

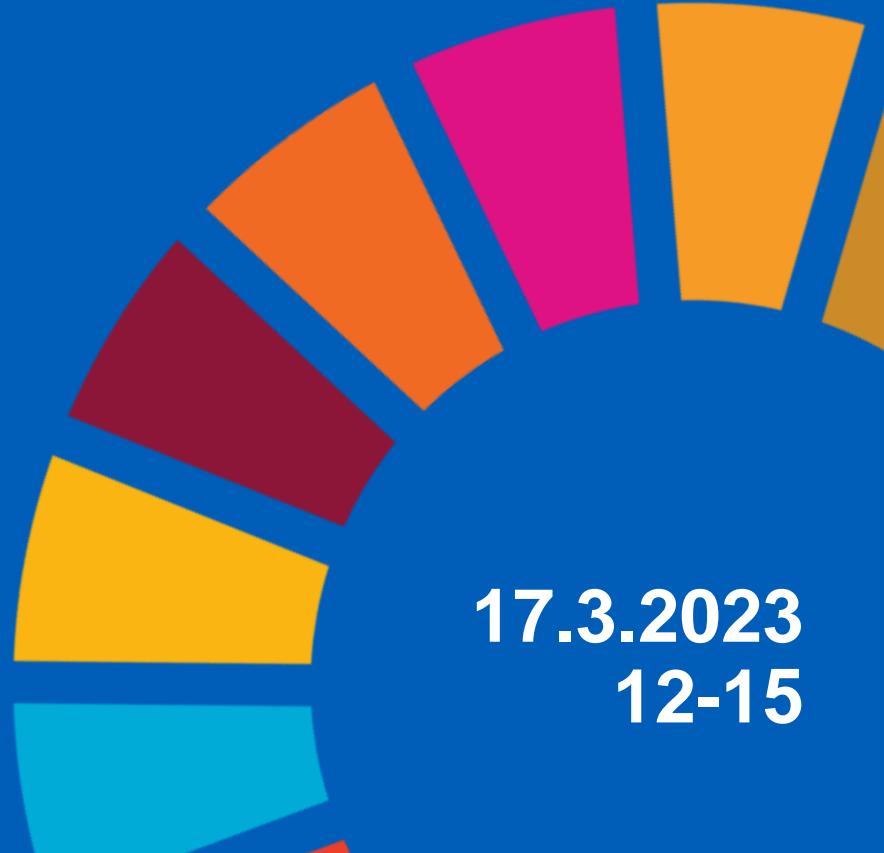
Sustainability in Teaching -course

Session 1

F102, Väre-building, Otaniemi

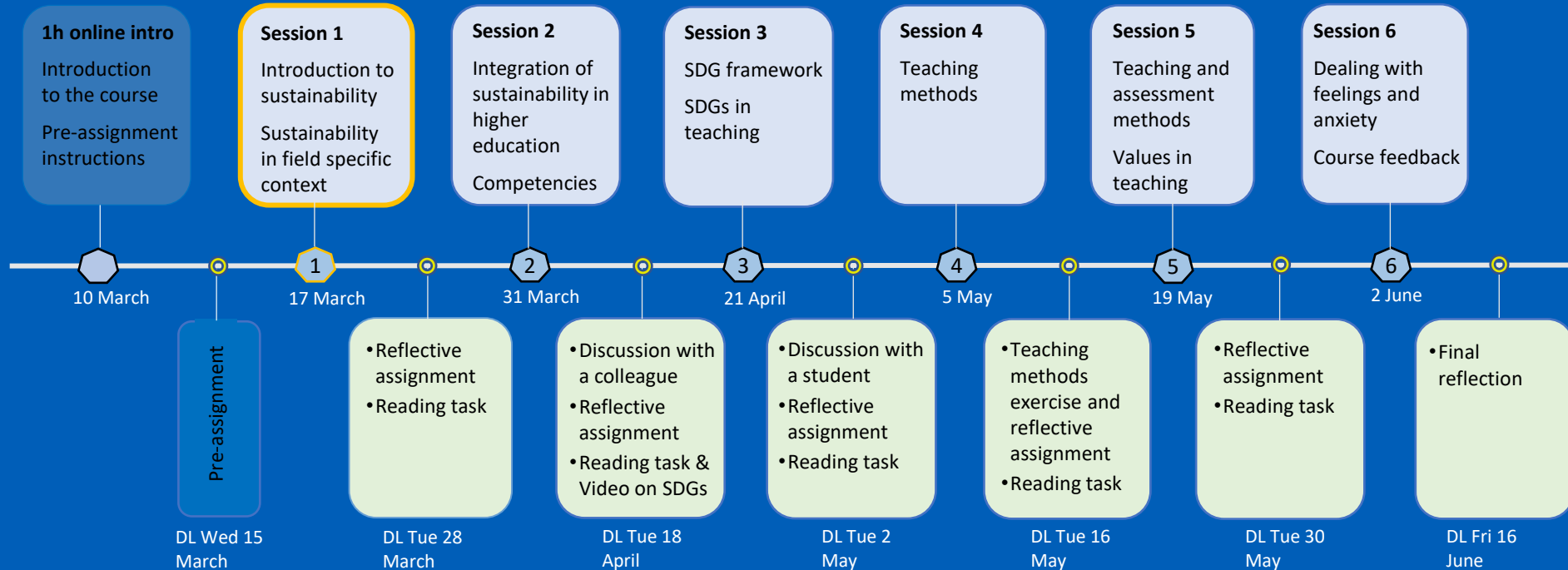


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**17.3.2023
12-15**

Sessions and assignments



Session outline

1. Your expectations
2. Getting to know each other
3. Sustainability - a short introduction

Break 10-15 min

4. Sustainability in your fields: First reflections
5. Sustainability education

Break 5 min

6. My starting point as a teacher -exercise

Your expectations

Learn how to bring sustainability in teaching in general

“How could we connect sustainability to teaching.”

“To master my knowledge of integrating sustainability in teaching.”

“To learn about different methods of integrating aspects of sustainability into courses.”

Develop own course further / transforming own teaching

“To test, reiterate and develop the course together with its learning objectives etc. “

“How sustainability can be implemented so that it is practiced/lived also in teaching; so that teaching itself becomes

sustainable and does not merely support the accumulation of short-term knowledge.”

“How to go from a keyword to a mindset?”

Sustainability and sustainability education in Aalto

“How we are expected to bind our teaching with Aalto's sustainability strategy. What should be the amount of sustainability subject matter outside the core knowledge of our own fields?”

“To learn more, and to get to know what is the understanding of sustainability and sustainability teaching in Aalto at the moment.”

Sharing experiences and building a teaching community

“To have collegial support, ideas and networking regarding these issues”

“Learn best practices of teaching sustainability to students.”

“This is also an opportunity to hear from other fields what are the sustainability related topics they may cover.”

Warm-up (5min)




Draft individually (in keywords / writing or drawing):

What does sustainability mean to you?

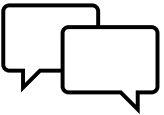


Mocktail party

General guidelines:

- Find 1-2 colleagues you don't know in advance
- Discuss until bell rings (~5 min)
- Change groups.  Discuss with a new group.

Topic of discussion:

- **Tell your colleagues what you drafted about sustainability. Elaborate.**
- *Round of spontaneous comments!* 

Introduction to sustainability



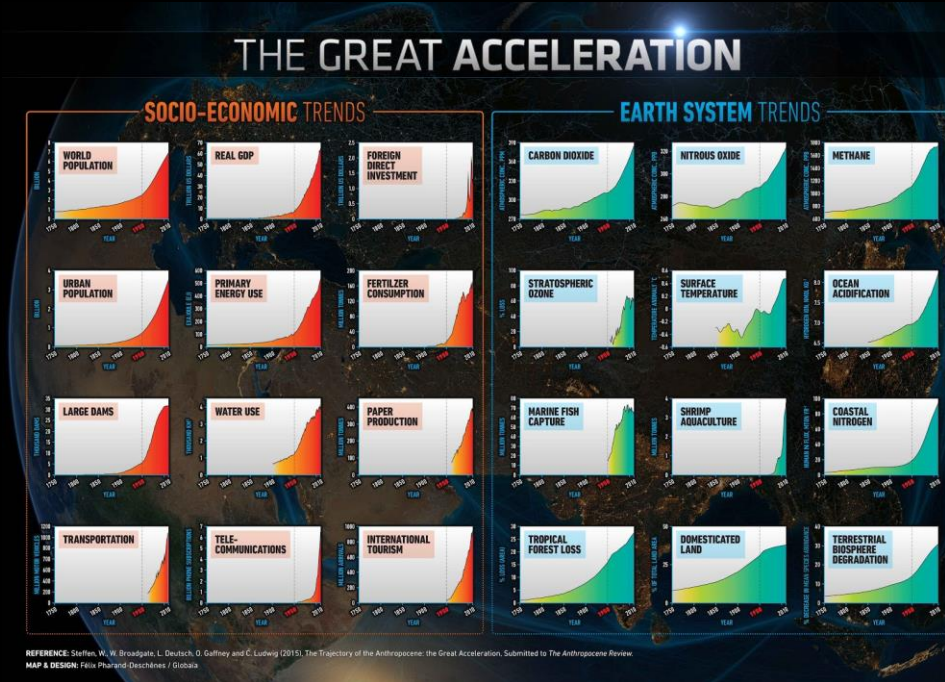
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Anthropocene – the Epoch of Man

(CRUTZEN 2002)

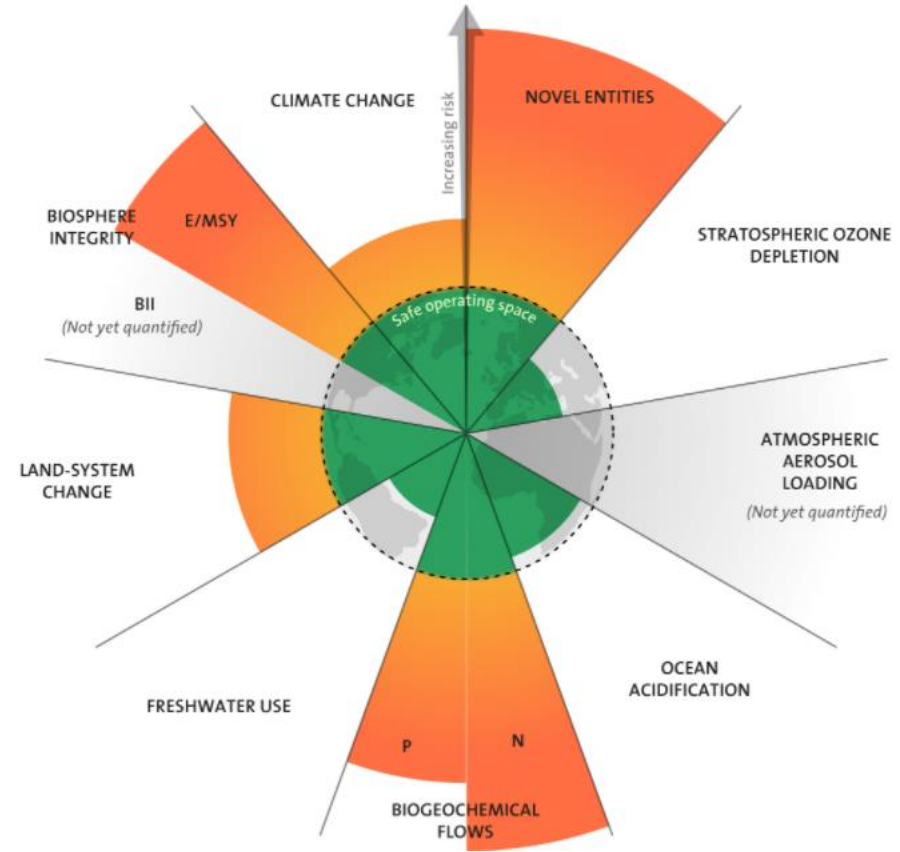
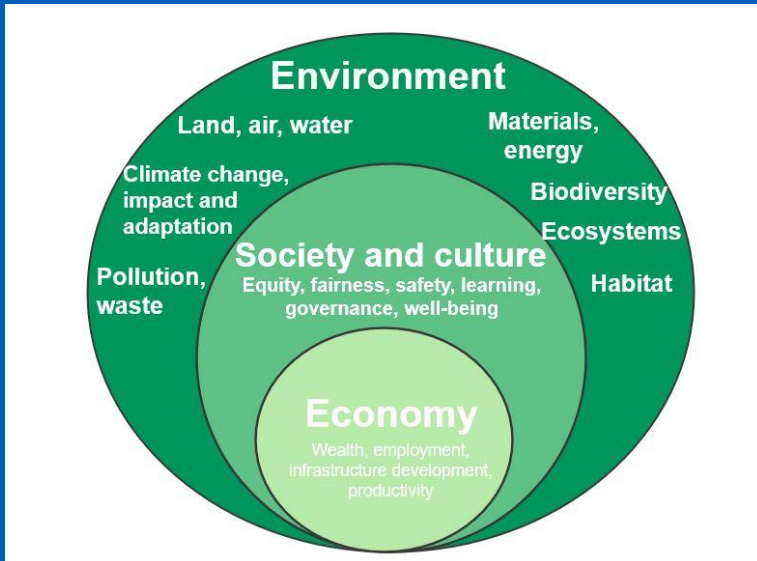


Indefinite growth on a finite planet?



Planetary Boundaries

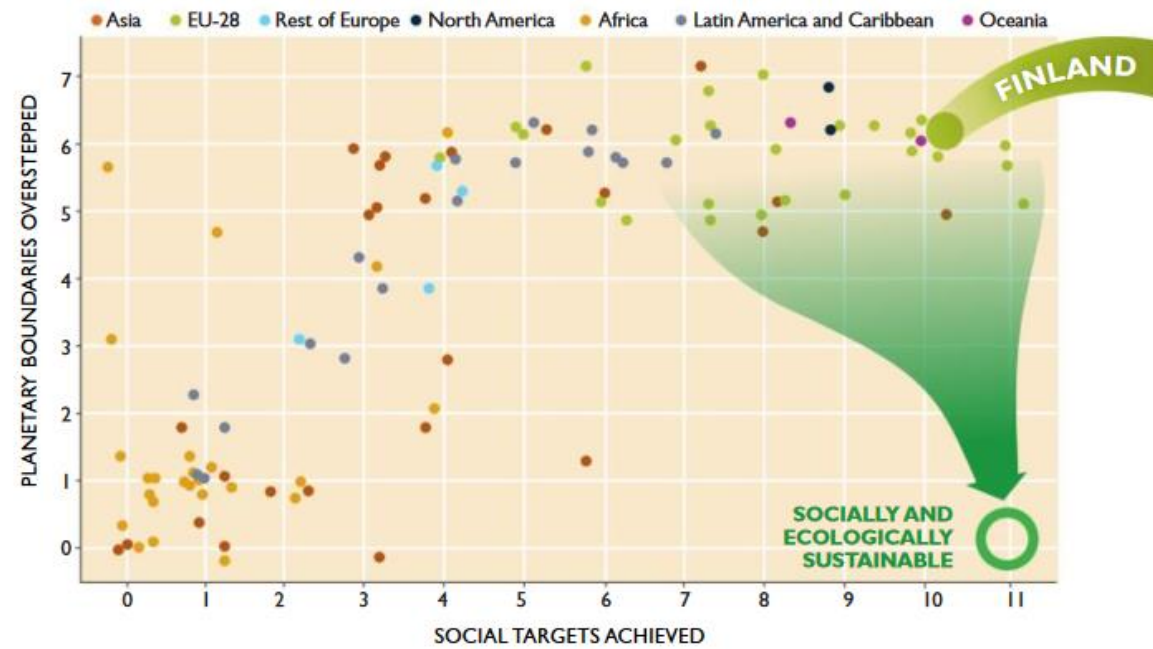
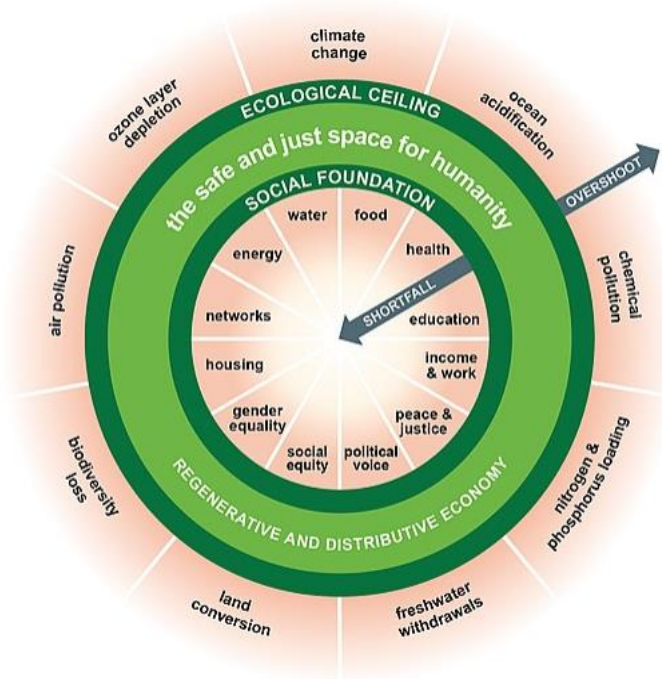
- Earth system = life supporting processes
- Defining and quantifying a safe operating space for humanity
- Nine boundaries



PB origins: Rockström et al 2009, updated Steffen et al 2015b)
Persson et al. (2022). Outside the Safe Operating Space of the Planetary Boundary for Novel Entities. *Environ. Sci. Technol.* 2022, 56, 3, 1510–1521

Safe and just operation space for humanity

The doughnut model *How is it going?*



Sustainability crisis

- Complex
- Interconnected + reinforcing
- Large scale – global
- Long-term and pervasive
- Involving uncertainty
- Including contradiction and trade-offs
- Including conflicts of values

“Era of chronic multicrises” (Hukkinen 2021)



Aral Sea, Unsplash

Sustainable Development is...

“...development that meets the needs of the present while safeguarding Earth's life-support system, on which the welfare of current and future generations depends.” (Griggs et al 2013)

“Sustainable development is an oxymoron”. (Brown 2015)

Sustainable development is *“constructively ambiguous”*. (Robinson 2004)

Human centric
Value laden
Political
Contested



What is being sustained?



World as a resource
Anthropocentric



Interconnected
Ecocentric



Regenerative

Comments?



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Break



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Designated groups

Group 1: Sofia, Dina, Astrid

Group 2: Henriikka, Petra, Nina

Group 3: Tom B., Tom R., Hakan, Lena

Group 4: Neha, Tiia, Weiwei, Gerhard

Group 5: Donya, Anahita, Mika, Dandan

Group 6: Karin, Christine, Susa



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Seth Schwiert / Unsplash

Small group discussion

General guidelines:

Table groups: (15 min)

- Designated groups
- Team chair: last one to celebrate birthday this year

- Decide who will briefly report back to the whole group

Topic of discussion:

Based on your advance readings and previous discussions:

- What new (or surprising) did you learn about sustainability?

- Which sustainability dimension(s) are most pronounced in your field?
Elaborate.

Sustainability (in) education

Vocabulary and concepts

Terminology: (Higher) Education for sustainable development (H)ESD (*EESD in engineering*); Sustainability in higher education SHE; Sustainability education; Education for sustainability EfS; Sustainable education

Education **on** sustainability (*what*)

- Add-on / Bolt-on: Separate courses / modules / programmes
- Awareness on sustainability

Education **for** sustainability (*what & how*)

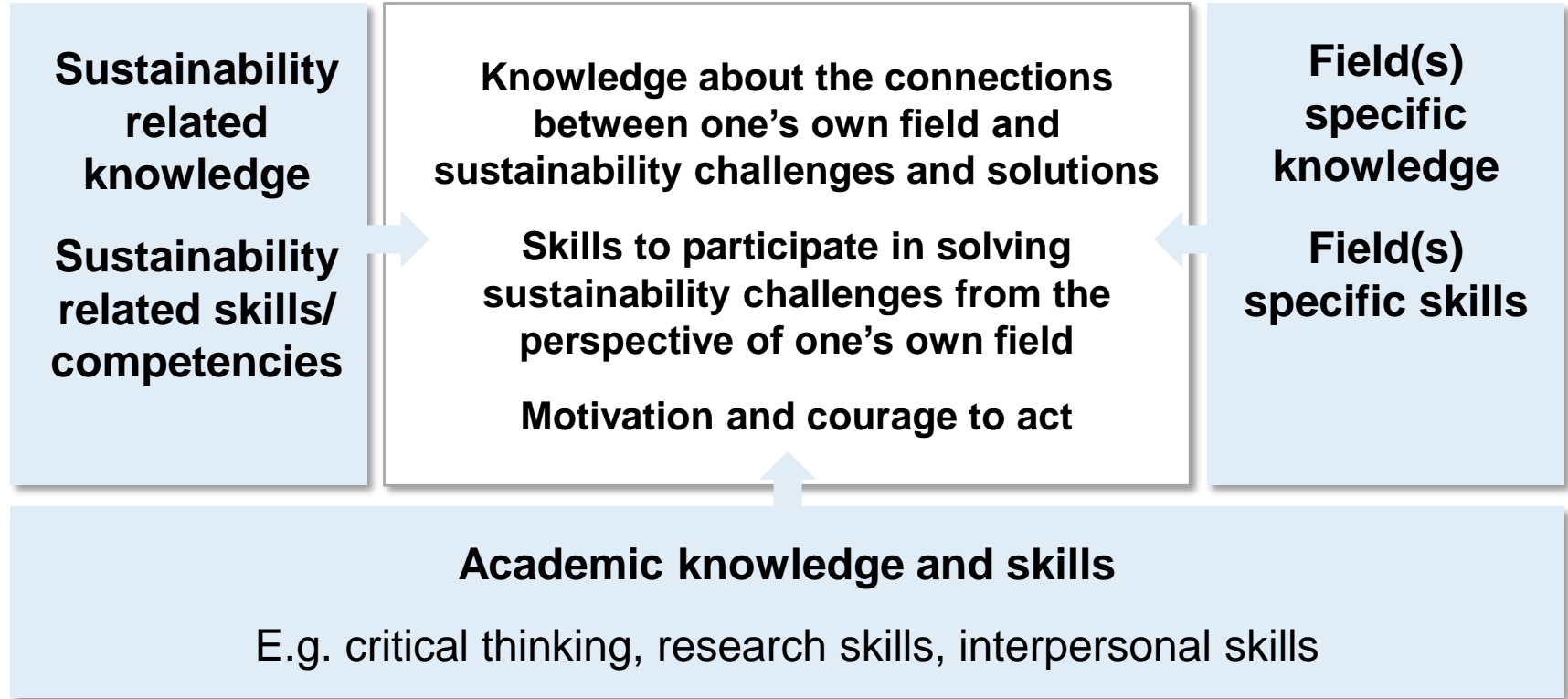
- Built-in / Integration: Brought to disciplinary courses, **doing things better**

Education **as** sustainability (*what & how & why*)

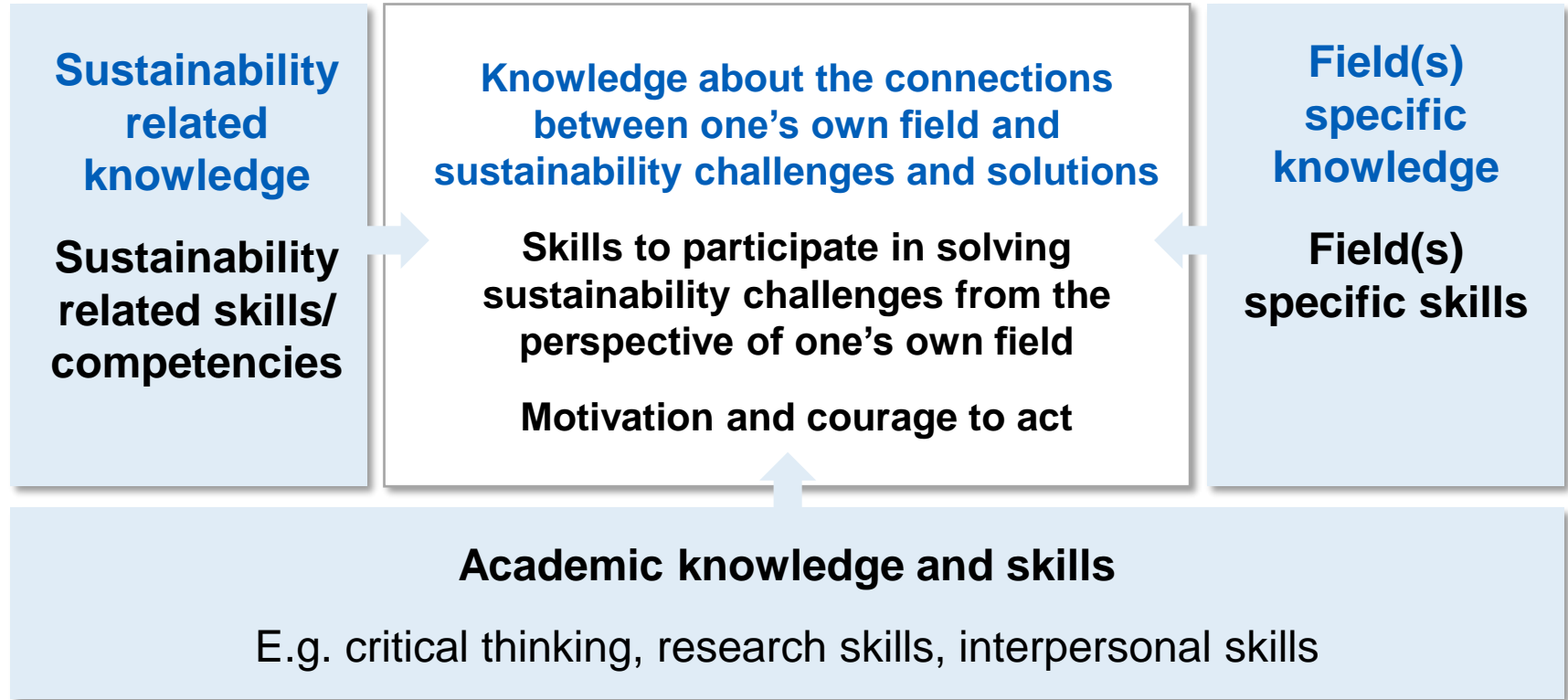
- Re-building / Transformative: Doing **better things**

*Education aiming to support
students' abilities to
contribute to a change
towards sustainability*

Goal: Students who are able to contribute to a more sustainable world



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Types of knowledge for sustainability (Soini et al 2022)

System knowledge (What is?)

- Understanding socio-ecological systems, structures, developments and ways of working
- Descriptive, explanatory, sets frames for the context of the more specific problem
- Enables identification of leverage points for change, alternative pathways

Target knowledge (What should be?)

- Clarifies the desired target states, involves values, contradicting targets by different stakeholders
- Important for decision making

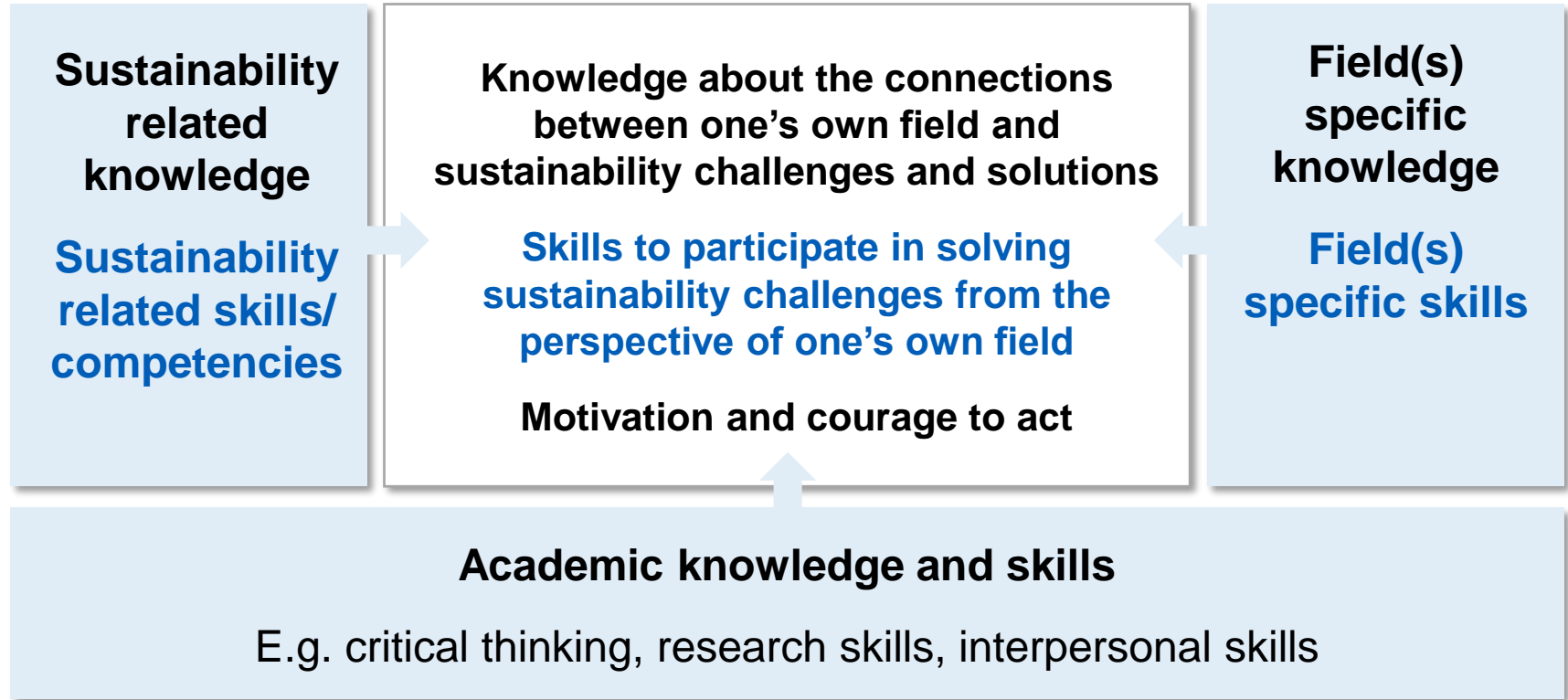
Transformative knowledge (How?)

- Solution oriented knowledge: examines status quo critically, contributes to change, renewing ways of thinking and acting
- Includes reflexivity, (meta)learning

Speculative knowledge (What if..?)

- Identifying and dealing with uncertainties, unanticipated effects
- Understanding counter forces of sustainability transformations

Goal: Students who are able to contribute to a more sustainable world

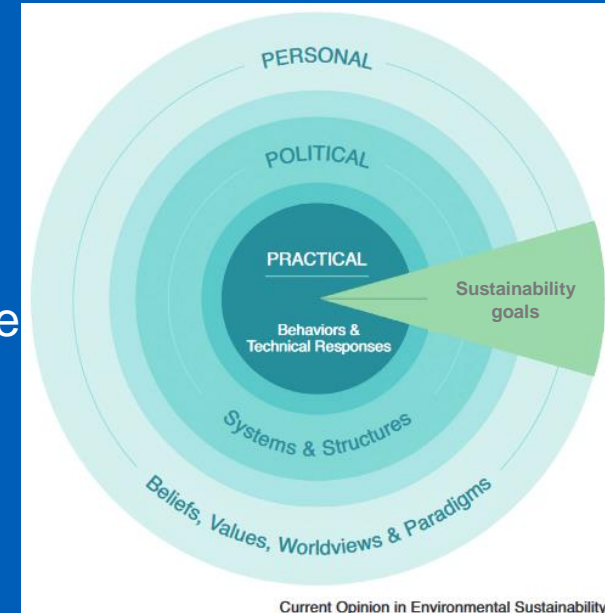


Change towards sustainability

- Deliberate, unintended
- Incremental, disruptive

Spheres of sustainability transformation (O'Brien, 2018)

- **Practical** (technical, behaviours)
 - direct contribution to desired outcome, measurable
 - **Political** (systems and structures)
 - facilitates or constrains practical
 - **Personal** (beliefs, values, worldviews)
 - influence understanding of practical and political
- Personal and political generate conditions for practical transformations



Modified from O'Brien 2018.



Examples

Practical:

- New component increasing energy efficiency of industrial process
- Behavioral change: car -> bicycle

Political:

- + R&D funding for component development
- No bike lanes available or maintained

Personal:

- Belief that cycling is dangerous
- + Choosing study path for job in enhancing energy efficiency

Small group discussion

General guidelines:

1. Individually (5 min)
 2. In groups of 2-3 (15 min)
- Designated groups

Topic of discussion:

Think of **your field** and the spheres of change

- What types of knowledge does your field contribute to?
- Which spheres of change does your field contribute to?

System knowledge (What is?)

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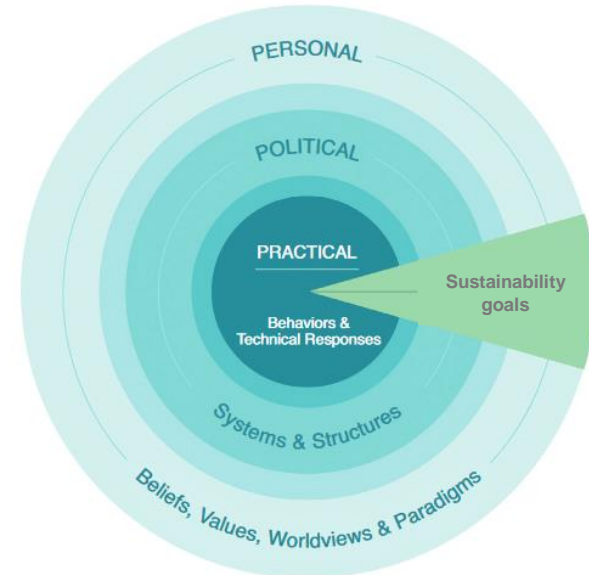
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Current Opinion in Environmental Sustainability

Break



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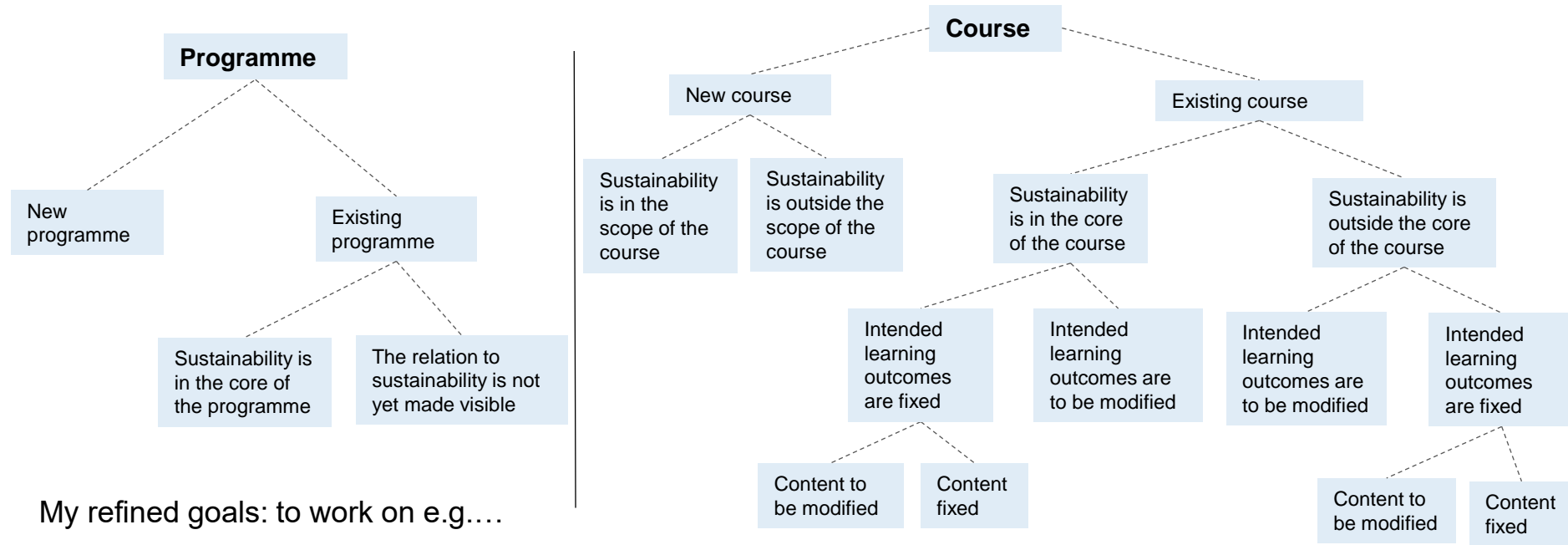


Towards integrating sustainability

- **Identifying your starting point as teacher**
 - Your unique situation in terms of course topics, practical limitations, leeway to do changes

- **Refining your goals for this course?**
 - Finding meaningful sustainability connections
 - Integrating specific themes and content
 - Developing teaching methods
 - ...

Looking for starting points for sustainability integration: I work on..



Participation in programme development work

ILOs

Teaching methods

New content to course

Other

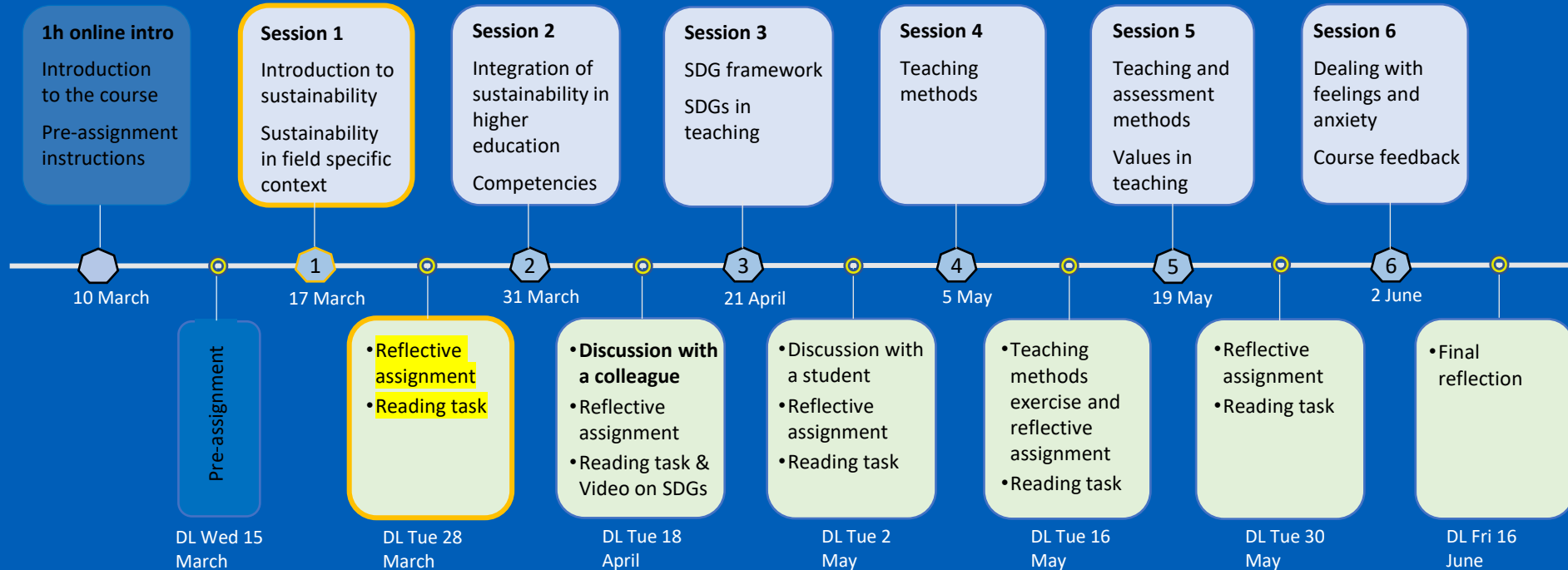
How did it go?



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Sessions and assignments



Before next session...

- Home assignment: Instructions and assisting questions in MyCourses (dl 28.3. noon)
- Reading task: Wiek et al. 2011 (pdf in MyCourses).

Next session Fri 31.3.2023 (in Zoom)!

Save the date: 5.5. afterwork with sustainability board games – poll coming in the next session.

Questions, comments



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Literature

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