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Aalto University
School of Arts, Design
and Architecture

Knowledge-making for sustainability (MUO-E8016)

Aalto Creative Sustainability
Spring 2019
Eeva Berglund & Mikko Jalas with Marko Keskinen

Today 17.04.2019
Course intro and requirements

Who are we and what is the course about?
How the course is run
Making knowledge and doing research to support sustainability

BREAK

Creative sustainability – knowing and doing
Information resources assignment
Introducing the next session

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What is the course about?

Ice-breaker

In pairs or threes:

- Introduce yourselves very briefly, share what experiences you have had of using and making knowledge for sustainability

- Compare your thoughts about creative sustainability

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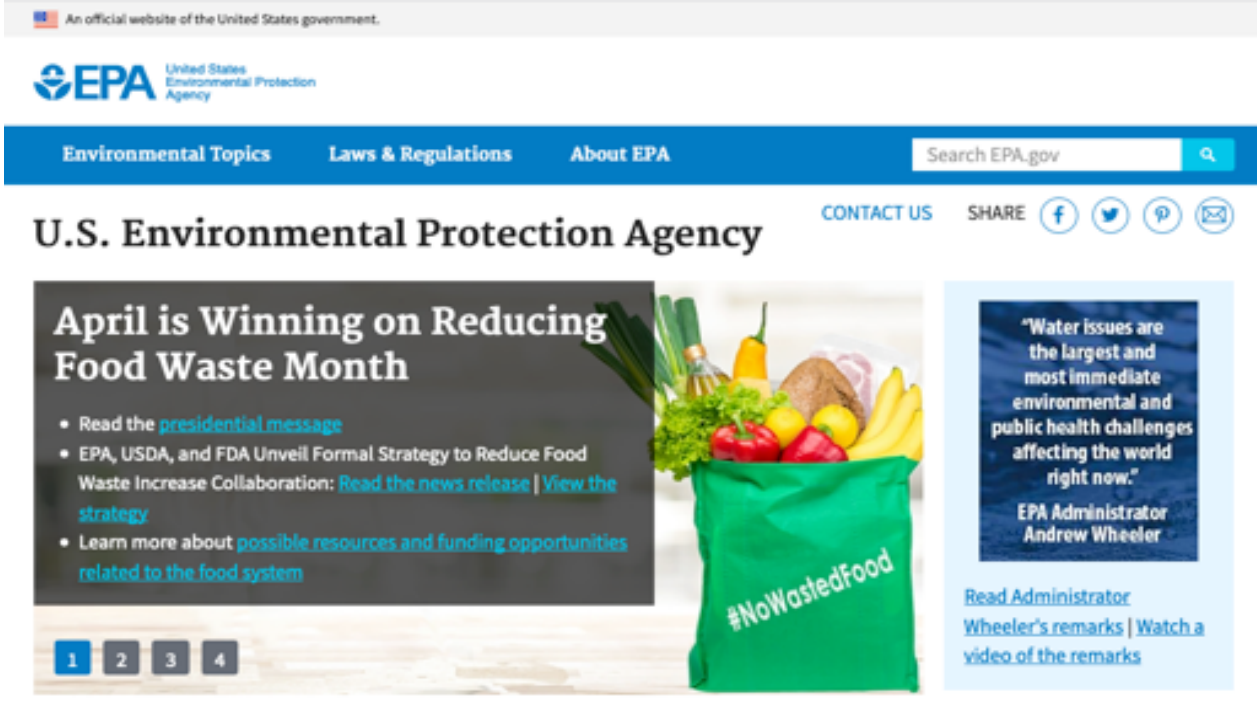

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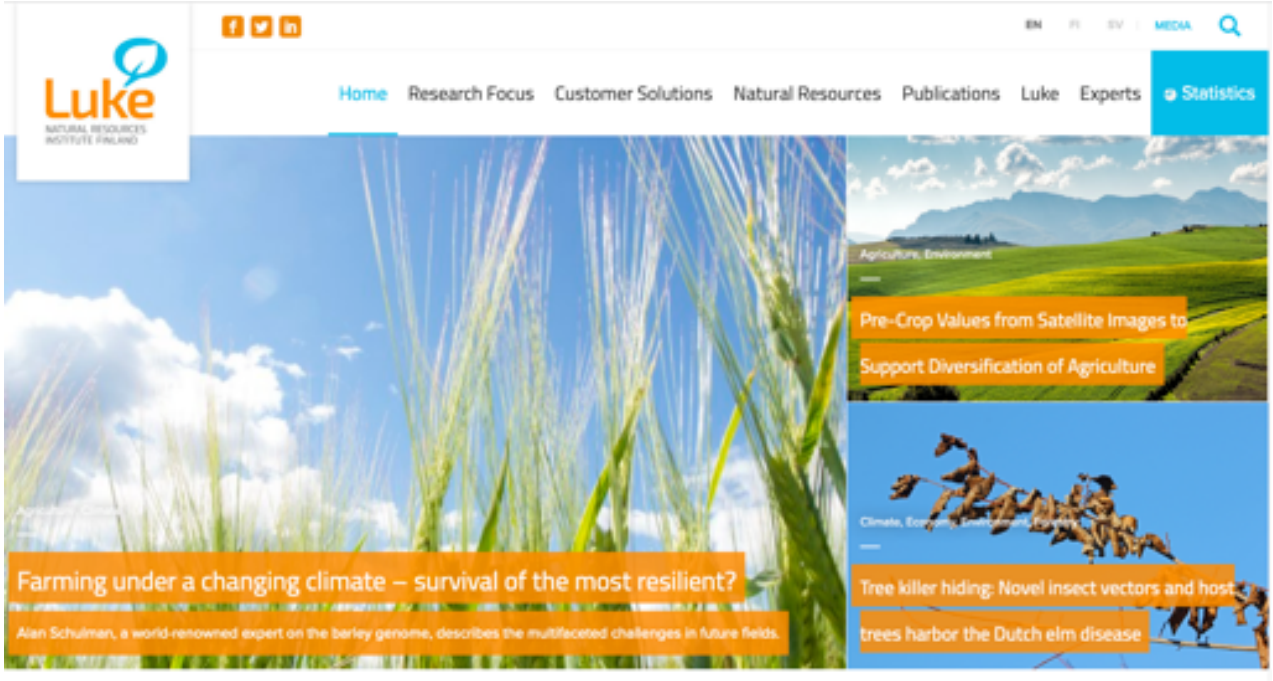

Natural Resources Institute Finland promotes bioeconomy and sustainable use of natural resources.

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Photo Vitor Barros, Lisbon 2017

Students who successfullly complete the course will be able to

- Plan and argue for their own research activities
- Sharpen their knowledge of the types of research needed for achieving environmental sustainability
- Better understand the role of knowledge in policy- and decision-making (for sustainability)

More specifically the course will help you

- Identify key features of professional and scholarly knowledge in fields relevant to CS
- Understand how and why inter-disciplinary work contributes to sustainability debates; Learn and work across and between disciplines
- Recognize and work with local, tacit and non-expert types of knowledge
- Develop conceptual tools for discussing *socio-technical* change
- Critically evaluate sustainability-related knowledge claims

Attendance, assignments and grading

Attendance is compulsory. If you cannot attend, let Eeva know in advance.

Do the readings *before* the sessions.

Take responsibility for being in the right place at the right time.

Assignments due by 13:00 hours as follows:

1) Electronic resource exercise: 23.4.
2) Posters (group work): 19.5.
3) Learning passport: 31.5.

Submit all 3 assignments on MyCourses

Grading is pass-fail

Feedback will be provided on assignment 1

Knowledge in your field: what kind of research have you encountered?

In groups of four talk for 5 minutes. We will then briefly open up discussion to everyone. Consider:

- **What kinds of knowledge do architects, designers, engineers or managers create?**

- **What kinds of knowledge help them to do their job better?**

Not all knowledge is the same

Academic knowledge is research-based and collective:

- **Structured as disciplines within internationally standard institutional types**
- **Scholarship**
- **Mode 1 or mode 2 research or mixtures of both**
- **Science, natural science and post-normal science**

Our norms:
Academic / scientific / scholarly research should

- Contribute to existing debates within relevant communities of practice, at least *potentially*
  - *Research is not the same as solving problems*
- Like science in general, specific research should aim for universalism, openness (’communism’), disinterestedness, organized scepticism – the classic *Mertonian* ideals
- Be creative but disciplined
- Be clearly and appropriately presented – ideally in many different registers/ways

A research plan should

- Identify a clear research question or questions. It should also indicate that you are aware of the limits of what research can achieve.
- Show familiarity with existing research. After all, especially in the field of sustainability, research contributes to existing debates and conversations.
- Demonstrate how data will lead to insight and conclusions. (Methodology).
- Propose suitable ways of presenting findings (textual, visual, aimed at different audiences).

A Master's Thesis in CS

- CS disciplines are professional fields. A masters thesis as 'knowledge making' can be:
  - A pre-study for performing a practical task
  - Applying established/new knowledge in practice and critically examining this knowledge
  - Developing the practice (question why and how a professional field operates ... history, differences in practice, new challenges, failures ...)

What do we do when we do research?

Investigate and ask questions

Use appropriate methods, qualitative and quantitative

Describe

Analyze

Synthesize **Intervene**

Generate better questions

What do we do when we do research?

Science the word may come from 'scindere' to cut, divide

- Early scientists thought of themselves as natural philosophers
- Disciplines in universities cut the world up to suit institutions

Science is often contrasted with ignorance or not knowing

Science is often thought of as the archetypical form of serious knowledge

Producing evidence in a complex world of layered socio-technical and socio-ecological systems needs specialists

Research is often poised between curiosity and funding!

Knowing and therefore science are human, historical, cultural practices

Yliopiston kirjasto, Nikolainkirkko ja päävartio (Litografia: F. Tengström, 1838), www.kansalliskirjasto.fi/

Knowledge beyond the senses and beyond common sense

From a key thinker, Bruno Latour (1987) *Science in Action: How to Follow Scientists and Engineers Through Society*

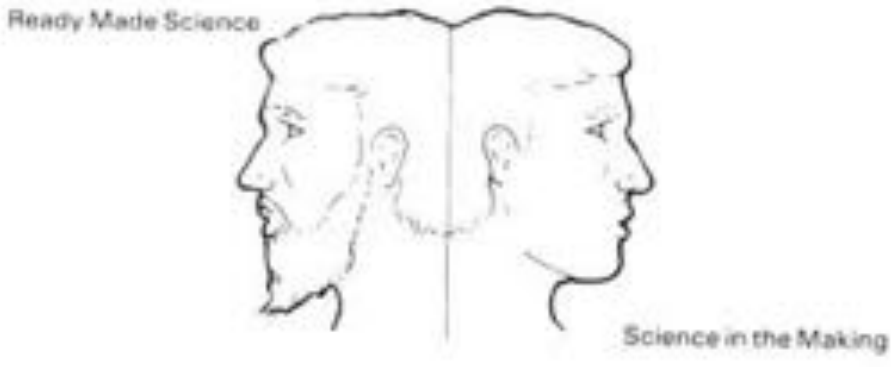
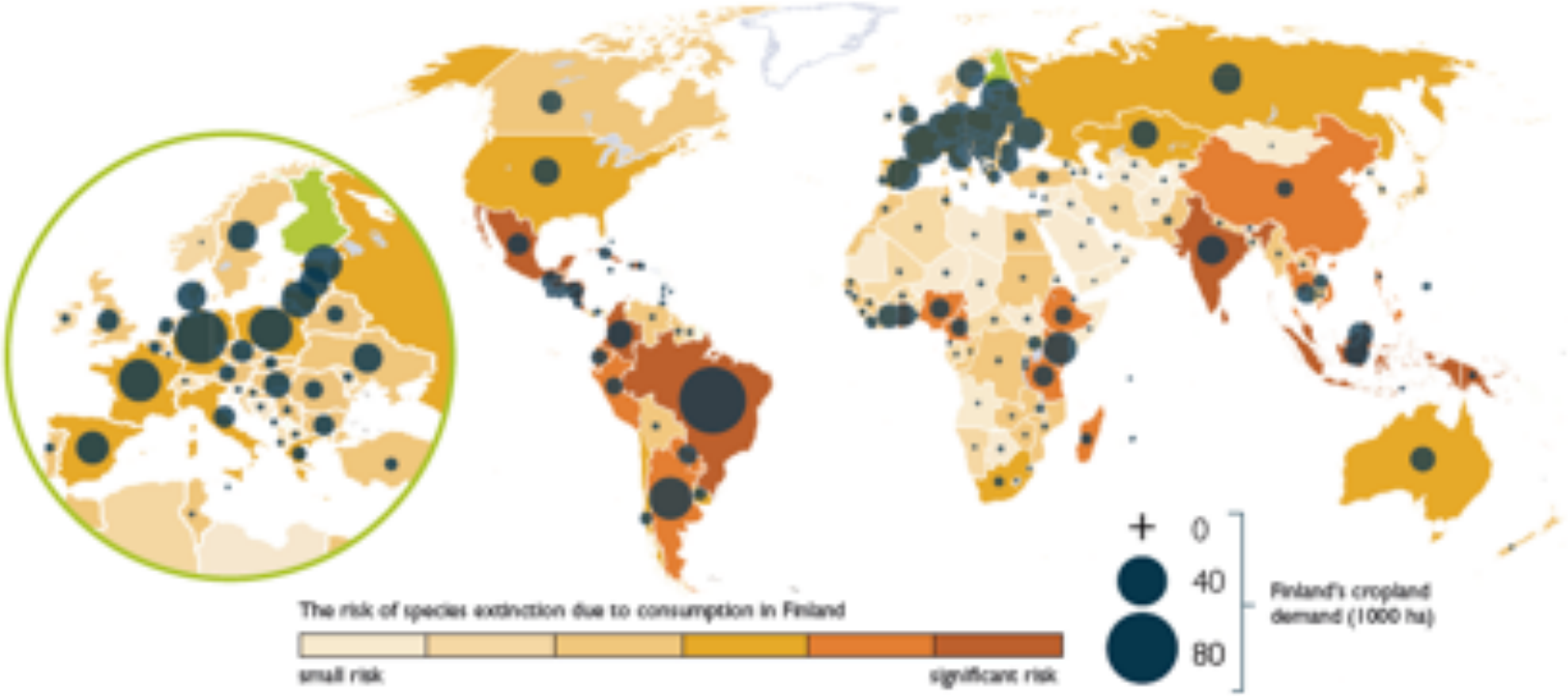


Figure 1.1

Finland has outsourced some of its environmental impact



Graph 4. Cropland area required around the world by Finnish food consumption. Clearing forest for agricultural use leads to the risk of global species loss especially in tropical countries. For example, areas where coffee and cocoa are grown have many endemic species that are susceptible to extinction. Source: Sandström et al. 2017[9], © SYKE & SITRA

Knowing and therefore science are human, historical, cultural practices

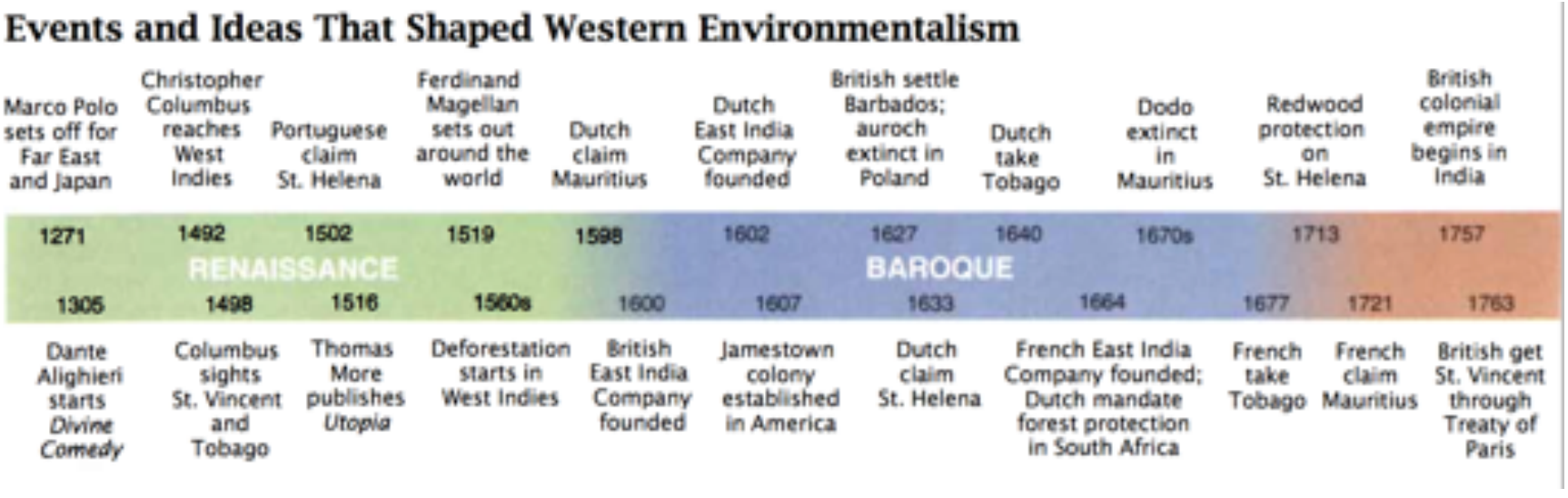
In some respects all SK is *constructed*

- Differences are not *only* products of interests or biases

Scientific / academic / scholarly knowledge

- Codified but also tacit and embodied
- Authoritative but also contingent, constructed and contested
- Operates as infrastructure but is also a commercial resource
- Disciplinary but increasingly interdisciplinary, transdisciplinary and even 'non-disciplinary'

Richard Grove: 'Origins of Western Environmentalism' *Scientific American* 1992



Today science is in place and in motion

- See Henke and Gieryn 2008
- Where is tacit knowledge?
- How is it contingent?
- How is it commercial?
- In what ways is it disciplined?
- What makes it disciplinary?

Making knowledge - keywords

Epistemology refers to the theory of knowledge and the study of how it is produced and authorized

- The dominance of a scientific epistemology emerged through limiting the 'we' involved.
- Who is 'we' can become apparent through disputes.

Experts and professionals

- Organize and stabilize complex, technical, socially important practices like medicine, construction, etc.
- Knowledge about ***quality of life*** is variable

Remaining sessions

24.4. Marko Keskinen – Disciplinarities in practice

08.5. Mikko Jalas - What kind of research for what problems?

15.5. Eeva - Knowledge making and democracy, also presentations

22.5 Eeva & Mikko – Pathways to sustainability through research

Before we take a break…

Seminar sessions are crucial for learning

Learning and meaningful action require listening

All research involves being respectful and curious

BREAK

What difference does 'sustainability' make to our work?

‘S’ can be thought to refer to contestations in professional fields

‘S’ is brought forward to indicate a problematic state of affairs

‘S’ can easily turn into outside ‘expert advice’

‘S’ highlights need of (collective, future oriented) action and self-managed change processes

Knowing about what is sustainable

- Framing or constructing problems: What is to be sustained?
  - *What questions are asked? Who is allowed to speak? Whose norms are followed?*
- There is always also the possibility of producing ignorance
- There is always the possibility that nature or people will 'bite back' despite the best efforts of policy science
- => Pathways through dynamic and uncertain terrain

Normal and mostly disciplinary to post-normal and multidisciplinary

'Post-Normal science has been developed to deal with complex science related issues. In these, typically facts are uncertain, values in dispute, stakes high, and decisions urgent, and science is applied to them in conditions that are anything but "normal"'.

From Bert J. M. De Vries (2013) *Sustainability Science*

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What is the course about?

Journal of Cleaner Production 170 (2018) 1423–1432

Contents lists available at ScienceDirect

Journal of Cleaner Production

journal homepage: www.elsevier.com/locate/jclepro

Universities responding to the call for sustainability: A typology of sustainability centres

Katriina Soini [a, *], Alexandra Jurgilevich [b], Janna Pietikäinen [a], Kaisa Korhonen-Kurki [a]

[a] University of Helsinki, Centre for Environment, Viikinkaari 2a, 00014 Helsinki, Finland
[b] University of Helsinki, Department of Environmental Sciences, Viikinkaari 2a, 00014 Helsinki, Finland

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ABSTRACT

Universities worldwide are experiencing a growing trend to respond to the need for sustainability. Sustainability centres are one key aspect in the sustainability transitions of universities. Until currently, these centres have been relatively neglected by research. This exploratory study makes a solid contribution to the scholarship and understanding of the various means by which universities are responding to the societal challenge of sustainability by analysing a sample of 44 sustainability centres across the world to increase understanding of the characteristics and roles of these centres in contributing to sustainability. Furthermore, the study identifies four types of centres differing in their goals, objects, scope and scale of research, knowledge production and outreach activities. The typology of the centres can be applied for example when new centres are established or when centres identify or redefine their profiles. The authors suggest further research concerning sustainability centres, given their central role

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https://www.kateraworth.com/doughnut/

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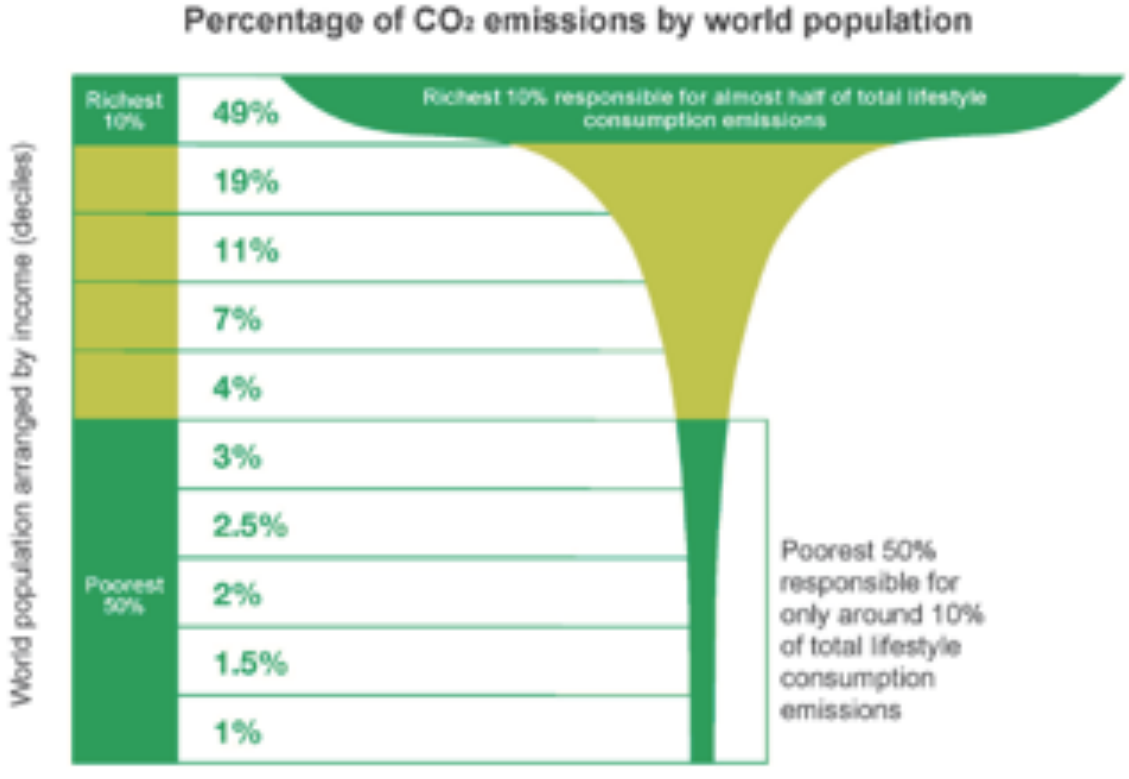
Figure 1: Global income deciles and associated lifestyle consumption emissions



Source: Oxfam

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What is the next session about?

Working across disciplines by Marko Keskinen

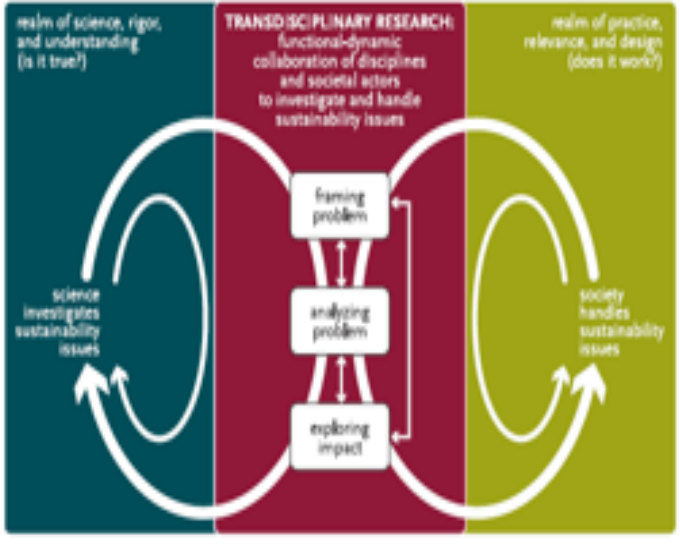

FIGURE 1: The transdisciplinary research process connects scientific knowledge production and societal problem handling (larger round arrows). Often the two processes are not explicitly related (smaller round arrows). The transdisciplinary research process consists of the stages of framing the problem, analyzing the problem, and exploring the project's impact. Projects run through the stages in different orders (thin straight and angled arrows). During these stages researchers of different disciplines collaborate and involve societal actors in a joint research and learning experience. The intensity of collaboration and involvement is functional-dynamic, i. e., it varies depending on the purpose of the specific stage (figure 4, p. 50). Two rationalities (thought styles) meet and have to be balanced in this process: the thought style of science searching for truth and the thought style of practice interested in workability (based on Bergmann et al. 2005, Pohl and Hirsch Hadorn 2007, Krütli et al. 2010, Jahn et al. 2012); see also www.transdisciplinarity.ch/e/Transdisciplinarity.

Assignment

Assignment: using new electronic resources

On your own,

1) Visit a library and select an electronic resource with which you are not familiar, and

2) Spend 60 minutes learning to use it. Note how much you can learn/achieve in that time.

3) Write up and submit a short report of your findings: the name/location of the database you used, your search techniques, results (ten most relevant literature sources)

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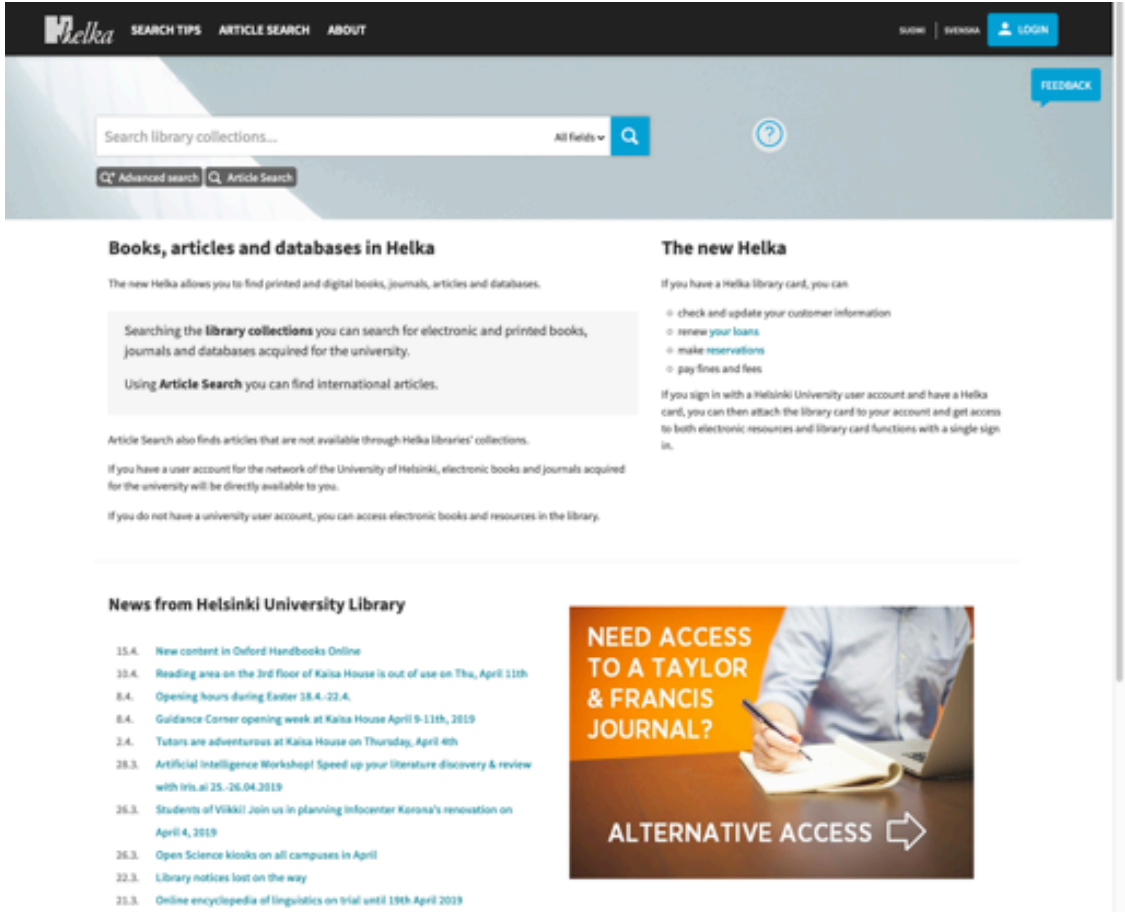

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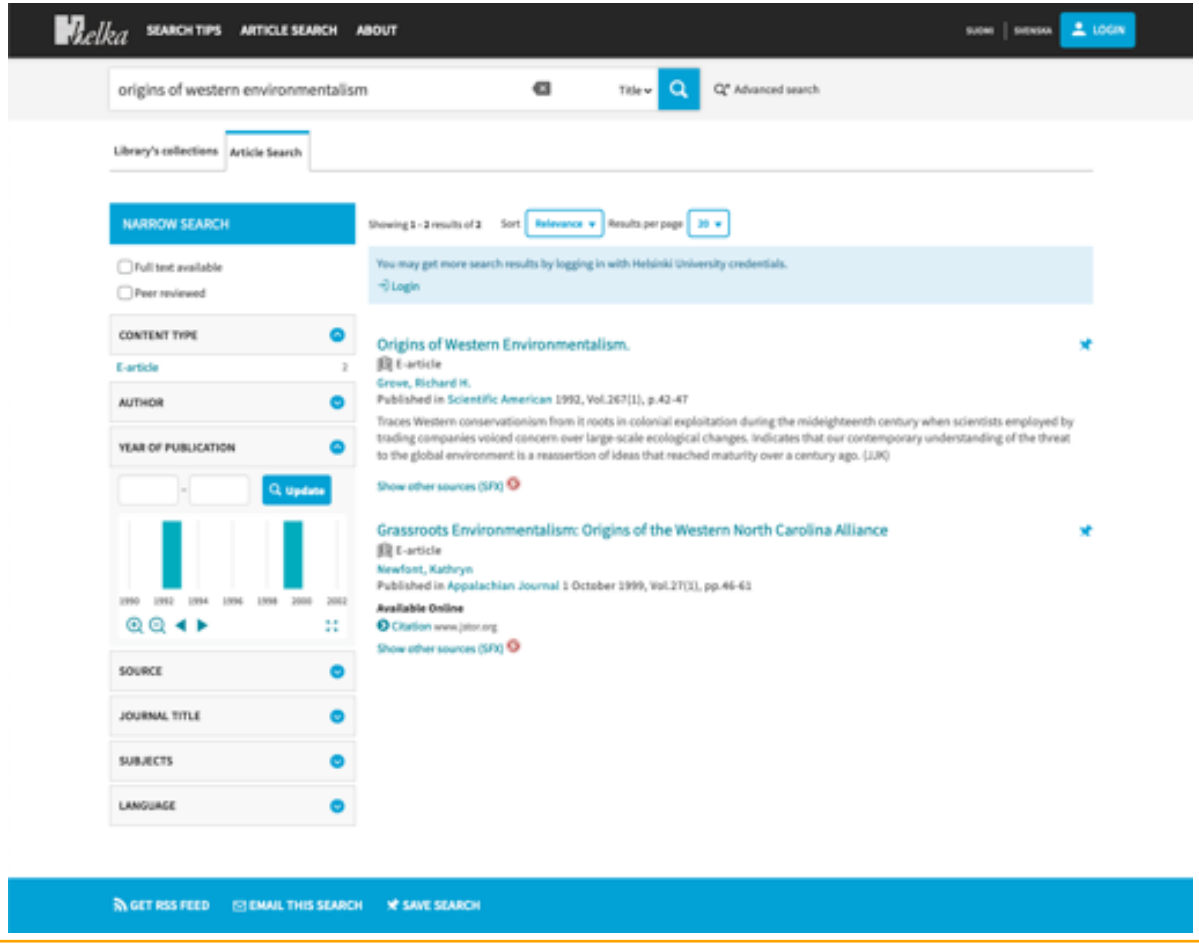

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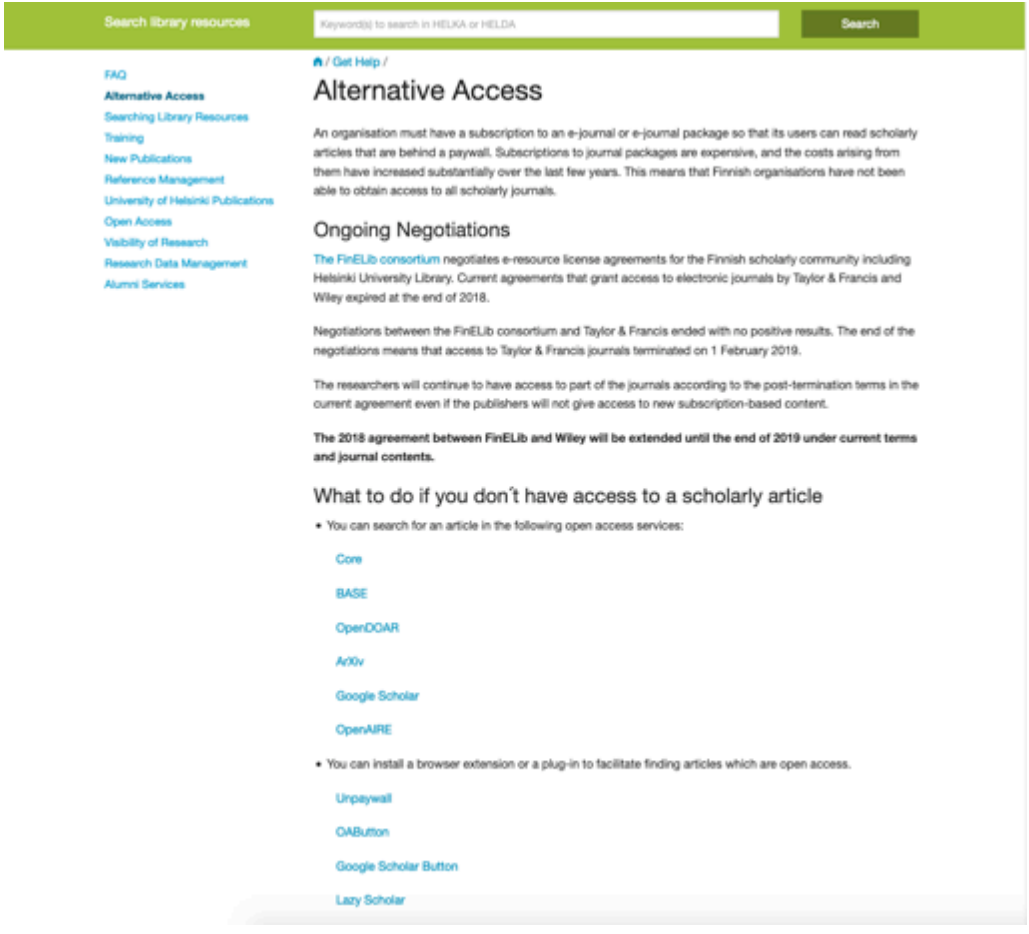

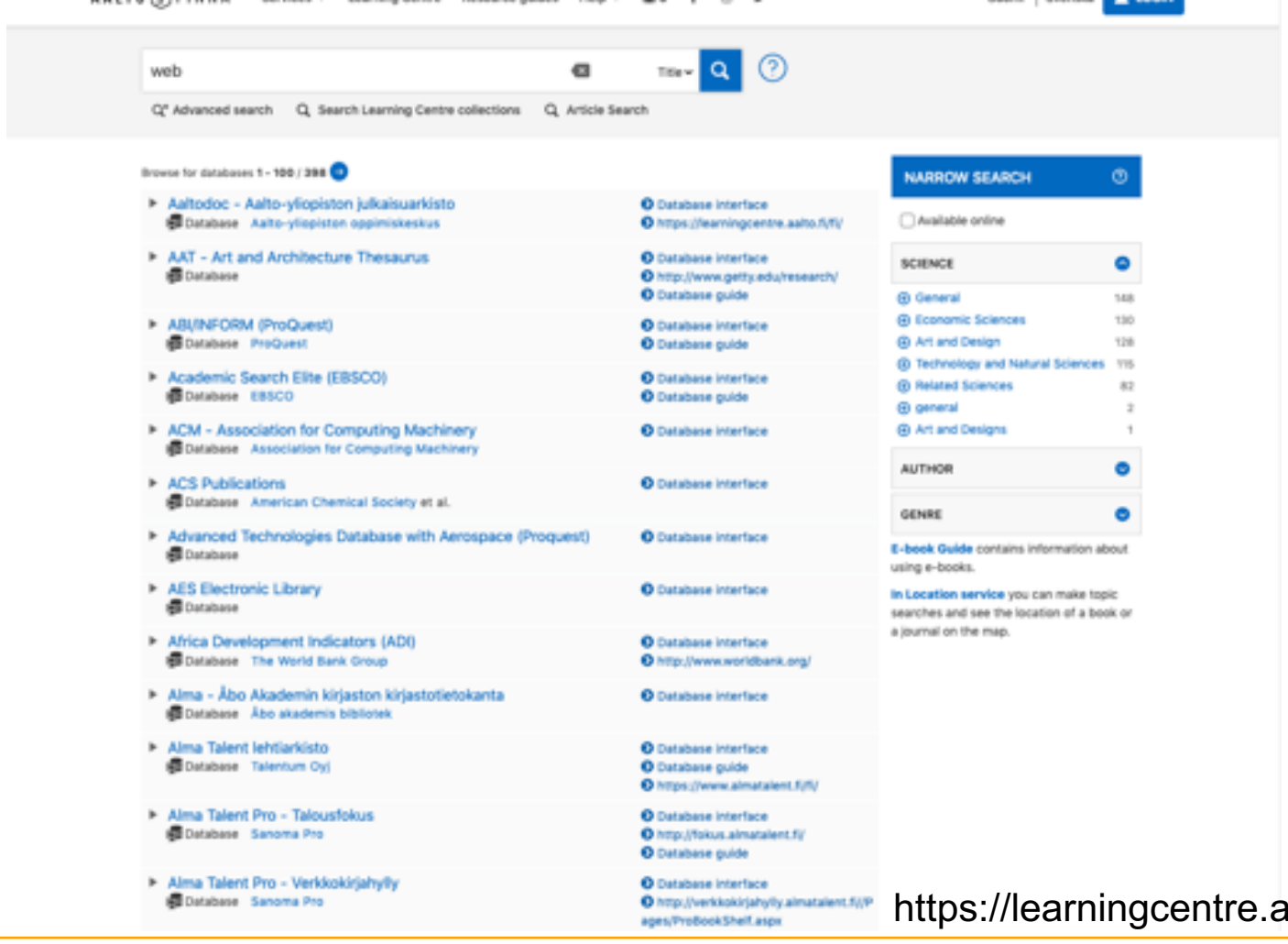

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