

TEACHER GUIDE

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Challenges ECIU

<https://challenges.eciu.org/>

CBL: process & orientations

Challenge-Based Learning (CBL) is a pedagogical approach that actively engages students in a situation that is real, relevant and related to their environment (Tecnologico de Monterrey 2015). It takes place through the identification, analysis, and design of a solution to a sociotechnical problem. The learning experience is typically multidisciplinary, involves different stakeholder perspectives, and aims to find a collaboratively developed solution, which is environmentally, socially, and economically sustainable. (Kohn Rådberg et al. 2020, p 22). <https://www2.tuhh.de/zll/cbl-start/>

Challenge-Based Learning Cycle



Follow the 3 steps for CBL being inspired for the **Design Thinking Process**

ENGAGE

1. Engage (Big idea, questions and tasks). Empathy & Definition

Learners move from an abstract big idea to a concrete and actionable challenge

- Introduce yourself, talk about CBL and organize the team creation
- Meeting with the Stakeholders ([tools for empathy](#))
- Inspirational talks (Hackathon) to promote empathy and knowledge
- From the Challenge, to propose some questions to define the subchallenge ([tools for definition: brainstorming....](#))

INVESTIGATE

2. Investigate (research, concept, testing). Creation ends in ideas: ideation and prototyping

Learners conduct research to create a foundation for actionable and sustainable solutions

- Essential questions (open-ended; provoking, raises more questions... see Teamchrs resources)
- Research teams (interviews, questionnaires, bibliography...).
- Conference with experts, micromodules
- Creating possible solutions (UAB labs, [tools...](#))

ACT

3. Act (implementing and evaluation). Delivery: prototyping and testing

Evidence-based solutions are developed and implemented with an authentic audience and the results evaluated

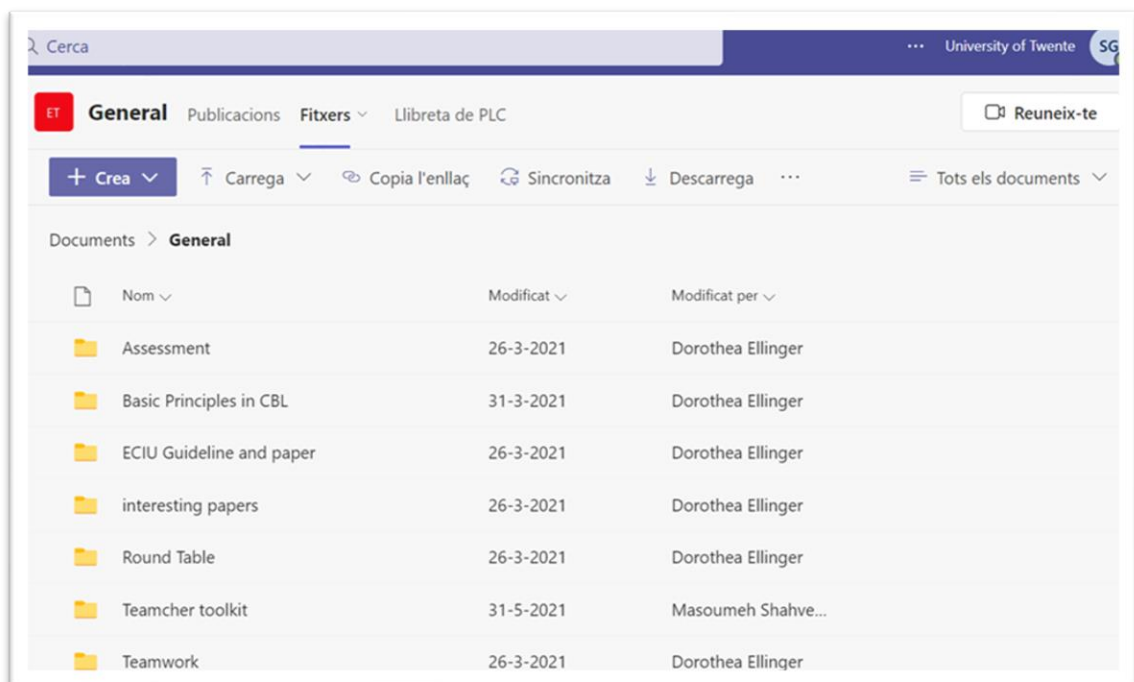
- Develop the prototype and finish the product ([tools](#): paper, infographic visualization, video, digital modelling, presentation...)
- Implement ([Tools](#))
- Assess-How? When? (teamcher channel templates)

REFLECT

Video with a short explanation <https://www.youtube.com/watch?v=CFCSvvsPWUA>

What do I need to do as a TEAMCHER?

- Go to the **ECIU TEAMCHERS Platform** (TEAMS; Collab). You will find resources and forums to share doubts, successful practices and tools such as:
 - Agreement/Contract (CBL Team Contract, ECIU Challenge Learning contract)
 - CBL basic principles
 - Assessment templates
 - Platforms being used during challenges...



- Contact a with the **TEAMCHERS** of your Challenge to coordinate and plan: aims, contents, learning outcomes, competences, resources, assessment, calendar... you can use a Gantt diagram to plan (see template in the annex).
- **Platform.** Decide how are we going to communicate with the students: by mail, moodel, TEAMS, BeChallenge platform... <https://bechallenge.io/> and register through the Microsoft option with the UAB credentials.
- **Plan** for a minimum of 4 **meetings** with the Challenge Team:
 - Contact with the **stakeholders before starting**
 - **Contact with the students** before the first meeting and ask them their motivations to enrol to the challenge and their expectations. Share the calendar, tasks and evaluation plan.

A) Meeting with Stakeholders and students,

- Have a joint session with all the students and the stakeholder to give the details of the challenge so that the students can start the engagement phase, learn more about the challenge of the voice of the Stakeholder, create empathy and start to concretize the question.
- Organize the groups (heterogeneous) and make a work plan for each team (see some guidelines at the end of the document). Roles that can be rotated can be provided to facilitate teamwork (Planner, coordinator, timekeeper, harmonizer, facilitator, material manager ... see examples in this document).

B) Meeting with students,

- Orient the student in relation to:
 - ✓ Facilitate materials and information on topics related to the challenges.
 - ✓ Bring expert people on specific topics (they can give talks, for example).
 - ✓ Talk about who to approach and communicate to the Stockholders.
 - ✓ Inform about micromodules that can be useful at UAB and ECIU level.
<https://challenges.eciu.org/micro-modules/>
 - ✓ Redirect the people in charge to resolve doubts in relation to administrative issues, etc.
 - ✓ If you have international students, if possible, encourage mobility. If not, help them to connect with the context using the UAB students to create live videos in context, interviews with stakeholders, etc.

C) Follow up

- Schedule and decide when presentations will be made to the rest of the teams and the stakeholder (prior to implementation) and when the final presentations will be made.

D) Presentation of the solutions.

- It can be done in the stakeholder's context, you need to agree where and when. You can do an open event to the community, remember to make the call .
- Supervise the presentation and give some tips about how to communicate and present.
- Document the event.
- Asses the event and the solutions with all the agents.
- Complete the assessment questionnaire and encourage participants to complete it as well.

TEAMS Creation

Cooperative Learning definition:

Cooperative learning (CL) takes place when members of a small group work together to maximize not only their individual learning, but also the learning of the other members of the group (Johnson & Johnson, 2009, cited by Duran, Flores i Miquel, 2019, p.25)

Research evidence related to:

- Maximum number of people in each team: ideal 4, max 6. (depending on the challenges and the tasks and roles to be performed).
- Heterogeneity
 - ✓ Studies
 - ✓ the country, culture ...
 - ✓ Personal characteristics
 - ✓ Motivations
 - ✓ Preferences
 - ✓ Gender






For instance:

Criteria	Inticators	Description	Points
Diversity 50%	Gender		
	Studies area	Engineering, Education...	
	Level Studies	Degree/Master/...	
	UAB students		
	Erasmus Students		
Skills 50%	Languages		
	Attitude	Motivation, flexibility, commitment...	
	Previous Experience		
	Knowledge with tools		

We recommend developing an initial activity to be able to see how they cooperate:

Ex. <https://museumhack.com/virtual-team-building-for-remote-teams/>










TEAM work conditions: 5 basic elements must be carefully structured (Johnson, Johnson, & Holubec, 2013; Johnson and Johnson, 2017).

<p>Positive Interdependence</p> 	<p>The first element of a cooperative lesson is positive interdependence. Students must believe that they are linked with others in a way that one cannot succeed unless the other members of the team succeed (and vice versa), that is, they “sink or swim together.” In a math class, for example, a teacher assigns her students a set of math problems to solve. Students are placed in teams of three. The instructional 4 task is for students to solve each story problem correctly and understand the correct strategy for doing so. The teacher creates positive goal interdependence by requiring team members to agree on the answer and the strategies for solving each problem. Positive role interdependence is structured by assigning each student a role. The reader reads the problems aloud to the team. The checker makes sure that all members can explain how to solve each problem correctly. The encourager in a friendly way encourages all members of the team to participate in the discussion, sharing their ideas and feelings. Resource interdependence is created by giving each team one copy of the problems to be solved. All students work the problems on scratch paper and share their insights with each other. Positive reward interdependence is structured by giving each team five points if all members score above 90 percent correct on the test given at the end of the unit. The most important type of positive interdependence is goal interdependence. All cooperative learning starts with a mutually shared team goal.</p>
<p>Face to Face</p> 	<p>The second element of a cooperative lesson is face-to-face, promotive interaction where students help, assist, encourage, and support each other's efforts to learn. Students promote each other's learning by orally explaining to each other how to solve problems, discussing with each other the nature of the concepts and strategies being learned, teaching their knowledge to each other, and explaining to each other the connections between present and past learning. In the math lesson, the teacher must provide the time, knee-to-knee seating arrangements, and encouragement for students to exchange ideas and help each other learn.</p>
<p>Individual Accountability</p> 	<p>The third element is individual accountability, where the performance of each individual student is assessed, and the results given back to the team and the individual. It is important that team members know (a) who needs more assistance in completing the assignment and (b) they cannot “hitch-hike” on the work of others. Common ways of structuring individual accountability include giving an individual test to each student and randomly selecting one student's work to represent the efforts of the entire team.</p>
<p>Social skills</p> 	<p>The fourth element of a cooperative lesson is social skills. Teams cannot function effectively if students do not have and use the needed leadership, decision-making, trust-building, communication, and conflict-management skills. These skills have to be taught just as purposefully and precisely as academic skills. Many students have never worked cooperatively in learning situations and, therefore, lack the needed social skills. In the math lesson the teacher emphasizes the skill of “checking to make sure everyone understands.” The teacher defines the skill as the phrases and the accompanying nonverbal behaviours to be used by the checker. The team roles are rotated each day. When the teacher sees students engaging in the skill, she verbally praises the team and/or records the instance on an observation sheet. Procedures and strategies for teaching students' social skills may be found in Johnson (1999), Johnson and F. Johnson (2017), and Johnson, Johnson, and Holubec (2013).</p>
<p>Grup processing</p> 	<p>Finally, the fifth element of a cooperative lesson is team processing. At the end of the math period the teams process their functioning by answering two questions: (1) What is something each member did that was helpful for the team and (2) What is something each member could do to make the team even better tomorrow? Such processing enables learning teams to focus on team maintenance, facilitates the learning of social skills, ensures that members receive feedback on their participation, and reminds students to practice the small team skills required to work cooperatively. Some of the keys to successful processing are allowing sufficient time for it to take place, making it specific rather than vague, varying the format, maintaining student involvement in processing, reminding students</p>

to use their social skills while they process, and ensuring that clear expectations of the purpose of processing have been communicated. Often, each team is required to turn in a summary of their processing that is signed by all team members.

Roles:

It is important that there are roles within the team to ensure that everyone has a responsibility within. This can occur in several ways, associated with processes and also management. For example, there may be a leader who contacts TEAMCHER and Stakeholder; <https://developerexperience.io/practices/team-roles-definition>

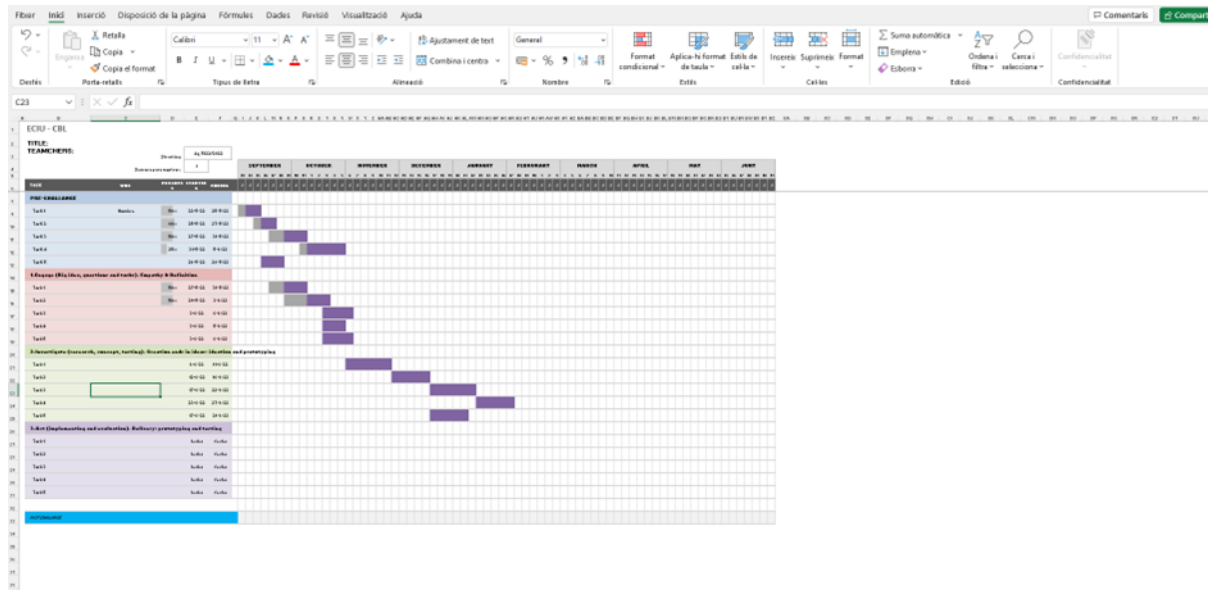
Team Role	Contribution	Allowable Weaknesses
Plant 	Creative, imaginative, free-thinking. Generates ideas and solves difficult problems.	Ignores incidentals. Too preoccupied to communicate effectively.
Resource Investigator 	Outgoing, enthusiastic, communicative. Explores opportunities and develops contacts.	Over-optimistic. Loses interest once initial enthusiasm has passed.
Co-ordinator 	Mature, confident, identifies talent. Clarifies goals. Delegates effectively.	Can be seen as manipulative. Offloads own share of the work.
Shaper 	Challenging, dynamic, thrives on pressure. Has the drive and courage to overcome obstacles.	Prone to provocation. Offends people's feelings.
Monitor Evaluator 	Sober, strategic and discerning. Sees all options and judges accurately.	Lacks drive and ability to inspire others. Can be overly critical.
Teamworker 	Co-operative, perceptive and diplomatic. Listens and averts friction.	Indecisive in crunch situations. Avoids confrontation.
Implementer 	Practical, reliable, efficient. Turns ideas into actions and organises work that needs to be done.	Somewhat inflexible. Slow to respond to new possibilities.
Completer Finisher 	Painstaking, conscientious, anxious. Searches out errors. Polishes and perfects.	Inclined to worry unduly. Reluctant to delegate.
Specialist 	Single-minded, self-starting, dedicated. Provides knowledge and skills in rare supply.	Contributes only on a narrow front. Dwells on technicalities.

Tool BOX – David Hernández

Micromodule course

Gantt Diagram

[CBL Planning.xlsx](#)



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