Bridging Barriers in Education: Empowering Students through Boundary Crossing

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Society Based Education, WUR

Service Learning Summer School

Leuven, September 15th 2023

Purpose of today's session

- To learn about boundary crossing

- To inspire to use cases

- To inspire about the possibilities of boundary crossing

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Agenda

- Ice breaker

- Exercise: Identification

- Principles of Boundary Crossing (BC)

- BC @ WUR

- BC & Society Based Education (SBE)

- Reflection

- Exercise: Reflection

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Stand on the line

- I know what boundary crossing competences are.

- I work with real cases in my education.

Boundary Crossing competence:

- *The ability to cross boundaries between one's own and others' practices and perspectives with the aim of making new connections, learning from 'the other' and co-creating new practices* (Akkerman & Bakker, 2011)

- *The ability to recognize, seek, appreciate and utilize the tensions arisen when different perspectives and positions come together (Fortuin et.al, 2020)*

- *The competence to work together with others outside one's own scientific domain, institute, culture or context (Boundary Crossing Toolbox)*

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Getting to know each other

Identification: identify one's own expertise (and limitations...)

- Individually write down all kinds of knowledge, skills, attitudes, personal traits, pitfalls that *you have* when it comes to boundary crossing in your teaching practices .
  Write down each contribution separately on a post-it (2,5 min.)

- With your peers on the same table, organise (group into the above categories) all post-its on a big shared sheet (5 min.)

- Identify *gaps* in knowledge, skills, attitudes... and write them on the sheet (2,5 min.)

- Be prepared to plenary share available and lacking expertise (5 min.)

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4 Boundary Crossing learning mechanisms:

- Levers for learning across boundaries; efforts you put in
- Can be seen as sub-skills of BC competence
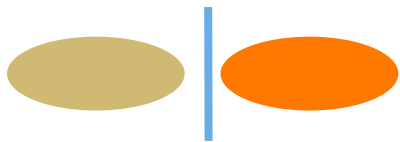

Identification

Coordination

Reflection

Transformation

(Akkerman and Bakker, 2011)

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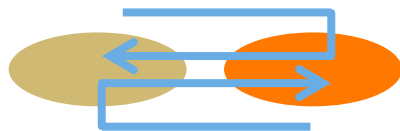UNIVERSITY & RESEARCH

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BC learning mechanisms: (Akkerman and Bakker, 2011)

Identification
Questioning of the own and other's core identities (often without actual collaboration)

Coordination
Seeking for effective means to collaborate

Reflection
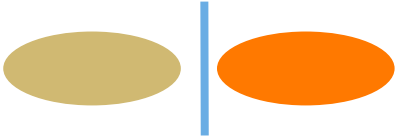Perspective making and taking and learning from each other

Transformation
Change in action or practice; really doing something new or differently.
➢ <u>Intrapersonal</u>: changes within yourself (identify, behaviour)
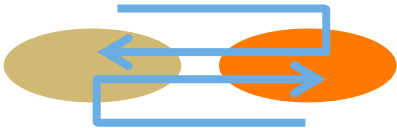➢ <u>Interpersonal</u>: co-created (in-between or) hybrid practice or innovative (ideas for) solutions

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BC learning mechanism:

Learning mechanism	Questions to ask
Identification	- What expertise do I have? - What expertise do I lack in the context of the problem at hand? - Who are the stakeholders? - What is their expertise, stake and perspective? - How do they relate to each other?

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BC learning mechanism:

| Learning mechanism	Questions to ask
Coordination	- How can I involve the different stakeholders? - How do I approach the different stakeholders? - How can we communicate and collaborate effectively? - What agreements do we make with each other? - What object can I use or develop to facilitate mutual communication?

BC learning mechanism:

Learning mechanism	Questions to ask
Reflection	- How do I help other stakeholders understand my perspective? - What can I learn from the perspectives of the other stakeholders involved? - What can we learn from each other?

BC learning mechanism:

Learning mechanism	Questions to ask
Transformation	- What is my vision on the new practice? - How can we combine our knowledge and perspectives into a (innovative, but realistic) solution? - How can I get others enthusiastic for this new practice? - How can I stimulate follow-up to build on the new practice (toward a new practice)?

Tension/challenges between practices:
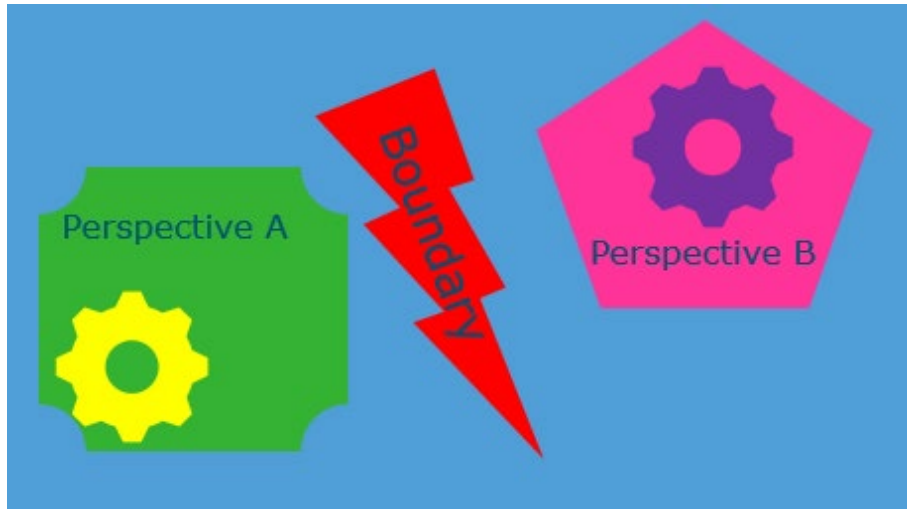
- **Academic disciplines: Interdisciplinary**
- Between cultures: Intercultural
- **Science <-> society: Transdisciplinary**

Boundary Crossing @ WUR:

- 2018: **Comenius Leadership Fellow** Nederlands Nationaal Regieorgaan Onderwijsonderzoek (NRO) - 'Boundary Crossing as Modus Operandi of Wageningen University.

- Activating **didactic approach** based on the boundary crossing theory, to **embed boundary crossing** in the Wageningen didactics and to embed boundary crossing in Wageningen education through **participatory action research project.**

- BC Core team, BC ambassadors.

Identification

Coordination

Reflection

Transformation

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Actions participatory action research project

1. Taking stock of boundary conditions present in four pilot Bachelor programmes

2. Designing educational activities that could develop BC competence develop with an associated toolbox,

3. Boundary crossing curricula in the pilot courses

4. Monitoring, effect measurement and evaluation

5. Teacher training, dissemination and policy embedding of the BC thinking.

A BC core team fulfilled the role of facilitator.

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Output project:

- BC competence is a generic competence, usable in various contexts in which people collaborate with each other, work, and learn

- BC learning lines in 4 Bachelor programmes

- Toolbox with materials

- Teacher professionalisation

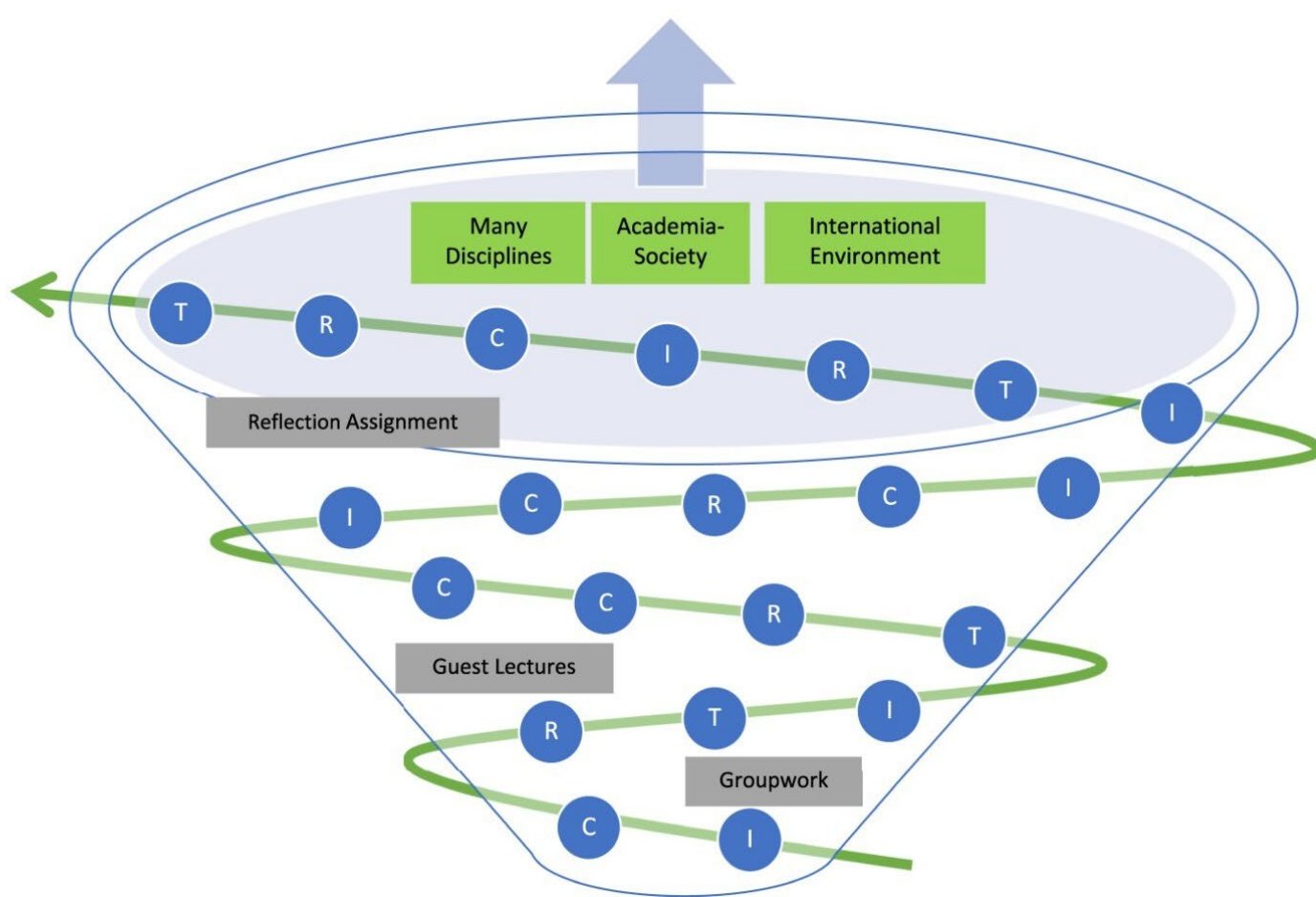- Community building

Identification

Coordination

Reflection

Transformation

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BC competence

Boundary Crossing Toolbox:

- BC Toolbox

- BC@WUR examples and experiences – WUR

BC Learning Trajectory: BSc Environmental Sciences

Year 1; period 1
Sustainable Solutions to Environmental Problems

Year 1; period 6
Environmental Sciences and Society

Year 2; period 5 & 6
Environmental Project Studies

Year 2; period 6
International Study Visit Environmental Sciences

| Course and its core theme	Sustainable Solutions to Environmental Problems Theme: Energy transition Students learn that the integration of social science, natural science and technology helps to generate innovative solutions to wicked environmental problems	Environmental Sciences and Society Theme: Animal Consumption and Production Chain. Students learn how knowledge from different scientific disciplines and stakeholders contributes to creating sustainable solutions.	Environmental Project Studies A group research project investigating an environmental issue emanating from professional practice. Attention is paid to the societal aspects of the researched topic, the role of science, and the development of the students' own view on the approach of the issue.	International Study Visit Environmental Sciences Dutch students collaborate with students and staff of another university outside the Netherlands on a two-week research project. The main theme (e.g., brownfields, nuclear power) is approached in a multi-disciplinary way.
What boundaries are addressed?	Disciplinary University-Society Cultural	Disciplinary University-Society Cultural	University-Society (between the commissioner's request and university requirements)	Disciplinary Cultural
What BC learning mechanism are addressed?	Identification (of disciplines and stakeholders) Coordination (within the team and with local stakeholders) Reflection (on own (cultural) and stakeholders' perspectives) Transformation (co-creation a sustainable solution)	Identification (of disciplines and stakeholders) Coordination (within the team and with stakeholders) Reflection (on stakeholder perspectives) Transformation (co-creation a sustainable solution)	Coordination (with real life commissioner and stakeholders) Reflection (on societal perspectives)	Identification (of cultural differences) Coordination (with students /faculty abroad) Reflection (on own behaviour and attitude when collaborating in an international setting)

BC Learning Trajectory: BSc Food Technology
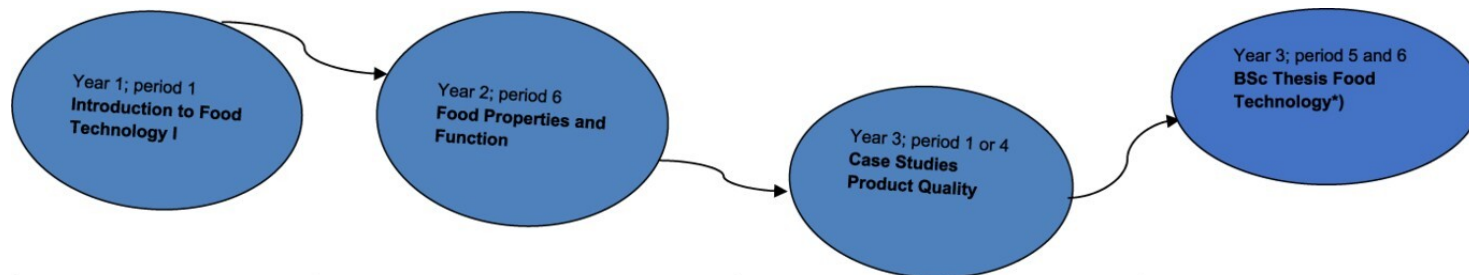
Course and its core theme	Introduction to Food Technology	Food Properties and Function	Case Studies Product Quality
	Learning to know the disciplinary and societal perspectives related to food technology	Co-create a food innovation and take into account the consumer perspective	Study a case from industry and suggest product and process quality improvements
	Theme: Ready-to-Eat Salad		
What boundaries are addressed?	Disciplinary	Disciplinary	Disciplinary
	University-Society	University-Society	University-Society
	Cultural	Cultural	
What BC learning mechanism are addressed?	Identification (of disciplines, stakeholders and cultures)	Reflection (on consumer perceptions)	Coordination (communication with real life stakeholders)
		Transformation (co-creation of a food innovation)	Reflection (perspective making and taking on stakeholder assignment and perspectives)

Boundary Crossing competence:
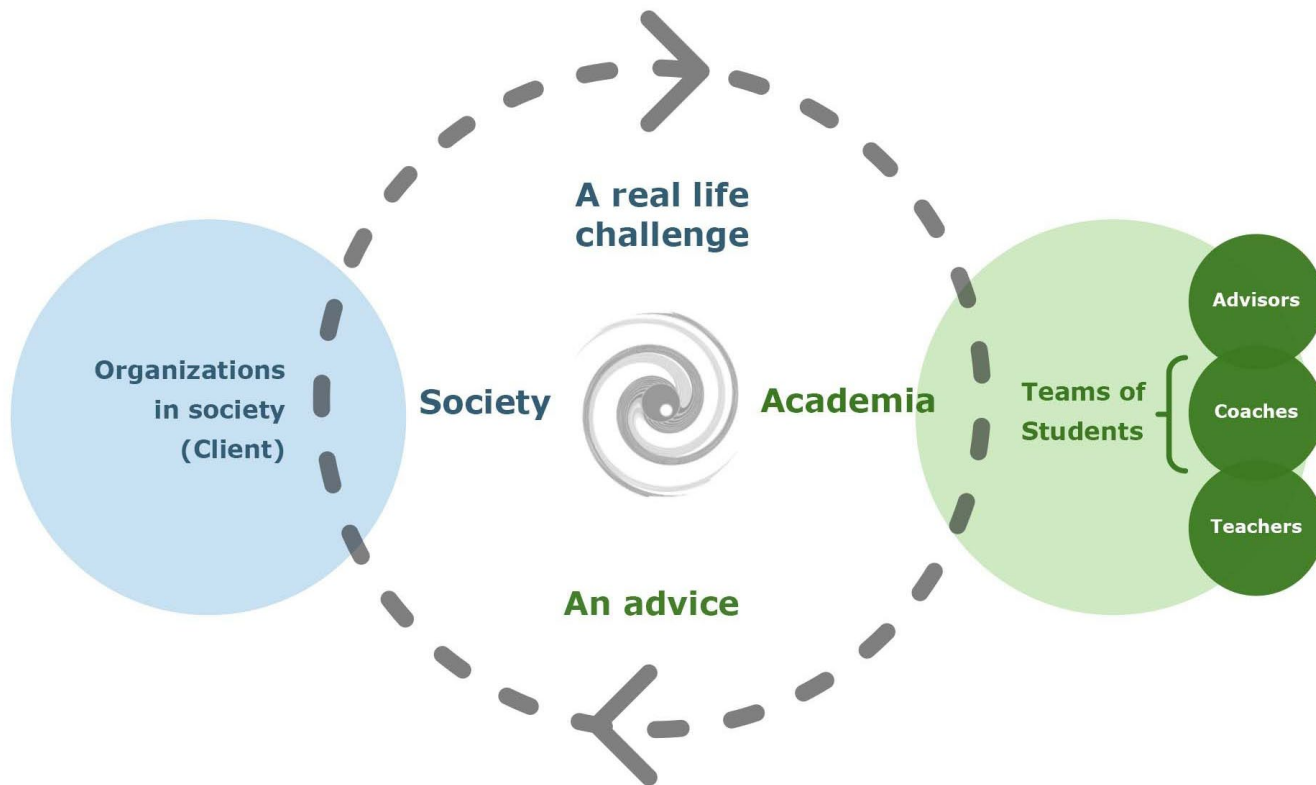
Further insights on BC:

- Knowledge Clip BC Learning Mechanisms

- Knowledge Clip Cultivating BC Competence

Knowledge Clips on Boundary Crossing

Academic Consultancy Training (ACT)

Academic Consultancy Training (ACT)

Assessment rubric

Level score:	1	4	6	8	10
Assessment elements of:					
Individual process					
1. Is the student open to learn from other disciplines and cultures (e.g. origin, profession), and is the student able to handle differences and reach common ground with the others on the basis of good communication and decision making?	The student is mostly passive and shows no interest in bringing the different disciplines and cultures present in the team together. Discussions about handling differences and reaching common ground are avoided.	The student on an irregular basis stimulates discussions about the differences and opportunities that the various disciplines and cultures within the team bring. The student frequently shows interest in reaching common ground. Seldom, the student initiates open and critical discussions, and stimulates others to contribute. Attempts to reach common ground are hardly observed for this student.	The student regularly stimulates discussions about the differences and opportunities that the various disciplines and cultures within the team bring. The student is generally interested in reaching common ground. Sometimes, the student initiates open and critical discussions, and also stimulates others to contribute. The student tries to reach common ground, but generally quits if resistance is persistent.	The student mostly stimulates discussions about the differences and opportunities that the various disciplines and cultures within the team bring. The student is very interested in reaching common ground. Frequently, the student initiates open and critical discussions, and also stimulates others to contribute. The student always tries to reach common ground, and sees these attempts regularly honored by reaching agreements.	From the very start the student is actively stimulating discussions about the differences and opportunities that the various disciplines and cultures within the team bring. The student has a high interest in reaching common ground. The student initiates open and critical discussions and stimulates others to contribute. The student continues in trying to reach common ground when others quit, and is very successful in reaching agreements.

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Academic Consultancy Training (ACT)

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The role of Society Based Education (SBE)

SBE: important Boundary Crossing facilitators at WUR.
How?

1. Stimulate and support WUR teachers in integrating **real-life learning** into their courses

2. Find and write real-life assignments from **external commissioners** and connect them to WUR courses
   - 30 BSc and MSc courses
   - Academic year 2020-21:
     - ~ 500 leads
     - ~ 265 student projects
     - ~ 2300 WUR students

Society

Society Based Education

University

Research
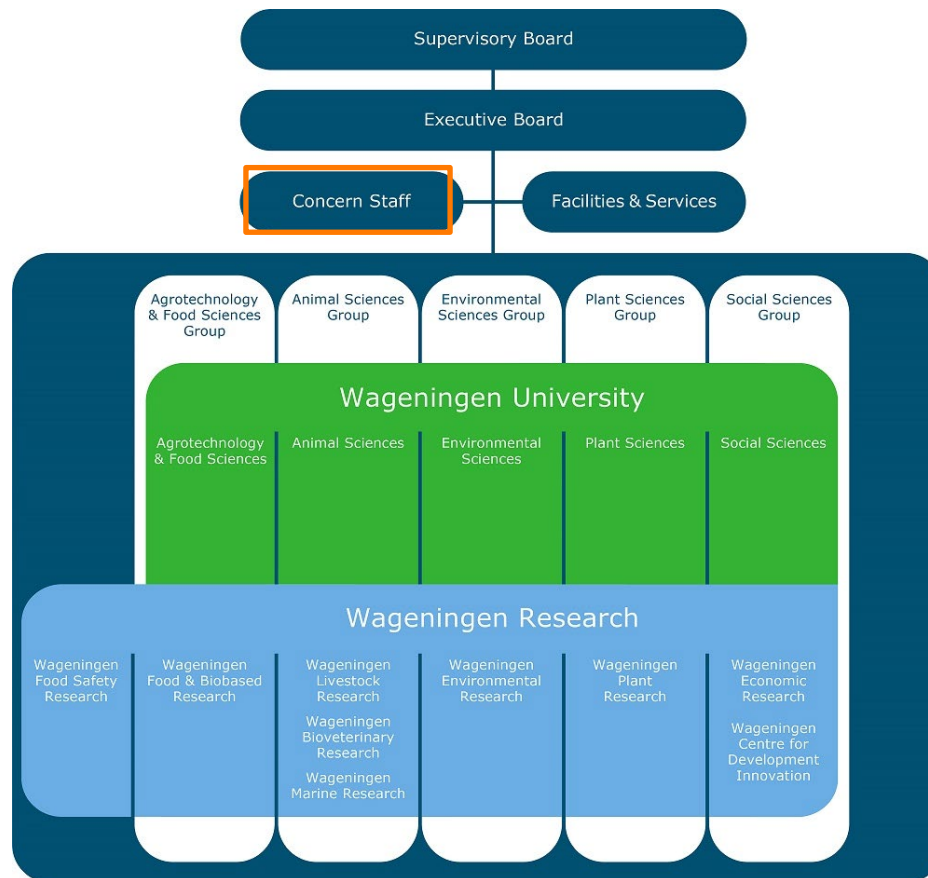
Where are we?

Where are we?

Education & Student Affairs

Teaching and Learning Centre
(Arjen Zegwaard)

- Training & Advice
- Educational Media
- Open & Online
- Online Learning Environment
- Society-based education
- Digital Examination
- Education support service desk

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Who are we?

Team Society Based Education

Educational advisors — Hanna Eppink, Anke Swanenberg

Relationship managers — Eline Nijmeijer, Lucas Mencke, Marta Vallvé Òdena, Tosca Veerbeek

Process coordinator — Karen Dekker

How do we do it?

1. Acquisition and stakeholder engagement

- **Ensure continuous recruitment of fitting real-life cases:** CRM system, website, project acquisition from own network/intranet/teachers, etc.

- **Keep relationships warm**: newsletter, frequent meetings, encourage follow-up on completed assignments, attend final presentations, evaluate collaboration, etc.

- **Networks and strategic commissioners**: sessions/workshops, look ahead to upcoming courses, etc.

How do we do it?

2. Matchmaking and translation

- **Understand the needs** of all parties involved: teacher, case owner, and student.

- **Translate a real issue or question** into something that can be researched by students.

- Find the match that will **create value for all**: what's in it for commissioners varies per course.

- **Expectation management** about different aspects of the collaboration: time investment, money, output, etc.

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Current challenge: scaling up

- Deepening: workshops and training, personal advice to teachers

- Broaden: engaging with more teachers, make the real-life learning community grow

Society Based Education is on tour!

Are you a teacher at WUR? Come to our consultation hour to explore how you could implement real-life learning in your courses.
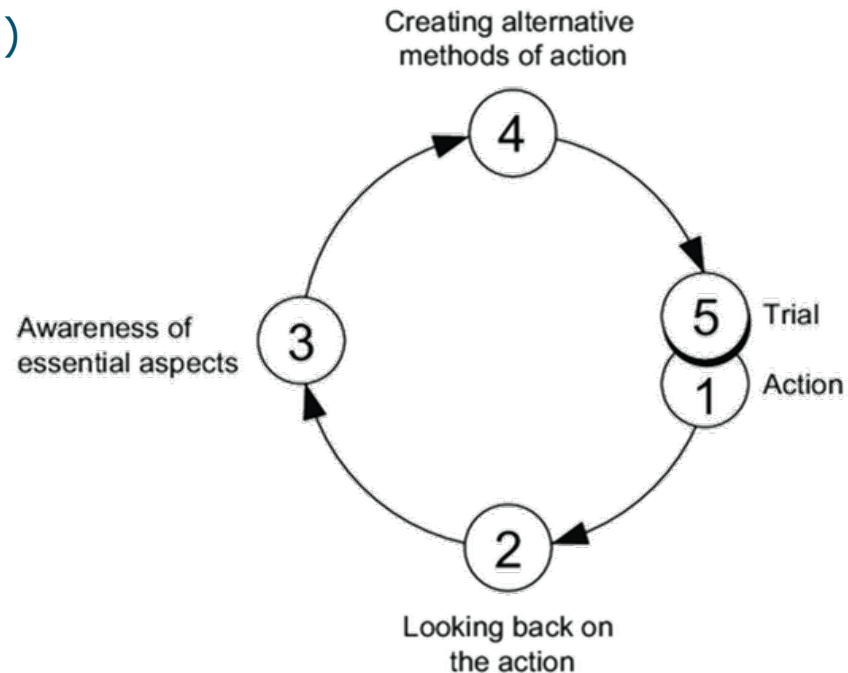
When   Tuesday 26 September, 15-17hrs

Where   Forum, ground floor

We'll be visiting other locations on campus every month. More info on our intranet team: Society Based Education

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Reflection

- Range of models, e.g. Korthage (1993)

- Give clear guidelines and rubrics

- Formative or summative

- Useful for personal learning goals

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Reflection

Assessing reflection	
Examples formative assessment	**Examples summative assesment**
- Individual entries from a reflective journal - A reflective blogpost - Interim essays on development during the course or on benchmark statements - Drafts on reflective summative assessments - Reflective workbooks	- A reflective journal - A report that pulls on evidence from a reflective journal - A reflective blog - A reflective essay on the student's development in the course - A reflective essay on meeting benchmark statements - A reflective essay on a particular experience (e.g. a critical incident in an experiential learning course) - A skills development log

Example analytic reflection rubric:

Criterion\Level	Unacceptable	Reflective novice	Aware practitioner	Reflective practitioner
Clarity	Language is unclear and confusing throughout. Concepts are either not discussed or are presented inaccurately.	There are frequent lapses in clarity and accuracy	Minor, infrequent lapses in clarity and accuracy.	The language is clear and expressive. The reader can create a mental picture of the situation being described. Abstract concepts are explained accurately. Explanation of concepts makes sense to an uninformed reader.
Relevance	Most of the reflection is irrelevant to student and/or course learning goals.	Student makes attempts to demonstrate relevance, but the relevance is unclear to the reader.	The learning experience being reflected upon is relevant and meaningful to student and course learning goals.	The learning experience being reflected upon is relevant and meaningful to student and course learning goals.
Analysis	Reflection does not move beyond description of the learning experience(s).	Student makes attempts at applying the learning experience to understanding of self, others, and/or course concepts but fails to demonstrate depth of analysis.	The reflection demonstrates student attempts to analyse the experience but analysis lacks depth.	The reflection moves beyond simple description of the experience to an analysis of how the experience contributed to student understanding of self, others, and/or course concepts.
Interconnections	No attempt to demonstrate connections to previous learning or experience.	There is little to no attempt to demonstrate connections between the learning experience and previous other personal and/or learning experiences.	The reflection demonstrates connections between the experience and material from other courses; past experience; and/or personal goals.	The reflection demonstrates connections between the experience and material from other courses; past experience; and/or personal goals.
Self-criticism	Not attempt at self-criticism.	There is some attempt at self-criticism, but the self-reflection fails to demonstrate a new awareness of personal biases, etc.	The reflection demonstrates ability of the student to question their own biases, stereotypes, preconceptions.	The reflection demonstrates ability of the student to question their own biases, stereotypes, preconceptions, and/or assumptions and define new modes of thinking as a result.

Reflection on 3 levels

IT: about exterior factors, e.g. the content, the assignment, the methodology used
As seen from your perspective!

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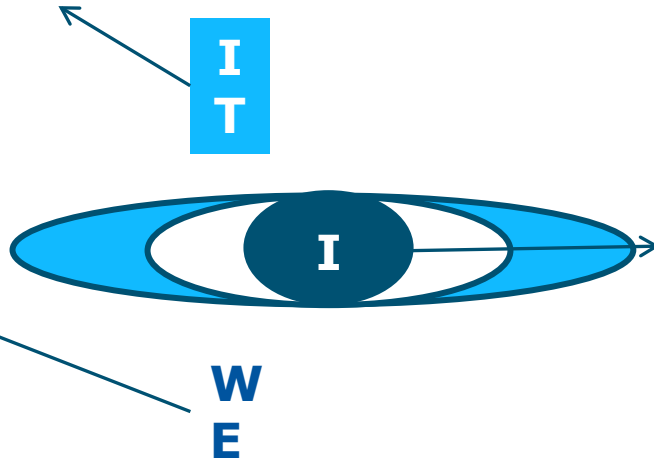
WE: about interaction between group members, roles of the different persons, decision making, etc.
As seen from your perspective!

W E

I

I: about yourself, what you experience, what you feel, what your impressions are, etc.

(Brack and Nortier, 2008)

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Reflection is personal…

- It is about how you personally look at what happened

- What did you personally acquire (I) and/or contribute (We/It)?

  - scientific and other knowledge

  - skills

  - the group process
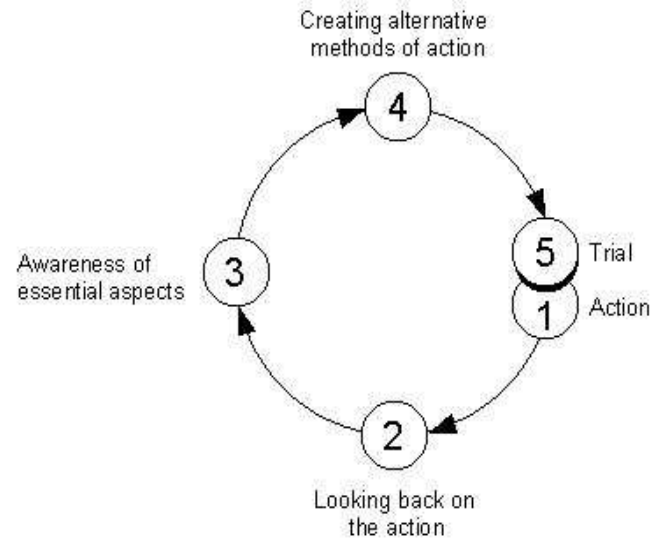
  - interests, norms, and values

Learning in reflective cycle:
Example European Workshop (EUW)
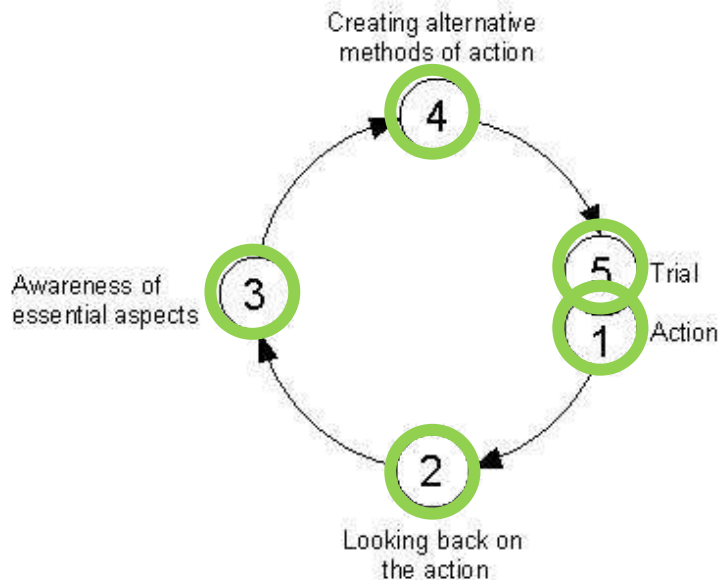
1. Experience in the EUW

2. 2&3. What did we learn from it?

4. Alternative methods of action

4.1. What will we do differently in
- the next stage?
- the next EUW?
- working life?

4.2. State personal learning goals for the remaining EUW...

5. A new assignment, next stage

Reflection & learning

- Not only describing
  o e.g. we applied a questionnaire

- Not only evaluating
  o e.g. we were very good at making consensus-based decisions

- But: why did it go wrong or good?
- And: what will I do next time?

- Triple loop learning (learning about the root cause)
  - What are we actually doing?
  - How do we do this?
  - Why are we doing it in this way? Are we doing the right things?

Creating alternative methods of action — 4

5 Trial

Action 1

Awareness of essential aspects — 3

2

Looking back on the action

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Example questions – MSc Biobased Sciences

Questions that can be part of the reflection reports that might help students to reflect on their interdisciplinary boundary crossing learning are:

- What was my own disciplinary perspective on the issue? (I)
- What theories, approaches or methods would I use to deal with this issue? (I)
- How did another disciplines view the issue? (I)
- What did I learn from the other perspectives and approaches? What conflicting of similar ideas came to light when combining these disciplinary views? (R)
- How did we collaborate to actually integrate our perspectives? (C)
- How did our perspectives strengthen each other? (R)
- What was the added value of integrating these different disciplines in your suggested solution? (T)
- What trade-offs were made to embrace different disciplinary perspectives?

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Reflection exercise

- Reflect on a specific challenge you face in your teaching. How might boundary crossing help address this challenge?

  o Teaching Challenge: A brief description of the challenge you are facing.

  o Boundary Crossing Solutions: Write down ideas on how boundary crossing could help address the challenge. E.g. What can you learn from the perspectives/ideas shared today? What are possibilities for collaboration?

- Sharing / Group Discussion

Want to learn more about reflection?

Visit this website of the University of Edinburgh, where you can find a reflectors' toolkit and a facilitators' toolkit.

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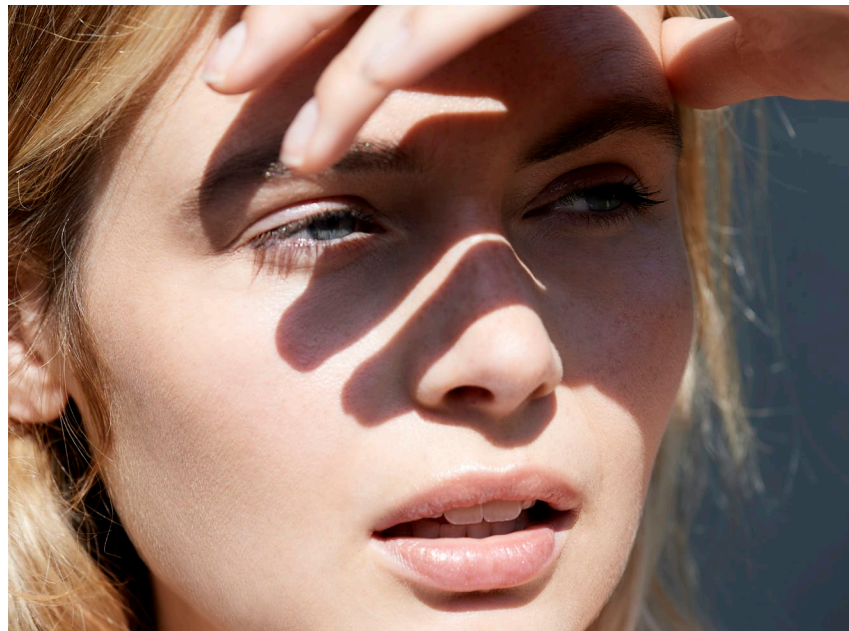
Wrap up

- **Questions**?

- **Take-away**: write it down in a post-it

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Questions after today?

- **Email us:** sbe@wur.nl

- Check out **our website**

Further reading

- [*Th&ma 2023-3 Boundary crossing als de modus operandi van een universiteit.pdf](#)

- [Fortuin Gulikers et al_2023 Developing a boundary crossing learning trajectory supporting engineering students to collaborate and co create across disciplinary cultural and (1).pdf](#)

- [BC@WUR examples and experiences - WUR](#)

- [Boundary Crossing @ WUR - WUR](#)

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