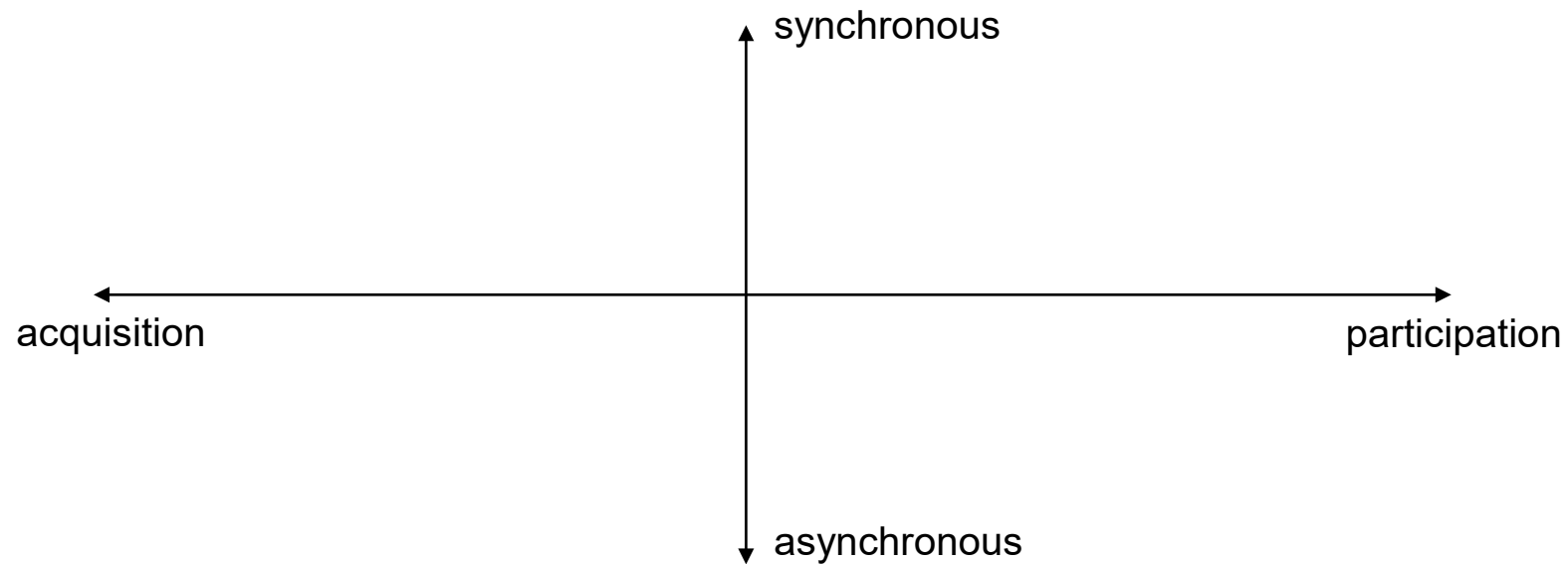
- **18** university teachers from **8** different universities in **6** different countries
- Main **goals** of the project:
 - Maintain or further develop **competences** in **computational and experimental reactor physics and safety**
 - Deliver **top-class courses** using **state-of-the-art pedagogical methods** (active learning through flipping)
 - Create a **community** of **reactor physicists**

PEDAGOGICAL METHOD



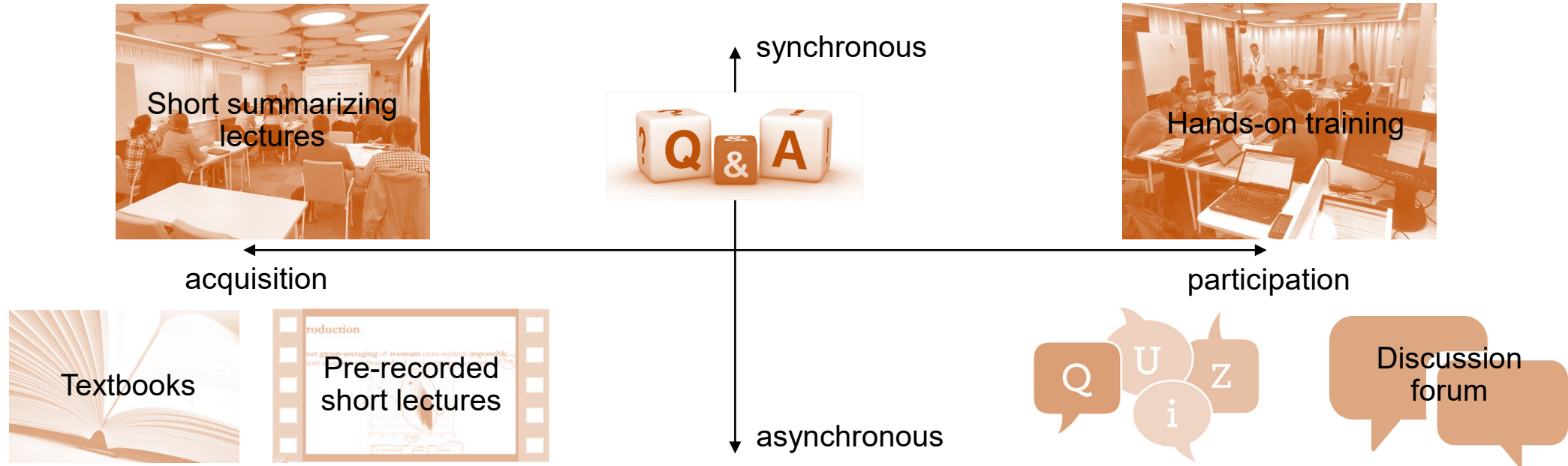
Sfard, A. (1998). On two metaphors for learning and the dangers of choosing just one. Educational researcher, 27(2), 4-13.

PEDAGOGICAL METHOD



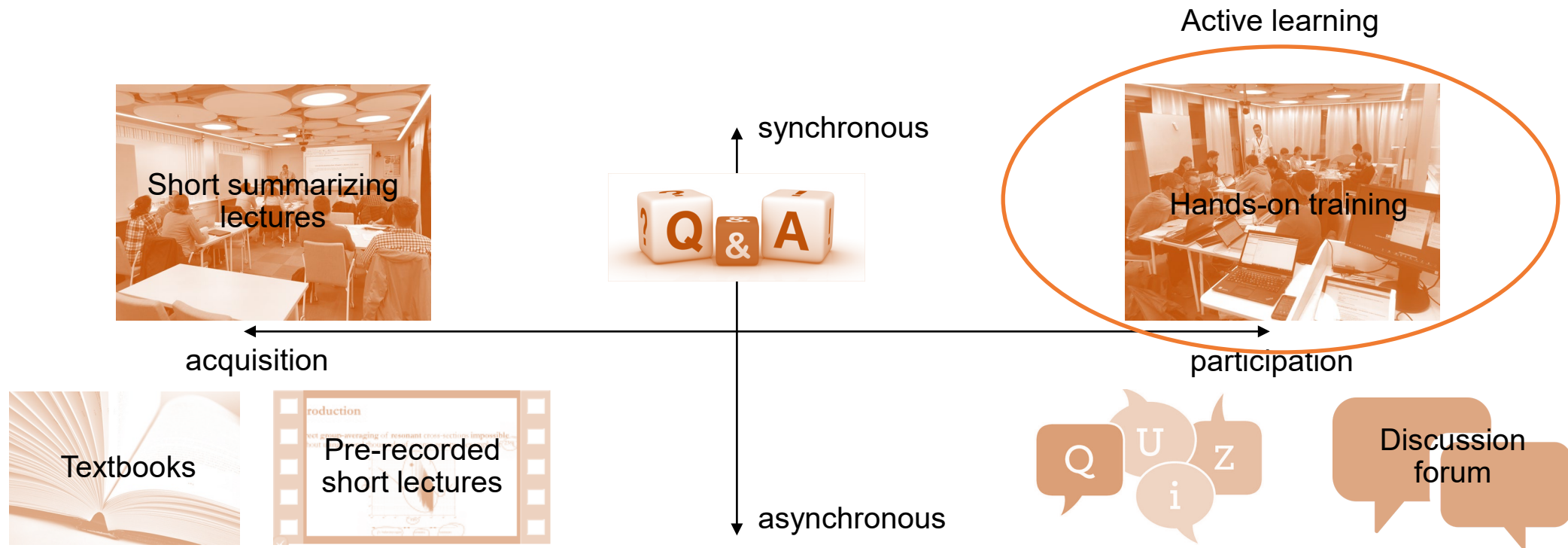
Hrastinski, S. (2008). Asynchronous and synchronous e-learning. Educause Quarterly, 31(4), 51-55.

PEDAGOGICAL METHOD



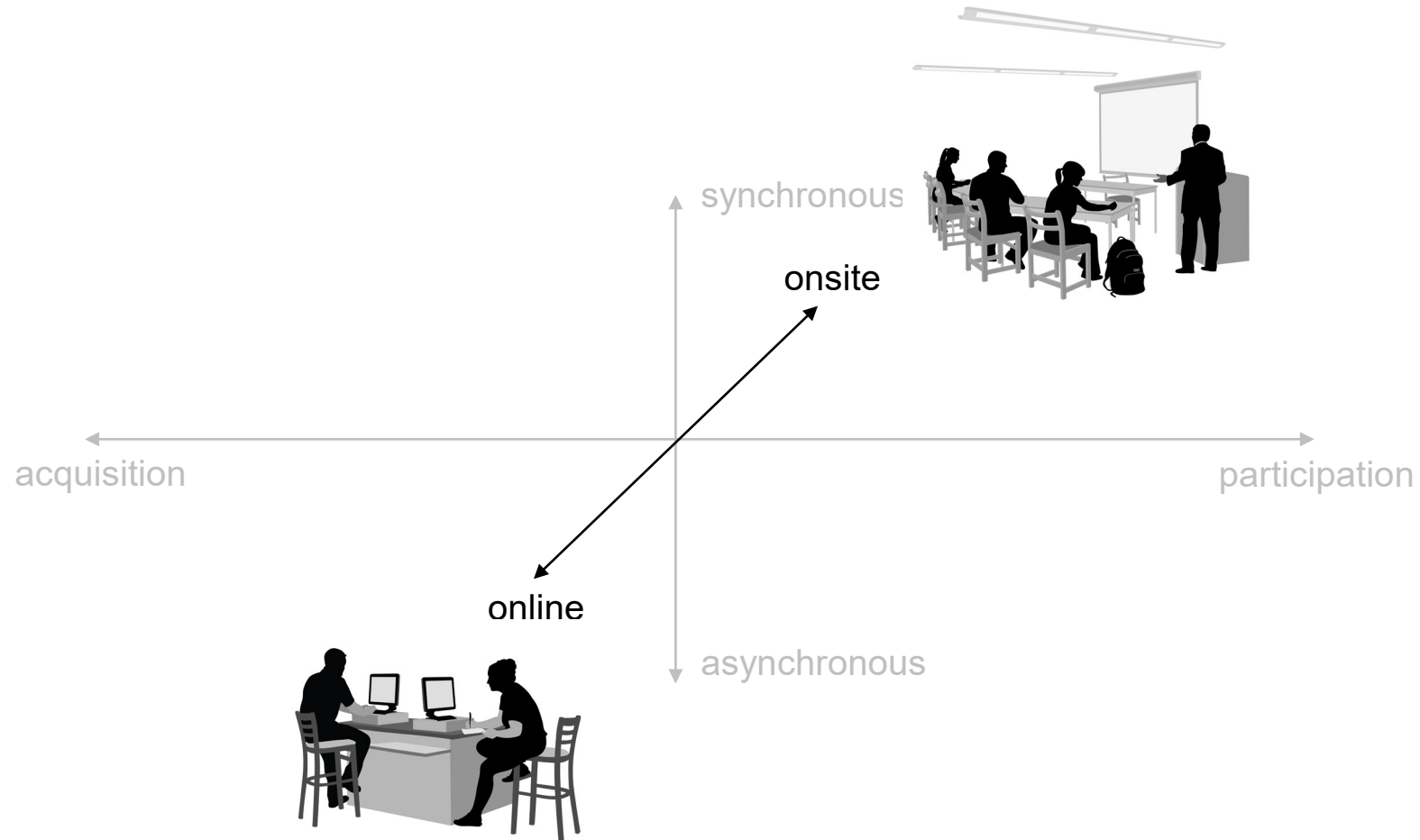
Hrastinski, S. (2008). Asynchronous and synchronous e-learning. Educause Quarterly, 31(4), 51-55.

PEDAGOGICAL METHOD



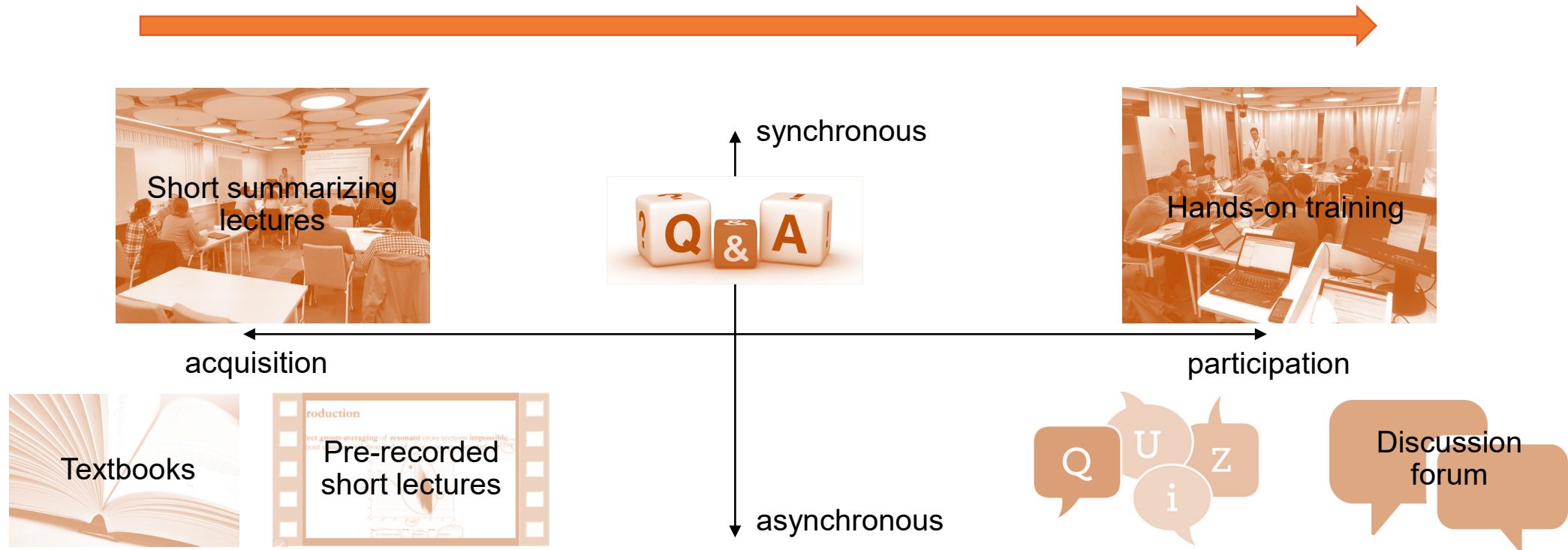
Hrastinski, S. (2008). Asynchronous and synchronous e-learning. *Educause Quarterly*, 31(4), 51-55.

PEDAGOGICAL METHOD



PEDAGOGICAL METHOD

Synchronous hybrid learning phase concentrated on 5 consecutive days



Hrastinski, S. (2008). Asynchronous and synchronous e-learning. Educause Quarterly, 31(4), 51-55.

Asynchronous online learning phase spread on 4 weeks (self-paced learning)

PEDAGOGICAL METHOD

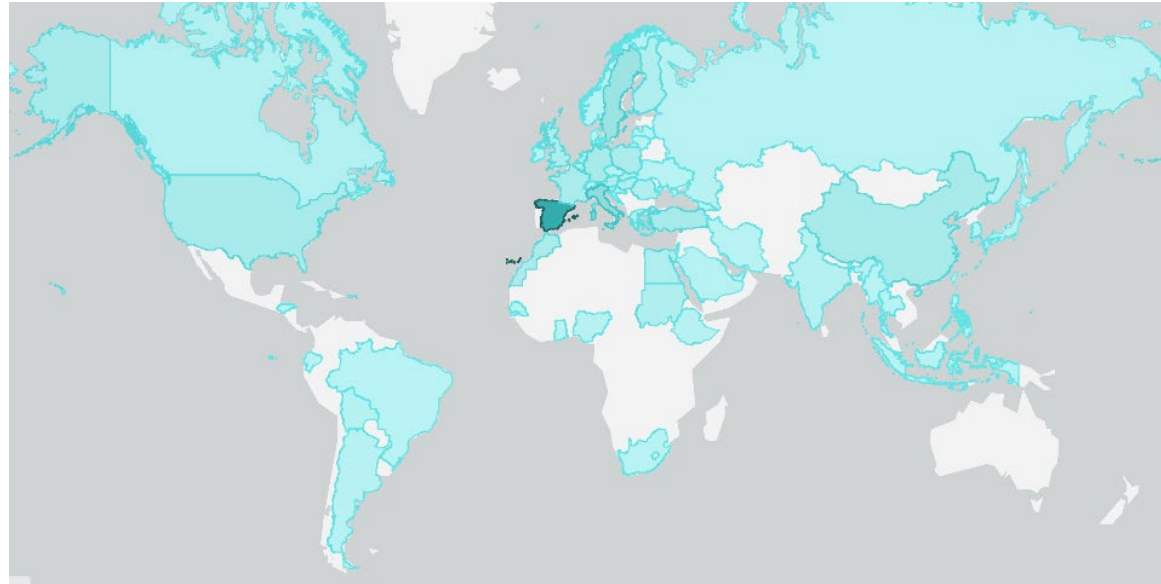
- To be **accepted** to the **synchronous sessions**, the participants should watch at least 50% of the pre-recorded videos and take at least 50% of the quizzes
- To obtain a **course certificate**, the participants should get at least 50 points (out of 100)
- **All activities** are delivered, monitored and graded via the **SOUL** Learning Management System (LMS) from Tecnatom

COURSE OFFERING

- **4 course modules already offered:**
 - Nuclear cross-sections for neutron transport
 - Neutron transport at the fuel cell and assembly levels
 - Core modelling for core design
 - Core modelling for transients
- **5 course modules to be offered before the summer:**
 - Reactor transients, nuclear safety and uncertainty and sensitivity analysis
 - Radiation protection in nuclear environment
 - Hands-on exercises on the AKR-2 training reactor
 - Hands-on exercises on the CROCUS training reactor (onsite only)
 - Hands-on exercises on the BME training reactor
- Register at <https://great-pioneer.eu/register>

EARLY ANALYSIS OF STUDENT BEHAVIOUR AND PERFORMANCE

- For the first 4 delivered courses:
 - **Origin** of the access to the LMS:



➤ Almost worldwide coverage

EARLY ANALYSIS OF STUDENT BEHAVIOUR AND PERFORMANCE

- For the first 4 delivered courses:
 - **246 applicants**
 - 51 rejected applications (upper limit for each course set to 50 participants)
 - **195 accepted applications** (49 onsite and 146 online)
-
- 199 participants actually granted access to the LMS
 - **142 participants qualified for the synchronous sessions** (46 onsite and 71 online)
 - **113 participants received a course certificate** (46 onsite and 67 online)
- **113 course certificates of successful completion already granted!**

EARLY ANALYSIS OF STUDENT BEHAVIOUR AND PERFORMANCE

- For the first 4 delivered courses:
 - Completion rate of the participants granted access to the LMS: 57%
 - Completion rate of the participants qualified for the synchronous sessions: 80%
 - **Completion rate of the participants taking the first activity of the synchronous sessions: 97%** (100% for the onsite participants and 94% for the online participants)
 - Fantastic engagement of the participants who take the first synchronous activity

EARLY ANALYSIS OF STUDENT BEHAVIOUR AND PERFORMANCE

- For the first 4 delivered courses:
 - **Participant course questionnaires:**
 - I benefited from this course (1-5): 4.7
 - This course met my expectations (1-5): 4.2
 - I experienced and learned new things in this course (1.5): 4.6
 - The content covered in this course was NOT interesting (1-5): 1.5
 - I would like to take more courses like this one (1-5): 4.5
 - I would recommend this course to others (1-5): 4.5
 - **Fantastic responses and feedback from all participants**, irrespective of whether they were onsite or online

CONCLUSIONS

- **Enormous amount of work** invested by all teachers in the development of all teaching resources
- **Fantastic outcome** in terms of **participation, engagement and completion**
- **Very rewarding** to reach such a high level of teachers-students interactions during the synchronous sessions, thanks to flipping
- **On-going deeper analysis** of student participation and performance
- Courses to be **re-offered** during the next academic year

Thank you!

Contact details:



Name: *Prof. Christophe Demazière*



Email: *demaz@chalmers.se*



www.great-pioneer.eu



[@GREATPIONEER_EU](https://twitter.com/GREATPIONEER_EU)



[@GREAT-PIONEER](https://www.linkedin.com/company/GREAT-PIONEER)

