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Rubric Boundary Crossing to support inter- and transdisciplinary learning in an intercultural setting

This rubric is developed to support and assess student boundary crossing-learning. The rubric is supposed to be generally applicable for learners (e.g. students) who are part of a multi-disciplinary team and who collaborate in an inter- or transdisciplinary project.

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Rubric Boundary Crossing to support inter- and transdisciplinary learning in an intercultural setting

by Karen Fortuin1), Carla Oonk2) and Judith Gulikers2)

This rubric is developed to support and assess student boundary crossing-learning. The rubric is supposed to be generally applicable for learners (e.g. students) who are part of a multi-disciplinary team that collaborates in an inter- or transdisciplinary project. Learning with and from *'the other'* with a different *expertise* is crucial in inter- and transdisciplinary settings. *'The other'* or *other people* refers to (1) other students (e.g. in the project team), (2) teachers who are involved in the project and (3) external stakeholders (i.e. all kinds of people from in or outside the university who have a stake in the project). *Expertise* in this rubric is understood as the combination of theoretical knowledge, scientific evidence-based knowledge, and real world based experiential knowledge from outside academia (Scholz and Steiner 2015), and the related skills and networks. The rubric is based on the 'boundary crossing' theory from Akkerman & Bakker (2011). Boundary crossing refers to the ability to cross boundaries between the own and others' expertise, and practices, make new connections, learn from 'the other' and co-create towards new practices with 'the other'. The rubric operationalises the four learning mechanisms (read as: learning catalysts) of boundary crossing, at four levels of performance (i.e. observable behaviour).

The four learning mechanisms are:

	*Identification:* to identify one's own expertise and one's own limitations. To specify what expertise is needed to execute a project successfully, and to identify which people should thus be involved.
	*Coordination:* to contact, and purposefully collaborate with other relevant people to execute the project successfully.
	*Reflection:* to learn from and with others and (re)consider each other's perspectives. To empathize with others and to reflect and reconsider one's own perspective and expertise, but also to stimulate others to reflect and reconsider their expertise and practices.
	*Transformation:* to integrate various expertise and practices to co-create new knowledge and / or to generate new, innovative results that can be applied in practice.

A student who is a good 'boundary crosser':

- shows that (s)he is interested in the project not only to pass the course (a good grade) but also to deliver an end result that can be applied in practice and is useful for other people;
- considers what expertise is needed to execute the project successfully and what the limitations and contributions are of his/her own expertise;
- is open to learn from and contacts other people, sees the advantage of using other people's expertise;
- facilitates and stimulates the collaboration of people involved in the project;
- empathizes with other people's perspectives / interests / ideas, also when they differ from his/her own;

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- actively searches for ways to learn from others and encourages other people to reflect and to learn as well;
- explicates how multiple perspectives, interests and expertise are used and integrated in the project to deliver a better end result;
- explicates how the end result can be implemented in practice and which steps need to be taken to do so;
- shows enthusiasm and effort to be actively involved in follow-up activities.

References

Akkerman, S. F. and Bakker, A. (2011) 'Boundary crossing and boundary objects', *Review of Educational Research,* 81(2), 132-169.

Scholz, R. and Steiner, G. (2015) 'The real type and ideal type of transdisciplinary processes: part I—theoretical foundations', *Sustainability Science*, 10(4), 527-544.

Boundary-crossing rubric: a tool to support inter- and transdisciplinary learning in an intercultural setting

	D The student…	C The student…	B The student…	A The student…
Identification 1: Identify one's own expertise and one's own limitations	Does not explicate which expertise (s)he possesses and which expertise might be missing to execute the project successfully.	explicates his/her own expertise in terms of knowledge, skills and network that can contribute to the project.	previous cell + identifies his/her own limitations regarding expertise needed to execute the project.	relates his/her own expertise to that of the other members of the project team and maps what kind of expertise is missing to execute the project successfully.
Identification 2: Identify other perspectives relevant for the project and problem at hand	does not actively explore other perspectives.	shows being aware of the existence of various perspectives, but does not explicitly address these different perspectives in the light of the project.	identifies people including their interests, perspectives, expertise and mutual relations relevant for executing the project.	Previous cell + the student explicates for which aspects of the project he/she needs other people and plans actions to contact these other people.
Coordination 1: Contact other people	does not take any action to contact other people or does take action, but only because it is a requirement of the course.	contacts a small number of other people that are close to the problem and easy to address (e.g. given by the teachers). prefers to contact external people in a digital way.	develops active and face to face contact with relevant other people.	initiates and organises collaborative meetings with relevant other people with the intention to collaboratively share ideas, develop new ideas and tune own ideas.
Coordination 2: Collaborate purposefully with other people	does not actively and purposefully collaborate with other people or is merely frustrated by the challenges that emerge in this collaboration.	carries out activities to discuss a limited number of other perspectives, closely related to his/her own background.	aims at purposeful collaborations with various relevant people to the project. Discovers and /or contributes to the development of a boundary object (BO) relevant for people involved to facilitate collaboration for executing the project.	Previous cell + uses the BO actively to accommodate multi-, inter- or transdisciplinary collaboration and checks whether everybody really contributes to the project. If not, (s)he takes action.

	D The student…	C The student…	B The student…	A The student…
Perspective making and learning from each other 1: (Re)consider perspectives	considers the project purely from his/her own perspective and interest	shows limited openness to other perspectives that are relevant for the project and / or, considers the input from other perspectives mainly for his/her own benefit (i.e. what can I use from you?)	actively explicates and/or discusses various perspectives that are relevant for the project and searches for ways to combine perspectives (i.e. how can the different perspectives contribute to and strengthen the project)	Previous cell + explicates how other perspectives influenced his/her own perspective on the project.
Perspective making and learning from each other 2: Learn from other people	merely aims to complete the project, not to learn from other people (i.e. shows no learning attitude at all)	Reflects on own learning process and development in an ad hoc fashion and is able to explicate these.	explicitly shows (the willingness) to learn from other people during the project.	actively searches for ways to learn from others and purposefully develop him/herself.
Perspective making and learning from each other 3: Stimulate others to learn (general)	shows no actions in stimulating other people to learn from each other.	reflects with team members on each other's role, contribution and development during the project, but does not actively transfer the results of these reflections into improved performance of other people during the projects.	initiates reflective actions between people involved in the project aimed at learning from the project (both process and content wise).	Previous cell + actively encourages other people's learning in the light of the project.

	D The student…	C The student…	B The student…	A The student…
Transformation 1 (start) Intend to develop a new, sustainable practice	shows an attitude of conducting the project for the sole purpose of passing the course	shows an attitude to want to develop a project result that serves a limited amount of perspectives	shows an attitude to want to develop a project result that serves multiple perspectives	Previous cell + shows an attitude of wanting to deliver a project result that is innovative or inspiring innovation
Transformation 2 (process) Envision new practices during project process	has difficulty and/or shows no interest to think out-of-the-box. Sticks to mainly traditional or obvious solutions	tries to include innovative elements in traditional solutions	shows out-of-the-box thinking serving multiple perspectives through weighing pros and cons of various possible solutions	Previous cell + clarifies a vision for the new to be developed practice, i.e. is able to explicate how the new practice would look like, how it functions and what needs to be done to realise this new practice
Transformation 3 (product) Integrate various perspectives, interests or expertise in a final product	shows merely a compilation of insights of students involved in the final project. Does not explicate the integration of multiple perspectives, interests or expertise	shows how own ideas and those of other students are integrated in the final product. Shows some insights in how other perspectives are integrated and how realistic the final product is in practice	shows convincingly how (s)he weighted multiple perspectives and interests in the final product, and considers its practical as well as its innovative character.	Previous cell + clearly explicates how to effectively inform other external people involved about the outcome of the final product
Transformation 4 (follow-up) Stimulate a follow-up on project results	finishes the project for school and shows no interests in follow-up activities	finishes the project and mentions a few options for follow-up activities	finishes the project, explicates how it can be implemented in practice and which steps need to be taken to do so.	Previous cell + shows enthusiasm and effort to be actively involved in follow-up activities

Table to fill in personal 'boundary crossing' assessment

Name: ..... EUW: ..... Date: .....

Performance indicator	Personal assessment				
Identification 1: Identify one's own expertise and one's own limitations	*start*	D	C	B	A
	aim	D	C	B	A
	end	D	C	B	A
Identification 2: Identify other perspectives relevant for the project and problem at hand	*start*	D	C	B	A
	aim	D	C	B	A
	end	D	C	B	A
Coordination 1: Contact other people	*start*	D	C	B	A
	aim	D	C	B	A
	end	D	C	B	A
Coordination 2: Collaborate purposefully with other people	*start*	D	C	B	A
	aim	D	C	B	A
	end	D	C	B	A
Perspective making and learning 1: (Re)consider perspectives	*start*	D	C	B	A
	aim	D	C	B	A
	end	D	C	B	A
Perspective making and learning 2: Learn from other people	*start*	D	C	B	A
	aim	D	C	B	A
	end	D	C	B	A
Perspective making and learning 3: Stimulate others to learn	*start*	D	C	B	A
	aim	D	C	B	A
	end	D	C	B	A
Transformation 1 (start) Intend to develop a new, sustainable practice	*start*	D	C	B	A
	aim	D	C	B	A
	end	D	C	B	A
Transformation 2 (process) Envision new practices during project process	*start*	D	C	B	A
	aim	D	C	B	A
	end	D	C	B	A
Transformation 3 (product) Integrate various perspectives, interests or expertise in a final product	*start*	D	C	B	A
	aim	D	C	B	A
	end	D	C	B	A
Transformation 4 (follow-up) Stimulate a follow-up on project results	*start*	D	C	B	A
	aim	D	C	B	A
	end	D	C	B	A

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