#ECOTERACY, DESIGNING AN INFO INCLUSIVE AND UNIVERSAL LANGUAGE OF SUSTAINABILITY

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ABSTRACT

The 17 UN Sustainable Development Goals 2030 have been developed with the intent to transit towards a more sustainable society. This paper focuses in particular, in goals 10, 11 and 12 (10-reduce inequalities, 11-sustainable cities and communities, 12-sustainable consumption and production), and links these goals to the concept of Circular Economy (CE) via the co-construction of a new design artifact. Although important, the concept of CE seem to focus on organizations and industries, and still little research has focused on exploring citizen's role to achieve sustainability. This study attempts to provide a critical analysis of CE application within human sphere, through a design research methodology. A design artifact is developed through a co-creation workshop at BIN Porto 2018 which involved the collaboration of eight people, including academics, industry and government representatives. The artifact resulted in a visual, intuitive communication tool with four domains and multiple criteria. ESSA enables users to visually and intuitively understand the impact of the product/services they purchase and make more informed decisions on-spot. The artefact was publicly presented at the end of the Bin Porto 2018 event, and has received positive feedback. The present article focuses on the reflection of the artefact.
Key Words: Circular Economy, Design Research, Design for sustainable behaviour

1. INTRODUCTION

The need to shift towards more sustainable production patterns and migrating away from excessive consumption is a priority (Kates, 2018). However, it seems that the movement towards sustainable development is evolving rather slowly, shadowed by the discourse of economic growth. The concept of CE, an alternative paradigm which aims at regenerating and restoring ecosystems through efficient use of material and energy flows (EllenMac Arthur Foundation, 2015) has been discussed since the 60's (Boudling, 1966), and has gained new traction in the late 80's (Brundtland, 1987; Pearce and Turner, 1990). However, it seems that it has emphasized the industrial/production systems over social human systems (Lofthouse and Prendeville, 2018), which are an integral part for the transition.

Just as sustainability, the concept of CE, remain rather vague in literature (Millar et al., 2019, Geissdoerfer et al., 2017). In their review of 114 definitions of the CE, Kiechherr et al. (2017) revealed that only 11% of them included notions of sustainable development and only 13% refers to all the three dimensions of sustainable development i.e. environment, economy, society. Moreover, the interconnections between CE and sustainable development are not always clear, leading to multiple models, which partially address the problems inherent from the linear model (make-use-dispose). Some authors argue that discussions revolving around CE are made mostly from the environmental perspective leaving economic benefits under addressed, whereas others argue that the economic component has received the most attention. A more revealing result is the lack of attention to the temporal scale (future generations) and societal component, with only 1% of references made in CE definitions (social equity in present and future generations) (Geissdoerfer et al., 2017).

Numerous studies can be found to support industry to become more circular, but little research explores how the social and/or human components can lead to sustainable transformation. If CE is interpreted as a tool or an approach to achieve such sustainable development, then the societal component needs to be more emphasized within the CE discourse. Kirchherr et al. (2017) proposed CE to be defined as an "economic system that replaces the end-of-life concept with reducing, alternatively reusing, recycling and recovering materials in production/distribution and consumption processes. CE operates at the micro, meso and macro levels with the aim to accomplish sustainable development thus simultaneously creating environmental quality, economic prosperity and social equity, to the benefit of current and future generations. It is enabled by novel business models and responsible consumers". This definition reflects all the dimensions of sustainability, while also putting forward a new element, previously unclear: the active role of consumer as a factor/element to achieve sustainable development. Indeed, within current discourses of CE, users/consumers still seem to have a more passive role (Lofthouse and Prendeville, 2018; Sanders and Stappers, 2008; Morelli 2007; Manzini 2011).

Design is a discipline places human experiences at the core of its practices and is recognized to be important for meaningful innovation (Dunne 2011). Through the construction of symbolic meaning then, design can be beneficial to (re)shape culturally dominant value systems (Lofthouse and Prendeville, 2018), going beyond its role within the technocratic context (eg. eco-design, cradle-to-cradle) and contributing to the development of alternative modes of leaving and doing (Manzini, 2015).

This research attempts to explore how consumers can be better involved within the CE discourse by co-creating a more inclusive sustainability language. The main argument reasons with Holden et al. (2017) which emphasizes that satisfying human needs, including enhancing human capabilities, can help ensure more social equity, and respect of environmental limits.

2. RESEARCH METHOD

To explore how consumers can be involved in CE discourse, the current study adopts a design research methodology (Buchanan, 2001) to create a new artifact with symbolic meaning, which can better enable the activation of the population, and facilitate the beginning of a bottom-up movement towards sustainability. Within design research, artifacts can be developed in situ, embedding design knowledge (Zimmerman and Forlizzi, 2008). Following the guidelines provided by Buchanan, the study (1) develops a new artifact (design language and matrix) in a reflective and iterative process of co-construction of meaning to solve a class of problem, and (2) reflects upon the potential use and impact of the artifact in-context.

The artifact was developed within the setting of Bin@Porto 2018 Circular Economy co-creation workshop, which lasted for three days. Eight people actively contributed to the development of the artifact, including academics, industry and government representatives, with backgrounds on environment, product and service design, engineering, architecture, as well as policy making. The internal development process followed a design thinking approach (Brown, 2009). First (1), within the context of CE, the team identified the main problem to be addressed based on three SDG 2030 (10-reduce inequalities, 11-sustainable cities and communities, 12-sustainable consumption and production). The participants (i.e. experts) shared experiences and co-constructed their understanding of the problem, based on their own background, knowledge of literature and/or case studies. Second (2), a set of ideas were proposed, combined and evolved to create a solution (design artifact). Third (3), a low-fidelity prototype of the artifact was developed and (4), a set of strategies were proposed to further develop the language and proceed to it implementation in industry. Finally, the artifact was publicly presented at the Bin@Porto 2018 event, and feedback was collected to enhance it.

3. RESULTS

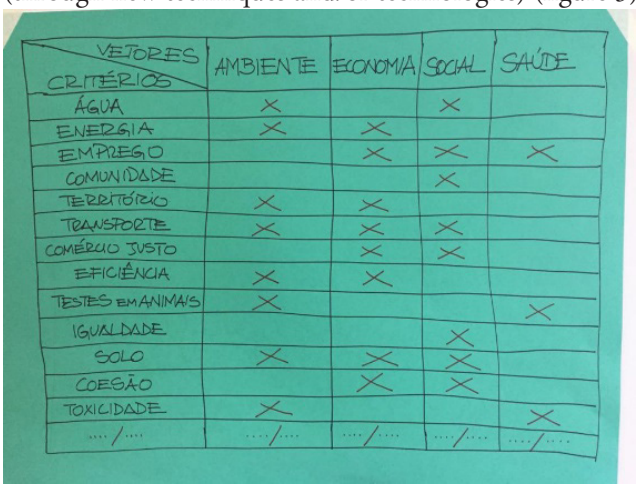
3.1. Problem definition

During the first stage of the process, the team democratically selected three UN SDG: 10 reduce inequalities, 11 sustainable cities and communities, 12 sustainable consumption and production. The combination of these goals triggered much discussion about waste versus resources, production patterns, and the role of design within product planning and development (e.g. life cycle assessment of products and services, planned obsolescence). After some discussion, the team decided to adopt a human-centred perspective, putting citizens and communities at the center of the discussion, thus reducing the emphasis of goal 12 (which usually puts forward a more organizational-centric view).

The results of this first stage and change of focus, enabled a more in-depth discussion on the role of citizens within sustainability. A more in-depth discussion on the role of citizens within sustainability was undertaken and the team concluded that the illiteracy about sustainability and inequality of access to information contributed to a perpetuation of the current status quo (unsustainable consumption). A more intuitive language of sustainability and inclusion of the info excluded population could hence potentially activate citizens, and provide an important input to start a transition, where citizens take a more active part in the sustainability discourse through their consumption choices.

3.2. Designing a new artifact

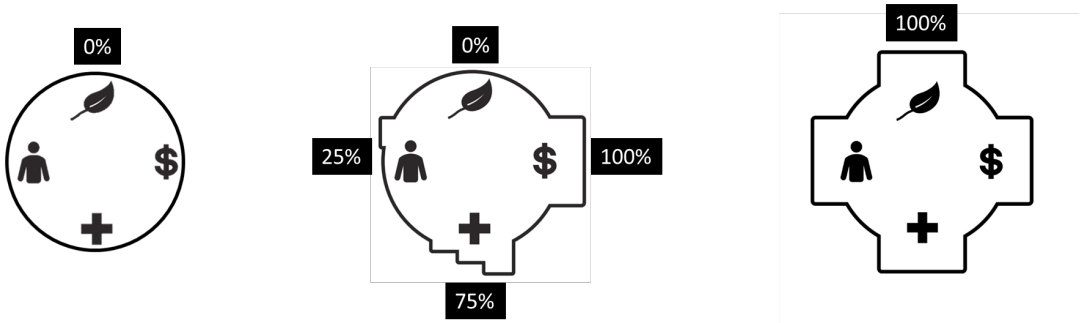
Two artifacts were developed to address the problem identified: a sustainability matrix (figure 1), and a visual infographic of sustainability (figure 2). The sustainability matrix (figure 1) establishes a connection between four key domains of sustainability and multiple criteria. The four domains represent the key axis of sustainability i.e. Economy, Social, Health and Environment or ESSA (Economia, Social, Saúde and Ambiente, in Portuguese language). Although not accessible for the users, the matrix (figure 2) provides important information about the criteria necessary for audits of products. For example, the environment domain can contain information about water use of energy, whereas health could contain criteria related with ethics (test on animals) or toxicity. A top class producer at the environment domain with excellent use of water criteria, can only remain in that position if no other producer is making a better use of water (through new techniques and/or technologies) (figure 3).



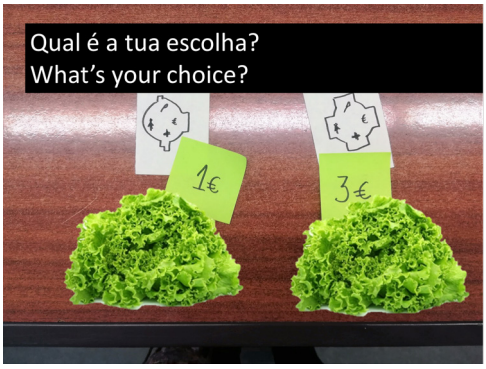
VETORES / CRITÉRIOS	AMBIENTE	ECONOMIA	SOCIAL	SAÚDE
ÁGUA	X		X	
ENERGIA	X	X		
EMPREGO		X	X	X
COMUNIDADE			X	
TERRITÓRIO	X	X		
TRANSPORTE	X	X	X	
COMÉRCIO JUSTO		X	X	
EFICIÊNCIA	X	X		
TESTES EM ANIMAIS	X			X
IGUALDADE			X	
SOLO	X	X	X	
COESÃO		X	X	
TOXICIDADE	X			X
..../....	..../....	..../....	..../....	..../....

[Figure 1] Sustainability matrix which relates domains (environment, economy, social and health)

Additionally, a new universal visual language was created to complement the matrix. The visual infographic in figure 2 was designed to: (1) integrate the four main domains of the sustainability matrix, providing a visual rank of the sustainability level of product; (2) be easy to read across people from different age groups and education levels; and (3) facilitate the comprehension of the quality of the product/service purchased/used enabling a more intuitive decision-making between apparently similar items (figure 3). In addition to this, the new language could integrate current certificates by association (e.g. bio certified products have higher classification in the environment component), thus reducing the loads of information currently displayed in packaging.



[Figure 2] ESSA, with the domains and their classification (left: worst case; right: best case)



[Figure 3] ESSA enables a more intuitive and informed decision at the time of the purchase of apparently similar products/services

3.3. Evaluation of the artefact

The design artifact, which resulted from the workshop, was formally and publicly presented to the Bin@Porto2018 audience via presentation and role play. Feedback was collected after the presentation via group discussion with members of the audience, and through one-o-one presentation with different companies, including IKEA. The feedback was mostly positive amongst citizens/consumers (e.g. "this is a language that I can understand easily, all those labels and certificates are sometimes hard to understand because they are so many now"). Feedback from industry was also positive however, one of the main concerns focused on the difference between sectors/industry, and the level of difficulty to categorize certain products and services.

The language presented herein is but a tool to start a transition of mind-set from the citizen perspective, and is aimed to be used as provocation for users to understand their own potential active roles within cities and communities. They can, if informed, create/demand change through daily consumption choices and enforce more transparency of the production process.

3.4. Working towards implementation

A strategy to disseminate the new language was established. A pilot case study within a specific sector/industry will be used to further develop the artifact and investigate its meaning for users, in context. Based on the case results, the language would be expanded to other contexts and sectors. Finally, upon iterative development of the language, a proposal for a new set of guidelines for policy implementation across sectors will be developed. This development program involves different key partners. Amongst the key stakeholders – citizens – the project would also include academia (including design practitioners, design educators, researchers as champions of the language), all sectors of activity (including industry), public administration with special emphasis on the local entities, as well as communities.

4. IMPACT ON SUSTAINABILITY

The current models of sustainability and Circular Economy are important to enable the transition towards more sustainable societies. However, they seem to focus more on organizational industries networks, where citizens have a little role. This study aims to responds to the call of Lofthouse and Prendeville (2018) by exploring how the transition towards a more sustainable model of society can be triggered by a bottom-up design approach, looking at the consumption model, and its potential influence and scale effect on the production model.

ESSA – a visual tool for all, about sustainability – and the sustainability matrix, were developed to support citizens making more informed decisions by bringing transparency to the quality and sustainable impact of the products and services they purchase/use. The potential of the replicability of ESSA started in this workshop has already been initiated in online social networks (e.g. #ECOTERACY, #ESSA) inviting more and more citizens to join a movement, demanding a clearer and more accessible information about sustainability.

At this point, the research is only at the beginning. Future research steps focuses on applying the tool on a pilot case study, and explore its impact on the choices customers make and create a development program with different partners. It is important to infuse the language within the design profession, as they are also potential champions of sustainability within the organizations they work in.

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