



# TRANSDISCIPLINARY CHALLENGE-BASED LEARNING

## Multi-Stakeholder Co-Creation Combining Engineering Technology and Social Sciences

### STUDENT REFLECTION

- “This [first] week I got an idea of what Green Hub Twente does. I feel like I'm slowly starting to get an understanding of the challenge.”
- “This [fourth] week we had the midterm presentation, it was great having feedback of our understanding of the challenge and how we are doing in the course. I look forward to continue working on the challenge [...] the project looks promising.”
- “We have started to work on our final report. I am happy that we are now combining all the information we've collected over the weeks into one product.”
- “It's very nice to collaborate with GH, because they are easy to contact.”
- “The combination of Change Making and Systems Thinking was really really good!”

### CHALLENGE PROVIDER REFLECTION

- “This [first] week has been interesting interacting with students and knowing how curious they are about the challenge they will be working on. I am glad the students are getting answers from us that helps them to understand the challenge we are presenting to them.”
- “We feel heard and understood!”
- “Combining systems thinking and change making makes a lot of sense for our practical task environment.”
- “Clear communication of process and expectations.”

### TEACHER REFLECTION

- “Alignment between the teacher team is key.”
- “In contrast to the previous sessions, all of the students were there! That was a much better experience for everyone involved and led to much more in-class interaction. In addition, the students actually sat next to each other and we decided to form a U-shape, so everybody could see one another, to facilitate the discussion.”
- “It became apparent that the challenge is a bit fuzzy. The challenge provider did not seem to fully comprehend what their challenge exactly is and that created some issues for the students, especially in their effort to define a challenge.”
- “The midterm was structured similar to a real project meeting and that format was very fitting and interesting.”

### CHALLENGE TOPIC

- Students helped Green Hub Twente (GHT) facilitate sustainability at the UT. The challenge defined by the students was to:
- ❖ understand the UT landscape in its transition towards sustainability
  - ❖ propose an organisational design and type of relationship needed for GHT to facilitate the aforementioned transformation of UT
  - ❖ understand and determine GHT's role within the transformation of the institution

### CBL PROCESS

- ★ **Good practices:**
1. Frequent contact with the challenge provider
  2. Using the challenge itself (and not random examples) to explain concepts during courses
  3. Having a project review meeting helped students to receive feedback from all stakeholders
  4. The logbook helped keep everyone interested and gave direct and frequent feedback

### **👤 Lessons Learned:**

1. A clear challenge description is crucial
2. Alignment between the two courses is vital
3. It is critical for educators to gain CBL experience
4. In person teaching and a local challenge provider create a more valuable learning experience
5. Plan carefully the collaboration with the challenge provider
6. The challenge should satisfy the ILOs both modules

### OUR TEAM



UNIVERSITY  
OF TWENTE.

**Kostas Nizamis**  
(ET faculty)



**Brendan Sullivan**  
(ET faculty)



**Desirée van Dun**  
(BMS faculty)



**Eduardo Hermsen**  
(CELT)



**Mats van Dalen**  
(Student assistant)



\* We are currently writing an international journal paper based on the data gathered.

## STUDENT REFLECTION

- “This [first] week I got an idea of what Green Hub Twente does. I feel like I'm slowly starting to get an understanding of the challenge.”
- “This [fourth] week we had the midterm presentation, it was great having feedback of our understanding of the challenge and how we are doing in the course. I look forward to continue working on the challenge and applying the ST theory (which I think we have not explored as much) but the project looks promising.”
- We have started to work on our final report. I am happy that we are now combining all the information we've collected over the weeks into one product. We also prepared a short workshop with GH regarding their business model which will take place later today. I hope to get some new insights from this.
- It's very nice to collaborate with GH, because they are easy to contact
- The combination of Change Making and Systems Thinking was really really good!

## CHALLENGE PROVIDER REFLECTION

- This week have been interesting interacting with students and knowing how curious they are about the challenge they will be working on. I am glade the students are getting answers from us that helps them to understand the challenge we are presenting to them and how they can use systems thinking approach to help us resolve it.
- We feel heard and understood!
- Through the interviews and surveys with the students, it gave me the opportunity to reflect on many challenges we were facing by answering their questions
- Combining systems thinking and change making makes a lot of sense for our practical task environment
- Clear communication of process & expectations
- No redundancies - TDMI students seem to have used what came before to start where we are :)
- 

## TEACHER REFLECTION

- balance between the challenge and the two courses is maybe a bit off. Something to work on in the future together with a more clear problem description
- “Alignment between the teacher team is key.”
- In terms of learning experience: In contrast to the previous sessions, all of the students were there! That was a much better experience for everyone involved and led to much more in-class interaction. In addition, the students actually sat next to each other and we decided to form a U-shape, so everybody could see one another, to facilitate the discussion.
- After discussing with Brendan and Alexey, it became apparent that the challenge (at least for the ST module) is a bit fuzzy. The challenge provider did not seem to fully comprehend what their challenge exactly is and that created some issues for the students, especially in their effort to define a challenge.
- The midterm was structured similar to a real project meeting and that format was very fitting and interesting

## CHALLENGE TOPIC

Students helped Green Hub Twente (GHT) facilitate sustainability at the UT.

The challenge defined by the students was to:

- ❖ understand the UT landscape in its transition towards sustainability
- ❖ propose an organisational design and type of relationship needed for GHT to facilitate the aforementioned transformation of UT
- ❖ understand and determine GHT's role within the transformation of the institution.



## CBL PROCESS

### **Good practices:**

1. Frequent contact with the challenge provider
2. Use the challenge itself (and not random examples) to explain concepts during courses
3. Having a project review meeting helped students to receive feedback from all stakeholders
4. The logbook helped keep everyone interested and gave direct and frequent feedback

### **Lessons Learned:**

1. A clear challenge description is very important
2. Alignment between the two courses and teachers is critical
3. It is important for educators to gain experience with CBL
4. In person teaching creates a more valuable learning experience
5. Plan carefully the collaboration with the challenge provider
6. The challenge should satisfy the ILOs both modules
7. It helps to work with a local challenge provider as it enables better communication in person