DESIGN AND MANUFACTURING WORKSHOP USING THE DESIGN THINKING METHODOLOGY

M. Garcia-Broch[1], J. Gual Ortí[2]

[1]EASD Valencia Escola d´Art i Superior de Disseny (SPAIN)
[2]Universitat Jaume I (SPAIN)

Abstract

The purpose of this paper is to describe and discuss the experience under the methodology of Design Thinking, using a workshop format. This workshop, which took place on October 18th and 19th, 2018, in the BUC (*Biblioteca Urbana del Coneixement*) building in Vila-real, was attended by about a hundred students who had been displaced from the EASD in Valencia.

The objective was to create an artistic work for the municipality of Vila-real with the students collaboration.

Design Thinking methodology was implemented to carry out the artistic work. The ultimate goal was not only to get an idea, it was important to build it. The students were able to follow the manufacturing process in collaboration with the Krion™ company that offered their Solid Surface product, which possibilities in design terms this company is currently exploring. This was done in the following months, as the manufacture required its time.

Keywords: Parametrism, solid surface, Design Thinking, collaboration, Bauhaus.

1 INTRODUCTION

This activity was carried out through the collaboration agreement signed between two entities: EASD Valencia, and Vila-real City Council. Vila-real is part of the International Association of Educating Cities, and therefore this kind of activity fits very well in its objectives, as a member of this international organisation.

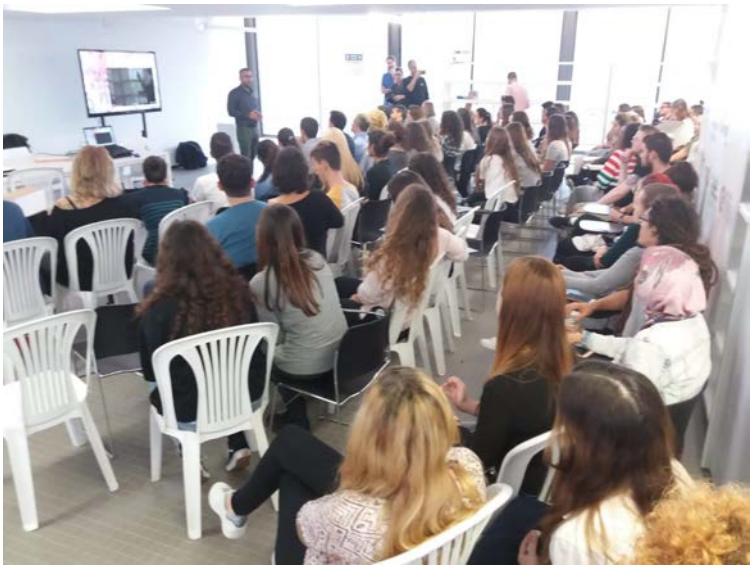

Figure 1. The mayor José Benlloch, explaining aspects of the city to the participants.

2 METHODOLOGY

There we used the Design Thinking methodology. Design thinking is a non-linear, iterative process which seeks to understand users, challenge assumptions, redefine problems and create innovative solutions [1].

2.1 The five phases of Design Thinking method

The five steps of this process are: empathize, define, ideate, prototype, and evaluate.

2.1.1 Emphathize

The students stayed in the city for one night, which was part of the customer's analysis phase. Some history of the city was explained to the students. For example, the major José Benlloch explained the city's ability to recover from several crises throughout history. Or about the the origins of the city, in the foundation of a hospital, near the place where they were precisely working.

Although in this case the client is not a person, but a city, we can also empathize with the personality of that city, knowing its history.

Figure 2. Students taking a tour of representative areas of the city: a museum located in an old hospital.

2.1.2 Define

The workshop began with a conference on parametrism, with examples of designs based on fractals and forms of nature. After the briefing was presented to the students, they had to devise an installation of ephemeral architecture, to enhance some point of the environment of the Buc. In addition, the installation had to be designed to be made of a material from a local company: the solid surface called Krion™, of Porcelanosa Group, which had also offered to collaborate. Two weeks before the workshop, all the students went to the showroom of Krion™, in order to know better the material.

Figure 3. students experimenting with the properties of the proposed material: Krion™

2.1.3 Ideate

In the ideation stage, participants used brainstormings, to collect a lot of fresh ideas to start. They had two days ahead, and only one afternoon to ideate, a short time, but it turned out to be very fruitful.

Figure 4. students distributed in groups and performing a brainstorming.

2.1.4 Prototype

In the prototyping stage, the different teams of students made quickly models and mockups with simple materials. This was a good way to get feedback and discuss with the client efficiently. This is one of the characteristics of this method. They even had a 3D printer, to make rapid prototypes.

Figure 5. mockups for the workshop, made by the pupils Irene Doñate, Teresa Martinez and Ludovico Piccinini

2.1.5 Evaluate

The second day, the ideas were publicly displayed, with slides and with the working models or prototypes of each of the proposals that were made by groups. The students had the opportunity to explain their proposals, in front of the representatives of the town hall and also in front of the people of Krion™, in order to receive feedback from them. This is the fifth step of the process.

Figure 6. The councilor Diego Vila listening the pupil Irene Oviedo

Finally, between 19 ideas, the proposal called “Azahar”, was selected as the most appropriate. The chosen idea to be builded, had used the natural forms of the flowers of the orange blossom, as a reference for the design, for the inspiration of the conference of design based on natural growth patterns. This proposal was also linked to local citrus crops, and to the metaphor of the city's ability to flourish after several crises, as the students had understood after imbuing themselves with the history of the city.

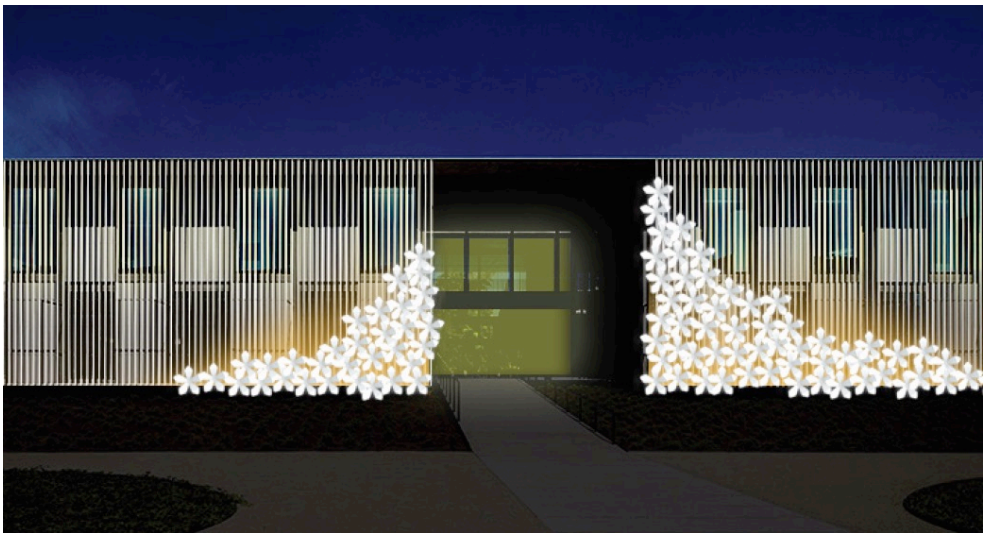

Figure 7. The selected idea, called “Azahar”, by Carles Soler Plà, David Gimeno Alonso and Ariel Corzantes Barillas.

Then this selected idea was developed beyond the workshop. It was necessary iterating the two last phases: prototype and evaluate, before the definitive construction. It is very common in Design Thinking, this kind of iterations, in order to perfect the idea.

2.1.6 Prototype (iteration)

New virtual prototypes of the flowers were made. Binding pieces were designed between flowers. Finally, it was renounced to manufacture these pieces of union, due to the difficulty that would have been mounting on the facade.

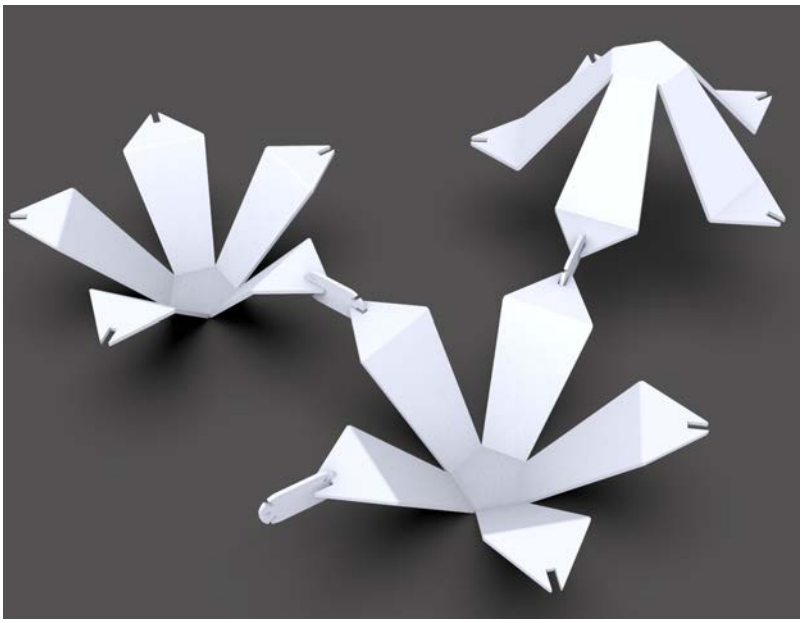

Figure 8. Virtual prototypes of the flowers.

2.1.7 Evaluate (iteration)

The manufacturer's technical department performed calculations of the wind resistance of the parts, as they were going to be installed outside. This is how the facade anchors were designed.

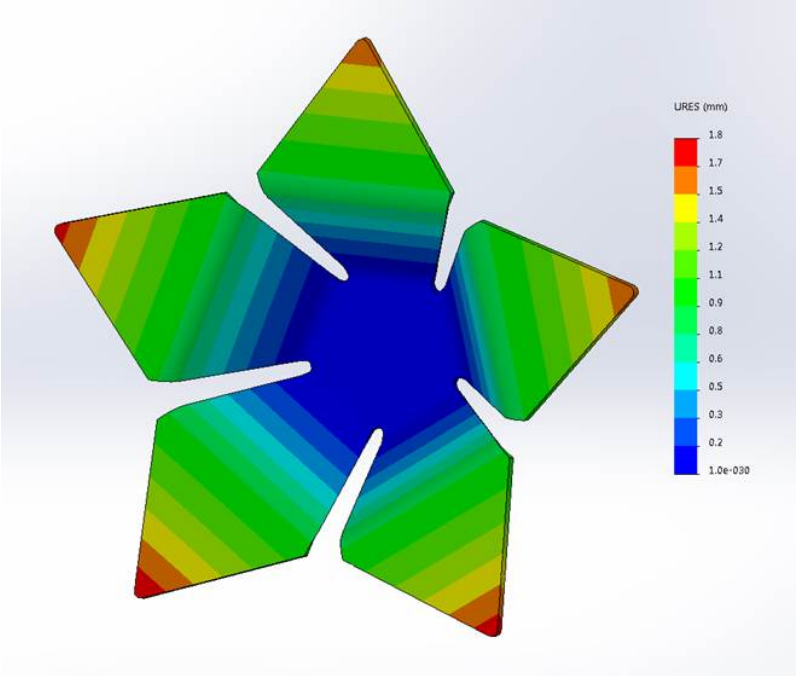

Figure 9. Image of the calculation.

3 RESULTS

Once the design was optimized, the flowers began to be manufactured.

Figure 10. students observing the mold placed in the press, ready to shape the flowers

And finally located on the place for which these objects had been created.

Figure 11. the students Carles Soler Plà, David Gimeno Alonso and Ariel Corzantes Barillas, supervising the assembly on the BUC´s facade.

3.1 Results

These are the most important results we obtained in this workshop:

3.1.1 The implementation of the evaluation phase.

Having the opportunity to complete each and every one of the Design Thinking phases. The last one, the evaluation by the real client, is the most difficult to complete for a student.

3.1.2 Bring the world of business closer to the work of school.

Putting the world of manufacturing in contact with the world of students.

Figure 12. inauguration of the result, with the presence of all involved.

3.1.3 Empowering the students.

A company like Porcelanosa, that invest so much money in their image [5], is taking a risk by placing this brand next to the student´s work. This is a pride for all of us. And a way to empower the students, through the social innovation side of Design Thinking [6].

4 CONCLUSIONS

The students followed closely the process of manufacturing the orange blossom flowers. As the Bauhaus manifesto said, the ultimate goal of all artistic activity is construction. A hundred years after the founding of this visionary school, we continue thinking the same thing [7].

And as Johannes Brahms said: “Without craftsmanship, inspiration is a mere reed shaken in the wind”.

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