

Design thinking in the scope of strategic and collaborative design

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Abstract

The aim of this paper is to present a reflection from a design perspective, regarding the importance of collaborative work among higher education students, in different cultures and context realities, using as a starting point a design thinking workshop. The goals of the workshop were, by introducing the principles of design thinking to a focus group of university students, in Finland, implement and develop the ability to experiment the design thinking process, and to realize how the interaction of different perspectives can lead to innovative solutions, as to the promotion of interdisciplinary work. Design thinking is a flexible methodology, which can be used in any work field, since it has valuable elements, such as iterating frequently based on continuous feedback from all the intervenient. Through rapid low-resolution prototyping, ideas are continuously tested with the potential users. "Fail early in order to succeed sooner" is the design thinking principle that helps to maximize learning and insights, crucial for human centred innovation. Collaborative work in a small groups scenario map leads to the discussion of solutions, and to the innovation that emerges from the different perspectives given by each person. Our main goal was to find business opportunities that emerge from underestimated issues from everyday life, but also to understand that exploring, understanding, and prioritizing areas can be crucial to ideating solutions.

Keywords: design thinking, collaborative methodologies, collaborative work, identity.

Introduction

Design thinking, nowadays has gained notoriety worldwide, it can be defined as a new way of thinking and approaching problems or, in other words, it can be defined as a model of thought and reflection centred on people. This methodology has become a main issue in contemporary design discourse and practice, since the success of its use as a tool is widely based and proven.

With this practice in project development of the design firm IDEO, and with the application of design thinking as successful tool, not only in design practice as in the practice of several disciplines, we can realize how it can be advantageous to use design thinking not only in the disciplinary design field, as in other disciplinary approaches when researching and designing services and products.

Design thinking has the ability to provide, in a process of co-working, whether its to design teams, users teams or businessman teams looking to strengthen links towards a common goal, that is, using design thinking methodology it is possible to find more easily and expediently the path to the right solution. This tool is able to help to eradicate the complexity and disorder, usually found in the beginning of the project development process, allowing to focus in the essence of needs and problems, that usually we need to solve as an intervenient in a project process development.

Namely the gains that we believe may be withdrawn in design thinking methodology, is that designers can (and should), in this way, get involved in a more immersive

manner, in a perspective of social and community involvement, with those for whom normally project, given that the project is developed under a collaborative effort and dynamic, where the design process is distributed by the various parties and their responsibilities.

Materials and methods

What we have been realizing, in the classroom context, is that when learning is merely circumscribed to the classroom in the conventional moulds of the relationship professor/student, the transmission of knowledge and practice in the design field, the students often feel little caught up and mentally available to integrate a more immersive spirit of the reality to which they are proposed to project. This study and interpretation using participatory methods can serve not only as a tool of reflection for design, but can also provide a work basis for those who will be interested in acquiring more successful interactions to the segments and markets they are addressing to in the future.

Products are often designed, taking as a starting point and/or idea a very specific concept of who designs them, without actually having in mind those who truly are meant to project for, consequently causing that their likelihood of success on the market being very reduced.

If a project/design is user-centered and is due to a specific and/or special need; achieving together the holders of knowledge and techniques; as identity, and the community context, then the chances of becoming

a project with truly successful and effective results are much higher.

Following this principle, we proposed a design thinking approach, as a methodology that wants to be immersive in real context, given the relevance that such methods of investigation and creation processes take in the design and validation of a design project and training as a professional designer.

The goals of the workshop were, by introducing the principles of design thinking to a group of university students, in Finland, to implement and develop, the ability to experiment the design thinking process, and to realize how the interaction of different perspectives, can lead to innovative solutions, as to the promotion of interdisciplinary work.

By the beginning of 2015 started the preparation for a three day workshop in conjunction with Finnish students in the Turku University of applied Sciences, led by the professors Cátia Rijo and Helena Grácio, specialized in graphic and product design respectively, under the application of Erasmus+ for the exchange of teachers mobility. The proposal of the project was accepted, and co-financed by the Erasmus+ program, offering the opportunity to start a study, in the field, of development and application of the same approach with students from different cultural backgrounds.

The workshop was held in the beginning of September, from September 1st to 3rd of 2015, with the motto of a collaborative and social design principle. The methodology used was focused in creating a collaborative space, enabling to set up a collaborative platform among the groups (3 to 5 students) in order to facilitate open discussions among participants.

Ever since we discovered the fire, stone tools, the language and the other great innovations of the dawn of humanity, the change has been around us. That's why they call it "evolution" [...] the sources of disruption are numerous, but there is an obvious. As technological innovation accelerates, people, communities, organizations and objects are more interconnected than ever before (Moote, 2014, p. 3).

In this context, it will be important to realize that design thinking as a methodology is not a unique tool for designers, and so little is limited to areas of creativity and restricted to other disciplinary and/or professional fields. The ability to develop the methodology and its approach to problem solving is something that can naturally be developed by any actor or professional interested in acquiring new and innovative approaches to problem solving, from the perspective of rapid prototyping and rapid analysis and potential selection of solutions focused on the final user (user centred design).

Our goal is, based on active research and expression, to empower students in order for them to be capable of complementing the skills, behaviours and methodologies that already exist and are practiced. The design thinking methodology proposed, focuses on a more practical approach, but it is not our intention that students think they should give up of more analytical approaches that are supported by more rigorous analytic data. What we intend to

implement in the students and/or groups in which we interact, is the idea that there is a complementary approach that can be truly helpful to more conventional approaches, allowing the confrontation between analytical rigor and relationships, interactions and conduction of human behaviour and emotions.

Design Thinking is a flexible methodology, since it as valuable elements, such as iterating frequently based on continuous feedback from all the intervenient.

During the workshop, the teams followed the stages of the interactive Design Thinking Micro cycle:

- (i) (Re)Defining the problem,
- (ii) Need finding and Benchmarking,
- (iii) Ideation,
- (iv) Prototyping,
- (v) Testing.

This approach leads to a high variety of ideas. Through rapid low-resolution prototyping ideas are continuously being tested with the potential users. "Fail early in order to succeed sooner" is the Design Thinking principle that helps to maximize learning and insights, crucial for human centred innovation.

Collaborative work in a small groups scenario map, leads to the discussion of solutions, and to the innovation that emerges from the different perspectives given by each person (Plattner *et al.*, 2012).

Our main goal was to find business opportunities that emerge from underestimated issues from everyday life, but also to understand that exploring, understanding, and prioritizing areas, can be crucial to ideating solutions.

The briefing was presented in the first day to a class of 20 students from a 2nd year degree; along with the workshop's briefing, it was presented an introduction to the methodology proposed, and a discussion about the theme and approach to have. Afterword's there space left to clarify several doubts in the class about the project development and timings.

The first 3 days, with 5 daily hours of work in the class, were meant to define the problem, analyse the concurrence in each field, research possible solutions and find a path to follow, using concept boards and presentations of the ideas to colleagues.

Day 1

After a brief introduction of the Design thinking process, the students had to define problem.

At the beginning of the design process, ideas are cheap and plentiful, pumped out in abundance and tossed around with abandon. Later, when many ideas get narrowed down to those most likely to succeed, it will take time and money to visualize and test each one. Thus designers often begin with a period of playful, open-ended study. It's a process that includes writing lists as well as sketching images. It involves mapping familiar territory as well as charting the unknown (Lupton, 2008, p.15).

At the first stage process, for the project idea, it was suggested to students the use of brainstorming in a small groups. "Techniques like brainstorming and thinking



Figure 1. Finnish students, working during at the 1st workshop day at Turku University of Applied Sciences.

wrong are effective for defining problems and coming up with initial concepts at the start of a project. They are a handy way to open up your mind and unleash the power of odd-ball ideas” (Lupton, 2008, p. 16).

By the end of the workday, most of the groups had already achieved the main ideas and sketches of what they would like to develop and accomplish.

Day 2

In the morning of the second day, the teams had to present a five-minute presentation of the problem versus the solution idealized. Using this technique it was intended, that the groups would share with the colleagues and therefore with the other teams their ideas, obtaining the feedback from outside perspectives and from the teachers, this was specially implemented with the aim of re-thinking the solution which each team proposed, and by this way, not only analyse if it was a viable solution, but also if it was a solution well perceived by the fellow colleagues. In that presentation it was given a critique feedback, by the teachers, in order for each group to develop the necessary research needed in the project proposal, so they could define the best way of defining the aimed solution to the problem found.

For the presentation of the idea, the students used mind mapping and rapid sketching, “mind mapping is a form of mental research that allows designers to quickly explore the scope of a given problem, topic, or subject area. Mind mapping can help you expand the scope of

a problem and look at it from diverse angles” (Lupton, 2008, p. 28).

Day 3

In the last day of the workshop, the groups had to make a brief oral presentation, where it should be presented, the project guideline and the definition of what each group would develop in the future weeks, planning the different stages of the project through the weeks ahead to autonomous work, to be followed by distance (by Skype and e-mail).

In the third day of work, students worked in a brainstorming class, available at the new facilities of Turku University, in order to help the students reaching a faster conclusion to proposed work for the presentation. By working in a more informal space, we were able to promote a more relaxed attitude in the students, allowing them to leave preconception solutions behind; through the use of this space and with a “felt like home” ambient, it was possible to achieve a better posture to the project presentation and dismiss a cultural weight inherent to the usual state of mind (more formal) of this students.

Once the workshop finished, it was given to the students five weeks for the full development of the proposed work by each group, in order to present the whole project with a solution and a rapid prototype or minimum viable product (in the case of being applied), to the problem previously presented, through a “virtual/digital presentation” in a small video format.

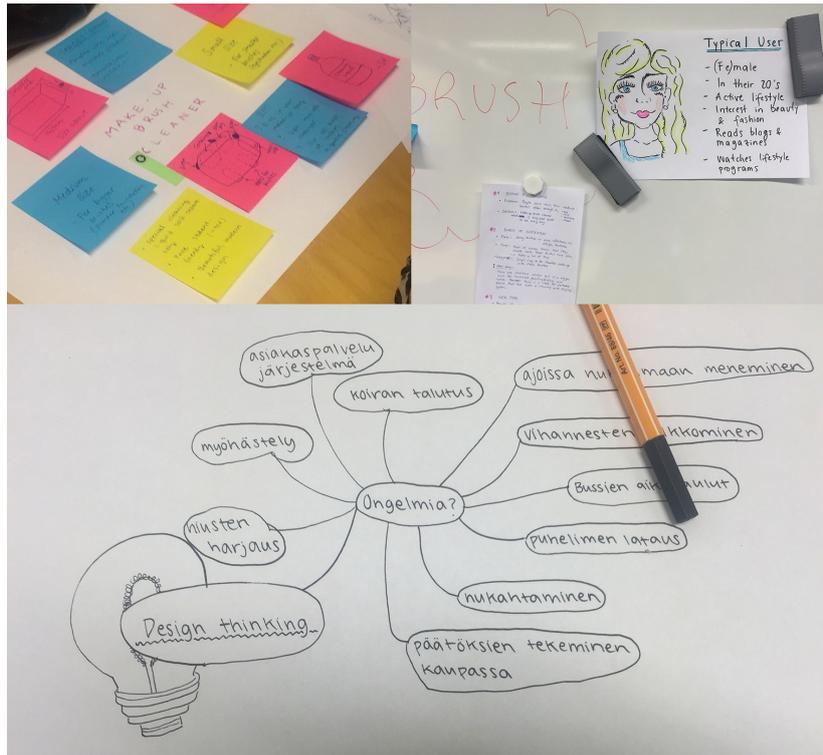


Figure 2. Project development through the 2nd workshop day.

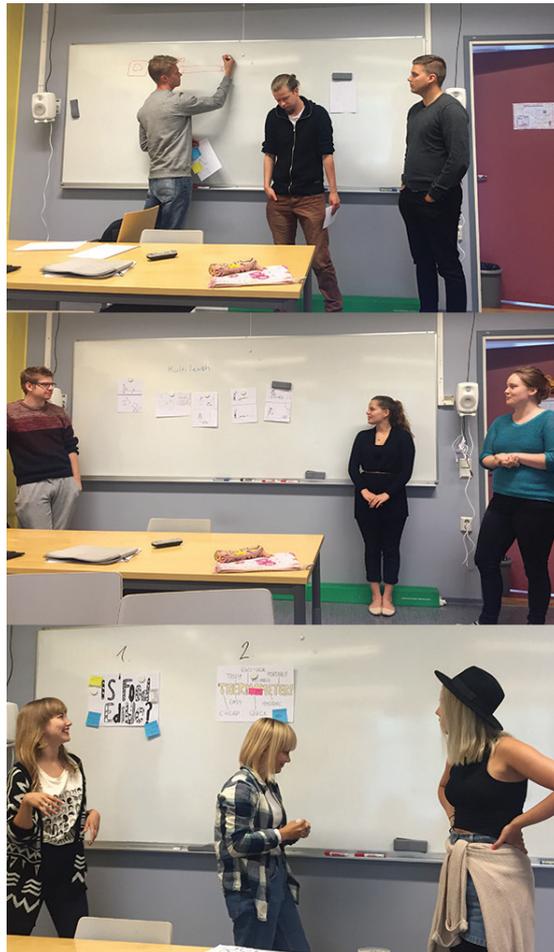


Figure 3. Finnish students, presenting at the 2nd workshop day.

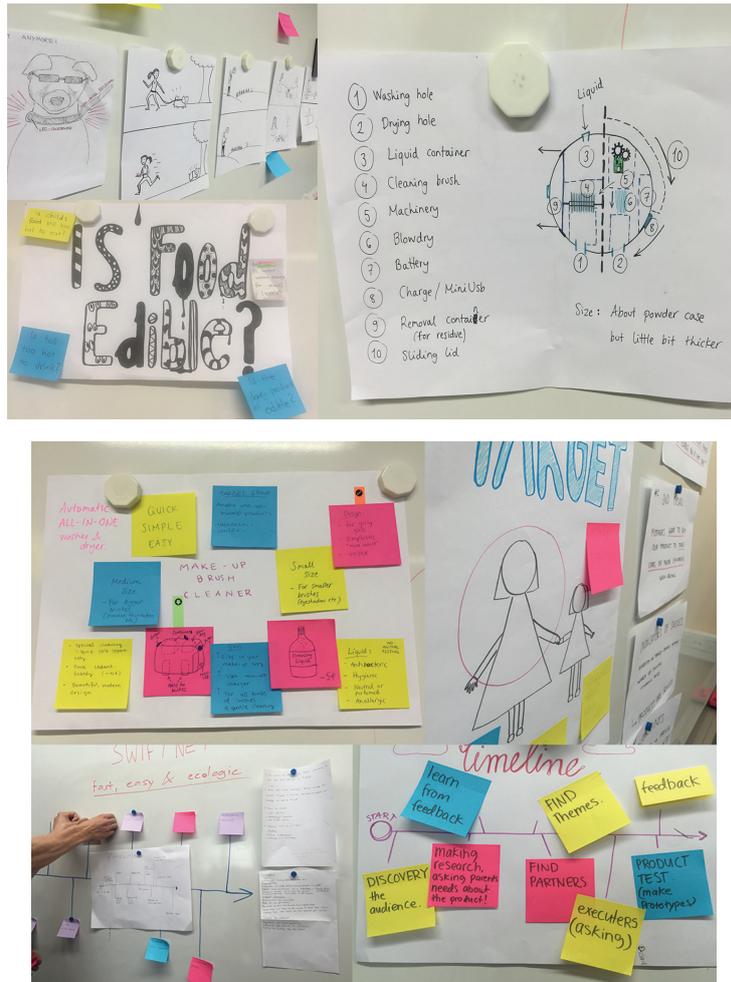


Figure 4. Final project presentation at the 3rd workshop day.



Figure 5. Finnish Students, working in the brainstorming room at Turku University of Applied Sciences.

By this methodology, it was possible to achieve the development of the diverse phases of design thinking process, in a workshop that intended to present the overall process, through group interaction and experimentation; promoting and achieving solutions, from the idea to the realization and implementation. Building the process from the problem to the solution; it was possible to demonstrate how to do develop and use design thinking in several fields and disciplinary approaches, through the interaction of different perspectives, in order to achieve creative solutions, and promote the interdisciplinary work, between the students involved.

Results and discussion

Exploring, understanding, and prioritizing areas of issues and problems found, can take as much time as ideating solutions. In this approach, each participant contributed with a different point of view, which added a diverse perspective, and it constituted a valuable resource in finding creative solutions.

In the end, of the Turku workshop students have shown great commitment and enthusiasm during the three days of contact work and responded very well to all the goals proposed during the workshop. The students demonstrated a great capacity and autonomy to work and to organize themselves in the classroom, being able to develop very well the ability of analysis and synthesis, in problem resolutions.

They were extremely methodical, which ultimately led to achieving all of the workshop objectives, in the planned period.

In large part, the creativity and ideation process was due to the new university facilities, including the use of the brainstorming room, and these resources were translated in to very effective results in the process of generating ideas.

Conclusions

While creativity in design is important, design is an activity that serves economic as well as creative goals. The design process helps ensure that a design satisfies all such considerations. The process seeks to generate a number of possible solutions and uses various techniques or mechanisms that encourage participants to think outside the box in the pursuit of creative or innovative solutions (Ambrose, 2010, p. 9).

Evaluating the overall objectives of the Turku workshop under the mobility program Erasmus+, we can conclude that the approach and development of the Design thinking phases through a workshop intended to a small group scenario, allows experimenting the diverse phases of the process - from idea to realization and implementation. Through this approach, from problem to solution it is possible to expose how the interaction and different perspectives can lead to more creative solutions; as to promote interdisciplinary and multidisciplinary work, between the participants, designers and/or potential final users.

In the context of higher education, the adopted workshop methodology in classroom, have been considered as

a value-added tool, since the efforts to measure the effects about the performance of students and their teachers, take into account their differences and remaining characteristics that students bring with them to school.

This approach is especially relevant because it has an obvious appeal to the whole school community, resulting in educational improvement and increased R&D (research and development) in education.

This initiative is about solving current issues of finding today's new and innovative business opportunities.

Exploring, understanding, and prioritizing areas of specific issues can take as much time as ideating solutions, in this context each participant contributes with a different point of view, which adds the diversity that is valuable in finding creative solutions. Following through and being proactive is the key in this process, therefore coming up with brilliant ideas and with a roadmap to success during the workshop remains just that: ideas and a roadmap.

Design Thinking is a flexible methodology because has valuable elements such as iterating frequently based on continuous feedback and building on top of one another's ideas can be pulled out and used in any work methodology.

Our goal as teachers is to convey a passion for education and design in the classroom. With this project, that we intend to replicate in diverse cultural education contexts, we hope to provide an encouraging and positive environment in order to fully capture the students to the theme presented. We count to provide the necessary tools to promote the talents of each student as an individual. In doing so, we hope to provide more confidence for a better development and research in the project practice of design, as to promote a design process more conscious and focused in the final consumer, aiming for products and/or services that respond to the emotional needs of the final user, allowing to build a more sustainable object context (Chapman, 2005). In the final balance of the workshop, we received a very good feedback from the students; they loved not only the good mood of the workshop, as the informal way that it was given. The student's community presented it as the main factor for their commitment and enthusiasm, encouraging new and innovative approaches to different cultural contexts, which compelled us to nourish and establish a comparative study of this methodology in higher education.

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Submitted on January 31, 2016

Accepted on December 21, 2016