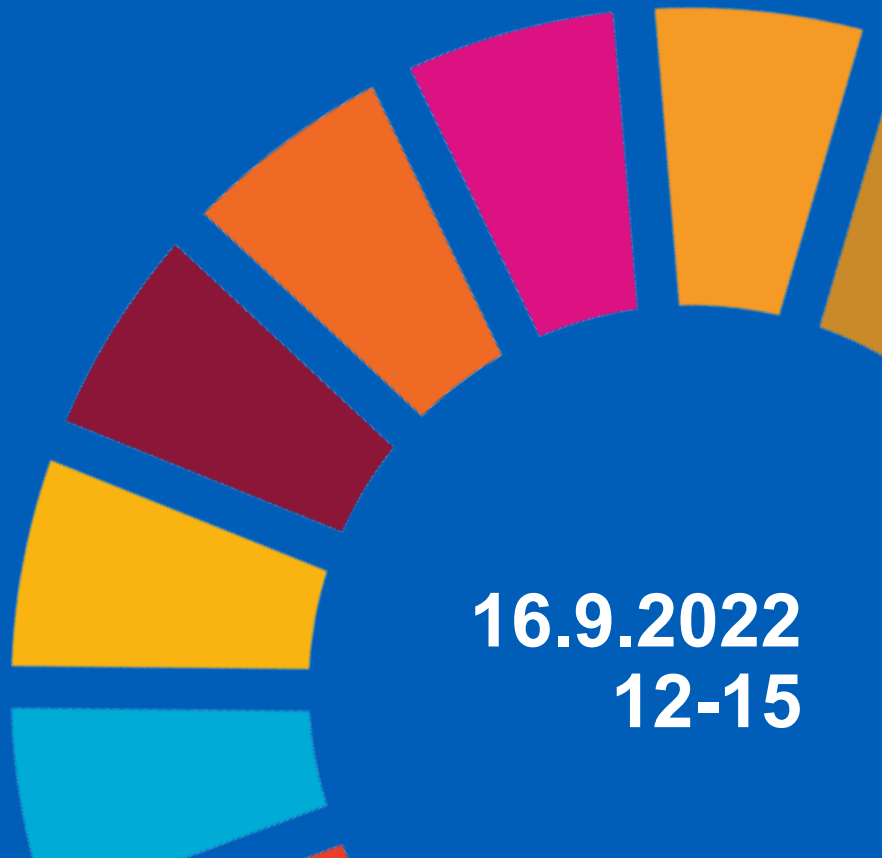
Sustainability in Teaching -course

Session 1

F102 Ryhmäopetus, Väre-building, Otaniemi

16.9.2022
12-15



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Session outline

1. Course starter and introduction
2. Getting to know each other

Break

3. Sustainability and sustainable development
4. Sustainability in your fields: First reflections

Break

5. Sustainability education

Your expectations

Learn about sustainability & teaching it in general

“Learn more about sustainability related topics in general”

“I expect to get some new ideas and insights of both contents and methods to be applied in my teaching.”

Concrete tools to apply in own teaching

“To get new ideas on how to consider and implement sustainability in my teaching”

“Knowledge on concrete actions on how I can incorporate sustainability aspects to my teaching.”

Facing sustainability-related emotions

“The [sustainability] topics are not easy because they are very broad, and they can also be emotionally challenging (both the teacher and the students)”

“To get tools for working with anxious students.”

Sharing experiences and building a teaching community

“Getting to know more Aalto colleagues.”

“I expect to have good discussions with others.”

“To learn from experienced peers“

“Get tips on good readings and resources”

Also:

- Considering sustainability on programme level
- SDG tags in curriculum planner

Warm-up

Draft individually (in key words/writing or drawing):

What does sustainability mean to you?

Cocktail party

General guidelines:

- Find 1-2 colleagues you don’t know in advance
- Discuss until bell rings (~5 min)
- Change groups

Topic of discussion:

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

Break

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Introduction to sustainability

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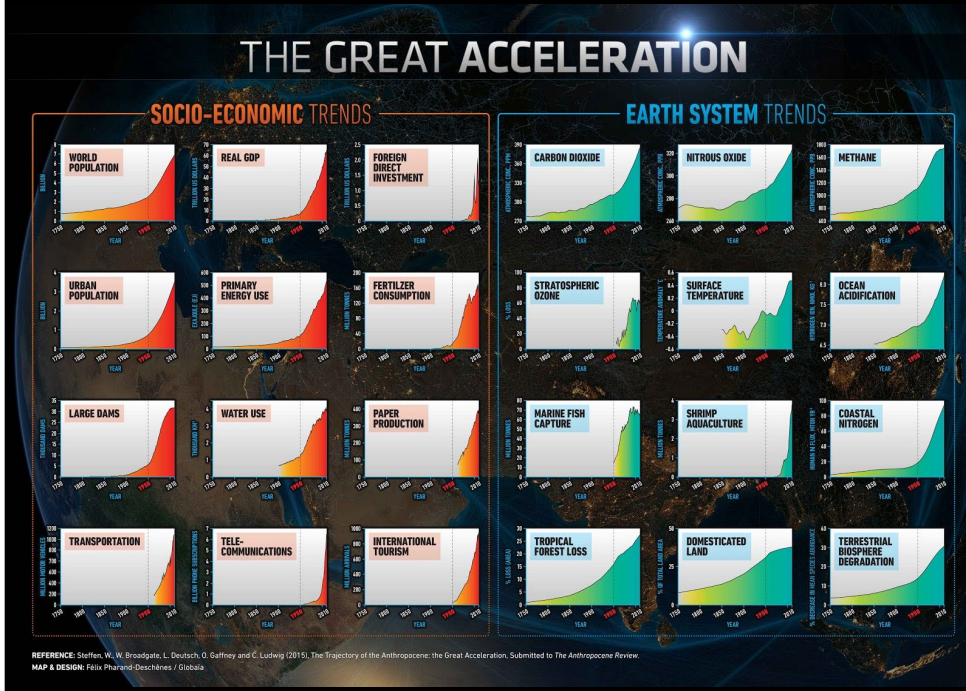
We are not doing well!

Guardian, 26.2.2018

Anthropocene – the Epoch of Man

(CRUTZEN 2002)

Indefinite growth on a finite planet?



Steffen et al., 2015a

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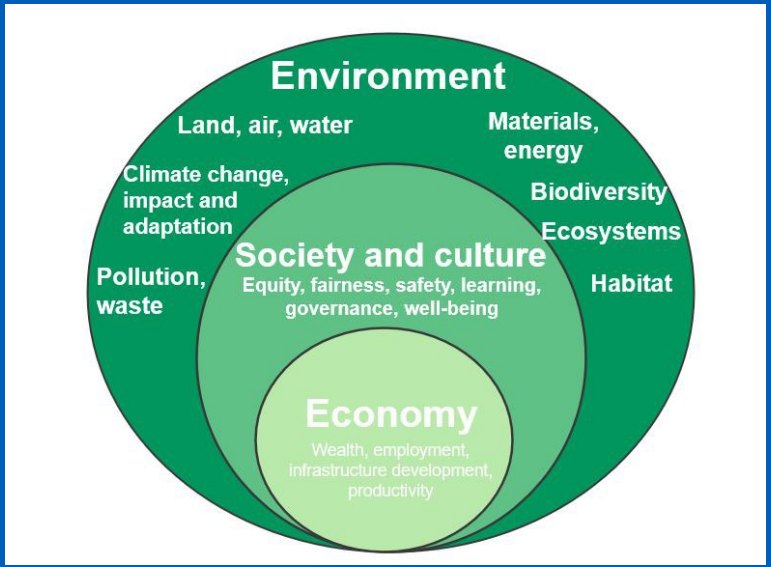
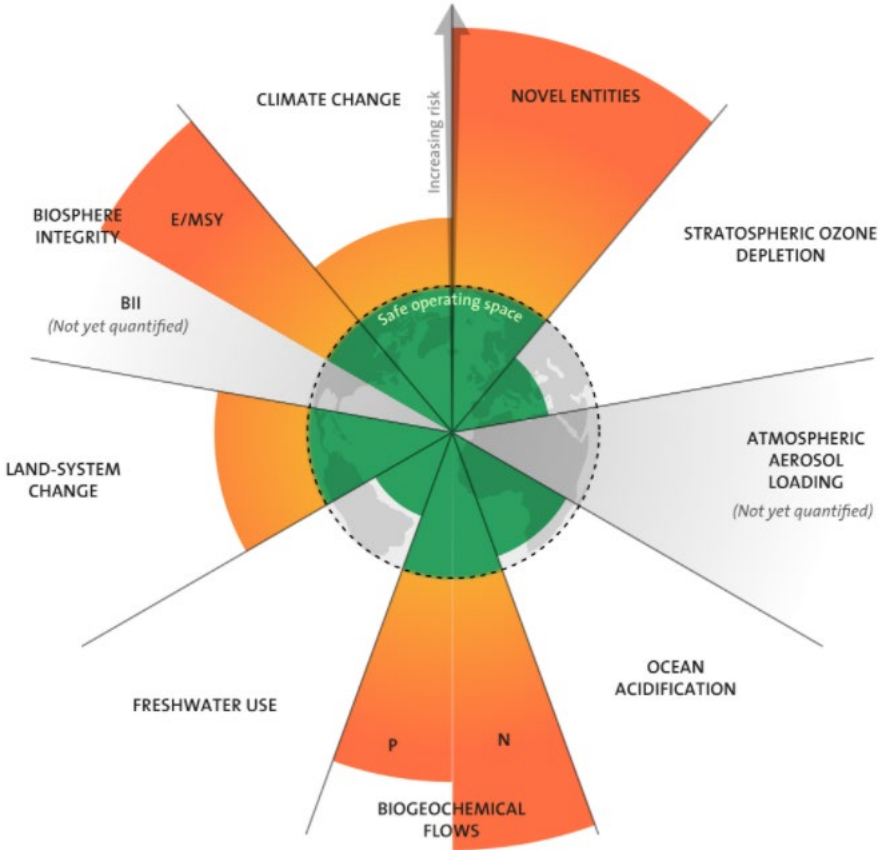
Planetary Boundaries

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

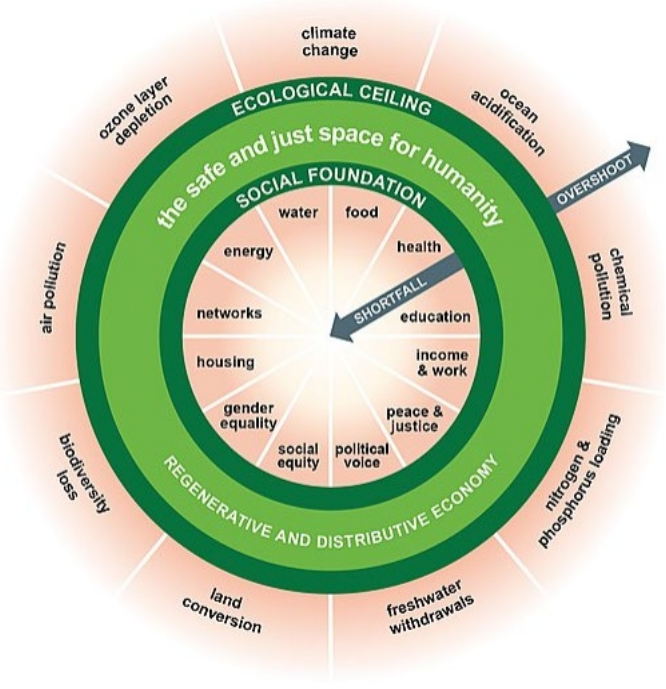




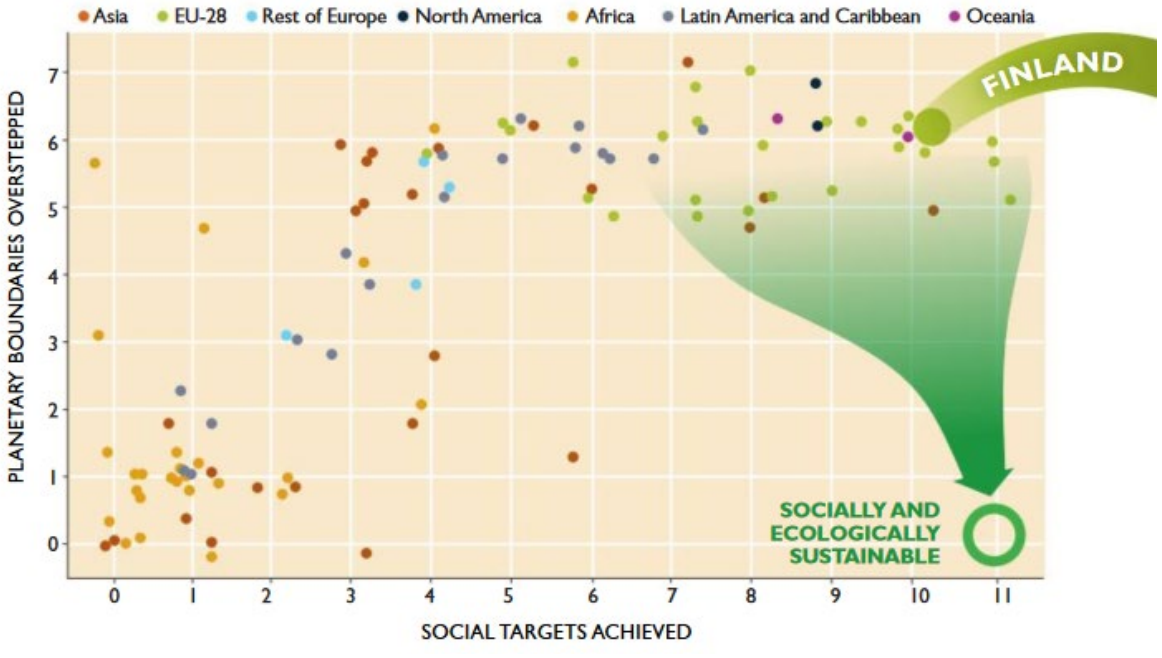
PB origins: Rockström et al 2009, updated Steffen et al 2015b)

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



Raworth 2017



SYKE Policy Brief 2018, based on O'Neill et al 2018

Sustainability crisis

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

Aral Sea, Unsplash

Designated group

Group 1: Tamara, Victor, Janet, Marja

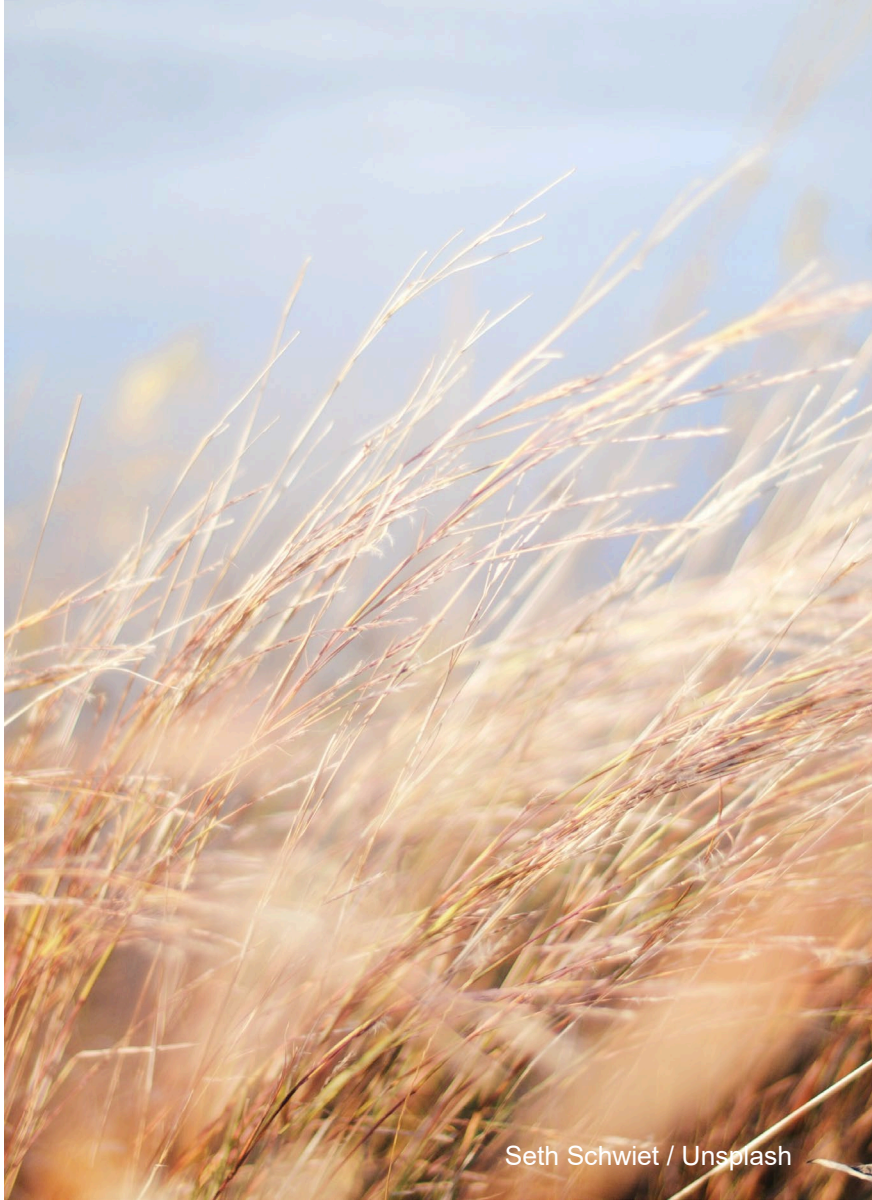
Group 2: Jouni, Sam, Henrikki

Group 3: Janika, Eero, Sami

Group 4: Karolina, Irina, Henrik, Oguz

Group 5: Eeva B., Susan, Julia

Group 6: Ville, Eeva-L. R., Jacky



Small group discussion

General guidelines:

Table groups: (15 min)

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

- Chair is briefly reporting back to 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.

Concepts

sustinere: uphold, support, to continue supporting over a timespan

habilis: have the capacity or power to do something

→ sustainability

- Target state, characteristics of a system
- The ability to uphold / sustain to an indefinite future

sustainable development

- Human activity with the intention of change towards sustainability, process

John Towner / Unsplash

What is being sustained?

World as a resource **Interconnected** **Regenerative**

Anthropocentric **Ecocentric**

Sustainable Development is...

"...development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (Brundtland Report, WCED 1987: 43)

"...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)

"...enough for all, for ever." (https://www.biosphere.org.au/sustainable-future/)

"*Sustainable development is an oxymoron*". (Brown 2015)

Human centric
Value laden
Political
Contested

Sustainable development is "*constructively ambiguous*" (Robinson 2004)

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Comments

A”

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Break

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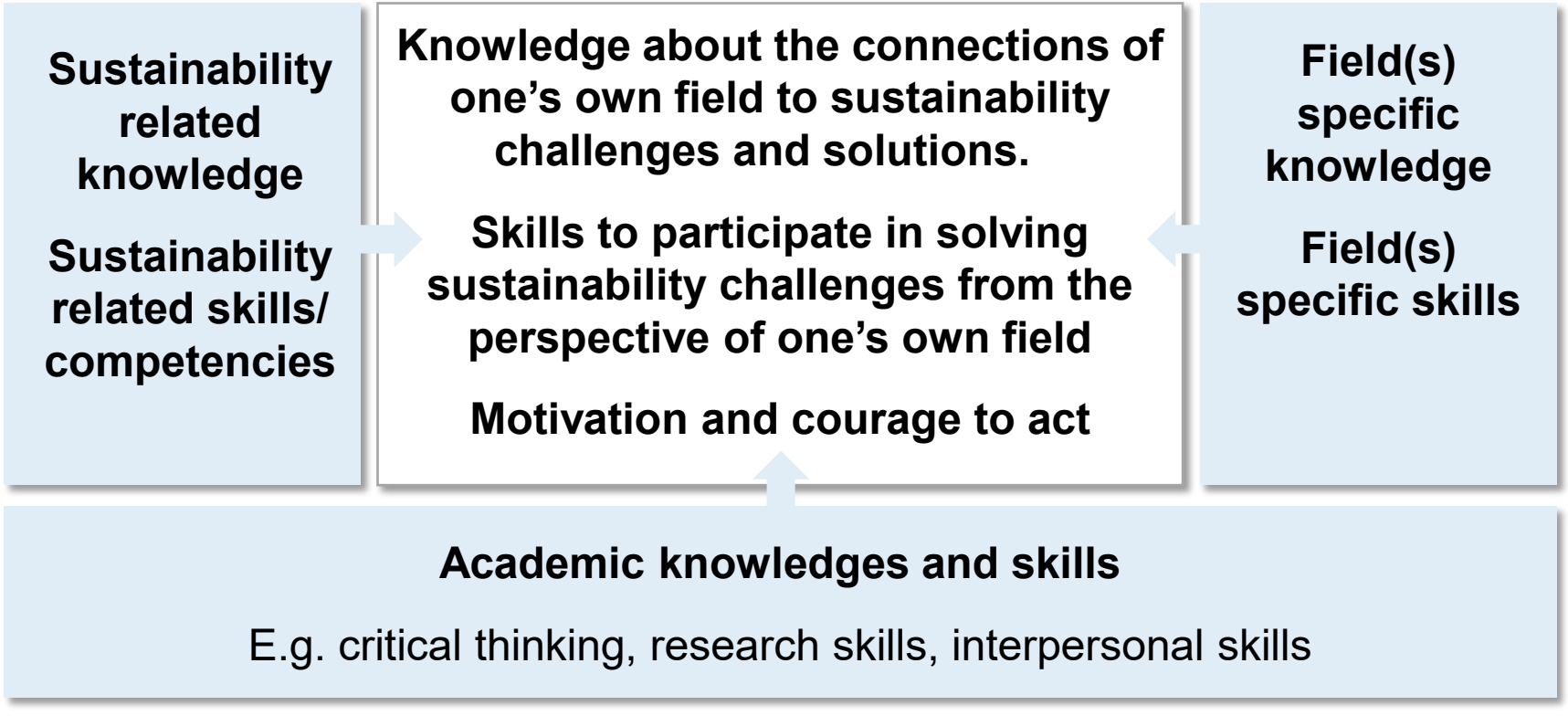
Sustainability (in) education

Education aiming to support the students' ability to contribute to a change towards sustainability

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



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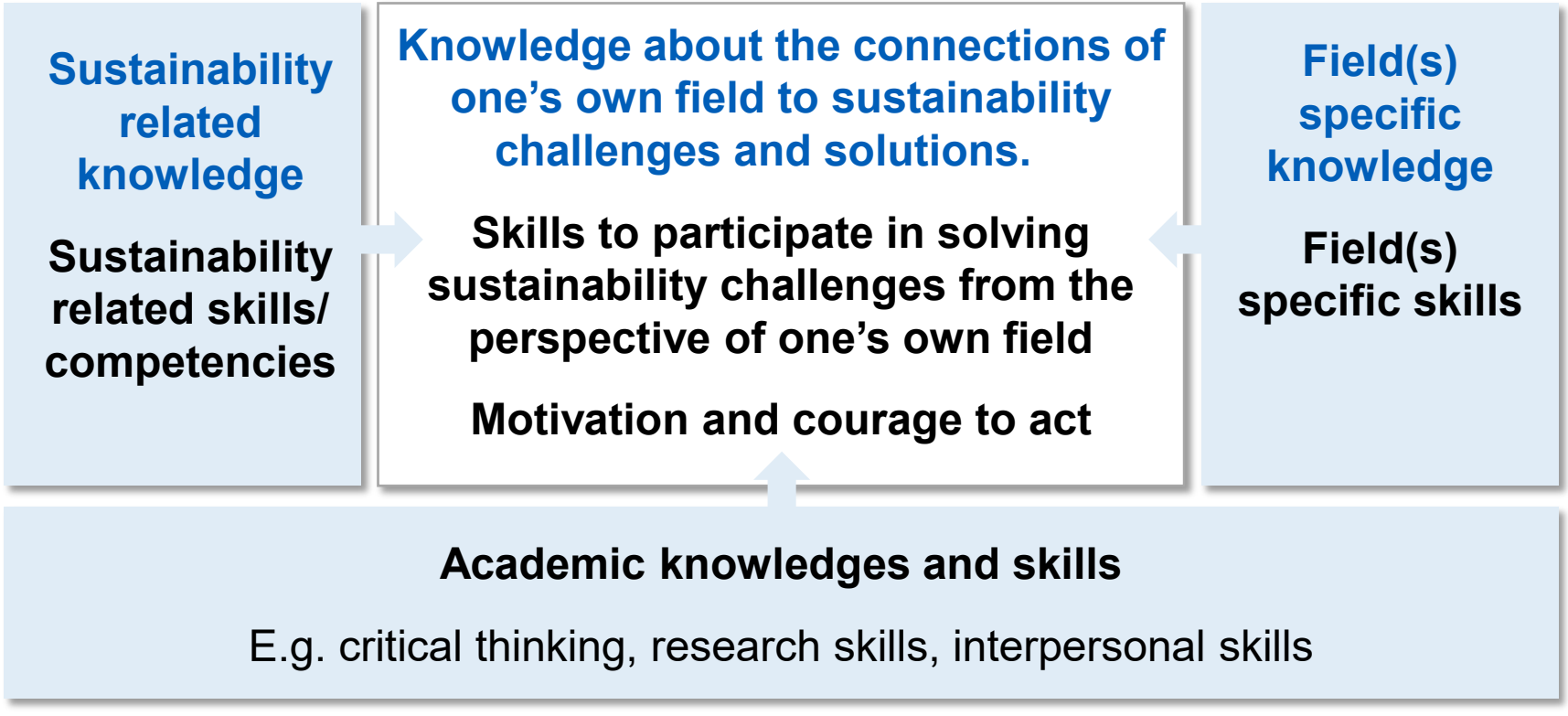


Types of knowledge for sustainability *(Soini et al 2022)*

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

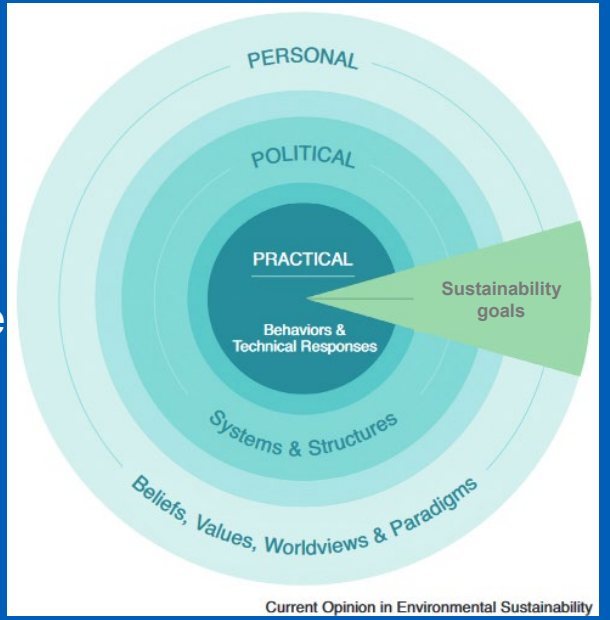
Change towards sustainability

- 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.

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All spheres necessary, and must be recognized!

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

\+ Mindset of enhancing energy efficiency

Small group discussion

General guidelines:

1. In groups of 2-3

(15 min)

- Field specific group

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?

- What about the topics of your course?

System knowledge (What is?)
- Understanding socio-ecological systems, structures, developments and ways of working
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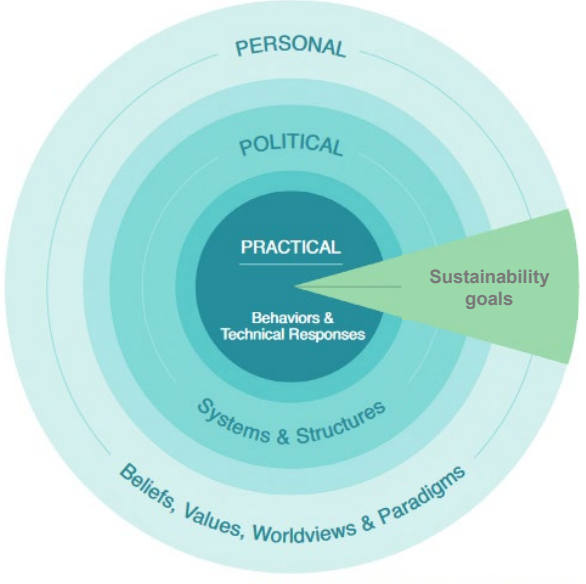


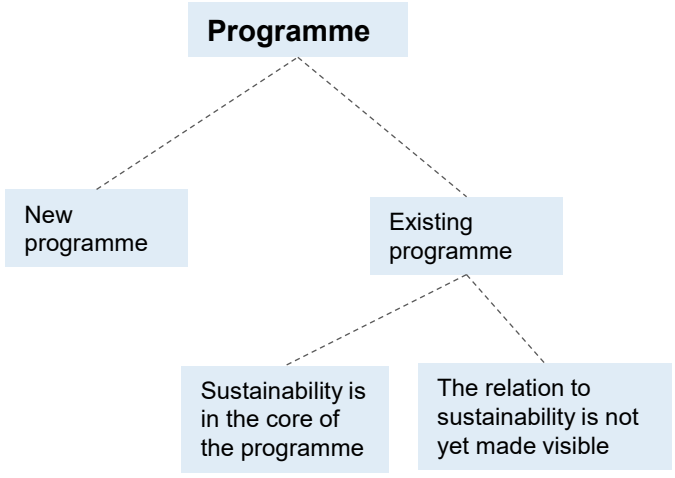
Current Opinion in Environmental Sustainability

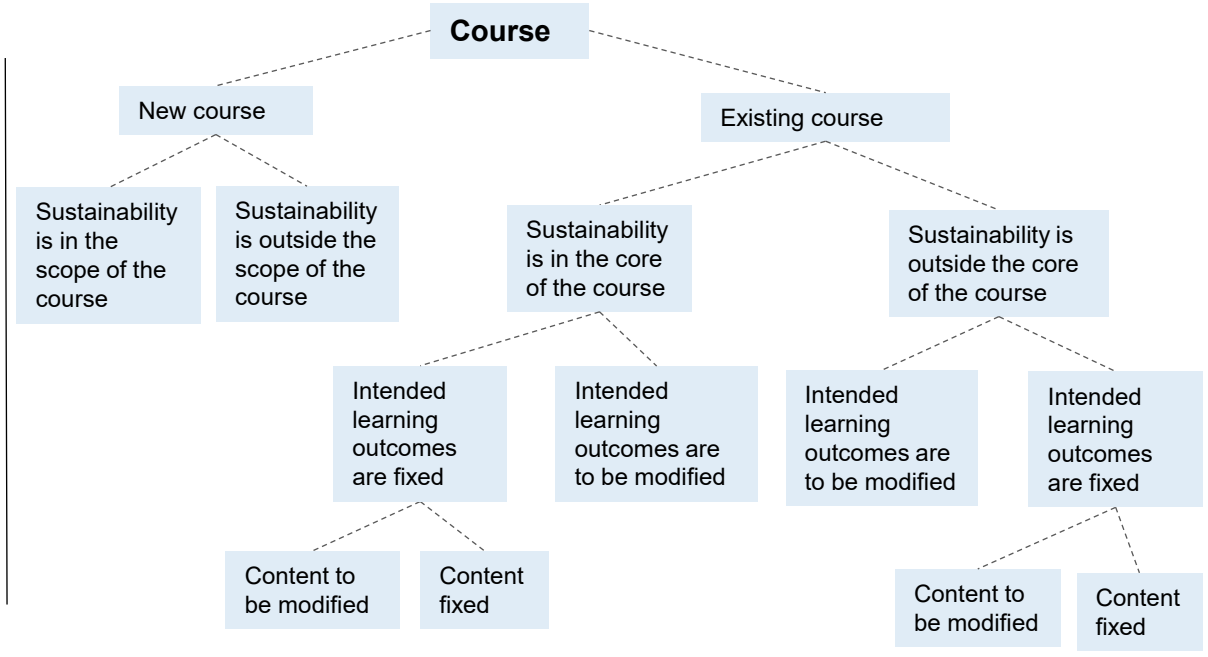
Developing your teaching towards integrating sustainability

- **Identifying your starting points 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..





My refined goals: to work on e.g.…

Participation in programme development work

ILOs

Teaching methods

New content to course

Other

How did it go?

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Timeline of the course (changes possible)

Reading task for respective week	Mon	Tue	Wed	Thu	Fri
					9.9. Session 0: Course practicalities
Sustainability.now-material	**12.9.**	**13.9.**	**14.9.** Pre-assignment (questionnaire) Introduction	**15.9.**	**16.9. Session 1:** Introduction to sust. & Sust. in field specific context
Wiek et al 2011	**19.9.**	**20.9.**	**21.9.**	**22.9.**	**23.9.**
	26.9.	**27.9.** Homework from session 1	**28.9.**	**29.9.**	**30.9. Session 2:** Integration of sustainability in higher education, Competencies
SDG-articles (tbc) Video	**3.10.-7.10.** Discussion with colleague (book time slot in time)				
	10.10.	**11.10.** Homework from session 2	**12.10.**	**13.10.**	**14.10. Session 3:** SDG framework

COURSE SESSION, at 12-15

READING TASKS (due before contact sessions)

Homework assignment DLs

OTHER ASSIGNMENT

Next week…

- Reading task: Wiek et al 2011 (pdf in MyCourses).
- Home assignment: Instructions and assisting questions in MyCourses (dl 27.9. noon)

Next session Fri 30.9.2022!

Extra / voluntary:

Save the date: 28.10. after work in Taproom with sustainability games

Literature

Brundtland report: G. H. Brundtland et al, ”Our common future”, World Commission on Environment and Development (1987)

James H. Brown, The Oxymoron of Sustainable Development, BioScience, Volume 65, Issue 10, 01 October 2015, Pages 1027–1029, https://doi.org/10.1093/biosci/biv117

Crutzen PJ. 2002. Geology of Mankind. Nature 415(January):23

Steffen, W. et al (2015a) The trajectory of the Anthropocene: The Great Acceleration. The Anthropocene Review 2 (1): 81-98. https://doi.org/10.1177/2053019614564785

Griggs, D., Stafford-Smith, M., Gaffney, O. et al. Sustainable development goals for people and planet. Nature 495, 305–307 (2013). https://doi.org/10.1038/495305a

Steffen et al. (2015b). Planetary Boundaries: Guiding human development on a changing planet. Science Vol. 347 no. 6223

O’Brien, K. (2018) Is the 1.5°C target possible? Exploring the three spheres of transformation, Current Opinion in Environmental Sustainability, 31: 153-160 https://doi.org/10.1016/j.cosust.2018.04.010.

O’Neill, D.W., Fanning, A.L., Lamb, W.F. et al. A good life for all within planetary boundaries. Nat Sustain 1, 88–95 (2018). https://doi.org/10.1038/s41893-018-0021-4

Robinson, John. 2004. Squaring the circle? Some thoughts on the idea of sustainable development. Ecological Economics 48, no. 4:369-384.

Rockström, J., et al, "A safe operating space for humanity", Nature 461: p472–475, (2009)

Raworth, K., ”A Safe and Just Space for Humanity: can we live within the doughnut”, Oxfam Discussion Papers (2012)

Soini et al (2022 forthcoming) Mitä on kestävyystiede? In: Halonen, T. , Korhonen-Kurki, K., Niemelä, J., Pietikäinen, J (eds.) Kestävyyden avaimet: Kestävyystieteen keinoin ihmisen ja luonnon yhteiseloon. Helsinki: Gaudeamus (Nov, 2022).

Questions, comments

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