

# Future Designers as Actors of Change: Exploring Design Education Scenarios focused on Social Innovation and Sustainability

*Futuros Designers como Agentes de Mudança: Exploração do ensino do design focado em Inovação social e sustentabilidade.*

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Retirado de: <http://convergencias.esart.ipcb.pt>

**ABSTRACT:** This paper, part of a Ph.D. in Design research, focused on discussing the role of Design Education on training future designers to be actors of change. It describes the methodology of a workshop for design students during the Design Week of Mérida, at Universidad de Extremadura – Spain. The workshop discussed the point of view of students in problem-solving, and what they believe to be the skills, methods, and partnerships for design to achieve such a change in its approach and how Design Education plays a part in preparing the future generation of designers to tackle social innovation and sustainability problems. The results showed how these particular group of future designers see as crucial in the given context and the possibilities for improvement on a system that struggles to be resilient and respond at a faster pace.

**KEYWORDS:** Design Education, Participatory Approach, Social Innovation, Sustainability, Social Change.

**RESUMO:** O presente trabalho é parte do projeto de investigação para o programa de Doutoramento em Design e foca em discutir o papel do Ensino do Design na educação de futuros designers como agentes de mudança. O artigo descreve a metodologia aplicada a um workshop facilitado para alunos de design durante a Semana de Design de Mérida, na Universidad de Extremadura, em Espanha. A atividade discutiu os pontos de vista dos estudantes no tocante à resolução de problemas complexos e suas crenças sobre as habilidades, métodos e parcerias necessárias ao Design para que alcance as mudanças necessárias, para além de discutir o papel do Ensino do Design na preparação da futura geração de profissionais focados na resolução de problemas de sustentabilidade e inovação social. O resultado demonstra o que este particular grupo de futuros designers entendem como sendo crucial neste contexto e as possibilidades para melhorias em um sistema que sofre para se tornar resiliente e responder às questões sociais de maneira mais ágil.

**PALAVRAS-CHAVE:** Ensino do Design, Abordagem Colaborativa, Inovação Social, Sustentabilidade, Mudança Social.

## 1. Introduction

The world is facing profound sustainability and social crisis (Manzini, 2011) which demands a response from the community, especially from the design one whose for the past decades has been co-responsive to produce most of the artifacts that now show as the face of environmental problems. This scenario has a strong relationship with the performance of Design as a consumerism tool as pointed by Papanek (1984), rather than a problem-solving discipline as initially intended (Alt & Pinheiro, 2011). That highlights the importance of a transition on the design approach from a narrow focus that predominantly tackles communication and consumption, to a broader and more complex human-centered and social strategy, bringing the role of the designer closer to a social actor (Bhamra & Lofthouse, 2008; Ferreira, 2003; Fry, 2008; Margolin, 2014; McDonough & Braungart, 2002; Vezzoli & Manzini, 2008).

“In the old paradigm design was characterized by: contributing to and promoting consumerism, obsolescence (Packard, 1967), commerce, wealth and waste; was environmentally blind; and a product’s life was linear. If resources were considered at all they were perceived of as being limitless along with economic growth. Meanwhile, in the new paradigm, designers aspire to design for ‘quality of being’ rather than ‘quantity of having’ and with achieving a sustainable consumerism. This entails a circular use of finite resources due to environmental awareness and the aim of securing a sustainable future. I posit that this total contradiction between the old and the new design paradigms is the fundamental ‘anomaly’ which defines the paradigm shift in design activity.” (Stebbing, 2015, p. 24)

As society faces these challenges of growing complexity, the practice of design is also expected to respond to this new paradigm. Design education plays a crucial part in preparing designers to be an active part of the future society. A paradigm shift in design and design education is due to respond to changes coming from society. On the Agenda 2030, the United Nations has challenged the world to rethink its practices towards the future through the Sustainable Development Goals.

Training future designers means training those responsible for designing a better world, which implies increasing the students’ abilities in critical thinking and developing design proposals that have social value. To achieve change, Design Education must provide tools, skills, and strategies to challenge the current *status quo*. Designers today already work on organizational structure and social problems, on interaction, processes, services, and human experiences. Many problems involve complex social and political issues. (Dawson & Oliveira, 2017; Manzini, 2011; Norman, 2010)

"Education for designers (like nearly all education) is based on learning skills, nourishing talents, understanding the concepts and theories that inform the field, and, finally, acquiring a philosophy. It is unfortunate that our design schools proceed from wrong assumptions. The skills we teach are too often related to processes and working methods of an age that has ended. The philosophy is an equal mixture of self-indulgent and self-expressive bohemian individualism and a materialism transmitting this biased information is more than half a century out of date" (Papanek, 1984, p. 285).

It is the responsibility of the Design schools to bring to life designers that are aware of their social role and impact, contribute to build a better world facing complex problems, and become an agent in the transition into to a more sustainable world. It cannot continue to seek the current path, training a large number of professionals with the same market mindset (Leite, 2006; Prior, Shen, & Karamanoglu, 2007).

Although it is understood and extensively argued the importance of all these changes toward social action, there is still work to be not only discussed but also implemented in Design Higher Education.

"a report by the Arts and Humanities Research Council (Armstrong, Bailey, Julier & Kimbell, 2014) examined the state of social design research in the United Kingdom, and argued that HE has barely begun to discuss what designing for social change might mean. In addition, the same report concluded that there is an absence of a recognizable instructional pipeline for design for social change and innovation through undergraduate teaching to postdoctoral research." (Souleles, Savva, & Ferreira, 2017, p. 3).

As part of a Ph.D. research on Design based on the belief that a designer needs to become more sensitive to the current sustainability issues, and act as an agent of change, supported in cultural context, be aware of their impact on society when developing new products, system or services.

One possible way to success in this endeavor passes by rethinking Design Education. As such, we facilitated a workshop to discuss with part of the design community the future paths for Design Higher Education, envisioning the designer as an agent of change, focused on social impact and sustainability. The activity took place on March 14, 2019, as part of the Design Week of Mérida (Semana del Diseño de Mérida), at Universidad de Extremadura – Spain.

## 2. Theoretical Framework for the Workshop

Two main pillars guided the framework of the workshop to introduce the students to what we believe to be fundamental answers to the sustainability problems faced today. Those pillars are the Sustainable Development Goals and Product-service systems.

## 3. Sustainable Development Goals (SDGs)

Design universities should allow students to understand their role in political society and how essential are the tools achieved to a responsible action for human and planet wellbeing. (Margolin, 2014).

The dynamics of the activity was based on the discussion of how design education should respond to the challenges faced by society today and how design can forge social innovation and promote sustainability (Bernarda & Ferreira, 2016; Findeli, 2001; Rocha, Ferreira, & de Azevedo, 2018).

The knowledge acquired during the academic stage by the use of joint working methodologies with and for the communities with the local stakeholders makes design students better perceive the impact of the social and economic adversities on society and by understanding the constraints of the other agents involved in the process be able to manage and coordinate the complex creation exercises more effectively. The proposed procedures put designers in the center of action, structuring collaborative and sustainable methodologies in order to awaken a broad view of replicable and sustainable entrepreneurship. (Santos et al, 2013, p.12) This early awakening of a network construction will enhance more assertive professionals in their projects and the communities will gain effective tools for easier emancipation thanks to this involvement. (Bernarda & Ferreira, 2016)

To frame such challenges and make them tangible the students were asked to work with the Sustainable Development Goals (Figure 1), defined by the United Nations and adopted as part of the Agenda 2030, back in 2015. The SDGs are

an urgent call for action by all countries - developed and developing - in a global partnership. They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests. (United Nations, n.d.)

Fig. 1 — Sustainable Development Goals.



Source: <https://www.un.org/sustainabledevelopment/news/communications-material/>

The SDGs worked raising awareness about the responsibility of design on tackling those issues and also as a focal point during the group discussions and decision making for the participatory part of the workshop.

## 4. Product-service systems (PPS)

It is argued that shifting the design of a simple artifact into focusing on the development of the whole product-service system "in which the traditional manufacturer-vendor-user relationship is rearranged, in order to deliver environmental and (for the company) economical benefits." (Mcaloone & Andreasen, 2002, p. 51) is indeed necessary.

"The ideal of product service system (PSS) development is that all three stakeholder groups – customer, company and society – benefit from the service systems related to each one of these dimensions, rather than simply one of the above." (Mcaloone & Andreasen, 2002, p. 51)

Vezzoli et al. (2014, p. 30) contributes with this idea affirming that the PPS is the result "of an innovative strategy that shifts the centre of the business design and sale of products only (physical) to systems offering products and services that are jointly capable of satisfying a given application."

The PSS worked as a guideline to help the participants think of products, services, and systems that could respond to the SDG challenges as they fill the canvas for the participatory part of the workshop.

## 5. Expected Results

Our primary goal was to understand how design students see the role of the design towards the solution of wicked problems.

"Rittel argued that most of the problems addressed by designers are wicked problems. As described in the first published report of Rittel's idea, wicked problems are a 'class of social system problems which are ill-formulated, where the information is confusing, where there are many clients and decision makers with conflicting values, and where the ramifications in the whole system are thoroughly confusing.' This is an amusing description of what confronts designers in every new situation. But most important, it points toward a fundamental issue that lies behind practice: the relationship between determinacy and indeterminacy in design thinking. The linear model of design thinking is based on determinate problems which have definite conditions. The designer's task is to identify those conditions precisely and then calculate a solution. In contrast, the wicked-problems approach suggests that there is a fundamental indeterminacy in all but the most trivial design problems – problems where, as Rittel suggests, the "wickedness" has already been taken out to yield determinate or analytic problems." (Buchanan, 1992, pp. 15–16).

The secondary objective of the workshop was to analyze their understanding of the needed Skills to the solution, the Methods and Tools to be used when designing for social innovation and sustainability.

## 6. Workshop Facilitators

The workshop was facilitated by two design researchers with different backgrounds and educational experiences. Hugo Rocha is a junior researcher and graphic designer, Ph.D. Candidate in Design at IADE-UE in Portugal, and teacher at Instituto Federal Fluminense in Rio de Janeiro (Brazil). Ana Margarida Ferreira (Ph.D.) is Industrial Designer and Assistant Professor at IADE-UE, and a senior researcher at UNIDCOM-IADE (Portugal) in Creativity, Design, Social Innovation, and Sustainability.

## 7. Participants

The workshop aimed at design students. For this first edition enrolled 12 students from four different courses and two distinct universities, all from Spain.

## 8. The Toolkit

We designed a toolkit based on a canvas and card sorting as a way for the students to show, within the presented options, what they believed to be the best answer to the proposed challenges. The toolkit was composed of a canvas, a set of cards, a cheat sheet, sticky notes, and permanent markers.

## 9. The set cards

The cards (Figure 2) were grouped by categories and colours for visual aid, titled *Theme, Skill, Method or Tool, Human Resources, Time, and Investment*. For the Skill, Method or Tool, and Human Resources cards, there were black cards available so that the participants could add anything if they found necessary. There was no minimum number of cards that could be used for each category, but there was a maximum which was written on the designated part of the canvas.

Fig. 2 — Set of Cards.



Source: The authors

### 9.1. Theme cards (yellow)

The theme cards (Figure 3) were based on the Sustainable Development Goals defined by the United Nations (UN). The cards had the Theme on one side and a QR Code on the other side to access directly the United Nations website of the respective Theme for a deeper understanding of the targets defined to the given SDG.

Fig. 3 — Example of the Theme of Card



Source: The authors

### 9.2. Skill cards (orange)

Contained a list of soft and hard skills, based on literature review, of what are the abilities of a designers today as well as what authors (Brown, 2009; Pryce & Whitaker, 2011; Vezzoli & Manzini, 2008) believe to be the skills necessary for a designer to tackle wicked problems and address social innovation and sustainability.

### 9.3. Method or tool cards (red)

This set of cards grouped tools and methods collected from Design Toolkits (Amsterdam University of Applied Sciences, n.d.; IDEO.ORG, n.d.). There was no more in-depth explanation of each of the tools or methods, so if necessary, the participants had the opportunity to go online to understand a particular topic better. Links and QR codes to specific toolkits were made available to the students could have direct access to the toolkits.

### 9.4. Human Resources cards (purple)

In order to present the participants to the idea of co-design and participatory processes, the Human Resources cards listed a number of professionals that could help tackle the goal chosen by the group.

### 9.5. Time cards (blue)

Cards showing the amount of time necessary to complete the project (product, service, or system) in questions. The cards were titled short, medium, and long-term cards.

### 9.6. Investment cards (green)

The investment cards listed the level of capital needed. The options were low, medium, and high investment.

## 10. The canvas

The participant had available for completion an A1-size printed canvas where according to instructions given by the facilitators they filled with the cards made available during the participatory block of the workshop. On the upper left corner of the canvas, there was the placeholder for the theme card. The canvas also contained a table organised as followed:

— Rolls: Titles, Product, Service, System

— Columns: Solution Universe, Skills, Methods and Tools, Human Resources, Time Frame, Investment Level, and Potential Solution.

## 11. The cheat sheet

Due to the practical and intensive nature of the workshop, there was not a long moment for theoretical explanations of in-depth content. To help the participants dive deeper into some concepts, the facilitators available a cheat sheet with links to the videos used during the overview presentation and to design toolkits.

## 12. Workshop Structure

The 4-hour workshop was divided into three parts, as followed:

### 12.1. Overview

During 30 minutes, the facilitators introduced the Sustainable Development Goals (SDG) for 2030 in an attempt to put the students into the mindset needed to work on the exercises to follow. Videos on SDG were presented, clarifying the concept and leveling the knowledge of the students on the theme.

A brief presentation on the theory of the Product-service System used the Sustainable Development Goal 14 (life below water) to exemplify how the development of such systems can tackle the SDGs proposed by the United Nations. In order to do not influence students, the referenced goal used as an example was withdrawn from the option that students could choose from during the participatory activity.

### 12.2. Participatory activity

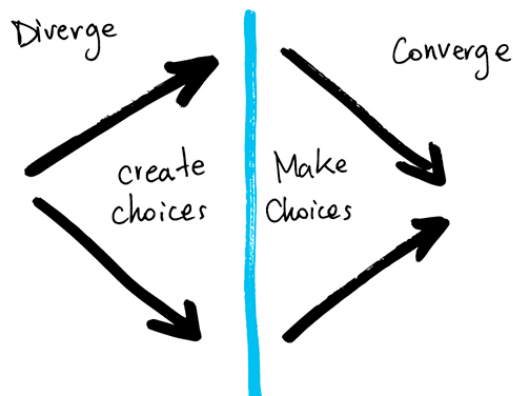
The participants were divided into four groups of three components each. The facilitators presented the first set of cards containing the Themes. The groups had then fifteen minutes to choose and research about the particular SDG. The members were free to find information on the internet, but they were encouraged to learn more directly from the UN website.

After this, there were asked to start working on the product universe. For ten minutes, the groups brainstormed, using sticky notes, about product ideas that could respond to the theme in question. They were encouraged to come up with as many ideas as possible in a diverging process. With the product ideas placed in front of them, they were then asked to vote on the best ideas. Each member of the group had three votes, followed by a final and brief discussion to choose one product, completing a converging phase. This exercise also meant to illustrate the process of design that relies on convergent and divergent thinking.

According to Kim and Pierce (2013), Convergent and divergent thinking are both sides of the cognitive approach to problems. The former aims to find multiple perspectives and possible answers to the problems and questions in hand. As the latter assumes that the problem has one right answer and focus on a single solution.

In the design methodology, both of this way of thinking are conjoined in a process (Figure 5) that explores the issues more broadly (divergent thinking) and then takes action into a focused path (converging thinking), not necessarily in a linear process, but usually is a cycle that repeats itself in different moments of a giving project.

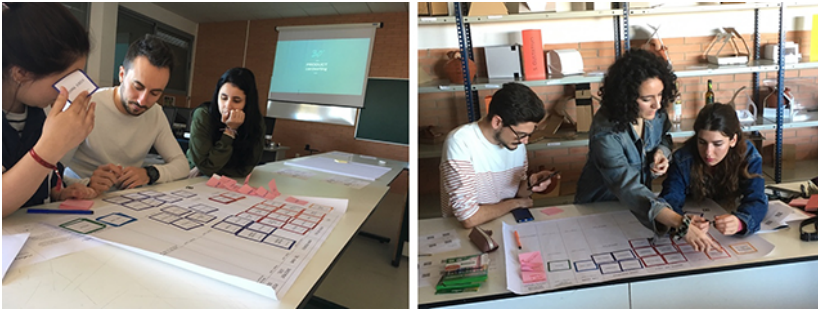
Fig. 4 — Convergent and Divergent Thinking Scheme.



Source: The authors

Once the students had concluded this preliminary study, the facilitators distributed the remaining cards, and for thirty minutes, the participants filled the canvas with the options as followed. For the Skill, Methods and Tools, and Human Resources columns, the participant could choose up to six cards. Also, for the Time Frame and Investment Level ones, one card each. The participants were also reminded and encouraged to use the black cards to add any information they believed could fit but was not available on the cards.

Fig. 5 — Students during the workshop.



Source: The authors

For the two following universes, Service and System, the cycles were repeated equally, except for the maximum number of cards that could be chosen for the Skill, Methods and Tools, and Human Resources columns which were three for the Service universe and two for the System.

Fig. 6 — Canvas filled with the group's choices.

	SKILL	PROCESS AND TOOLS	HUMAN RESOURCES	TIME FRAME	INVESTMENT LEVEL	POTENTIAL SOLUTION
<b>PRODUCT</b>	STRATEGIC THINKING CREATIVITY CRITICAL THINKING	SOCIAL-POLITICAL AWARENESS HUMAN-CENTERED	BUSINESS MODEL TESTS AND USER TESTING AUDIENCE DEFINITION FOCUS GROUP	DESIGNER MARKETING ANTHROPOLOGIST / SOCIOLOGIST DESIGNER MARKETING ANTHROPOLOGIST / SOCIOLOGIST	MEDIUM-TERM	MEDIUM KIT COMIDA Y CULTIVO
<b>SERVICE</b>	COMMUNICATION SKILLS EMPATHY	MANAGEMENT AND LEADERSHIP SKILLS CO-CREATION DESIGN STORYTELLING SWOT ANALYSIS	FARMERS TEACHERS ANTHROPOLOGIST / SOCIOLOGIST	SHORT TERM	MEDIUM	REPARO Y RECONSTRUCCION DE LA ESTRUCTURA
<b>SYSTEM</b>	FACILITATION SKILL NEGOTIATION SKILLS	IMMERSION AND USER OBSERVATION SECONDARY RESEARCH	POLITICIAN VOLUNTEER	SHORT-TERM	HIGH	ONGS

Source: The authors.

## 12.3 Presentation

All the presentations were recorded with audio and video, maintaining the integrity of the discussion and dialogues and allowing further consultation and referencing in future researches. Each group had ten minutes to present their results. They were asked to go over every selected card and explain the reason why for each choice.

## The Results

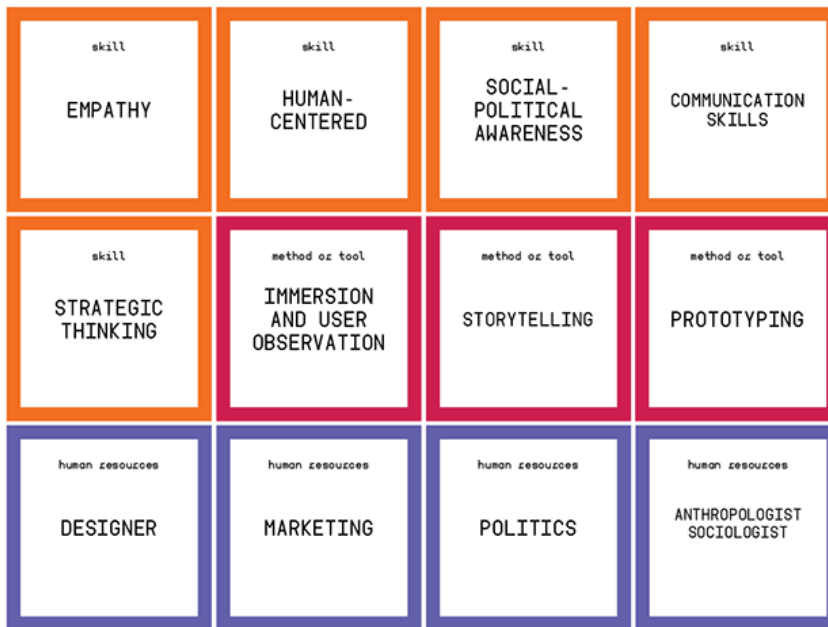
We understand that for a real understanding of the data more editions of the workshop need to be done and that the inputs received during this first section are still narrow for any conclusions to be taken from it. Though we chose to highlight what we understood to be valuable quality information that arose during the group presentation. One aspect we found essential to highlight are the typical choices of the group, as followed.

**Skills:** Communication Skills (100%); Empathy (100%); Human-Centered (100%); Social-political Awareness (100%); Strategic Thinking (100%).

**Methods and Tools:** Immersion and User Observation (100%); Prototyping (100%); Storytelling (100%).

**Human Resource:** Anthropologist / Sociologist (100%); Designer (100%); Marketing (100%); Politics (100%).

Fig. 7 — Most selected options.



Source: The authors.

It was clear from both the cards of choice and the discussion during the presentation that the students focused their options on a designer that needs to develop their soft over hard skills, giving particular emphasis on the humanistic approach.

By choosing stakeholders/partners such as Marketing professionals, Anthropologists, Sociologists, and Politics, show how not only they believe that the designer still has to act as a part of an economic market, but also to bring to the process closer to the user, building a human-centered process.

## Final Considerations

The workshop *Design Education for Social Impact and Sustainability: Envisioning the Next Generation*, proposed by the authors during the DIME 2019, was the first attempt to discuss with the design community, namely design students, the future of Design Education in an approach towards social innovation and sustainability.

It is intended to replicate the workshop in Portugal, Cyprus, and Brazil to gather more information and have both quantity and quality of data, and to promote further discussion on how should be the role of the designer as an actor of change and how Design Education can shift its practices to be able to address the societal challenges that we will face in the near future.

## Acknowledgments

A preliminary version of this paper was published in DDC'19 Conference in: Duarte, E. (Ed.) (2019). *Design Doctoral Conference'19: TRANSformation. Proceedings of the DDC 6th Conference*. Lisbon: IADE, Universidade Europeia / EDIÇÕES IADE. ISBN: 978-989-8473-27-1

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**Reference According to APA Style, 5th edition:**

- Rocha, H. Ferreira, A. ; (2019) Future Designers as Actors of Change: Exploring Design Education Scenarios focused on Social Innovation and Sustainability. *Convergências - Revista de Investigação e Ensino das Artes*, VOL XII (24) Retrieved from journal URL: <http://convergencias.ipcb.pt>