

# Students as designers; strategies and instruments to support student-centred learning

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## Two projects

### Design2Learn

Studying the development of more authentic, contextualized and learner-focused learning scenarios through a co-design process involving students and teachers in the negotiation of the design principles of such scenarios based on an inquiry learning model and technology enhanced.

3-year research project

### Co-Iudifica

Developing instruments (design patterns) that make it easier for teachers to design "gamified" learning activities in a coherent and effective way. Design patterns are developed through a co-design process involving students with the purpose of capturing their learning experience in the patterns.

1-year innovation project

## Defining Learning Design

“An **application of a pedagogical model** for a specific learning objective, target group, and a specific context or knowledge domain. The learning design **specifies the teaching and learning process**, along with the **conditions** under which it occurs and the activities performed by the teachers and learners in order to achieve the required learning objectives” (Conole & Fill, 2005).

“... **design is by nature iterative and collaborative**. It requires discussion, reflection, critique and implementation, so it works better in teams in which there is a complementarity of skills and knowledge. Being a cognitively demanding task, it **requires tools and representations** that allow for abstraction to be managed and understood”.  
Goodyear & Retalis (2010)

## Defining Co-design

“a highly-facilitated, **team-based process** in which *teachers, researchers and developers* work together in **defined roles to design an educational innovation**, realize the design in one or more prototypes, and evaluate each prototype's significance **for addressing a concrete educational need**”.

Roschelle, Penuel & Shechman (2006)

# Student participation in curriculum design

Student-centred learning → Student-centred curriculum

## Purpose of participation

Designing learning scenarios / Supporting the elaboration of design instruments

## Student role

Designer, agent in the decision-making process

## Participation form:

- Collective / Individual → small groups of voluntary students
- Strategies / Instruments → participatory workshops, LD supporting representations/instruments
- Period, length → specific periods, short

## Design2Learn:

1. Co-design processes involving students and teachers can facilitate the adoption of an inquiry-based learning model mediated by a more mature and autonomous use of technology by students.

2. Students' participation in the co-design process can integrate their perspective and promote deeper learning.

3. The use of tools for representing teaching and learning practice can facilitate the co-design process.

## Design principles



Inquiry-based learning &  
Technology-enhanced and  
networked learning



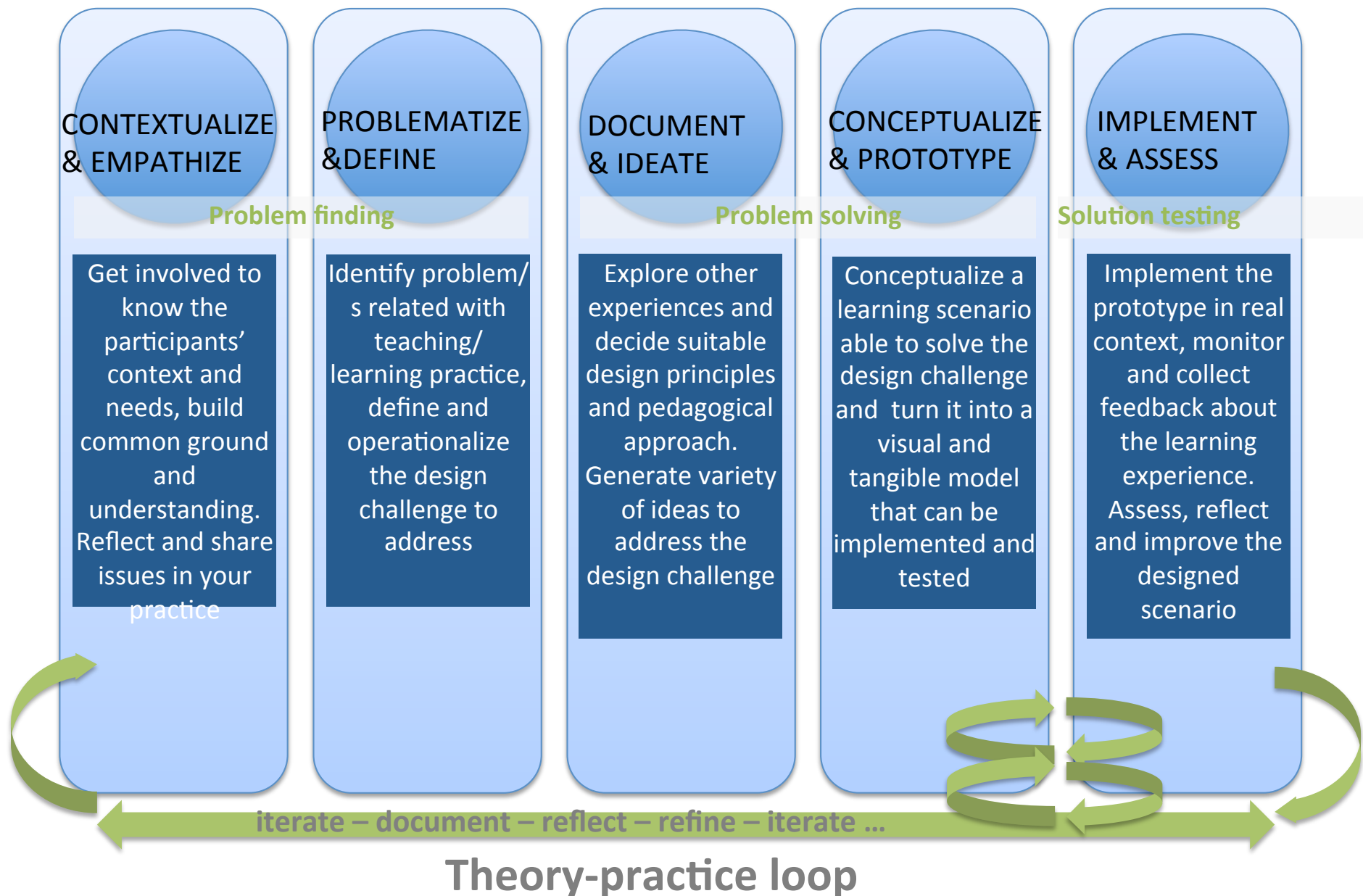
Co-design instruments and  
strategies with special  
attention to student  
perspective:

- Representation instruments to support LD
- Participatory design strategies

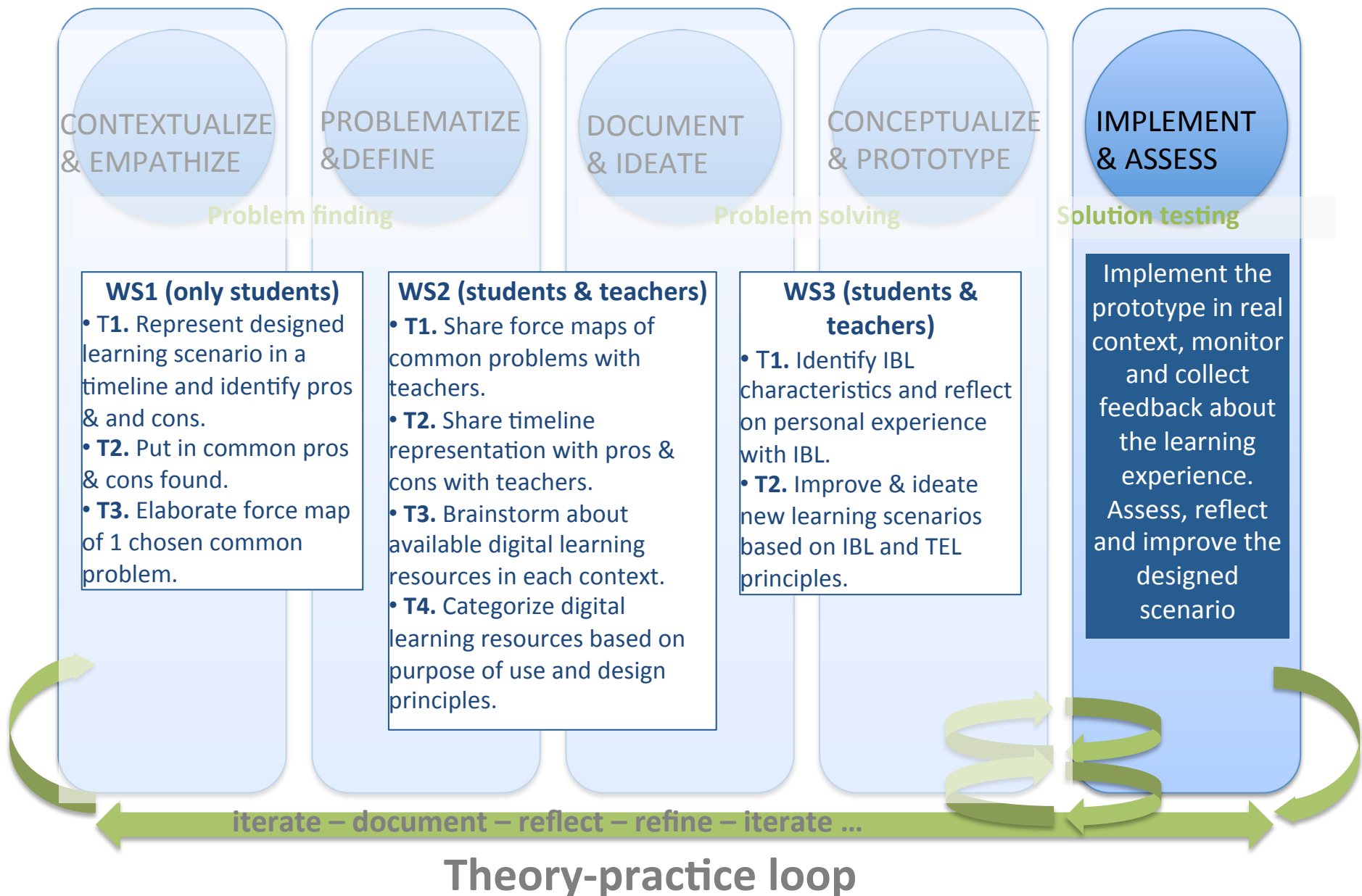
## Context of practice: UB / UOC

- 4 courses
- Two different university models: blended and virtual
- About 4 UB / 2 UOC teachers
- 11 students: 2, 6, 2, 1
- Different disciplines: economics, biomedical engineering, tourism, communication









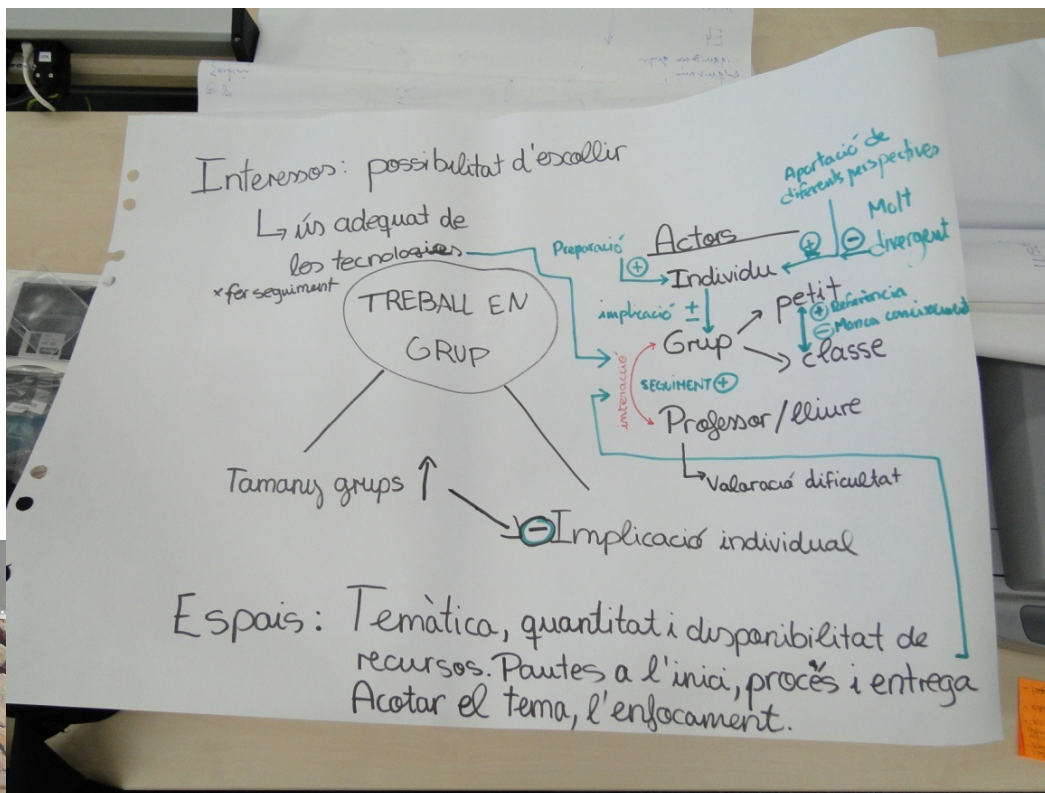
## WS1 (only students)

- T1. Represent designed learning scenario in a timeline and identify pros & cons.
- T2. Share pros & cons found.
- T3. Elaborate force map of 1 chosen common problem.



Participatory pattern workshops,  
(Mor, Warburton, Winters, 2010)





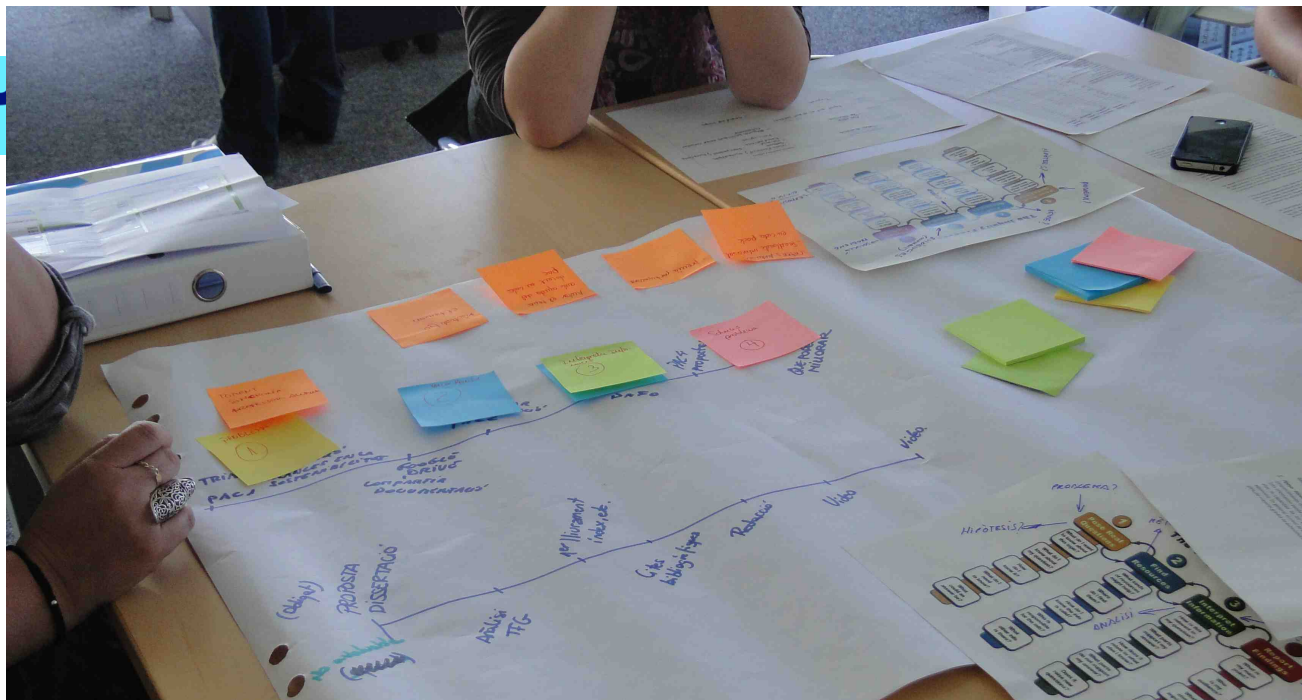
## WS2 (students & teachers)

- **T1.** Share force maps of common problems with teachers.
- **T2.** Share timeline representation with pros & cons with teachers.
- **T3.** Brainstorm available digital learning resources in each context.
- **T4.** Categorize digital learning resources based on purpose of use and design principles.

EoR DF  
Luckin, 2010

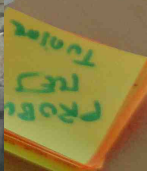
RECURSO	A/B/C	Consultar leer info	Organizar, gestionar y planificar	Elaborar, crear y reflexionar	Compartir, discutir, colaborar	PRINCIPIOS uso TIC (a, b, c, d, e, f)
Campus virtual	A	X	X	X	X	a b c d e f
Power Points campus	A	X				d
Articles campus	A	X				d
Forum debat campus	A				X	a b c d e
Papers	A/B	X				d e
Google Drive	A/B	X	X	X	X	a b c d e f
Dropbox	A/B	X	X		X	a b c d e f
Wikispaces	A	X		X	X	a b c d e f
Blogs	A/B/C	X	X	X	X	a b c d e f
Langblog	A	X	X	X	X	a b c d e f
Tutorials (programes informàtics...)	A/B	X				a c d e
Bases de dades especialitzades (PubMed, Scopus)	A	X	X			a e
Llibres de referència	A	X				
Llibres digitals	A/B	X				d
Videos d'altres universitats (Classes magistrals)	A	X				d e
Bases de dades (Refworks, Mendeley...)	A	X	X		X	a c d e f
Google academic	A/B/C	X	X	X	X	a e
Mòduls (UOC)	A	X				d
Lçons campus virtual	A	X				a b c d e f
Xarxes socials: Facebook	B		X		X	c e
Twitter	B				X	a b c d e f
Whatsapp	B		X		X	a b c d e f





### WS3 (students & teachers)

- **T1.** Identify IBL characteristics and reflect on personal experience with IBL.
- **T2.** Improve & ideate new learning scenarios based on IBL and TEL principles.



	EXPERIENCIAS SIMILARES	PUNTOS FUERTES / DÉBILES
PRINCIPIOS IBL	Proceso de indagación Casos clínicos Trabaja de recolección indivi / grupo	PUNTOS DÉBILES: acotación abast (o a veces desordenada)
	Partir de un problema / preguntas Escoger los temas del trabajo (o de una lista o propuestos) Problema u/situación (casos clínicos) → preguntas	
	Inspirado en el método científico Els d'abans	Falta de información (continua) Guía / supervisión Limitada
	Controlado y dirigido por el estudiante	Seguimiento → si / si no acotem si es que entonces → no tanta seient Feedback a veces falta

## Co-ludifica:

1. Co-design processes involving students and teachers can facilitate the adoption of a gamified-based learning model.

2. Students' participation in co-designing design patterns will allow their perspective to be integrated into identifying problems as well as in the proposed solution.

3. The use of tools for representing teaching and learning practice can facilitate the design process.

## Design principles



Gamification design frameworks to support learning activities in online learning



Co-design instruments and strategies with special attention to student perspective:

- Design patterns
- Participatory design strategies

## Defining Gamification

By **gamified learning activities** we mean those that have been conceived based on the **principles of game design** or emulate the **experience of participating in a game** without being strictly a game.

Thus, the purpose of gamification in a strict sense is **motivation**, and not so much fun or learning. It can be understood as an indirect way of improving learning, as it is possible to increase students' participation and involvement.

# Defining Design Patterns

Design patterns are elaborated on the basis of **shared practical experience** in which a particular action can solve a particular and recurrent problem in a given situation or context.

They start from a basic structure that consists of: a) from a given specific situation or **context**; b) raise a **recurring problem** in the practice of teaching / learning; c) to propose a **solution** that responds to this problem. In this case, the solution to be considered would **incorporate gamification elements**.



## Context of practice (UOC)

### 1. Patterns elaboration

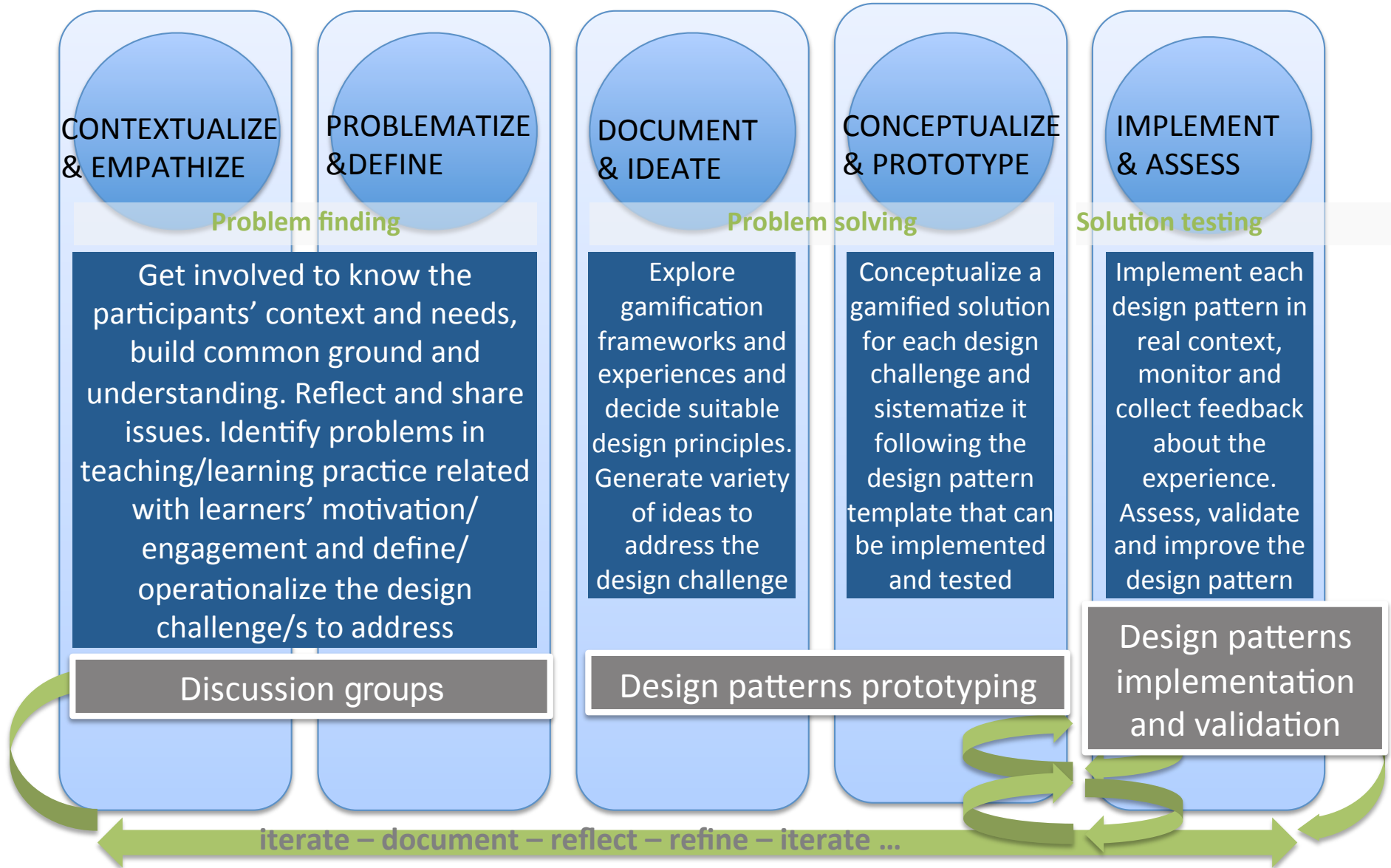
- 2 Discussion groups with students and 2 with teachers (1 virtual/1 face2face).
- Different disciplines
- 14 students / 16 teachers

### 2. Patterns implementation/validation

- 7 design patterns - applied and assessed in 7 courses in different Degree/Master Programmes (by teachers and students).
- Validation process through an evaluation template (in process).







## Group discussions with students (script)

1. Presentations and purpose.
2. Warming up questions: why study in a virtual university, particularities of studying at UOC, expectations, etc.
3. Specific **stories/scenarios related to recurring difficulties / problems** in their global learning experience at UOC.

**Narrative structure:** For each point, try to focus on the difficulties, the specific situation, the conditions that had an influence, the strategies put in place to solve them (by students themselves, the teacher, peers ...) and the final result.

Try to collect **stories related with** the use of learning resources and digital tools, teaching methodologies, learning activities, assessment and feedback, teacher support, attrition, motivation, gamification.

## Identified problems in learning practice

1. Management / dynamization of group work
2. Manage / stimulate discussions in virtual forums/debates
3. Management / dynamization of work with wikis
4. Mechanisms to favour peer support and avoid feeling lonely
5. Feedback efficiency
6. Strategies to favour / promote / facilitate self-management / planning of the dedication to study.

# Gamified Design Patterns

1. Feed Me! Peer review and feedback
2. Team building. Configuration of work teams
3. Score. Evaluation of teamwork
4. D-BATS. Improving virtual discussions
5. AgileWiki / WikiQuest. Organizing work in wikis
6. FeedQuest-FeedBack. Learning about and from feedback
7. Habit is the goal. Training study self-management

# Some final reflections

## *About the co-design strategies and instruments*

- Co-design tasks and instruments were useful to support dialogue and reflection on learning practice/approach.
- Difficulties in separating the analysis of the learning scenario and the general practice at the university.
- Genuine dialogue requires time and a global view. Their contribution was limited to specific areas or aspects.
- Only a small group of students who didn't represent the variety of student's points of view.

## Some final reflections

### *About the value of students' participation*

- Students value and want to be involved in the design of their courses, but this requires training.
- Promotion of mutual understanding between teachers and students.
- Reluctance towards teachers' innovative practice.
- Not very knowledgeable of the use of technologies for learning and not very interested either in proposing the use of new tools for learning purposes.

## Still many open questions ...

- Who is in control of the design process? What should be the role of each participant in co-design? How to manage simultaneous participation of different agents (teachers & students).
- How to train students & teachers in curriculum-design.
- How to find the balance between providing tools/foundations to support the design process and letting it emerge from its own context/participants.
- How to sustain and keep track of the process across time the multiple iterations required (design-analysis-reflection-design).




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