

# Case Study — Geography and History of the Social Education

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## Introduction

We discuss here the experience of carrying out an innovative teaching project among second-year students from a Social Education degree and from an Industrial Engineering (mechanical and electronics speciality) degree at the University of Lleida. The purpose of the students' projects was to respond to social problems from a social and technical perspective through inter-transdisciplinary and creative-artistic thinking. Over the last two academic years, more than 300 students have proposed sustainable, inclusive, critical and innovative solutions to real everyday problems in the city of Lleida. Simultaneously, as educators teaching on this project, we have transformed the classroom into a transformative, flexible and dynamic learning space.

On both courses, teaching began in a specific, patrimonial context: the square with an old water reservoir in the city of Lleida (Figure 1). As shown in the illustrations, this space contained the city's water reservoir, which provided sustainable water to the whole city

from its construction in the late eighteenth century to the 1980s. This heritage space is currently located in the historic centre of the city, a marginal space but earmarked to be transformed through gentrification and urban regeneration.

During the first year, the university schedule had no joint programme between both disciplines. So, the teachers created different sessions to transfer the data and knowledge between degrees. In this case, students carried out projects to raise awareness about the use of water by the population of Lleida. During the course of the project, Agnes Pe, an artist who works with sound and everyday life, collaborated with us. All these inputs allowed the engineers to design different sensor prototypes (Figure 2), while the social education students analysed the social impact on water consumption and current social and environmental policies in the city. Furthermore, the projects contributed new data and new possibilities to the reservoir facilities and influenced the museum institution itself, improving the guided tour of the reservoir. Below are some of the proposals:

Figure 1. Water reservoir (Lleida, Spain).

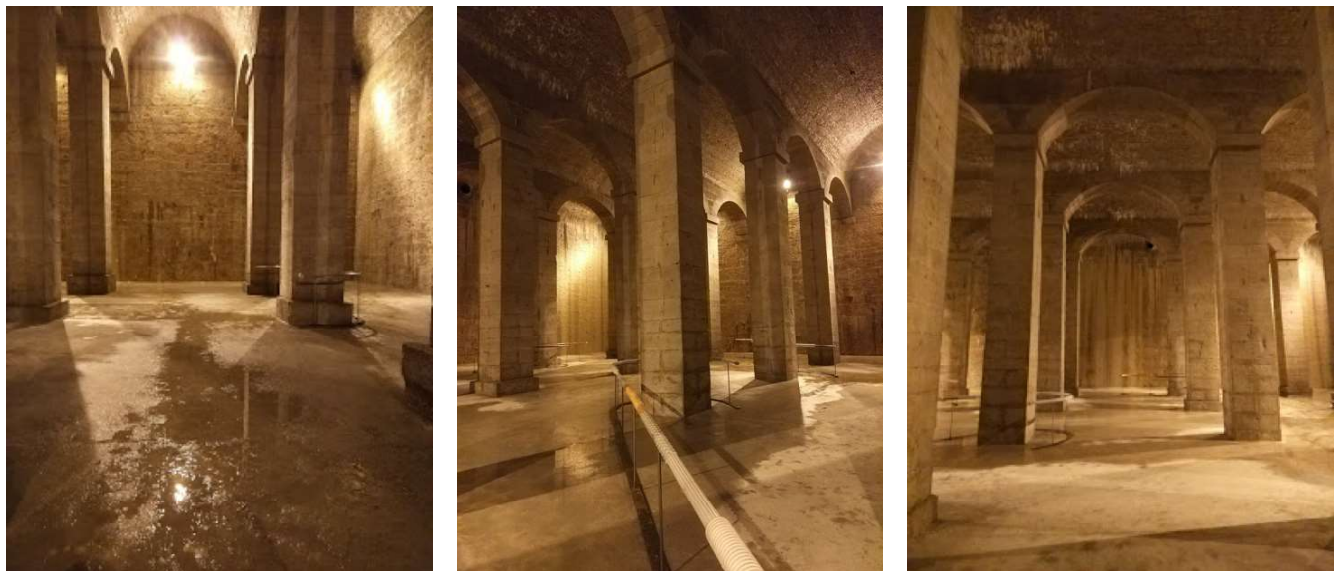
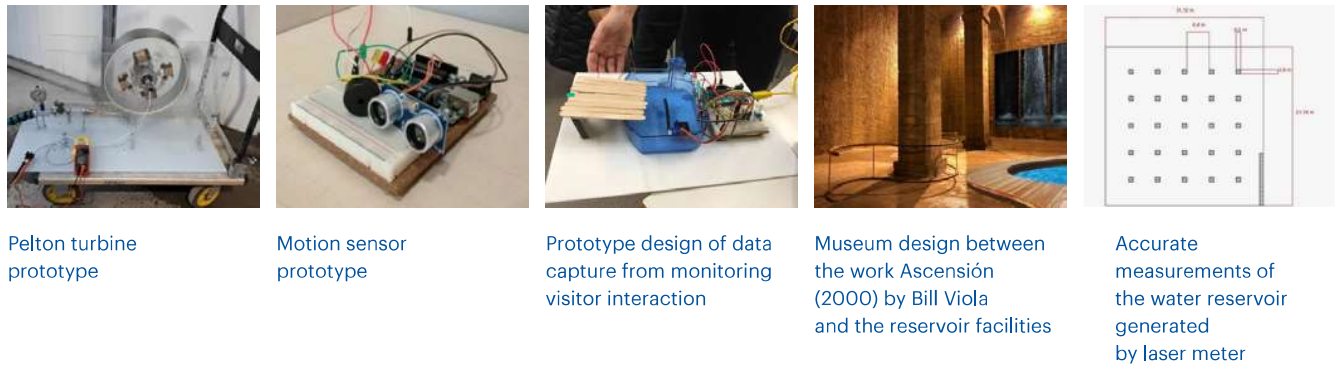


Figure 2. Examples of proposals made by students in the 2017-2018 academic year. Source: The authors



Pelton turbine prototype

Motion sensor prototype

Prototype design of data capture from monitoring visitor interaction

Museum design between the work Ascensión (2000) by Bill Viola and the reservoir facilities

Accurate measurements of the water reservoir generated by laser meter

## 2. The process of “becoming” within the university education

At the start of the project, we thought about the kind of divergent processes that could emerge from the sensory ethnography, and how the Sustainable Development Goals could help to expand the students' projects. The following illustration shows the names of projects that met the selected objectives.

As shown in Figure 3, 12 of the 17 Sustainable Development Goals (SDGs) have been covered by the hybridization of the social and technological projects by students on both degrees. A relational table between the projects, the category, the proposal and the connection with the SDGs is shown below:

### SDGs



Table 1. Relationship between the projects with the proposal and the Sustainable Development Goals

Project	Category	Proposal	SDG
1, 3, 19, 24	Leisure spaces	Create leisure spaces in the historic centre to enhance the social relationships of people who inhabit it.	1, 3, 4, 5, 7, 8, 9, 10, 11
7, 8, 13, 26	Home automation	Implementation of sensors in different urban facilities to improve the lifestyles of the people who live in those spaces.	1, 2, 3, 4, 7, 10, 11, 13
11, 12	Parking	Manage and enable parking spaces in the historic centre of the city.	3, 11
4, 17, 23	Urban lighting	Install lighting with presence sensors in the poorly lit streets and urban spaces in the city.	3, 7, 9, 10, 11
2, 6, 14, 25	Sustainable energies	Improve the energy efficiency of homes and other public or private spaces in the historic centre of the city.	1, 3, 7
5, 6, 9, 15, 16	Attention to diversity	Create technological facilities in public spaces that allow the inclusiveness of all people.	11, 12
18, 21, 22	Software Applications	Creation of applications to manage and improve social communication in public and private spaces.	1, 4, 9, 10
10, 20, 27	Recycling	Creation of recycling mechanisms in public spaces with a low environmental impact and low financial cost.	7, 8, 11, 12, 13

Source: The authors

Figure 3. Students from both degrees working together on their projects. Source: Montage from the authors' own photo



As shown in table 1, the 27 projects have covered a wide range of social problems identified through their urban ethnography. Throughout this process, teachers generated different scaffoldings to strengthen the projects. Likewise, this process involved the participation of the artist and activist Daniel García Andújar, whose work revolves around the issues of democracy and inequality in the information society. For two weeks, he worked with each group in order to investigate the (in)visible power relations in the city. Through interventions in public space, an exploration of power relations and critical use of digital media, Andújar's work brought out these issues in the students' projects. This is reflected some of the students' opinions.

*"Daniel G. Andújar has allowed us to go further and see the cultural realities of the historic centre of the city of Lleida."*

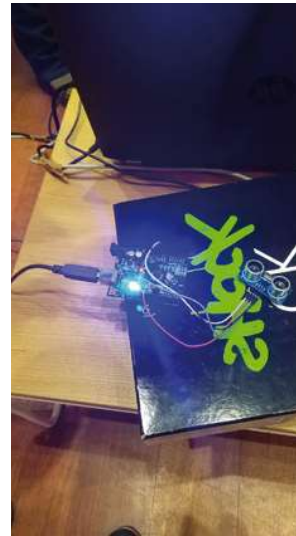
*"Andújar's contribution made it possible for us to reflect on how there are many discourses that are invisible in society, as well as the social exclusion that it supposes for certain groups."*

These comments show how Andújar's creative processes got the projects more involved with people in the neighbourhood, highlighting the prejudices and stigmas of students themselves. This experience was also enriching for the teachers, for Andujar's creative process provided us with multiple teaching resources. His participation focused on the creative processes that he uses in his own artistic work. A group of students said:

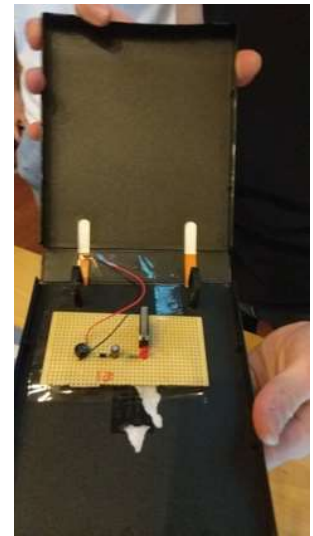
*"Knowing about this artist's creative process generated new insights (to our way of thinking) to our research. His contributions from contemporary art played a key role in carrying out this research in a more in-depth manner."*

This discussion has presented the outcomes of collaborative work between social education and industrial engineering students, which covered many of the goals set by the 2030 Agenda (Table 1 and Figure 3). This is due to the methodology used in the project, involving an inter-transdisciplinary approach to knowledge and providing a more holistic view of real problems in the everyday life of the city. Some of the prototypes that emerged are shown below:

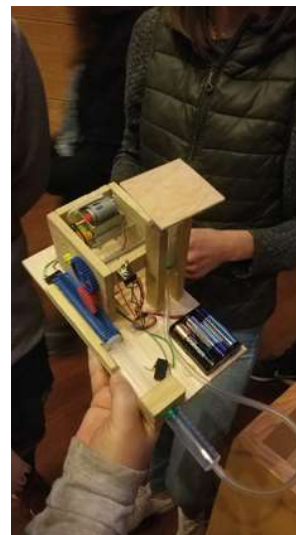
Figure 4. Some of the proposals made by the students from the 2018-2019 academic year



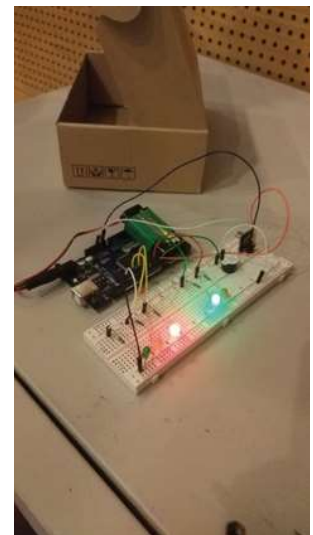
Parking proximity sensor



Piezoelectric sensors to store energy



Hydraulic lift model



Arduino to control traffic lights

Source: The authors

### 3. Conclusions

Our discussion has emphasized how these projects emerged from groups formed by social education and industrial engineering students, with the teachers mediating through different conceptual and practical scaffolding. Additionally, the participation of the artists Pe and Andújar allowed the students to focus their attention on artistic and social discourses. This experience shows how a methodological approach based on the concept of assemblage, the use of contemporary art, the social and historical space and the territory can lead to the design of new curricula in an interrogative, critical and cooperative manner to thereby achieve transversal humanism.

\*This research is part of Daniel Gutiérrez-Ujaque's doctoral thesis that will be submitted in November 2019.