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# Facilitating Boundary Crossing in Online Learning

This document describes several ideas for BC learning activities in online education, how to engage student in doing these, and also how to facilitate that as a teacher. The document also describes reasonings behind these activities, why and how to use them and for what purposes.

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**Link to BC/place on taxonomy**
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# Facilitating Boundary Crossing in Online Learning

Personal activity by Gerlo Borghuis, as part of the Peer Learning Meetings

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## Personal motivation to work on this topic

I am currently in the process of developing a MOOC around agricultural water management, that aims at approaching water management from a socio-technical perspective. Therefore we expect learners coming into the MOOC from both the social and natural/technical sciences. Both of these perspectives are very valuable when assessing water management cases. Therefore we want to facilitate learning across these discipline boundaries, to eventually get learners to adopt a more socio-technical approach (see Figure 1). Furthermore, we built this MOOC around a real-life case study we filmed in Morocco, incorporating the views and problems of local stakeholders, again providing an opportunity for learning across boundaries.

In order to do so we need a set of online activities that will help the learner to go through the process of boundary crossing. First becoming aware of their own expertise, followed by gaining more knowledge of other expertise's, and adapting that into their own work. Currently there is a large project going on at WUR about boundary crossing, mainly in the on-campus education. I have used that as a source of information and inspiration, attended a workshop hosted by the project, and asked for advice of people working on the project.
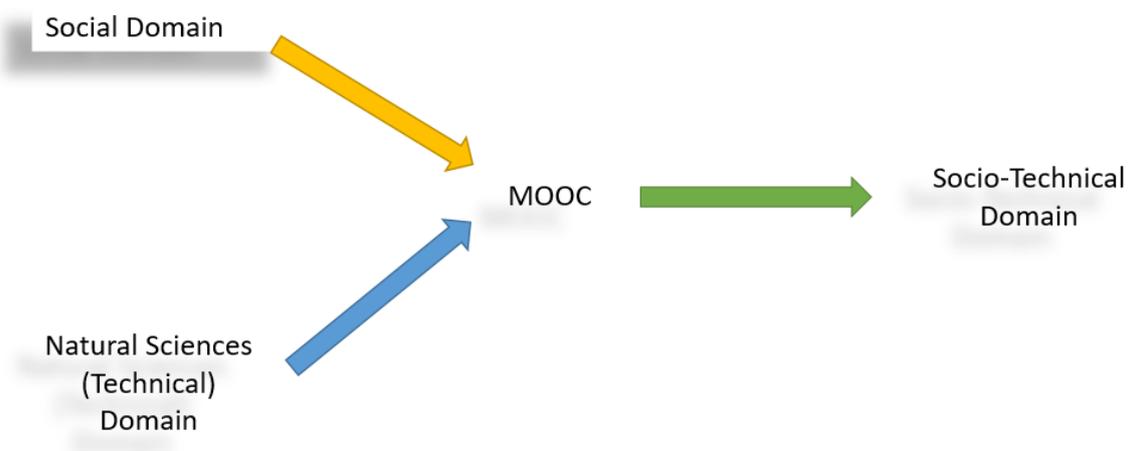


*Figure 1 MOOC learner domain diagram*

## What is boundary crossing?

Let start with the question, what is boundary crossing? A boundary is a tension or challenge experienced when people from various practices (e.g., a discipline, culture, or organisation) meet or interact (Akkerman, 2011). One can experience such a tension or challenge for instance when collaborating in a project with a diverse group of people. When boundaries remain implicit and the 'other' perspective is ignored in favour of one's own perspective, interaction and collaboration become more difficult. When boundaries are made explicit and the 'other' perspective is placed side by side or even integrated within one's own perspective, interaction and collaboration are facilitated and sought for, and the creation of new outcomes are made possible. Boundary crossing is needed to

enhance collaborative processes, to change behaviour or procedures and to come up with new ideas, products, or solutions. As such, boundaries and boundary crossing create great opportunities to learn and boundary crossing can contribute to the personal development of persons involved in the learning process (Akkerman, 2011). Boundary crossing is especially important for Wageningen graduates, since at WUR we are working on wicked problems of the living environment. Solving these problems requires crossing the gap between academia and society, as well as cooperation across various disciplines.

## What stages can be found in Boundary Crossing?

Boundary crossing is not restricted to one single activity, but it is a process, that involves various stages (Figure 2). However, not all stages are necessary to execute a successful boundary crossing learning experience. The following four stages can be identified:

- *Identification* - Identification is becoming aware of one's own expertise as well as of one's own assumptions, values and principles and of how they influence the way one sees a project or particular problem. Identification is also about recognizing that your way of seeing and interpreting of what is going on can be different from the way others do. Recognizing your own personal norms and values and how they relate to others can contribute to appreciating other people's expertise and perspectives.

- *Coordination* - Coordination refers to collaborating effectively. It refers to finding ways and procedures to work together more effectively. Coordination implies that students initiate and organise meetings with relevant people (other students, farmers, companies, governmental organisations), create working agreements, and look for ways to effectively communicate across various practices/boundaries. Tools that can facilitate more effective communication across practices (like a portfolio, notes, a collaborative designed mind map) can be helpful in this stage.

- *Reflection* - Reflection refers to perspective making and taking. It refers to trying to see the world or one's own practice through the eyes of somebody else, such as a student with a different cultural background, or the client of a consultancy project. Reflection enables students to widen their perspective. It contributes to students' appreciation of a variety of perspectives and practices and willingness to learn from each other's perspectives.

- *Transformation* - Transformation refers to change in one's own practice as a result of judging and utilizing a variety of perspectives and expertise; it refers to really doing something new or differently, such as changing personal behaviour as a result of appreciating and incorporating a new norm, value, or perspective. Transformation also refers to collaboratively, co-creating new concepts, new routines or procedures, new, hybrid practices, or innovative solutions.

# Four BC learning mechanisms

**Identification** = Which qualities do I have? Which expertise do I miss in the context of this issue? Who are relevant stakeholders? How about their knowledge, perspectives and interests?

**Coordination** = How to mobilise other people/stakeholders? How to effectively communicate? Which working agreements to make? Can we make use of a boundary object (and how to develop this)?
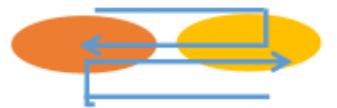
**Reflection** = What can I learn from the other? How to make sure that we understand each other? What would I do when standing in the others' shoes?

**Transformation** = How do the new perspectives change my identity and personal behaviour? How to connect our insights into something really innovative at the interface of existing practices? What is my vision or the new practice?

*Figure 2 Boundary crossing learning mechanisms (based on Akkerman and Bruining, 2016)*

## Activities facilitating online Boundary Crossing

Here a set of activities is presented that will form the Boundary Crossing trajectory within the MOOC 'Agricultural Water Management' that is currently being developed by the Water Resources Management Group at Wageningen University. Therefore, some of the activities will be tailored to the specific audience and topics of this MOOC. However, with some adaptations these activities could also be used in other courses and MOOCs, especially in courses involving a case study (in the domain of environmental sciences). Furthermore, these Covid-19 times call for further professionalization of online education, which fits well with this set of activities.

## Activity 1: Personal Identification Assignment

In this first activity we ask the learners to place themselves on a spectrum that reaches from the social to the natural sciences (technical) domain. (*In Edx this could be built as a hotspot question*). Next to the placement on the spectrum, we also ask the learners to motivate this position, by writing a few sentences on why they consider themselves part of a certain discipline. This activity will serve as a first self-identification, and creates awareness of the learners domain. After the activity learners will have the ability to read contributions of other learners, to become aware of their domains as well.

Assignment:

- Indicate on this domain spectrum, where you would considers yourself, as a result of your studies, work, project etc.
- Motivate this position in a few sentences (max 100 words), and read the contributions of two of your fellow learners.

*Figure 3 Self-Identification domain spectrum*

## Activity 2: Stakeholder Identification Assignment

In this assignment students will work on the identification of the stakeholders that play a role in the case study of the MOOC. Students will receive a list of stakeholders, and are asked to place these in a power/interest or an influence/importance matrix. Figure 4 shows a few examples of these matrixes *(in Edx this assignment could be built as a drag & drop question).* Identifying the stakeholders and placing them in the matrix will help the learners to become aware of the different stakes that are a play around the case study. It will help in identifying the different perspectives of the respective stakeholders. Here we will also show some video's and interviews with the stakeholders, that learners can analyze in order to place them in the matrix. After the placement of the stakeholders, we will ask the learners to motivate the placement as well, and read a few contributions of other learners. This will show that there is no one way of making a stakeholder analysis, and that everybody looks differently to the case and stakeholders, based on their own backgrounds, norms and values.

Assignment:

- Place the listed stakeholders in the matrix, and provide an argumentation for each of the stakeholders on the particular placement.
- Read 2 contributions of fellow learners, and reflect: Are they placing stakeholders on a different spot? What are their motivations to do so?
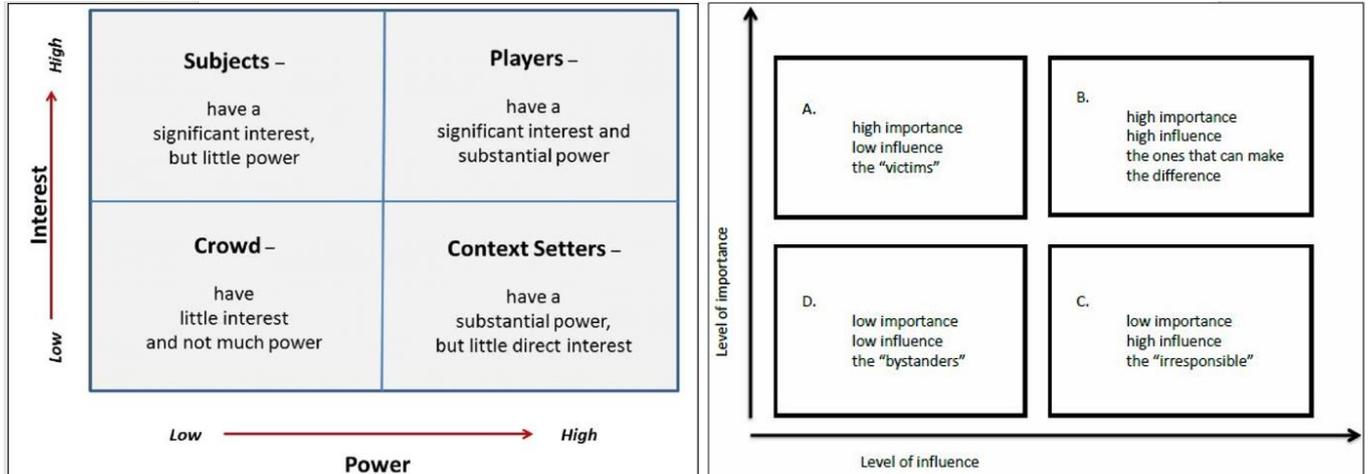


*Figure 4 Examples of Stakeholder Analysis Matrixes*

## Activity 3: Stakeholder Perspective Assignment

In this assignment, we will ask the learner to take on the perspective of one of the stakeholders, essentially becoming them for a moment. This activity is part of the reflection phase of Boundary Crossing (*in Edx this can be built as a feedback fruits peer review assignment*). We ask the students to look through the eyes of a particular stakeholder to the case study of problem at hand, and ask them to formulate a solution that would suit their particular stake. Later on, we combine the perspectives of various learners, and ask them to reflect on it. How come this stakeholder has a particular perspective? How can the problem be solved for all the stakeholders? Who wins and who loses? Does this have to do with power, social relations, etc?

Assignment:

- Take on the perspective of stakeholder X, you become them for a while. For this stakeholder, formulate a solution for the problem identified in the previous section. Try to think about why this solution would suit you the best.
- Read the solutions proposed by the other stakeholders, and try to understand their solutions for the problem. What is their motivation to put this particular solution forward? Would there be a solutions that fits all? Can you combine elements of the solutions that are put forward by the different stakeholders? Write a short reflection on this (max 300 words) and share with your peers.


## Activity 4: Personal Reflection Assignment

This assignment looks back to the identification assignment that the learners did at the start of the course. We ask the students to re-take this assignment, and see if their belief of the domains have changed. Are they for instance shifted on the spectrum? Do they see themselves differently after the course? Have they adopted certain knowledge or skills from the other disciplines as well? Learners write a short reflection on this assignment and the process they went through throughout the MOOC. This assignment helps the learners to re-evaluate their practices, and possible pre-judgements, norms and values that influence their work. They have now experienced that everybody sees problems and solutions differently, based on background, expertise etc. Hopefully they have experienced that knowledge from other domains can be very helpful as well when working on a complex, real-life, case study.

Assignment:

- Retake the assignment you took at the start of the course. Indicate on the domain spectrum, where you would considers yourself, as a result of your studies, work, project etc. Did your position change by taking this MOOC? Why (not)?
- Motivate your position, and the possible changes,  in a few sentences (max 200 words).

## Conclusion

This documents shows various ideas for Boundary Crossing in online learning. We can identify that contact between learners from different backgrounds is very important in achieving the objectives of boundary crossing. Important to note here is that not all activities need to take place within one course or MOOC. These can also be spread over several courses or an entire programme. Adopting one of these activities into a course is therefore also a possibility. Hopefully this personal activity can inspire other teachers to include boundary crossing activities in their online teaching as well!

# References

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