

Transistórias: how a critical and speculative perspective contributes to rethink sustainability education in product design

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Abstract. This essay is a reflective and exploratory account of an experience-based learning exercise in 2017/2018 within the course unit of "Sustainability of products and services" in the Master in Product Design course at the Lisbon School of Architecture, University of Lisbon (FAULisboa). For a semester, design students and a local community explored alternative futures together. However, questions emerged on the pertinence of the educational approach when the design students argued they were not learning about sustainability. Arguing were indeed learning sustainability, the reflection is mainly grounded on the events and how I've experienced them, as an educator. Beyond the failures to guide such a complex process, it captures some of the limitations and potentials of the experience through the lenses of Critical and Speculative Design (CSD). By adopting the perspectives of rehearsing futures, foresight and (im)possible things, this essay is a speculative exploration of ways to approach sustainability learning in the product design classroom.

Keywords: experience-based learning, critical and speculative design, sustainability education, product design education, co-design.

1 Introduction

Experiential learning or experience-based knowing according to authors presents positive opportunities for design learners to challenge pre-existing knowledge and develop independent critical thinking and making [1], [2], [3], [4]. In the context of product design education, this essay is about an experience of learning sustainability through engaging a local community.

Transistórias was a co-design project where design students and local entrepreneurs meet to explore alternative futures. The aim was to co-design visions of sustainability by focusing on specific personal stories of social, economic, and environmental struggles in the city. However, questions emerged on the relevance of such critical pedagogy to approach sustainability learning. While encountering real-life situations, the design students argued they were not learning sustainability. In the

beginning of the activity, in their diary boards and in the end withdrawing from participating in the exhibition, the design students claimed to lack orientation and the learning space was merely an instance for doing social design.

Considering that sustainability is a process that involves thinking and acting futures, this essay is a reflective and exploratory account on why and how sustainability was approached and experienced in Transistórias. In the role of educator, this essay is grounded on my experience of Transistórias. The arguments, therefore, are situated and do not claim to be generalizable or conclusive. The aim is to make sense of an experience which was, in my perspective, a fruitful and provocative speculation on what is and might be the design for sustainability classroom?

In this view, to clarify how futures were approached and experienced in Transistórias, I turned to Critical and Speculative Design (CSD). The reason to turn to CSD, after the project ended, was to broaden my vocabulary and knowledge to better highlight, describe and explain the subject of futures. My hypothesis is that by going deeper into this aspect, it's possible to better understand how sustainability was articulated and why it was *not* experienced by the design students.

Understanding connections between critical speculation, futuring, foresight and designing for sustainability [5], [6], [7], [8], I found that Transistórias is an instance of Experience-Based learning where an encounter with reality worked as a driver for learning sustainability from the inside. In other words, the design students helped made thinkable, feelable and discussable, hence concrete and tangible, images of the future that were founded on everyday practices of the entrepreneurs potentially unfolding new possibilities.

In the next section, the essay presents the wider educational context where the project Transistórias emerged. Section three introduces more specifically the perspectives that founded the project, and the concepts used later for discussion and reflection. Section four gives an account of the events and activities of Transistórias as they happened and from my point of view as a participant. Then, section five, engages in critical examination of Transistórias as an exercise on sustainability from the perspectives of Critical and Speculative Design. Amid reflection, I explore ways to approach sustainability in the design classroom within an experience-based learning context. The last section summarizes the learnings from the experience of Transistórias and opens discussion about how to foster sustainability learning in design education.

2 Exploring approaches to learning Sustainability in the Master in Product Design course at the Lisbon School of Architecture

This essay unfolds a critical reflection of an experience-based learning exercise in 2017/2018 within the course unit of "Sustainability of products and services" in the Master in Product Design course at the Lisbon School of Architecture, University of Lisbon (FAULisboa). The unit takes place in the first semester of the first year, and

essentially, it aims to bring sustainability into design as a generative practice, rather than an afterthought. The classes comprise theoretical lectures and two practical assignments to equip students with conceptual and technical tools to critically examine the actual world and support the ethically responsible development of sustainable products, services, and experiences. The assignments represent two designing for sustainability engagements to broaden the design skill set of the master students¹.

These assignments are exercises founded on the design studio methodology in which students carry out the activities mainly in the classroom. The first is an individual exercise which focuses on designed objects as a basis for understanding the implications of sustainability as a design criterion. Each student begins by disassembling an electric appliance of their choosing, and then makes an ecological footprint diagnosis using concrete instruments, namely Life Cycle Analysis and Ecolizer 2.0 [9]. The point is to be able measure environmental impacts through a survey of the material components from which the appliance is made, and the production processes involved. The exercise enables the students to develop holistic perception of products, so, in a second part of the exercise they can reflect on possible ecological improvements. Through the Lid's Wheel and the study of eco-design tactics and Circular Design strategies [10] the point is then to describe possible changes in the product and/or its specific life-cycle system to improve the ecological footprint.

The second exercise, is conducted in groups and puts emphasis on strategic competencies and a set of research, analytical and critical thinking skills to:

- analyse and give in depth consideration to social, economic and environmental issues;
- identify and define concrete sustainability problems;
- develop systemic thinking and holistic approaches;
- recognize potentials in the present experience;
- rethink current social, cultural, institutional, economic, and environmental systems.

For some years, the exercise followed the TU Delft Design for Sustainability manual methodology [11]. The brief was that each group had to choose one specific territory in Portugal and then inquiry and develop possible sustainability strategies to be proposed as drivers to (re)develop local economies and communities. This exercise succeeded in familiarizing students with a step-by-step methodology that supports both the critical examination of complex problems and identification of opportunities to intervene by design. The challenges, however, were that the educational experience

¹ Design students come to the master course, each with a specific fluency in design processes, most often set within the professional backgrounds of product design, service design and architecture. Their core design skill set varies according to their own subjective experiences of learning and working, thereby each year in every class we have different levels of and ways of approaching creativity, flexibility, adaptability, communication, negotiation, management, and leadership [12].

and its effects did not enable engagements with sustainability beyond provisions of design services and a process of designing that runs by targets.

Taking a closer look, the students were able to strengthen research and analytical skills and develop comprehensive, deeper, and more responsible ways of approaching problems not just solutions. Although, my concern was that a different designer's sense of individual, political and ethical, responsibility and purpose to the world was missing [13]. In other words, imagining the students as future designers, we might be narrowing down sustainability knowledge to moulding behaviours and training young people to meet transition challenges as business as usual². The argument is not new that education for sustainability in architecture and design must become a change platform in which the design know-how must be seen and felt to be different from the everyday life of the market and busy professions [13]. For design researcher and educator Tony Fry, "the Sustainment is 'a work' of becoming futural" [7]. To learn how to operate in the dialectic between futuring and defuturing³, Fry advocates for a temporal shift in designing for the Sustainment (the term proposed to replace the term sustainability). Starting at the end, is an expression he uses to claim that the prospect of 'the end' must be made present in a life-affirming way. In this view, in Fry's work, futuring also refers more specifically to processes of forecasting where images of the future called "alternative futures" are conceived and serve as scenarios to critically reflect upon the actual moment and speculate preferable futures [13], [6]. From my understanding, if the work of design bridges the gap between what is and what's possible, then designing for sustainability goes beyond reframing problems as opportunities.⁴ "Becoming futural", then, means the material and performative ways in which expert designers can rehearse and make assessable non-existent realities [14]. Therefore, in the context of product design education, the fact that this essay is about one course unit that specifically addresses sustainability matters, makes the argument for different kinds of learning even more pressing. If sustainability is

² According to Dana Abdulla, "[p]lanning by targets (aims and objectives) narrows education to a behavioural, instrumental and linear activity that leads to the loss of freedom for both the students and the educators. Its focus is to change and mould behaviours to meet specific ends." [1]

³ According to Tony Fry, "futuring" means modes of being-in-the-world that are conducive to life, while "defuturing" is related with destructive and extractive processes pertaining to the structural unsustainability we live in [7], [13].

⁴ Current definitions of Product Design follow the lines of World Design Organization [15]: "Industrial Design is a strategic problem-solving process that drives innovation, builds business success, and leads to a better quality of life through innovative products, systems, services, and experiences. Industrial Design bridges the gap between what is and what's possible. It is a trans-disciplinary profession that harnesses creativity to resolve problems and co-create solutions with the intent of making a product, system, service, experience or a business, better. At its heart, Industrial Design provides a more optimistic way of looking at the future by reframing problems as opportunities. It links innovation, technology, research, business, and customers to provide new value and competitive advantage across economic, social, and environmental spheres."

approached from the outset as a branch of design, or a topic and goal that learners can choose to tackle or not when designing products and services, then the course unit does not function as a change platform. The vision must be to ground sustainability within the framework of how product designers work, therefore, the course unit must become a starting point, a time and space, to at least experiment another ethos of understanding, imagination, and action with/in sustainability and design, otherwise it won't make a difference.

Consequently, I began to research and experiment with different approaches that would provide a space for design learners to stretch their abilities to imagine how things could be otherwise and to think about reality in different ways.⁵ Whether outside or inside the classroom, the aim has been to critically discuss and redefine the reality we find ourselves within in the direction of imagining possible alternative futures. For instance, in 2018/2019, the exercise invited students to re-imagine the school in the view of a 'transition university'. It followed the design studio methodology and departed from the students' own concerns and matters of care around sustainability in the university. The environment enabled the design students to engage in self-learning and resourcefulness, engaging the topics of waste management in the canteen, electricity costs and sources, gardening, among others. In 2017/2018, instead of the design studio methodology, it was possible to experiment a different kind of engagement with sustainability. Building on a local partnership, "Transistórias" was learning experience set in a real-life context. This experience is the focus of this essay.

3 Perspectives that founded the Transistórias project

Transistórias is an instance of experience-based learning in the context of product design education. It framed a learning activity that was explicitly informed by critical perspectives on design education which advocate for the importance of "introducing learners into the complexity and ever surprising character of reality, away from super-controlled classrooms" [4]. Considering the scope of learning to design for sustainability, experiential knowing appeared as a crucial approach. This section presents an overview of historical and contemporary arguments and ideas regarding experience-based learning and critical pedagogy that were important in the foundation of Transistórias as a learning exercise. It does not to give a complete or exhaustive account. Rather, the aim is to highlight some essential aspects of these teaching/learning approaches and lay the ground for discussion in later sections.

⁵ Here paraphrasing Mariana Pestana, about the staging of a Fiction Practice laboratory: "not only to imagine how things could be otherwise, but also, how the way we think about reality might change." [16] which for me brilliantly describes some fundamental goals for sustainability education.

Similarly, this section provides the context to understand why and how Critical and Speculative Design (CSD) became an important framework for reflection after the project. It departs from the main perspectives that were at the basis of designing and running the actions of Transistórias.

3.1 Experience-based learning in design education

Experiential learning or experience-based education belongs to the broader field of Critical Pedagogy which emerged to question the teacher-centred tradition and oppose behavioural outcomes. Founded on the work of Brazilian educator Paulo Freire [17], critical spaces of learning entail “education as a practice of freedom” [18]. The goal of critical pedagogies, according to other critical scholars and educators such as bell hooks [18] and Henry A. Giroux [19], is to enhance the learners’ abilities think and act critically regarding the possibilities and responsibilities to influence societies’ development and change oppressive situations [17], [18], [19].

Drawing from the pragmatist philosophy of John Dewey [20], and the works of Kurt Lewin and Jean Piaget, critical pedagogy also emphasizes the central role experience plays in learning [21]. Experiential learning, as learning through experiments in a laboratory or as pragmatic engagements with reality, according to educators, can reconfigure boundaries between knowledges, disciplines, and methods, while encourage tolerance of, if not an appreciation for, difference and divergence [20]. In practice, it involves transactions between individuals with reality and with each other. The experience which is had and that unfolds from these interactions engages the whole person’s thinking, feeling, perceiving, and behaving. In this view, knowledge is a transformation process, rather than an independent entity to be acquired or transmitted [17], [20], [21].

Regarding design education, Critical Pedagogy approaches have been foundational for design educators and researchers to attempt and experiment with learning design through real projects and active participation in communities.

For design educator and researcher Loyal Shuman, besides narrowing the gaps between academia and the professional world, integrating community projects in design education creates spaces of learning where design knowledge and intelligence are a product of social exchanges [1]. Drawing from a critical pedagogy’s perspective, Shuman argues design learning sits between the learner and the effects of the social experience with the community partners and the educator in a holistic way – as opposed to master/teacher centred [1]. The experience benefits learners no matter the area(s) of design choose to practice ranging from being able to observe, access and evaluate the implications and consequences of design outcomes and processes, hence the quality of design work; to nurturing a sense of responsibility and ethics towards the other, i.e. client, user, partner, other knowledges [1]. Drawing from personal experience, Shuman also points to two main challenges in experience-based learning. First, collaboration must always be “voluntary for it to be considered collaboration.” [1] In other words, all participants must be willingly dedicated to and understand the collaborative, explorative, democratic, respectful, and educational terms of their

encounter, thereby building a common ground. Secondly, due to the community environment “it might be challenging for students to learn certain technology-related and craft skills, which require more one-on-one teaching and learning methods.” [1]

In the context of architectural education, researcher, and educator Johanna Gullberg argues that experiential modes of learning involving the body and characterized by making and participation enables transformation of habits in the profession [2]. Drawing from theatre and performance studies, she argues that if learners can engage in bodily and gestural actions, they might question if the right way to project or represent architectural space is at all to draw or make a model to scale [2]. For Gullberg, such real encounters and physical experiences of learning are key to changing architectural education from within [2]. However, from her experience, architecture students can get stuck in resistance because too often being away from the classroom has rarely happened. Therefore, an atmosphere of trust, or "processual safety" must be created. The experience-based learning model proposed by Gullberg is based on “repeating exercises and opportunities for reflecting on exercises” [2] as what she terms a “co-generative model” which allocates time and space for collective reflection, not only collective action. Reflective moments can promote a sense of being a collective and lead participants to take seriously each other’s experiences and value talking/listening to unfamiliar perspectives. More importantly, she argues, without reflection on actions experiential exercises become less articulate and probably remain as singular instances of doing something “strange” or “artistic” [2].

To foster a committed and conscious design education for the public good, Danah Abdulla advances a locally-centric design education model. By “locally-centric design” Abdulla refers to design knowledge and developing design intelligence that amplifies situated practices, knowledges and needs over ‘universal’ and dominant western concepts and histories for approaching the seeing the present and imagining alternative futures [3]. Fostering occasional exchanges with other sites beyond the classroom, such as the studio, the agency, and the city, Abdulla argues that an important dimension of experiential learning is to adopt a student-centred approach. Because students at the heart of the locally-centric model, a major challenge for educators is to be very clear on aims and values [3]. Although, generating situations where students engage in active listening and learning from each other, she argues, the classroom becomes community. The student-centred approach enables educational environments where other ‘informal’ elements can contribute to learning, she argues, especially those which identify “students as active learners concerned with how they learn and their growth as human beings.” [3] From her research, the model works for the benefit of design students who are able to develop a strong sense of self-learning and resourcefulness that resist the obstacles to learning and build their own learning journeys and philosophies [3].

3.2 Critical and Speculative Design

Aiming to create a learning space that facilitates critical discussions about reality and encourages imagination of possible alternatives, *Transistórias* as an exercise on learning sustainability invited participants to actively think and act futures from within the lived experience and everyday dynamics of the community of Tapada da Mercês, Mem Martins, Sintra.

Drawing from the concept of “Rehearsing the Future” articulated in the “Designing Anthropological Futures Manifesto” (DAIM)⁶ [14], the project frames a concrete encounter where the future aspirations of local entrepreneurs meet the designerly competence of design students to explore new possibilities together. DAIM is a manifesto that advocates for an anthropological approach to co-design, and accounts for a participatory and speculative design process based on “concrete encounters where the future aspirations of everyday people meet the designerly competence of articulating new possibilities” [14]. More specifically, as Halse explains, the concept describes “the future as something to be rehearsed” [14] in the sense that already in the front end of designing, participants do what is usually at the end: they rehearse the behaviours, relationships and practices which can emerge with new products or services [14]. An important aspect of this process is “incompleteness” [14]. According to authors, the images of the future generated are partial fragmentary snapshots of possibilities where incompleteness is, according to Binder, what enables the powerful questions: What would you use this for? What would your life look like if you had this?” [14]. In this view, the authors argue that deliberate incompleteness can avoid premature closure of the design process and ensure it is open for re-interpretation and reconfiguration by diverse stakeholders [14].

The concept of “rehearsing the future” is parallel to the idea of “becoming futural”, argued by Fry, and in my perspective, points to a more pragmatic way to begin practicing a new temporal perspective to design for sustainability. Still, “[j]ust as the builders of medieval cathedrals had a vision of the building they were constructing even if they would never see it finished,” as Daniel Christian Wahl [22] argues, another major learning of the experience of *Transistórias* was to re-learn the design process facing a transformation process shaped, influenced, and changed over time. The invitation to the students was to design things together with the local entrepreneurs even if they never came to see the real outcomes of their collaboration finished or achieved. This was one of the terms of the collaboration in the project *Transistórias* that was made clear from the beginning to all participants. The design students represented one participant among many others in the long-term journey to build alternative futures in Tapada das Mercês. This aspect increased uncertainty and the not-knowing factor, for both the design students and the local entrepreneurs, in collaborating with each other. However, by giving the groups autonomy to

⁶ The Center for Codesign Research (CODE) is a former research lab founded by Thomas Binder, Eva Brandt and Joachim Halse, based at the KADK in Copenhagen, Denmark, where in 2016, I was visiting scholar and experienced the DAIM process with the CODE group.

experiment new possibilities in the present - rehearsing the future now – through rough prototyping and raw concept developing, “incompleteness” might gradually build confidence to tolerate unpredictability and even encourage open experimentation. During the process of *Transistórias*, the effort was to encourage students to rely on the processes and practices of product design to navigate the complexity of the experience.

Regarding the subject of the futures, these were the main lines that guided the proposal and process of *Transistórias*.

To make sense of the experience from an educator’s point of view, I turned to Critical Design and Speculative Design. The main reason was to research ways of “becoming futural” in the context of design to better understand how and why these might have manifested or not in the *Transistórias* project. Since the project ended, my main purpose has been to reflect on the problematics and strengths of the experience as a way to learn what matters knowing in and how to approach sustainability in the design classroom.

Critical design accounts for design practices that aim to critique dominant paradigms and contemporary aspects of our time, namely capitalism, patriarchy, colonialism, structural unsustainability [23], [24]. Some professional designers are considered socially and politically engaged, as they articulate criticisms from within the discipline by prioritising social issues and committing to making things together with the beneficiaries of design work to question industrial and commercial frameworks [14], [23], [24]. Other designers, within critical design, focus on producing artefacts and scenarios more specifically to raise public debates on issues of technology and sustainable futures. These practices emerged mainly connected to the works of Anthony Dunne and Fiona Raby [25] and Ramia Mazé and Johan Redström [26] who produced physical and interactive encounters with “impossible objects” and “fictional realities” to provoke public discussion. The rationale was to generate ludic or otherworldly experiences to shift perceptions to make way for change [16]. In the beginning of the 2000’s, these critical works became the basis for what is today called Speculative design. Speculative design is an emerging field where fictional or otherworldly artefacts and scenarios are part of an exploratory and generative inquiry to design possible futures [25], [27], [5]. Speculation does not aim to trigger debate and reflection, rather the goal is to open a design space between reality and the impossible to encourage novel relations that can potentially reconfigure actual problems, needs and futures [25], [27].

According to authors, speculative design recently became highly intertwined with Experiential Futures approaches in foresight studies [5]. Experiential Futures (XF), according to futures and foresight scholars Stuart Candy and Kelly Kornet, is a family of approaches which aim to contribute to develop and improve the public or wider social capacity for foresight by making futures visible and tangible [5]. Foresight scholars, since the 1970’s, have been mapping and studying images of the future of individuals and groups in different societies, through ethnographic methods. However, the ways in which these scholars have been giving shape to these futures has been mainly through theoretical, schematic, and verbal forms [5]. Speculative Design opened a range of possible material, performative, and transmedia ways to

render ‘images of the future’ tangible and concrete. In this view, Candy and Kornet argue that foresight-oriented projects can be extended by the design ability. As the authors argue, design abilities can create the “circumstances or situations in which the collective intelligence and imagination of a community can come forth” in ways that foresight practices cannot [5]. Still, foresight affords complexity, depth, and rigor to a speculative inquiry, which in the context of design has been criticized for oversimplification, misrepresenting and lacking scrutiny of concrete controversies and constraints [5], [28], [30]. Images of the futures emanating solely from designers, they argue, tend to focus on the author’s own narratives instead of representing wider communities and concerns [5]. The products and processes of these Critical and Speculative Design practices have been, for the most part, temporary and exhibited in art galleries and museums. For the critics of CSD, this aspect is crucial regarding public discussion which comes in contradiction with the transformations the field intends to provoke or seed [28]. Another negative impression is that these objects or installations appear to not offer any structural position regarding complex social, economic, and environmental issues, inducing impartiality and exonerating designers from actually taking political and ethical responsibility [28].

In this view, Candy and Kornet [5], propose an Ethnographic Experiential Futures (EXF) framework for conducting hybrid design/futures projects. The aim is: “to extend critical and participatory foresight work into a deeply embodied mode, by scaffolding processes to more effectively explore the futures thinking of diverse communities, using design (meant broadly here) to loop from an interior register to an exterior — thinkable, feelable, discussable — one” [5]. For Candy and Kornet, a hybrid design/futures ethnographic process opens promising new avenues for supporting social foresight through ongoing community elaboration and deliberation of future possibilities without losing sight of reality.

Positioning themselves at the tangent of design anthropology approaches, EXF traces interesting connections with the “rehearsing the future” concept. Therefore, in later sections of this paper, it may be fruitful to discuss the Transistórias activity as an instance of a hybrid design/futures project.

4 Transistórias: stories in transit(ion)

Promoting multi-level integration of people from different geographies in Greater Lisbon, through the K’CIDADE, Urban Community Development Programme, the Aga Khan Foundation (AKF) developed a strategy called “Oficina do Artesanato”⁷ (‘The Craft Workshop’). This strategy aimed to encourage local entrepreneurship and rethink local development in Lisboa, Sintra and Oeiras through a network of local workshops to make ideas real and facilitate networking between communities, citizens, public and private institutions.

⁷ Promoted by “Vidas Plurais” project, in partnership with CEPAC and “Sou Largo” cooperative, funded by FAMI.

In 2017, the invitation to the Lisbon School of Architecture of the University of Lisbon (FAULisboa), more specifically the research group GESTUAL⁸, was to collaborate with the workshop located in Sintra that had been founded together with the Association of the Islamic Community of Tapada das Mercês e Mem-Martins (ACITMMM). In some meetings, among the leaders of the community and the social workers of AKF, there was talk of ‘promoting access to design’ to support local entrepreneurs more effectively in Tapada das Mercês.

The invitation emerged as an opportunity to engage product design students to unlock community potentials and reflect about how a dialogue between academia and day-to-day life might drive social innovation and sustainability. Joining a conversation that was already happening, the collaboration with AKF was framed as a temporary partnership where the design students were contributing to a wider community-based project. The educational model proposed was the experiential learning methodology to promote a living laboratory in the sustainability classroom [30]. The community partners, who were protected by the infrastructure of AKF, became very excited with the prospects, so we set out to plan the semester and prepare activities together.

Transistórias (‘transition stories’ or ‘stories in transit’) was named after the perspective that craft skills, products, services, and experiences travel through time and across territories by the habits, traditions, religions, memories, and stories that migrant people maintain for their survival, well-being, or keeping family, geographical, or other roots alive. In newly conditions, it is a creative achievement to be able to ‘migrate’ these practices and perform them in a different place and time.

The project invited design students and migrant entrepreneurs to pair up and explore alternative futures through the stories of life, specific abilities, and day-to-day practices of the entrepreneurs in Tapada das Mercês (figure 1). In this view, Transistórias was framed as a co-design project where people with different backgrounds – the students and the entrepreneurs – jointly explored alternative futures that tackle current social, economic, and environmental struggles in the city.

Engaged in the course unit of “sustainability of products and services”, the design students were to make sense of local issues and support the co-creation of operative visions of sustainability by focusing on what design can do for local present and future experiences. Sustainability was introduced to the design students through encountering real-life situations. For the local entrepreneurs, collaborating with students and engaging with design to see things differently, could generate the necessary critical distance to enable them to rethink the limits and potential of their skills, day-to-day practices, and future experiences. In this dialogue, which had educational objectives on one hand, and project objectives on the other, resources, methods and instruments were mobilized, organized, and designed specifically to support the collaboration between participants. The AKF workers and me, were the

⁸ GESTUAL - Group of Socio-Territorial, Urban and Local Action Studies is a research group at FAULisboa and CIAUD (gestual.fa.ulisboa.pt/en). As a member of the research group, because of my Ph.D. research at the time, I was participating in some of these meetings with AKF workers and community stakeholders.

team collaborating to make sure the process stimulated a peer-to-peer relationship between the students and entrepreneurs, while underpinning an autonomous co-design practice along the way. During the process, we were concerned with finding ways to avoid colonizing each other's thoughts and allow the right and presence of everyone to participate on their own ways and share ideas and experiences.



Fig. 1. The first session of Transistórias: design students and the entrepreneurs pairing up. Picture credits: Aga Khan Foundation

The project was divided into three main stages:

1. Make a video documentary that expresses the specific identity and story of life of the entrepreneur. This is based on the approach "a day in the life of..." where the design students follow the entrepreneurs, with cameras, to record what is and how the craft is performed, and collect everyday stories told in the first person.
2. Engage in round table conversations to map the "life cycle" of the craft process, identifying resources and logistics involved, understand internal and external community relationships, SWOT analysis and SMART scenario tool.
3. Prototype: each group decides either to materialize a specific idea or to design a toolkit that integrates visions of what are possibilities and how they can be realized in short and long term.

In terms of evaluation prerequisites, besides the process and the outputs – video; maps, canvas, and prototypes; the design students were asked to write a “diary board”. The diary was a reflective instrument aimed to encourage observation and reflection about key moments of the experience during the process of Transistórias. It came with a series of guiding questions. Some of them addressing the co-design experience others pointed to sustainability matters. For example, describe ‘aha’ moments, moments that exceed expectations, on others that raise frustration, describe how the life stories of entrepreneurs have impacted or inspired; what do you think sustainability mean in this project, why is this project relevant in the context of designing for sustainability, why it is relevant for ‘me’ now and in the future; the performance of the team that coordinated the project (teacher and others) and suggestions to improve, other issues.

Each month corresponded to specific tasks according to the three stages and every week the design students moved to Tapada da Mercês and the class / project meeting with the entrepreneurs and the AKF social workers took place in the local workshop space.



Fig. 2. Filming the entrepreneurs’ day-to-day practices in Tapada das Mercês, Sintra. Picture credits: author

In September, the process set off with two meetings between the design students and the entrepreneurs to get to know each other and pair up according to mutual interests. After these sessions, at the school on a regular class, the students argued that

the project did not offer a structural position vis-à-vis inequalities and socio-economic problems faced by migrant people in Portugal. The issues brought up by the entrepreneurs in the sessions had been too serious and too intractable to begin to address by design. It seemed that anything other than responding to the immediate struggles and desires of the entrepreneurs, would be trivialising important issues. Therefore, they argued, the social workers should be the ones to take over the project and take responsibility to support the entrepreneurs. My position was to listen to the students concerns. But in the beginning of activities, I argued it was too soon to dismiss the process and it was normal to be feeling overwhelmed, especially in a process where the role of design is not given but uncertain and problem definition is key. At this point, we all agreed to continue.

In October, the first practical task was to film a day in the life of the entrepreneurs, to document or record the specific activities of the entrepreneurs in Tapada das Mercês (figure 2). Video was meant to function as an ice breaking tool to foster proximity between participants. On one group, instead of filming the actual day-to-day practices of the entrepreneurs, the student proposed a cooking challenge to get to know and reveal the cooking skills of the entrepreneurs.

In November, participants did round tables and collective debate sessions were promoted that were mainly guided by a canvas tool which we called “Cycle of Production Canvas”⁹. To fill in the data, the groups had to identify and discuss what are the major relations, touchpoints, actors, and resources that participate in making real the products and processes engaged by the entrepreneurs. This identification served as a diagnosis of the economic, environmental, social, and cultural aspects related to the everyday life in Tapada das Mercês, and a SWOT analysis of the practices of the entrepreneurs. In parallel, the design students were editing the video documentaries, so some meetings were also dedicated to the presentation and critic to deepen or complete the video narratives (figure 3).

In the two sessions we had in December, the groups worked on SMART Scenarios, to critically raise the most relevant issues in their group as well as brainstorm ideas and potential scenarios, exploring means and ways that might improve, sustain, or make formal the practices of the entrepreneurs as sustainable economic, social, and environmental services and products.

For the last stage of the project, the groups were asked to produce a prototype or a toolkit as an outcome of their collaboration, understood as a vision of possible alternatives or a manual for possible implementations. It was the end of the semester, and the students were experiencing great pressure.

Although there was no direct feedback from the students during the process, there were several concerns registered in the diaries. Before reading them for evaluation, the students presented them in the last class in the last week of the semester we had

⁹ This tool was created by us, the social scientists and educator, as an adaptation of the Business Model Canvas. This ‘production cycle’ canvas was meant to describe in detail many aspects of the craft practice of the entrepreneurs namely what activities, materials, resources, costs, interactions, people, and others are involved in its daily performance.

alone, both the students and me, in the school. The negative responses to the process were, for instance:



Fig. 3. Transistórias session at the Lisbon School of Architecture. Picture credits: author

“I felt that we were presented as a final solution to all sorts of problems of the entrepreneurs.”

“The concern is about the fact that who we are working with are who will be disappointed. The impact of this exercise can never be the desired one (no matter how much empathy I feel for the people).”

"I've realised that I need to trust more on my vision as a designer"

"It has been confusing to manage to reconcile the needs of the entrepreneurs, with the subject of sustainability and with desires of the AKF team.”

“The project lacks orientation”

“I consider that perhaps the project could have been carried out with more guidance within the classroom, and more theoretical classes only between the teacher and students [...] having orientation in the presence of the "clients" takes away,

somehow, our freedom to discuss the problems more openly, without fear of embarrassment."



Fig. 4. The entrepreneur A.S. making preserves for the exhibition and labeling the bottles
Picture credits: AKF

In January, while finishing all the material outcomes of the co-design process with the entrepreneurs, the design students decided to not collaborate further in setting up the exhibition.

The exhibition took place few months after the semester ended. In the absence of the design students, to produce the event, the entrepreneurs drew enormous stimulus to continue. The encounter with the students had been a catapult to critically reflect on their life stories and grasp their present experience anew. For the exhibition, some entrepreneurs did something different from the project developed with the students, recognizing diverse possibilities in their skills, for instance, proposing juices or preserves as potential products and services. In other cases, they effectively continued the process developed with the students (figure 4).

The Transistórias Exhibition at Casa do Elétrico, in the city of Sintra, represented a moment of closure but also an opportunity to continue the debate on the struggles faced by migrant people in the city and to show alternative images of the present and future in Tapada das Mercês. It tried to do justice to the learning space and time between the entrepreneurs and the design designers and bring to the public the idea that there is indeed innovative potential in the encounter between different knowledges, imaginaries, and stories (figure 5 and 6). For the inauguration event, two design students were present.



Fig. 5. Each group was represented by the materials engaged and that resulted from the collaboration between design students and local entrepreneurs. On the top: the group working the 'Fairy' store. In the middle: the cooking group and with the preserves that the entrepreneurs decide to venture in the last stage of the process. On the bottom: the carpetbag to sell jewellery in the streets designed with the entrepreneur. Picture credits: author



Fig. 6. For the launching event of the Transistórias exhibition some key figures were invited to be present, namely the Portuguese representative of the High Commissioner for Migration and the CEO of AKF Foundation, who are speaking with the entrepreneur A.S.. Picture credits: author.

5 Futuring from the inside: critical and speculative design thinking to re-imagine sustainability education within design

From the perspectives of experience-based learning, Transistórias can be regarded as a community-based project set-up within design for sustainability education. The coming together between design students and local entrepreneurs staged a dialogue based on mutual transformations that worked for mutual benefit. The entrepreneurs who are often excluded from the decisions that directly and indirectly affect their lives, participated as decision makers and experts of their own experience. The design students, beyond experts, actively participated in how futures might be shaped practicing ‘real world’ designing with and for real people. However, along the process, questions emerged on the relevance of the experience for learning sustainability more precisely. The complaints of the students in the beginning, and their withdrawal in the end, however justified by other academic affairs, became an important event when they argued they were not learning about sustainability. If sustainability is about imagining and acting alternative futures, with the lenses of

Critical and Speculative Design (CSD), how were futures approached and experienced in Transistórias? Seeing the project as an instance of experience-based learning in the context of product design education, how sustainability was articulated in the project?



Fig. 7. The Transistórias newspaper, designed for the exhibition to function as the catalogue. It had a double page dedicated to a visualization and description of the project’s methodology. Design credits: author

Designing with real people in a real-life context, the design students cared for not losing sight of the real priorities of the entrepreneurs. The co-design situation challenged them to pave ways to reduce distance with the unknown and unfamiliar, i.e., the entrepreneurs, the everyday in Tapada das Mercês, etc. Therefore, they opted to work with images of the future that were far from generic or fictional so as not to neglect the now of the entrepreneurs. In this process, ‘why’ became a guiding question to balance the spectacular with the ordinary and a driver to explore how futures could actually – not just in principle or as fiction – be different. To give an illustrative example, matters of Eco-Design or Circular Economy were continuously put into context and turned down. This was not because they were not real or potentially present, but in the face of other pressing social and economic matters brought forth by the entrepreneurs, these didn’t fit or immediately affected the local horizon. In this view, the speculative futures practice engaged by the design students

in Transistórias cared for what lies "just ahead" as the incremental transformations and concrete proposals for change grounded in people and place.

For the local entrepreneurs, Transistórias generated an experience where they were able to experience the future as a horizon that affords multiple perspectives on the now and their stories of life. The collaboration with the design students had a hopeful and decolonizing effect that propelled them forward to experiment with alternative representations of their own lived experience. Besides generating moments where preferable futures were within reach, an illustrative example is when, preparing for the exhibition, some entrepreneurs decide to speculate even other directions – through and beyond the collaboration with the design students - and rehearse potential implications in their day-to-day life of, namely, making and selling juices and preserves. This processual safety to experiment is remarkable of how the experiential encounter with the design students changed the entrepreneurs.

Observing the two sides, my argument is that Transistórias formulated a practice of designing for sustainability from the inside.¹⁰ Away from matters of the planet, global climate and ecological care, participants did not turn to fictional or alternative futures as an outside or otherworldly scenario which came to provoke local thinking and action. Instead, they engaged in speculating futures by redirecting the present through a process of grounding imagination in the specificities and implications of lived experience. This deeply embodied approach to thinking and acting futures framed situated amplifications and extensions of the present. Futures in Transistórias were open but not empty [8]. In the dialogues between the design students and the entrepreneurs, preferable futures emerged as consequential transformations of the present, as they focused on co-establishing a common view of the present and then proceed to speculate new possibilities. According to authors, this is a default assumption that the future is an extension or amplification of the present [6]. Were students not able to redirect their design practices for sustainability, imposing constraints on imagination and confidence to take risks? It's important to note, however, that this assumption was already inscribed in the briefing of the exercise. Here the role of designers is described as one which uses design to identify and amplify potentials in the present moment. However, getting the participants to be clear about 'why' we design something, what are the values and visions guiding the images of a better future, was a major learning for the design students regarding a "locally-centric" experience of sustainability [3]. Having to evaluate better 'what' to design and how 'our' interventions are likely to contribute to positive change, in the context of designing for sustainability is crucial, according to Wahl [22]. Therefore, by the way the design students were careful of the co-design process and embraced the other's point of view, there was a different ethos and ethics of design emerging and being articulated. One which, as Gullberg argues, lead participants to take

¹⁰ From the inside is an expression by Tim Ingold (2013), in his book "Making", to describe participant observation as a process where "we owe our very being to the world we seek to know. In a nutshell participant observation is a way of knowing from the inside." (Ingold, 2013, p, 5)

seriously each other's experiences and value talking/listening to unfamiliar perspectives.



Fig. 8. The Transistórias newspaper: the Madlocks group. Design credits: author

In Transistórias, ideas about ‘what might be’ emerged through mundane things, i.e. objects, tools and activities that were interrogated as potentials in the experience of ‘what is’ the day-to-day experiences of the entrepreneurs. This way, participants engaged in rehearsing the future not by experimenting novel possibilities, prototyping fictional artifacts, or staging otherworldly scenarios. Rather they highlighted the things that were already in the present contributing somehow to sustain the survival, well-being, and growth of the entrepreneurs. To give an illustrative example, the Madlocks needle was an extension of an ordinary crocheting needle already used as a tool by the entrepreneur. The moment the students were filming the practice of rasta making, a needle emerged in their imagination as a designed product from a possible future where Rastafarian Hairstyle tools would be part of any hairstylist toolbox. Becoming futural for a moment, the design students captured something in the world of the entrepreneur that was sustaining of his daily life experience, even if it lacked formal recognition as such (figure 8 and 9). In a state of “incompleteness”, the needle was something evocative that invited participants to make something more of it together [14]. When more concrete aspirations and desires of the entrepreneur were shared, the group abandons the needle. It began to be seen as something trivial in the face of more complex visions of better futures.

Drawing from sociologist Ruth Levitas, Ramia Mazé [8] argues that a danger in future making processes is that “[...] if our utopias (or future designs) are only the

expression of our desires, we risk a perpetual present mode of living with alienation.” This argument points to the criticism to CSD for oversimplification, misrepresenting and lack of depth. But what happened in Transistórias, demonstrates the opposite. The ethnographic experiential engagement was co-generative and built a sense of being a collective.



Fig. 9. The needle identified by the design students and used as tool by the entrepreneur, turned into reality. Picture credits: AKF

Still, we might question if the process was able to question biased narratives or single stories when the students were deeply in service/committed to others and that fact led them to abandon their own perspectives on things. The withdrawal from the ‘imaginary’ needle was quick and easy because the students considered it something that came from the designer’s appeal to products and not from the more immediate concerns and real interests of the entrepreneur. Still, as an educator I insisted with the group to keep the needle because it was the most concrete future evidence of their encounter. Moreover, it merged both of their competences into a material thing that

opened new possibilities for the entrepreneur, if not even public discussion about futures of Rasta hairstyle making and craft.

In this view, the material artifacts resulting from the collaboration between the design students and the entrepreneurs, although not fictional, were ‘extra-ordinary’ things that accounted for situated intersections of design and everyday life. Later, some of these artifacts, in the exhibition raised public debate about the present situation and possible futures within and beyond Tapada das Mercês. The carpetbag to sell jewellery and the cart to sell and roast corn were ethico-political devices that spoke of current illicit practices taking place in Tapada das Mercês. Considering them as things from the future, they claimed for a reality where the removal of some prohibitive barriers afforded better social and economic conditions for the entrepreneurs. The impossibility of these artifacts in the now advocated more intensely and in vivid manner for alternative futures unfolding for migrant people within and beyond the community of Tapada das Mercês.



Fig. 10. The 3D render and concept of the cart to sell and roast corn designed by the students, featured in the Transistórias newspaper. Design credits: author

On a macro scale, Transistórias was a tactic to make way for change. The agenda of the stakeholders was to raise awareness of issues of hunger, poverty, mental health, economic precarity and employment struggles experienced by migrant people in Portugal departing from real stories and experiences. The project did it, however, in

an unexpected manner by circling around these very issues. The invitation of Transistórias was to look sideways towards day-to-day practices as the structural/strategic position from where transformative potentials might be revealed and designed.

Another important episode in Transistórias was when, in one group, the design students shared the idea to make a film documentary that disclosed the struggles of the entrepreneurs who roast and sell corn in the streets. These entrepreneurs and the AKF social workers, however, from the beginning had a vision of a product-service food cart that might provide dignity and function as a controversial product to question the illicit practice in the public space. As a view of a possible future, indeed, nothing was more striking than the fictive image (3D render) of a cart selling and roasting corn in the streets of Tapada das Mercês in the newspaper and in the exhibition.



Fig. 11. The video portrait filmed by the students, featured in the Transistórias newspaper.

This event clarifies another insight, this time on the capacity for foresight and the ability to make futures visible and tangible.

Transformed by the encounter with the entrepreneurs, these students wanted to denounce what is happening in the present through the evocative stories of life of the entrepreneurs. Certainly, to be seen and acknowledged empathetically by the public was a possible alternative that might enable the entrepreneurs to negotiate a different present with the authorities. What the students missed, however, and the entrepreneurs themselves tried to convey, was that the present was already

sufficiently and intensely exhausted to work as an alternative. Despite the continued arrests, the entrepreneurs kept on selling and roasting corn in the public space. Seeing from their perspective, the image of a food cart tells a different story of the present not through 'what actually is' but through 'what might be' possible for them. Predicting what could happen in the future, after the launching of a documentary, and after using a food cart in the public space, the entrepreneurs were much more excited with the second option even if it were the most impossible one. In this view, making futures tangible and concrete is not so much about the means to tell a story, hence comparing the visual documentary of a life story with the 3D rendering of a product-service. The crucial point is about what the entrepreneurs and what the students envision as futures that might be capable of transforming reality, moreover that might be able to catch the public's attention and imagination. This episode puts emphasis on the fact that Transistórias created the circumstances and conditions that allowed for multiple and conflicting ideas of the real and the future to emerge. Transistórias was a critical co-design space in which participants – not only the students and the entrepreneurs but also the social workers and me as the educator – focused more immediately on ways of relating with each other. Especially, the AKF workers and I, cared for how each group and design process was opening or foreclosing pluriversal interpretations of what is 'sustainable' and enabling all participants to see and act in relation and otherwise [8]. Seen as an exercise on foresight, however, it was making clear how design itself needs to change regarding the work on rehearsing futures. Both means or artifacts provide a partial view of what is and might be sustainable, on in the view of the entrepreneurs and another in the view of the design students. These were two different visions of what might be futuring, that is, what might be conducive to better futures. One which focused on 'what is' and another on 'what is not' but could be. The potential 'what if' or 'not yet' of the food cart overrules the documentary for its ability to rehearse a different future, in depth and in material terms, instead of telling the present must change from a screen in abstract terms.

A major learning in the experience of Transistórias, was that the design and implementation of any intervention can contribute to change but cannot control it. The entrepreneurs were prepared and excited to take responsibility for their image of the future. The design students insisted on promoting public debate through a more empathetic approach. The stories of life of the entrepreneurs were so evocative that they had been enough to change them, hence, probably enough to change others, as the students argued. With this episode, we may claim that the autonomy that had been given to the learners to draw upon their own product design skills to interact with reality, meant in Transistórias, as an exercise on designing for sustainability, engaging conventional modes of designing. The challenge and opportunity with the experiential, and deeply embodied mode, was that sustainability was grounded within thinking and acting futures from a definition of sustainability as the sustainment of the well-being of the entrepreneurs. Designing products and strategies with beneficiaries of the design work, in other words, designing things based on an understanding of the inner working of a community, sustainability in Transistórias was a transversal matter that cannot be decided once and for all but is continually negotiated [8]. What is understood as 'sustainable' is open to 'pluriversal' interpretations and worlds [8],

[29]. Still, the co-design process was able to generate possible designs to regenerate underlying life support systems and resources within a situated socio-economic-ecological whole [22]. Therefore, sustainability as the common subject of climate change mitigation and adaptation, regeneration of local and global economies, nature-based behaviour changes and cultural transformation, resisted full recognition or full articulation. Part of the frustration felt by the design students was that they never seemed to be able to hold sustainability entirely in their hands. And this was part of my frustration too.



Fig. 12. The Transistórias newspaper cover with the headline “How can a learning space and time established between entrepreneurs and designers can foster innovation through cultural recognition? We’ve experimented”. Design credits: author.

Another aspect of the process was that the collective reflections focused mainly on project-oriented actions, i.e., what had been done so far, what may be next steps. My one-on-one reflections with the students alone, were about the terms of the collaborative and educational encounter with the stakeholders. An important factor was that collaboration was not voluntary, on the part of the design students since the exercise was mandatory. Nevertheless, to articulate sustainability matters and skills more properly time and space should have been allocated for collective and one-on-one reflections that focused solely on sustainability as a common subject [2]. Moreover, a concrete conceptual framework that might help learners grasp the

interrelationships and make bridges between common sustainability matters and situated personal issues. This aspect relates to holistic and systems thinking, which may require more one-on-one teaching and different learning methods, drawing from Shuman [1], since these are fundamental skills of sustainability that were missing. In this view, Transistórias was not a student-centred pedagogy regarding sustainability learning since it did not nurture a “processual safety” to resist the obstacles for learning sustainability. If broadening the contexts where and with whom designing takes place was not working for the students to broaden sustainability and design knowing and craft, then Transistórias did not work as a redirective platform. Probably, Transistórias remains a singular instance of doing something ‘social’.

6 Final considerations: more questions than answers for the future

Transistórias is an attempt and experiment on experience-based learning in the specific context of sustainability and product design education. Establishing a locally-centric design for sustainability exercise, the design students were able to experience how design problems and their solutions emerge in tandem. Co-designing with the entrepreneurs helped focus on values and implications of design decisions and the risk of unintended consequences. During the process, the design students cared for feasibility and applicability of ideas, much more than questions of novelty, originality, or critique. The small-scale made the boundaries of intervention more immediately identifiable and co-generative, so the groups were able to amplify personal experiences and needs for the future over universal and common demands on sustainable development. Advocating a definition of sustainability as the sustainment of what can contribute to the well-being of specific individuals, futures were understood as making something more with ‘what’ is already life-affirming. To have experienced this process is a major learning for the design students because they were able to think and act on ‘what may be’, ‘not’ or ‘not yet’ sustainable and futuring, deepening soft skills that contribute to mindful and responsible product designing.

However, experience-based learning, as we have seen, produces complexifications, bifurcations, and multiplicities for approaching sustainability in the design classroom. The reflection departing from Critical and Speculative Design lenses, helped to clarify how the design discipline needs to change too regarding the work on futures and foresight. Designing for sustainability in the Transistórias classroom was about critically questioning the actual world and learning to grasp potential or incomplete alternatives in the present moment. But for a future experiential classroom, it must be as well about learning to shift the way we see transformation. Transistórias framed a learning experience as well for the entrepreneurs. When the entrepreneurs gained confidence to experiment and rehearse futures by themselves, their example demonstrates that becoming futural is to approach futures as a matter that can be rehearsed. How can expert design learners engage in such futures designing experience? Could it be by encouraging ludic exploration of fictional or otherworldly

products or designing for extreme or impossible scenarios? Transistórias unfolds opportunities to reflect on how a discussion of futures, whether real or imaginary, must be material and concrete to affect change and learning.

What if putting the design students at the heart of issues? In other words, engaging in a process that is mindful of themselves as agents of changing their own environment? What we witnessed in the Transistórias project was not a student-centred pedagogy but an experience of community-centred and human-centred design. The design students learned to ground sustainability issues in the specificities of the lived experience of others. Taking a more altruistic and humbler, still autonomous, role in changing the environment, participating with the world changing itself. In the context of product design education, at a master's level, were these learnings enough, useful, and relevant? Aiming towards a redirective platform, does a community project that articulates a co-design process and focus on sustainability of products and services, can practice the knowledge required for the students to think and act sustainable futures in the future? I leave this reflection with more questions than answers. Still, as a final consideration, CSD framed a more positive and affirmative way of looking at futures, from a design perspective, that allowed to clarify some intricate episodes of Transistórias in terms of contributing to sustainability education. Transistórias, beyond expectations, fruitfully and provocatively speculates, and hopefully opens wider public discussion, on what is and might be the design for sustainability classroom?

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