

Interdisciplinarity in doctoral education

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24 April 2017, AECHE 4 (25-26 April)

“Research for sustainable societies – the role of universities”

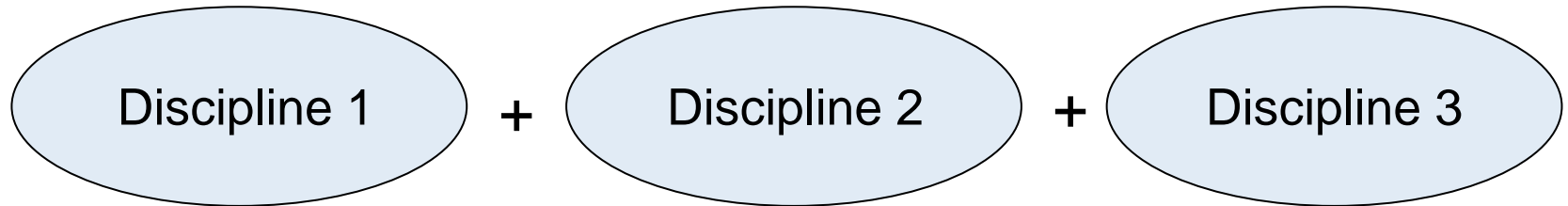
Pre-conference Workshop: Lessons learned from collaborative doctoral education

Breakout Session 1: Good practices in managing and professionalising doctoral education

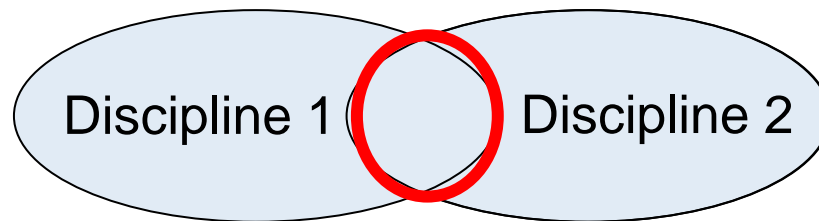
Institutional background

- > **National Centre of Competence in Research (NCCR) North-South**: 12-year programme (2001-2013), managed at CDE:
 - Research for sustainable development: problem-based
 - Research agenda defined with partners in the South
 - Disciplinary, interdisciplinary, transdisciplinary research
 - Partnership actions involving scientists and society
 - (Academic) capacity building programme, Alumni network
- **Integrated Training Course**
- **Now: the Summer School of the International Graduate School (IGS) North-South**
 - 3 universities in Switzerland, partnerships with univ. in global South
 - Full membership and associate membership
 - IGS provides a Certificate for “Sustainable Development” added to the PhD Degree earned at home institution (subject to their own rules)
 - Summer School = 5 of 12 ECTS (9-12 days)
 - www.igs-north-south.ch

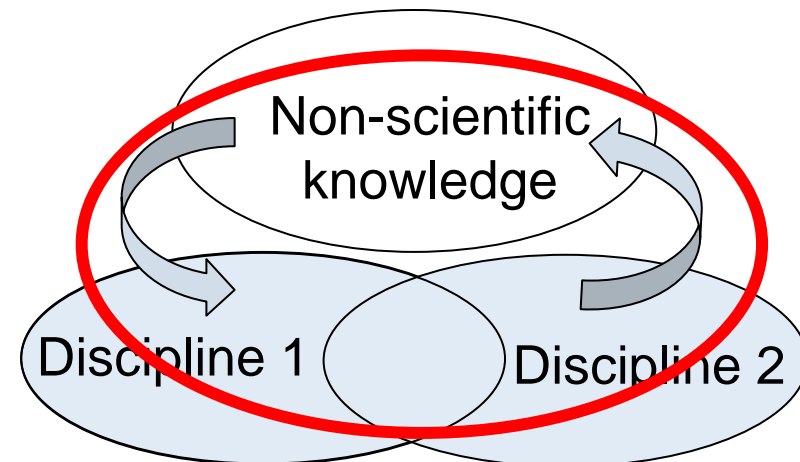
Quick definitions



multidisciplinary, pluridisciplinarity



interdisciplinarity



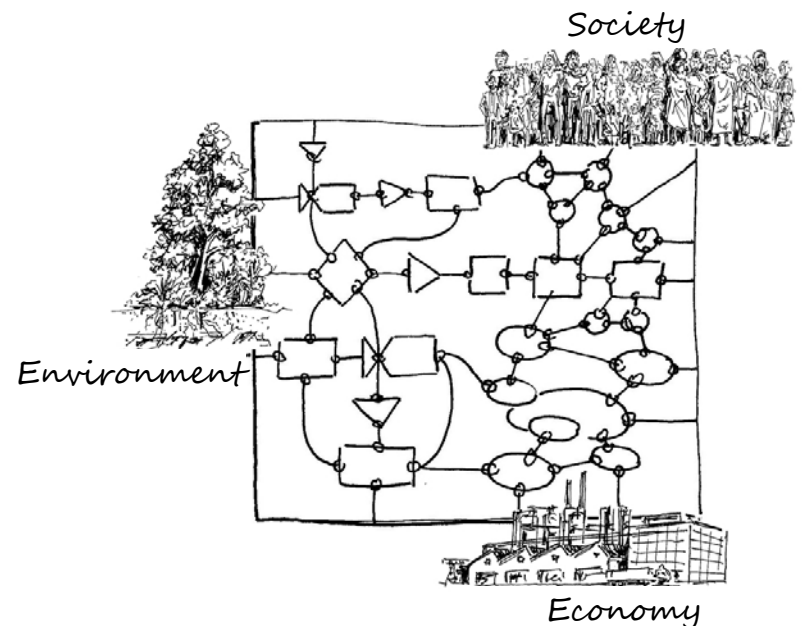
transdisciplinarity

What is needed for sustainable development?

- > Knowledge!
- > That is why science is so important.
- > What scientific disciplines are represented here today?

Why is interdisciplinary research needed?

1. **Complexity** of problems of global change
 2. **Rapid transformation** and high degree of **uncertainty**
- > This requires a **systemic approach**
- > One discipline cannot tackle this *alone* (e.g. “Green Revolution” in the 1960s: created new problems)



Why is transdisciplinary research needed?

- > Sustainable development is a **vision** and a **goal**
- > It must be defined by the whole of society and not by science alone



- > This is a **normative process**: values need to be negotiated by science *and* society together (at different stages of research)

So how do we go about this?

- > Your experience of working in your disciplines is probably like this:



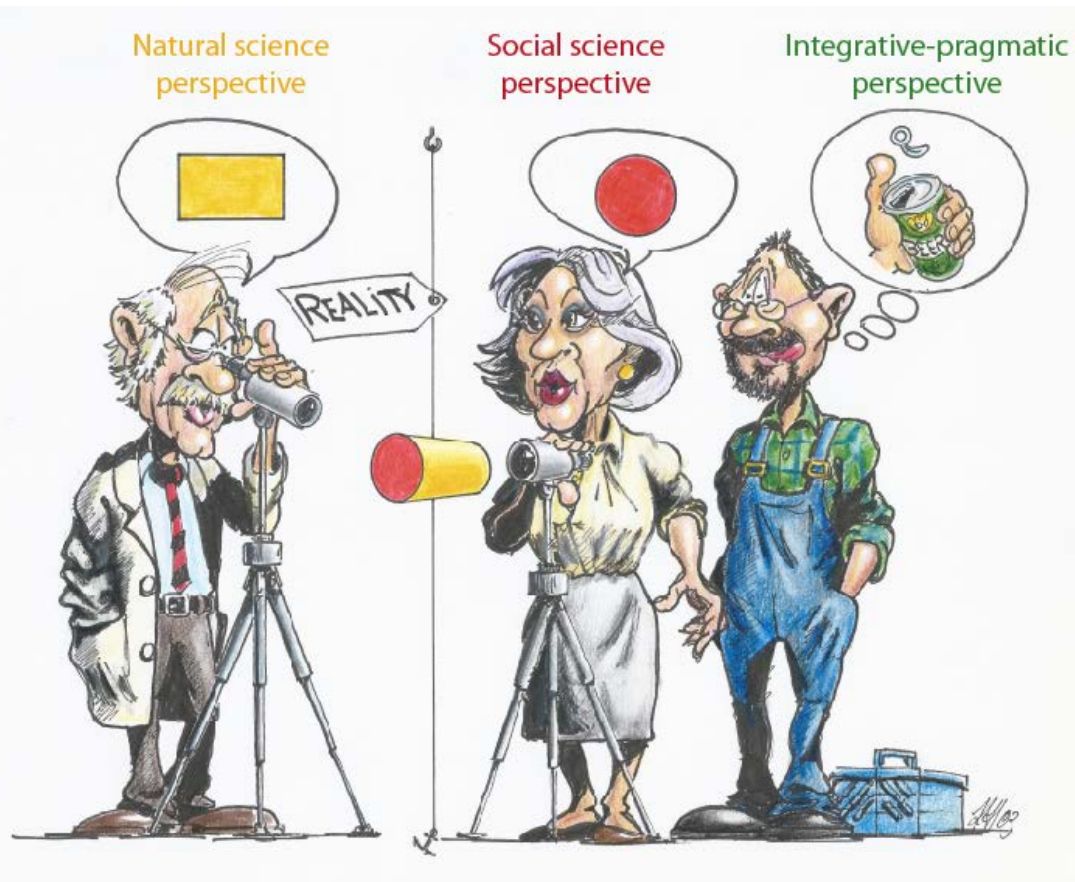
- > Scientists are entrenched in their disciplines!

Integrative training approach (Summer School programme)

Steps

1. General introduction to global change and sustainable development
2. Individual students present one another their own understanding of science and methodological approach (**disciplinary encounters**)
3. Local experts present a local context and its problems (lectures)
4. Students work in groups: how can they conceptualize these problems together as a system? (**interdisciplinary task #1**)
5. Groups develop an approach for the field trip (what to observe? ask people? **interdisciplinary task #2**)
6. Fieldtrip (1-3 days): **transdisciplinary exercise**
7. Groups analyse what they saw, heard, thought, felt – and develop a common proposal for a research project (**interdisciplinary task #3**)
8. Groups present their projects, which are assessed and commented on

What the interdisciplinary task #1 leads to



Students experience strong disagreement about how to conceptualize issues

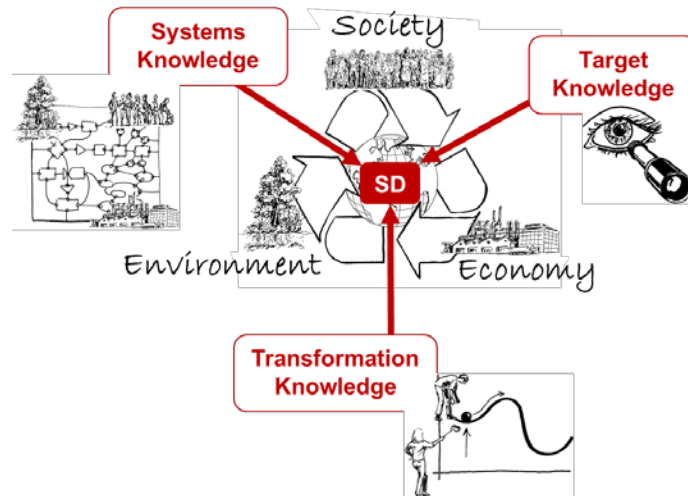
They need to abandon their “epistemological comfort zone” in order to understand the issues from the other disciplines’ perspectives

-> new concepts needed!

Well-established frameworks can help!



Figure: UN SDG website



Graph: K Herweg

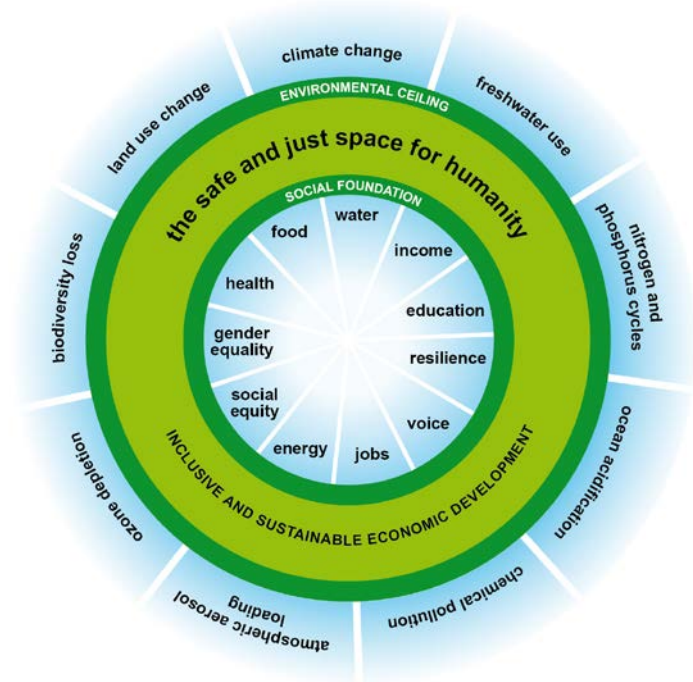


Figure: Raworth



Inter- and transdisciplinary work



Further information and references

International Graduate School (IGS) North-South (<http://www.igs-north-south.ch/Pages/default.aspx>)

CDE's integrative, case-study-based learning approach (http://boris.unibe.ch/17593/1/Herweg-et-al_2012_Guidelines_Integrative_Training.pdf)

CDE's Education for Sustainable Development Cluster
(http://www.cde.unibe.ch/research/e4sd/projects/index_eng.html)

The **University of Bern's** page for sustainable development:
http://www.unibe.ch/university/portrait/self_image/sustainability/index_eng.html

Contact: sustainability@cde.unibe.ch

REFERENCES TO CONCEPTUAL FRAMEWORKS:

Proclim/CASS. 1997. Visions by Swiss Researchers: Research on Sustainability and Global Change -- Visions in Science Policy by Swiss Researchers. Bern, Switzerland: Proclim.
<https://naturalsciences.ch/service/publications/75640-visions-of-swiss-scientists>

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