# RAISING AWARENESS OF SOCIETAL CHALLENGES VIA GAMIFICATION

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## INTRODUCTION

The use of gamification (as defined in [1]) has been increasingly investigated to raise citizen awareness regarding serious societal issues such as climate change [4], improving learning [2], increasing public engagement towards science [3], and other complicated topics, including AI. Gamification has also received criticism for being top-down or not properly designed (e.g., plain use of points-badges-leaderboards [5]).

We conducted a workshop with N=12 (2 female; 10 male) participants to explore gamification's power to raise awareness about societal challenges. We frame the societal challenges in the context of the 17 sustainable development goals (SDGs) (UN, 2015)[1] focusing on SDG #4: Quality Education about the SDGs.

### AIM

Use participatory design activities to ideate solutions for challenges that are difficult for people to engage with, such as the understanding of data, science, and education.
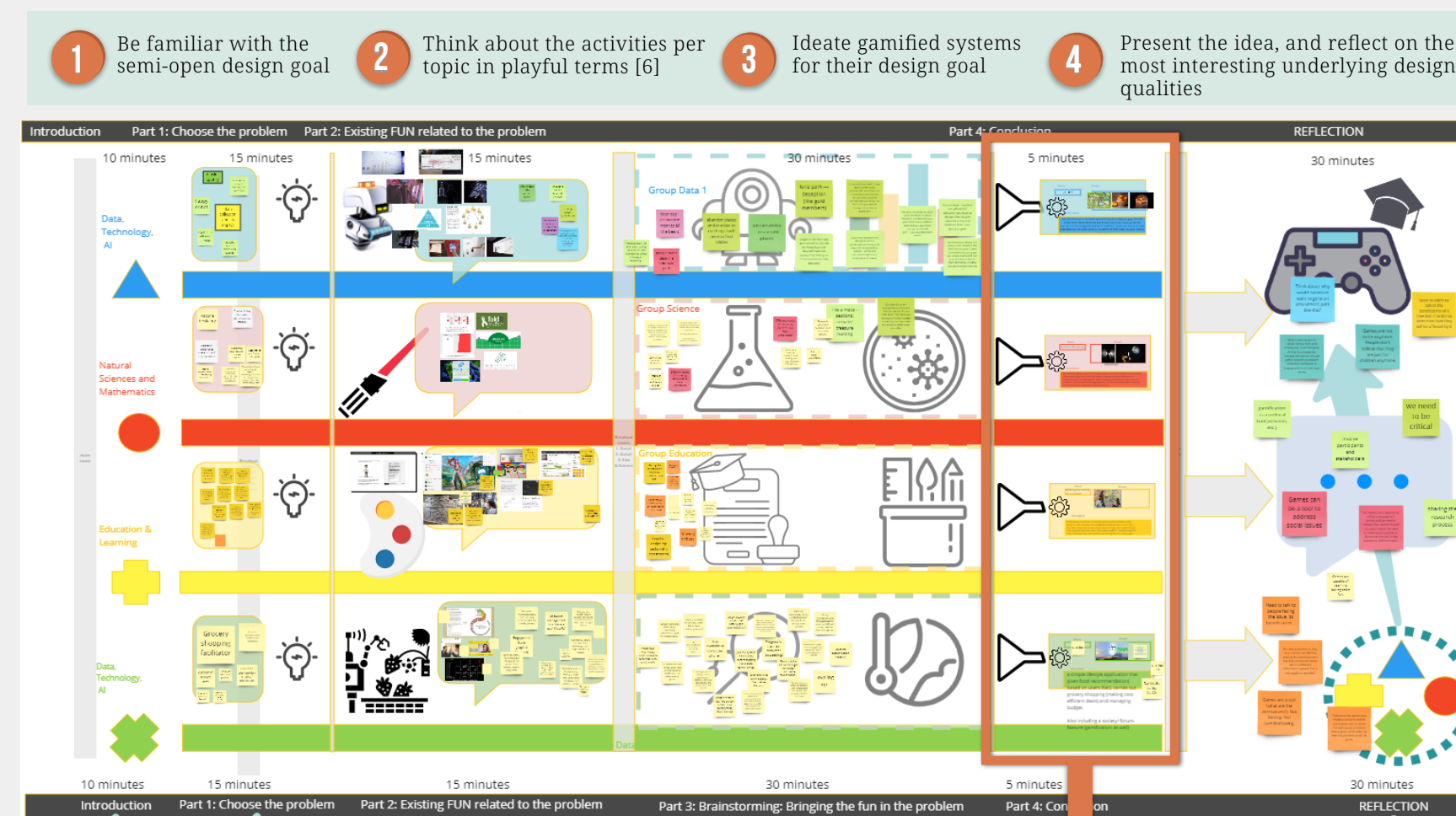
## METHODS

### PARTICIPANTS

Age (18-42, Mdn≈32.5, SD≈7); European residents from 4 countries; diverse backgrounds: economics, natural sciences, arts, engineering, informatics, and education.
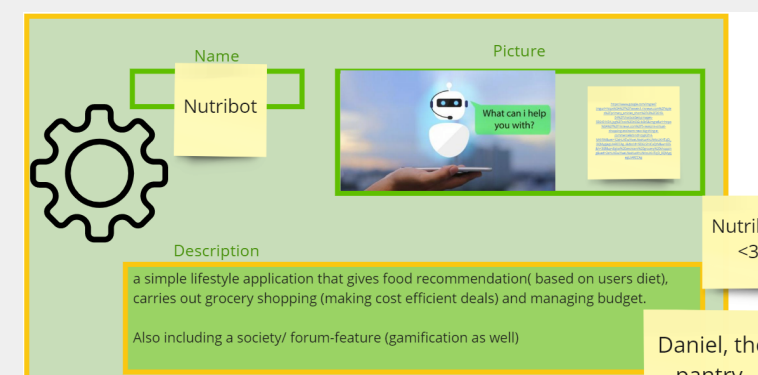
### PROCEDURE

2-hour co-design online workshop (using Miro (see Miro board) and Zoom). 4 groups, every group had a researcher as a facilitator, a dedicated breakout room to work independently, and a design goal: To raise awareness via a gameful initiative about:
(i) public understanding of data/AI (2 groups); (ii) public understanding of science; (iii) re-shaping education.
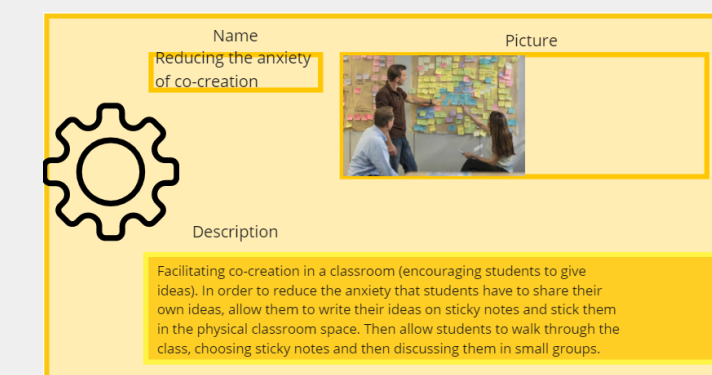
## STEPS OF THE WORKSHOP



1. Be familiar with the semi-open design goal
2. Think about the activities per topic in playful terms [6]
3. Ideate gamified systems for their design goal
4. Present the idea, and reflect on the most interesting underlying design qualities

## RESULTS

### Public understanding of data/AI



A theme park that shows its visitors how much data people produce and consume daily and the value of the data. Gamification is integrated through immersion, analogies, a wearable bracelet, and a feeling of deception.
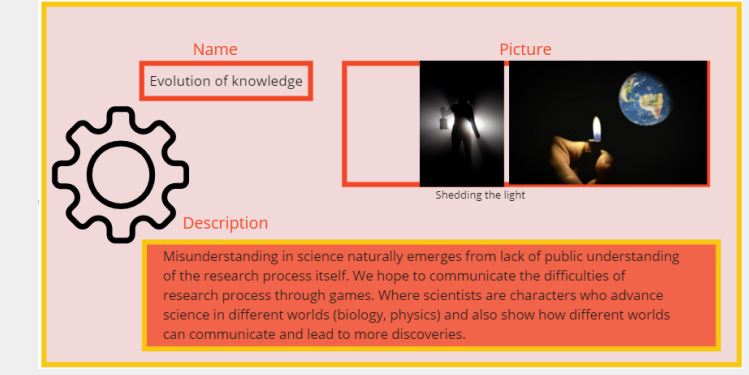
A lifestyle application that improves nutrition and grocery shopping based on sustainable options. Gamification is integrated through playful interaction with the AI and other users, character customization, levelling up, and rewards connected to significant achievements.

### Reshaping education



An activity that allows students to share their ideas for course content through sticky notes pasted on the walls. It aims to reduce students' anxiety when making new suggestions, and increase their sense of connectedness and autonomy.

### Public understanding of science



A video game that explains research processes, including data sharing, experiment design, and explaining results to keep funding. Players assume the role of scientists, explore different worlds, and collaborate with other expert-players to solve puzzles.

## CONCLUSIONS

Physical involvement beyond digital worlds.
Design beyond gamification elements.
Autonomy beyond consumption of linear content.

The designed gameful experiences involve physical and uncommon gamification elements along with an emphasis on user autonomy. This suggests new design approaches to gamification for raising awareness about societal challenges.

### ACKNOWLEDGEMENTS

### REFERENCES

[1] https://sdgs.un.org/goals