International Journal of Design for Social Change, Sustainable Innovation and Entrepreneurship

discern

https://www.designforsocialchange.org/journal/index.php/DISCERN-J

ISSN 2184-6995

Vol. 1 No. 1 (2020): Inaugural issue

International Journal of Design for Social Change, Sustainable Innovation and Entrepreneurship

discern

https://www.designforsocialchange.org/journal/index.php/DISCERN-J

ISSN 2184-6995

Circular and Sustainable Design: A systemic design model for the transition to a circular and sustainable economy

Published online: November 2020

To cite this article:
Camocho, D.G., Vicente, J., & Ferreira, A.M. (2020) Circular and Sustainable Design: a systemic design model for the transition to a circular and sustainable economy, Discern: International Journal of Design for Social Change, Sustainable Innovation and Entrepreneurship, 1(1), 1-11.

Circular and Sustainable Design: A systemic design model for the transition to a circular and sustainable economy

David Camocho [a], *José Vicente*[b], *Ana Margarida Ferreira*[c]

[a]UNIDCOM/IADE - Unidade de Investigação em Design e Comunicação, Av. D. Carlos I, 4, 1200-649 Lisboa.
[a]Laboratório Nacional de Energia e Geologia, I.P., Estrada do Paço do Lumiar, 22, 1649-038 Lisboa.
david.camocho@gmail.com
[b]Universidade da Beira Interior, Faculdade de Artes e Letras, DA, R. Marquês de Ávila e Bolama, 6201-001 Covilhã, Portugal.
[b]Universidade de Lisboa, Faculdade de Arquitetura, CIAUD, R. Sá Nogueira, 1349-055 Lisboa, Portugal.
jmanvicente@gmail.com
[c]IADE, Universidade Europeia, Av. D. Carlos I, 4, 1200-649 Lisboa.
[c]UNIDCOM/IADE - Unidade de Investigação em Design e Comunicação, Av. D. Carlos I, 4, 1200-649 Lisboa.
ana.margarida.ferreira@universidadeeuropeia.pt

Abstract

Successful and innovative design practices towards the development of more circular and sustainable products and services that are aligned with the current and future needs of our society rely on efficient practices that combine three main levels in the design and development process. The design management level which is responsible for establishing, planning and managing the development of design projects. The business level, which is focused on the feasibility and effectiveness of the project and its results in the short and long term. Lastly, the design level that is responsible for the implementation and development of circular design projects. This paper is part of a PhD research focused on supporting an innovative and efficient transition to a circular economy and sustainability through design. It describes the basis of a design model under development based on the design thinking process and an expert's survey carried at an international level and the research activities undertaken. It integrates the three levels in a systemic perspective, guiding the process and establishing the link between the needs of the design and development teams in terms of the definition of circularity and sustainability considerations and strategies, objectives and the activities, resources and practical tools needed to support the circular design projects.

Keywords: Design, Circular economy, Sustainability, Design systemic model

Introduction

To achieve sustainability and the transition to a Circular Economy (CE), we need to shift to a more innovative and effective way to fulfil the needs of the society and change the paradigm of production and consumption of products and services. The way we design, produce, use, distribute and discard products has a strong impact on the economy, the society and the environment (European Commission, 2019) and design practice are seen as a catalyst to shift from the traditional model of take-make-dispose to achieve a more restorative, regenerative and circular economy (Moreno, De los Rios, Rowe & Charnley, 2016). However, the approaches proposed so far in the field of design and innovation have not addressed and promoted significant changes at the system level (Idil Gaziulusoy, 2015) and designers who have the function of translating the strategies and concepts of circularity in the development of products and services that promote the closing of cycles, the efficiency, and sustainability of the systems, are challenged by new environmental, social and economic needs must adopt a holistic approach to problem-solving (Bocken, de Pauw, Bakker & van der Grinten, 2016) taking into account that most of the characteristics of the entire life cycle of a product are defined in the design stage.

As part of a doctoral research project under development which aims to promote and demonstrate to practitioners and companies the key role of design in this process, and to increase the knowledge in the fields of design for sustainability and circular economy, as well as support the design practice and the practitioners with guidelines and resources to develop sustainable solutions to current and future needs, the project addresses four main research questions:

- How can design support the transition from the linear economy to the new model of a circular and sustainable economy?
- What tools and methods can designers apply to support an effective design practice for a successful transition to CE in the real world?
- How can designers overcome the barriers to the implementation of a design practice that effectively results in more sustainable products and services aligned with the European policies for CE?
- And, how can design practice and the role of the design professionals be promoted in the CE context?

To support the design practice and to reduce the gaps that exist between what is being developed and investigated in CE and its practical application in the development of more circular, sustainable and innovative projects, products and services, and to promote good practices, this paper presents a systemic model that is under development to meet the needs of designers in the integration of circularity aspects in their practice. The model aims to establish the connection of the design process, the business strategy and the design management towards circularity and integrates the inputs derived from the research undertaken and will be further tested and validated to ensure its adequacy and efficiency to support the process.

Design for a circular economy

In the transition from the traditional linear approach to the circular economy, design makes a huge contribution. Design plays a key role in the definition of the features and the profile of products and services. A more sustainable way to design, produce, and consume is a crucial objective for the development of our society (Bhamra & Lofthouse, 2007; Braungart & McDonough, 2009; Manzini & Vezzoli, 2010; Margolin, 2014) that, according to recent studies, is only 9% circular (De Wit, Hoogzaad, Ramkumar, Friedl & Douma, 2019). With the responsibility of responding to product-service system problems, designers must integrate circularity criteria and expertise in problem-solving innovatively, adjusted to the needs of users, businesses, and society's dynamics (Ferreira, 2008).

The circular design process and the underlying practice can be seen as more challenging and complex, requiring changes in the way of thinking and conducting projects focusing on a shift from product-based solutions to more sustainable and innovative system-based or function-based approaches. Designers need to align their development process with the CE approach to replace the conventional end-of-life concept in which the materials and components of a product are disposed of after fulfilling the initial function, through closing solutions, slowing and narrowing the resource flows in production, distribution and consumption processes (Bocken, de Pauw, Bakker & van der Grinten, 2016). They need to apply several strategies in the development process focusing on the efficiency and sustainability of the entire system (Rocha, Camocho & Alexandre, 2019).

To foster an efficient design practice, there is a need to provide practitioners, business stakeholders, and other product developers with guidelines, resources and practices to apply design strategies for different circular business models (Moreno, De los Rios, Rowe & Charnley, 2016; Bocken, 2016), and influencing and managing the value chains. Building circular and sustainable value chains that are highly influenced by

product and service design, inevitably imply a fundamental change in design practice (Camocho, Ferreira & Vicente, 2018; Prendeville et al., 2013; De los Rios & Charnley, 2017).

New or updated and upgraded methods and effective design-oriented tools are needed to support and promote design in the transition to a CE. The over-consumption of goods and services have actively seduced society, leading to excessive consumption of natural resources and the generation of huge amounts of waste and emissions (Medkova & Fifield, 2016). Designing products more smartly and innovatively, extending their useful lives and changing the role of such products within the system is crucial to the achievement circularity and sustainability (Camocho, Ferreira & Vicente, 2018; European Environment Agency, 2017).

Currently, and given the post-COVID19 scenario in which we are, the effects of the pandemic have further reinforced this need to create a more ecological and resilient society. Europe needs to be revitalized. Companies, businesses and society must adapt to a new reality, and new revitalization mechanisms must be adopted. The European Union recently launched the Europe recovery plan (European Commision, 2020) in which measures to revitalize and support organisations will be put into practice. In this context, the design is a fundamental element in adapting to new needs and must respond with integrated solutions that enhance innovation, sustainability, employment and the creation of value for all stakeholders.

Basis and rationale for the development of the design model for a CE

The integration of sustainability principles in product development has been a concern of many professionals since the 70s, having, in a way, an important influence of Vitor Papanek's book "Design for the real world" (1970). The authors called into question the practice of design and the relationship of this professional activity with the environmental and social impact associated with product development. From green design to design for the circular economy, we have witnessed an evolution in design, in the concepts, practice and growth in complexity by integrating a larger scope of sustainability criteria (Vicente, Frazão & Silva, 2012). Numerous projects and initiatives have been developed, numerous examples of success are available in the market, however, this practice has never become mainstream. These approaches have always been related to niche markets and in general (Hassi & Wever, 2010) never managed to demonstrate the real benefits of being sustainable, taking into account, the environmental, social and economic pillars of sustainability.

The CE can be considered as another step in the evolution of a necessary and fundamental demand for a more sustainable future and presents itself as a possible path in this direction, and in this way, the scientific, academic and business communities are highly motivated and committed in this respect. However, as mentioned above, despite the numerous developments in terms of methodologies, practices, tools, funding, etc., there is still a huge gap between theory and practice (Camocho, Ferreira & Vicente, 2019), between what is being developed in research and development projects and what is applied in practice for new solutions that reach the market.

It is essential to narrow this gap and provide designers, who have a fundamental and irrefutable role in the development of new products, sustainable services and systems, with interdisciplinary practices supported by synthetic methods, tools and guidelines that result in sustainable solutions that contribute towards an environmentally efficient future, fair from a social point of view and that creates value and wealth for business and the society.

In this sense, this research project intends to develop a synthetic method that supports this practice and that integrates the project development, the management and orientation of the design project and the perspective of the business, as presented in Figure 01, implementing these considerations in early phases of the project (Hassi & Wever, 2010) with high innovation potential.

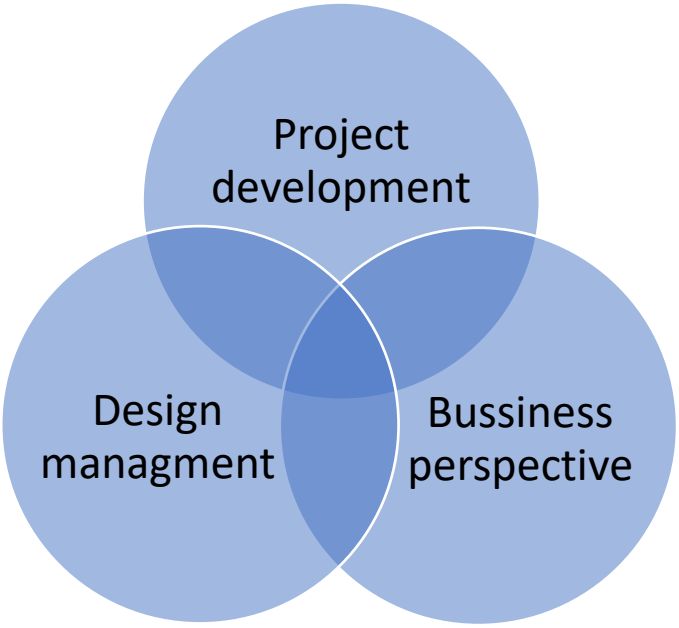

Figure 1: The 3 dimensions of the circular design model.

This model results from the work and research carried out and aims to systematize and guide the design process by integrating aspects of circularity and sustainability that respect the intrinsic needs of the design process and activities. The model is based on four main sources of information. An extensive literature review, the national practices applied in Portuguese products that are available in the market, the perspective of consumers and the perspectives of a group of international experts that were consulted within the process (Figure 2).

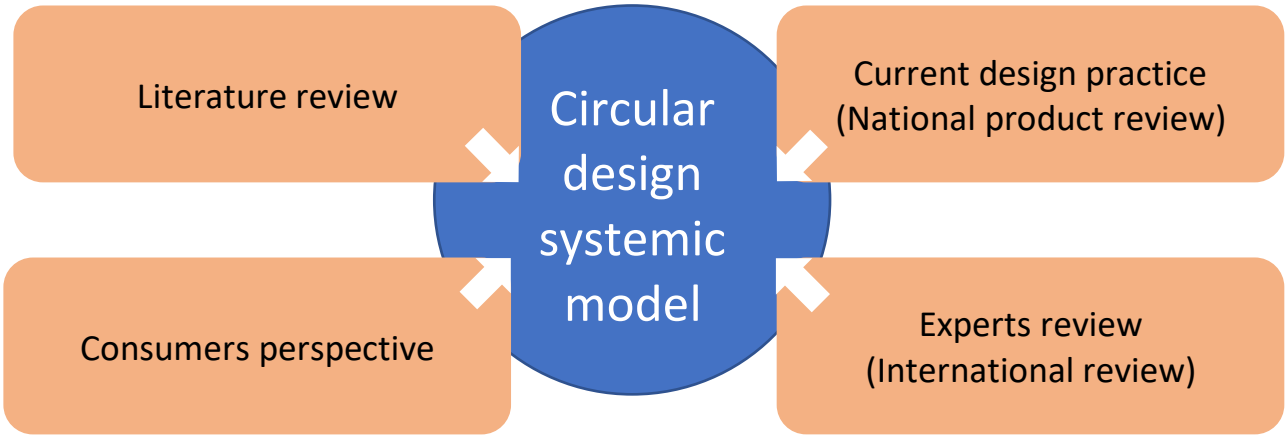

Figure 2: Circular design systemic model – sources.

Literature review

For the development of the design model, the literature review that aimed to identify and analyze the main

sources at a national and international level provided a clear picture of the state-of-the-art and knowledge in the field of design, sustainability and CE with a special focus in identifying methodologies, tools, definitions and case studies of development and implementation of design projects oriented towards CE and sustainability (Camocho, 2018). Within the research project, several resources were collected and analysed. The CE is a current topic, and a vast number of activities and publications are being released frequently. These have been considered in the project and integrated as possible.

Besides the support in the development of the project and the design model, the collected information, with a brief analysis of each resource will be systematized and made available in the form of a database of resources oriented towards the design process aiming to provide designers and product developers with a source of relevant knowledge that is available and can be used as reference and inspiration to support innovative projects.

Identification of national products with sustainability criteria

To map sustainable and circular design practices in Portugal and to analyze how the sustainability and circularity aspects are being integrated into product development and communicated to the user, within the research project, relevant industrial products that are available in the market which have been developed with sustainability and/or circularity criteria and are placed in the market with sustainability allegations were identified and collected in a database of Portuguese products. This will be made available to be used by the design community as a source of inspiration, collection of good practices and promotion of the sustainability and circularity concepts and their background.

The collection of national examples was done to support the identification of the design professionals and companies linked to the products identified and, through interviews, the research aimed to identify and analyze how sustainable and circular products were developed and which are the needs, drivers, barriers and more information on the design practice towards a CE to support the development on the resources that will result from this project.

The search and collection of Portuguese examples demonstrated that despite all the efforts that are being done by research institutions, the Portuguese government, academia, associations, organizations, NGO's, etc., there is still a lack of national products developed and placed in the market. There are, however, several examples of products available, but the majority are imported from abroad.

Analysis of consumer perspectives

The availability and dissemination of products and services with sustainability considerations is increasing worldwide. There has been a growing trend in informing consumers about the environmental aspects to take into account when buying products (Young, Kumju, Seonaidh & Caroline, 2008). In general, consumers, are more aware of the societal and environmental problems and challenges and demand new and improved products and services. Yet, the gap between what is placed in the market by producers and what the consumer perceives is an important issue to overcome. The communication of products, the inefficiency of labels for most users who do not understand these topics, need to be designed in a more efficient way (Camocho, 2019).

For an efficient transition to CE through design, it is important to have a holistic and integrated approach. On the one hand, we need to supply innovative and sustainable products that meet the needs of consumers, and on the other, we need to have a sustainable consumption behaviour and features related

to products and services that allow an informed choice and efficient use by consumers. Within the development of design projects for CE, designers need to better understand the consumer habits, perceptions and general knowledge regarding the sustainability aspects of products and services, and in this regard, within the research project, a consumers analysis was developed.

The survey undertaken indicates that consumer believes in a common-sense assessment of sustainability based on their perceptions, which are not always correct and are partially supported by self-declarations and allegations from designers, producers, and retailers focusing only in few aspects of the life cycle, and in some cases, misleading consumers through greenwashing approaches (Camocho, Ferreira & Vicente 2019). These findings and concerns should be translated into criteria to guide the development process and must be considered in the design model under development.

Survey of experts

Despite the evolution of the CE approach and wide dissemination and engagement at many levels of our society, which lead to the development of new business opportunities, new business models and developing new markets, is CE the solution to attain a sustainable society? To answer this question, the current research conducted an international survey, in which a group of international experts were contacted and invited to collaborate by sharing their experiences and perspectives about the current and future status of CE in practice.

To develop an efficient survey, the purpose, goals and the sample were clearly defined to ensure focus, concise and provide useful data. The collected information allows the definition of an international overview of the practice, motivations and barriers in the transition to CE through design, and supports the research and development of methods, tools and guidelines to promote an improved design practice.

To involve an effective and relevant sample, before the development of the survey, a database of international experts was developed as well as a questionnaire based on the compromise between the length and time needed to complete it and the need for data to support the analysis. Through the questions, the research aims to understand the views and perspectives of the experts in the field on what concerns the practical implementation of CE, in what sense the experts consider that CE is the way to achieve a sustainable society in the future, what is considered the novelty that the concept and approach can bring to society, what are the main drivers and motivations to adopt CE in practice, what are the main barriers, how should we overcome the current obstacles and promote the design practice towards innovative and sustainable solutions, and what lessons can we learn from the past.

The analysis of the data gives an overview of the perceptions of the experts that are working in the field and are facing the real challenges in the circularity path. From the expert's inputs to the survey, more than 80% consider that CE is the way to attain sustainability. The around 20% that do not consider CE as the way for sustainability consider that CE is one important strategy, but many other must be integrated and considered in the development of our society and the future patterns for production and consumption.

From the overall perceptions, CE can be seen as a change of mindset for consumers and industries, leading to the development of different ways of production and consumption, focusing on the real needs of the users, business and the society by adopting new development paths and new business models which can lead to a more dematerialized and efficient ways to fulfil the needs of all stakeholders in the value chain.

The results of the survey which include also a set of motivation, barriers for the implementation of CE in

practice, ideas on how to overcome the obstacles and promote the design practice towards innovative and sustainable solutions and other relevant aspects will support the development and adequacy of the design model and the related resources.

Development of the Circular Design Model and toolkit

Aiming to support and promote the design practice, a design model is developed. Bild upon the results of the research, the above-mentioned review, the analysis of strategies, tools and methods, and other relevant information collected and analyzed, the structure of the model (Figure 3) derives from the six main stages of a design project and relates the activities of the process with three levels that complement each other resulting in a robust model to support the design practice towards circularity and sustainability:

- The Project management level to support an efficient integration of circularity in the different phases and aspects of Design management
- The business level to align the development with the strategy and considerations of the business, promoting the efficiency and sustainability of the system.
- The design team level, to support the practice and the integration of the circularity and sustainability considerations, methods and tools in the development of new and innovative products, services and systems.

The model establishes the relation of the design thinking process with the goals of the CE to define how the resources can guide the design process to promote sustainability and circularity in processes.

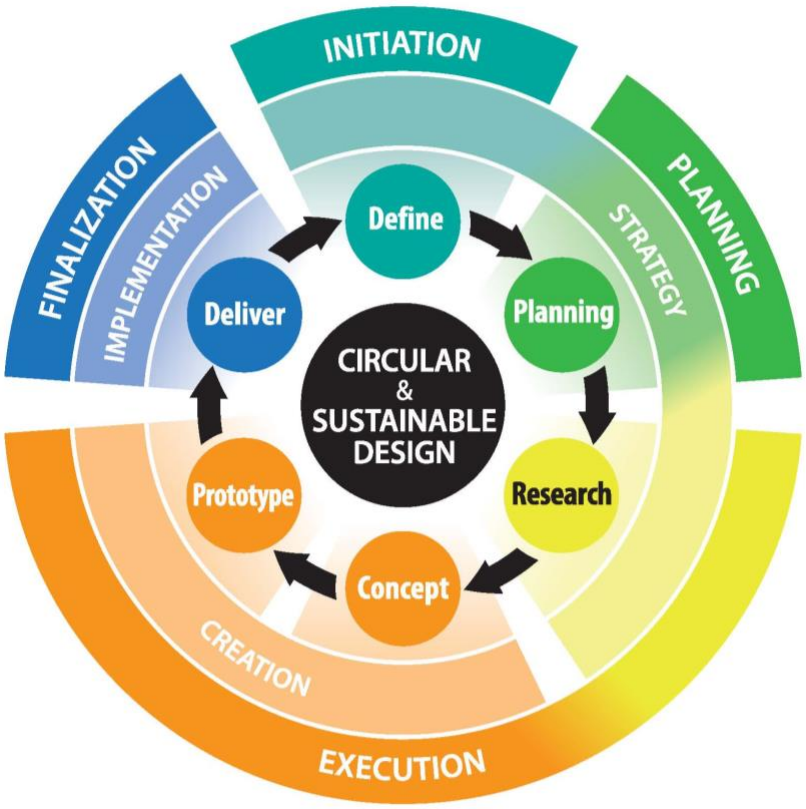

Figure 3. Circular and sustainable design model.

The description of each step in Figure 3 are the goals and objectives of each phase, how circularity should be addressed, which sub-activities are included in each step of the model and which are the inputs

(resources, time, human resources, etc) and the outputs needed, will allow a systemic definition, the planning and the development of the design for a CE project.

The strategy for the design practice within CE will be supported by relevant tools, methods and guidelines that can be applied by practitioners in their daily activity to develop innovative and sustainable circular solutions. The translation of the model into the practice will be done through a design for circularity and sustainability toolkit. The toolkit to improve the role of design in the transition towards a circular and sustainable economy is being developed and will support the development of new projects that will result in new products and services with more potential for innovation, sustainability and circularity.

Conclusions and further development

The circular design systemic model, structured in three interlinked layers that integrate the project development perspective, the design management approach, and the business perspective, will promote the adoption and implementation of circular design in practice. The model provides guidance and support to designers, project developers, project managers and business strategists engaged in this typology of projects, integrating circularity considerations, tools and methodologies as core activities in the development of new and efficient products and services. These align the current and future needs of consumers with improvements and benefits in the circularity profile of products and services with an added value for the business and the society. This model aims to reduce the gap between theory and practice, developed with an orientation towards the project, respecting the needs of the various stakeholders and aligned with the characteristics and needs of project management and development.

The result, integrating a set of guidelines and different types of resources for project development, will be tested and validated by a focus group and will be disseminated and promoted to design communities, product developers and businesses, in a collaborative approach, creating synergies and sharing the knowledge, thus contributing to an effective improvement of society towards a more circular and sustainable future through design.

References

Bhamra, T., & Lofthouse, V. (2007). Design for Sustainability: A Practical Approach (Design for Social Responsibility). England: Routledge.

Bocken, N. M. P., de Pauw, I., Bakker, C., & van der Grinten, B. (2016). Product design and business model strategies for a circular economy. Journal of Industrial and Production Engineering, 33(5), 308–320. https://doi.org/10.1080/21681015.2016.1172124

Braungart, M., & McDonough, W. (2009). Cradle to Cradle: Remaking the Way We Make Things. London: Vintage Books.

Camocho, D., Vicente, J., & Ferreira, A. M. (2018). TRANSition to circular and sustainable economy through design. Presented at the DDC'18: Transgression - 5Th Design Doctoral Conference, Lisbon, Portugal: IADE Universidade Europeia.

Camocho, D., Vicente, J., & Ferreira, A. M (2019). Circular economy - Tools for designers. Presented at the DDC'19: Transformation - 6Th Design Doctoral Conference, Lisbon, Portugal: IADE Universidade Europeia.

Camocho, D., Vicente, J., & Ferreira, A. M. (2019). The Common-Sense Assessment of Sustainability. Proceedings of the AHFE 2019, International Conference on Social and Occupational Ergonomics. Washington D.C., USA: International Conference on Social and Occupational Ergonomics. https://doi.org/10.1007/978-3-030-20145-6

De Wit, M., Hoogzaad, J., Ramkumar, S., Friedl, H., & Douma, A. (2019). Circularity Gap Report. Circle economy. Retrieved from https://www.circle-economy.com

De los Rios, I. C., & Charnley, F. J. S. (2017). Skills and capabilities for a sustainable and circular economy: The changing role of design. Journal of Cleaner Production, 160, 109–122. https://doi.org/10.1016/j.jclepro.2016.10.130

European Commission (2020). Europe's moment: Repair and Prepare for the Next Generation. Retrieved from https://ec.europa.eu

European Commission (2019). Sustainable Products in a Circular Economy - Towards an EU Product Policy Framework contributing to the Circular Economy, 75.

European Environment Agency. (2017). Circular by design - Products in the circular economy. European Environment Agency. https://doi.org/10.2800/860754

Ferreira, A. M. (2008). Caracterização e Quantificação da Inovação no Processo Evolucionista do Design: análise de um século da prática médico-cirúrgica em Portugal, Dissertação para a obtenção do Grau de Doutor em Engenharia de Produção. Covilhã: Universidade da Beira Interior.

Hassi L, & Wever R. (2010). Practices of a "green" front end of innovation. A gateway to environmental innovation in Knowledge Collaboration & Learning for Sustainable Innovation: ERSCP-EMSU Conference, Delft, The Netherlands.

Idil Gaziulusoy, A. (2015). A critical review of approaches available for design and innovation teams through the perspective of sustainability science and system innovation theories. Journal of Cleaner Production, 107, 366–377. https://doi.org/10.1016/j.jclepro.2015.01.012

Manzini, E., & Vezzoli, C. (2010). Design for Environmental Sustainability. London: Springer.

Margolin, V. (2014). Design e Risco de Mudança. Caldas da Rainha: ESAD.

Medkova, C., & Fifield, B., (2016). Circular Design – Design for CE. Retrieved from www.researchgate.net/publication/313771263

Moreno, M., De los Rios, C., Rowe, Z., & Charnley, F. (2016). A Conceptual Framework for Circular Design. Sustainability, 8(9), 937. https://doi.org/10.3390/su8090937

Prendeville, S., Niemczyk, M., Sanders, C., Lafond, E. V. E. L. Y. N., Elgorriaga, A., Mayer, S., & Kane, D. (2013). Motivations for and Barriers to Ecodesign in Industry. European Network of Ecodesign Centres. Retrieved from http://www.ecodesign-centres.org/projects.html

Rocha, C., Camocho, D., Sampaio, J., & Alexandre, J. (Eds.). (2020). Product-Service Development for Circular Economy and Sustainability Course [PDF]. Retrieved from https://www.katche.eu

Vicente, J., Frazão, R., Silva, F.M. (2012). The evolution of design with concerns on sustainability. Convergências: Revista de Investigação e Ensino das Artes. ISSN 1646-9054. N.º 10.

Young, W., Hwang, K., McDonald, S., & Oates, C. J. (2008). Sustainable consumption: green consumer behaviour when purchasing products. Sustainable Development Journal, n/a. https://doi.org/10.1002/sd.394

International Journal of Design for Social Change, Sustainable Innovation and Entrepreneurship

discern

https://www.designforsocialchange.org/journal/index.php/DISCERN-J

ISSN 2184-6995

It takes a village: Community based participatory research as a design research tool

Dhriti Dhaundiyal, Richa Pant

Published online: November 2020

To cite this article:
Dhaundiyal D., & Pant R. (2020). It takes a village: Community based participatory research as a design research tool. Discern: International Journal of Design for Social Change, Sustainable Innovation and Entrepreneurship, 1(1), 12-26.

It takes a village: Community based participatory research as a design research tool

Dhriti Dhaundiyal[a], Richa Pant[a]

[a]School of Design, Doon University, Dehradun, India

Abstract

Design has transitioned progressively from a consumer-focused discipline to a human-centred one, with a more complex agenda. Design thinking has been successfully deployed as an agent for social change. In this paper, we take a trans-disciplinary approach to social design in remote villages of Uttarakhand, India. Lack of employment opportunities and tough sustenance in the mountainous regions of India has led to mass migration and ghost villages. Recent interventions at the micro-level, born from a participatory approach rather than the top-down structure of government development schemes, have been seen to be more effective in tackling this complex socio-economic issue. Community-based participatory research has been deployed previously in areas like public health and primary education successfully. With this paper, we reflect on the viability of using it to identify areas of effective design intervention, not just to address current issues faced by the residents of remote villages in the Himalayas but also to encourage future social entrepreneurs. We worked in a group of Himalayan villages in collaboration with local government agents as part of a month-long design education module. Design students and development professionals teamed up with residents, using methods like transect walks, socio-cultural mapping of health, water and sanitation, education, leadership, mobility, skill and vulnerability and co-design activities. The analysis led to a deeper understanding of the social structure, education, resource equity, power dynamics, the flow of information, drudgery, vulnerability and potential areas for social entrepreneurs. An iterative model of exploration, analysis, design proposition and refinements were followed to identify challenges faced by residents and areas of possible design intervention.

Keywords: Social design, Rural India, Community-based participatory approach

Introduction

Design has transitioned progressively from a consumer-focused discipline to a human-centred one with a more complex agenda, and design education must follow suit, to equip future designers in the skills needed to address new social challenges and forge novel career paths. In the relatively short span that design has existed as a discipline, it has evolved continuously, changing with societal demands. With this constant evolution, skills for future designers have been debated by both professionals and academics. Design has moved from a profession that celebrates individuality and exclusivity to one that thrives on diversity and co-designing practices (Buchanan, 2001). Design methods have traditionally been human-centred and the transition to co-creation practices is an organic progression. The ability to work collaboratively and contribute meaningfully in trans-disciplinary areas may well define future trajectories in design (Singh et al., 2018; Souleles, 2017).

The purpose of this paper is to study the efficacy of using techniques and tools of Community-Based Participatory Research (CBPR) as a mechanism for information collection and rapport building with participants in design research. Design requires an extensive understanding of the end-user and needs assessment of the user to effectively and efficiently lead the way from brief selection to final deliverables. We employed trans-disciplinary methods to conduct design research to seek and identify opportunities present in Himalayan villages that face mass migration, leading to sparse population and ghost villages.

Government agencies and Non-Government Organisations (NGO's) have been working to provide opportunities and solve issues that will motivate people to stay and encourage reverse migration, but with low success.

The design process that we follow in the project has the defined stages of identifying problems, gathering data, secondary research, making sense of analyzed data, framing the brief, brainstorming ideas and developing a prototype. The objective was to use tools of CBPR in combination with co-design practices to collect exhaustive information for analysis, attempting to identify design interventions that could bring about a positive change in the region.

In this paper, we start by reflecting on social design as practised today, in its many forms, and its relevance to current and future design education. We critique the tourist approach that designers sometimes take, partly due to myopic research methods and reflect on the more comprehensive realities that may emerge from relevant social science methods like community-based participatory research. The next section describes the detailed methodology followed, highlighting the hybridized design and development studies approach. We then discuss the findings and conclusions, reflecting on the potential of using CBPR as a design tool in identifying rural design interventions and ways of taking this research further.

Background

Design thinking and design methods are effectively used in identifying, framing and solving the complex problems assailing large sections of humanity, sometimes termed wicked problems. These complex challenges often do not have a right or wrong solution (Buchanan, 1992) and have inter-linked social, economic, political, environmental and cultural issues at stake. Linear strategies are thus not suited to solve them and design methods have the iterative approach needed, giving rise to social design. Social design has grown from an amorphous set of ideas to a more developed area of research and practice. Threshold concepts of the epistemological dimensions stress ways of thinking and practice over discrete theoretical ideas (Souleles, Ferreira & Savva, 2020). Design based strategies towards social outcomes have been successfully deployed in social sectors like healthcare, poverty alleviation as well as environmental challenges like climate change, population growth and improving the lives of people (Shea, 2012; Thorpe & Gamman, 2011).

Design education and social design

Armstrong et al. (2014) defined Social Design as "activities that espouse various and mostly participatory approaches to researching, generating and delivering outputs towards collective and social aims, rather than pursuing an exclusive focus on consumerist objectives". Historically, designers like Walter Gropius, Victor Papanek, Richard Buchanan, John Thackara, Ezio Manzini and Bruce Mau have engaged with socially useful design and reflected on working for the masses. Bonsiepe (2006) wrote of 'design humanism' where the needs of the excluded majority are addressed as opposed to niche groups of consumers. The exploration into future visions for designers has presented designers as 'brave explorers and activists' (Singh et al., 2018). As per the Social Design Futures Report by the Arts and Humanities Research Council (AHRC, 2014), design activities covered by the umbrella of social design include participatory design or co-design, design activism, critical design and disruptive design. AHRC defines Design for Social Innovation as led by experts who identify, support and develop opportunities for social change. Further, Socially Responsive Design involves a basic understanding of the technical and processual elements of design but deep expertise in a sector while Design Activism involves design interventions that raise political consciousness while implementing design interventions.

AHRC (2014) has identified the immense design capability to create positive social impact through new knowledge co-designed solutions to address contemporary concerns. Their report also captures the gap between the current student skill sets and those required for social design. The report finds that the research agenda in social design is currently dominated by non-academic organisations with a preponderance of problem-solving agendas. Social design research was found to be in service mode, not aiming at building knowledge. Higher education institutions in design have a limited approach so far that needs to build trans-disciplinary pathways for future research. Souleles (2017) posits that subjectivist epistemologies of conventional design education are insufficient to tackle design for social change and need an infusion of user-centred and evidence-based approaches for effective intervention. Social design requires interdisciplinary and multidisciplinary approaches that are essential for social design to deal with complex, multi-layered issues that cannot be addressed by methodology from a single discipline (Souleles et al., 2017). Academics have endeavoured to create a curriculum that caters to the skill sets required to adopt social design. An analysis of courses offered by thirteen (13) prominent design institutes shows a positive trend of increased social, economic, political and environmental concerns in the curriculum (Aryana et al., 2015) with increasing stress on social and humanitarian priorities. An inclusion of participatory methodologies from the social sciences and development studies has benefitted design education.

Participatory approaches

The constructionist paradigm that action research advocates is that knowledge not just describes but also produces the world we want (Bradbury, 2020). Action researchers posit that interventions for social transformation transcend mere facts and figures whose objectivity belies the subjective truths of the real world (Fazey et al., 2018). Action research has been described as a balance of action and reflection, with theory and practice, with stakeholder participation, aimed at reaching viable solutions for vexing issues (Bradbury, 2020). Participatory action research stresses improving living conditions of a community rather than focusing on an artefact driven approach (Cohen et al., 2011). The relation between the participants and the researchers is that of equal engagement with involvement at each stage of the project. Participatory action research seeks to not just discover but to use the discovery to institute social change in a planned manner (Brydon-Miller, 2001; Kindon et al., 2009). It aims not just to deal with the explicit issues of the respective group of people but goes beyond to identify the root causes of the issues at hand.

Development studies use a set of research techniques referred to as Participatory Learning and Action (PLA). Originally called Participatory Rural Appraisal (PRA), it consists of interactive methods for analyses, planning, monitoring and evaluation of social development. In the 1990s, it evolved into PLA (Coghlan and Brydon-Miller, 2014). Some key tools are direct observation, semi-structured interviews and sequences or chains of interviews, focus group discussion, diagramming, mapping and modelling, participatory mapping, social network mapping, transect walk, livelihood analysis, oral histories, group walks, storytelling, portraits etc. Although PRA is an excellent way of ice-breaking for individuals working in new and unknown territories, it has drawn criticism in the welfare sector for various reasons. Mosse (1995) felt that PRA was not very useful for understanding the social dynamics of communities or the reasons why marginalized groups might be excluded from decision-making or project benefits. It was also noted that community leaders could direct PRA towards their aims or attempt to undermine activities that had no obvious benefit to them. Pottier (1997) claimed that whatever the PRA advocates say about relaxed settings, participatory workshops are structured encounters marked by hidden agendas and strategic manoeuvres.

Participatory research started in the 1970s, with stakeholder involvement when objective data-driven research approaches failed (Krueger & King, 1998). There was a shift in power in the research process and

the under-represented and marginalized voices were given a chance to be heard, their voice placed centre stage (Cornwall & Jewkes, 1995). In the field of design, Sanders and Stappers (2008) have characterised participatory design as an approach that questions practices built on hierarchy and control that place authority in the hands of experts. Instead, participatory design promotes egalitarian values where the end-users are empowered and become active and equal partners. Creative agency is shared by the researchers, designers, and the intended end-users. Designers have often been criticized for their 'tourist' approach for a superficial understanding of issues resulting in short-sighted solutions. The participatory approach can help overcome this shortcoming placing the end-users at an equal footing with the designers. Fuad-Luke (2009) praises the process for its diversity and celebration of social networks and communities over hierarchies.

Participatory approaches to social design have been effective in gaining meaningful insights from the field. Community-Based Participatory Research (CBPR), specifically, brings together and involves community members, organizational representatives, researchers, and any other stakeholders in the design process (Israel et al., 1998), to build fundamental knowledge about issues before tackling them.

Studies in Himalayan villages

CBPR requires collaboration at each stage of research, from problem definition, research, analysis, design of intervention and evaluation of interventions. At its core, CBPR is an iterative process of collaborative research, reflection, and action (Wallerstein, 2003). Most of the Himalayan areas of India consist of small towns and villages spread over vast, difficult-to-access terrain. They are primarily classified as rural for development and administrative purposes. Research agendas in the mountainous areas of India have been mostly government-led with some sponsored non-government organisations (NGOs). Early participatory projects in the villages mostly followed PLA and this legacy has continued. In the last two decades, there have been a few studies that used CBPR as a research approach.

We came across Community Based Participatory Approaches in livestock depredation by snow leopards (Jackson & Wangchuk, 2004), in village tourism (Peaty, 2009), in sustainable watershed development (Datta & Virgo, 1998), in public service delivery (Joshi, 2013) and wildlife management of musk deer (Wood, 2008). We did not find any studies or projects that investigated the daily drudgery faced by most villagers in these mountainous areas that have resulted in unchecked mass migration to urban centres in the Gangetic plains and beyond. This is where we position our study and attempt to co-identify and co-solve key issues faced by rural communities.

Methodology

Our primary research objective was to examine CBPR as an effective design tool for Social Design. Within the scope of this study, we attempted to identify possible areas of design intervention to reduce daily drudgery in remote villages of the Himalayan state of Uttarakhand in India. The study was part of a one-month long module called 'Social Design' with sixteen (16) participating design students and two (2) faculty members.

The project was preceded by a pilot study in a relatively smaller semi-rural area of Maldevta near the city of Dehradun. Student researchers explored Maldevta and grouped to conduct transect walks in the area. Transect walks are observatory walks or treks across the countryside and fields to study natural resources, topography, indigenous technology, soil and vegetation, farming practices, and problems and opportunities that are tallied with resource mapping and modelling. Through transect walks, one gets insights and information into the nature and complexity of the existing scenario in a way that the traditional approaches do not provide (Narayanasamy, 2009).

Students worked in groups to collect information on education, gender roles, farming, administration, health services, professions, infrastructure, businesses, livelihoods, recreation, and transportation. Collected data was collated and put in layers in a map that was studied to identify and discuss viable areas that could potentially be investigated and dealt with through a product, system, service, or graphic design.

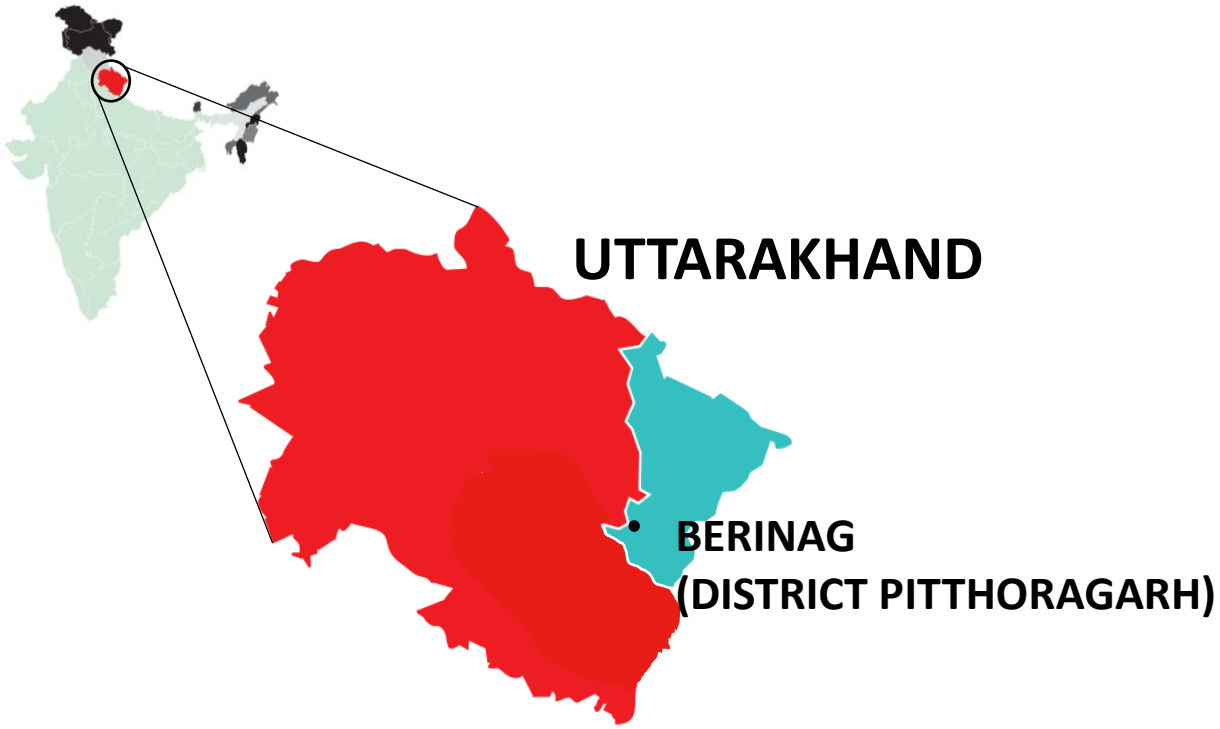

Figure 1: Location of Study Area in India.

The main study was carried out near the Himalayan village of Berinag in Uttarakhand (Figure 1). Out of the many small villages that dotted the area around Berinag, student researchers gathered data from six villages viz, Jabukathal, Tana, Puna, Kalasila, Bajet, and Kaneda. The population of these villages collectively as per the census of 2009 is 683 with a total of 162 households. The villages that have road connectivity are Jabukathal and Bajet and the rest of the villages can only be reached on foot. Basic facilities available in these villages include a common healthcare centre (16 km away, in Berinag), a common panchayat ghar or meeting hall (Kalasila), an anganwadi or child care centre (Kalasila), a primary school (Kalasila) and an intermediate school (Jabukathal). The villages have electricity available in homes, mobile phone connectivity and daily water supply through a pipe. The terrain is mountainous with terraced fields used for farming. Traditionally crops like potatoes, kidney beans, rice and finger millet have been grown in this region. Majority of the population practised agriculture once but this has reduced significantly due to mass migration. Reduction in the cultivation of land is also responsible for increased intrusions by animals like wild boars and monkeys.

The month-long project was conducted from 1 October 2018 to 3 November 2018. Travel to the village was via train, jeeps and then on foot. Due to lack of availability of transportation to these remote areas, travel to and from the villages had to be conducted by privately owned vehicles belonging to the villagers. In the first two days, the student researchers were sensitized to the local climate, people, behaviour and local culture and practices. The main languages spoken by the villagers were Kumaoni and Garhwali, but most of them understood Hindi.

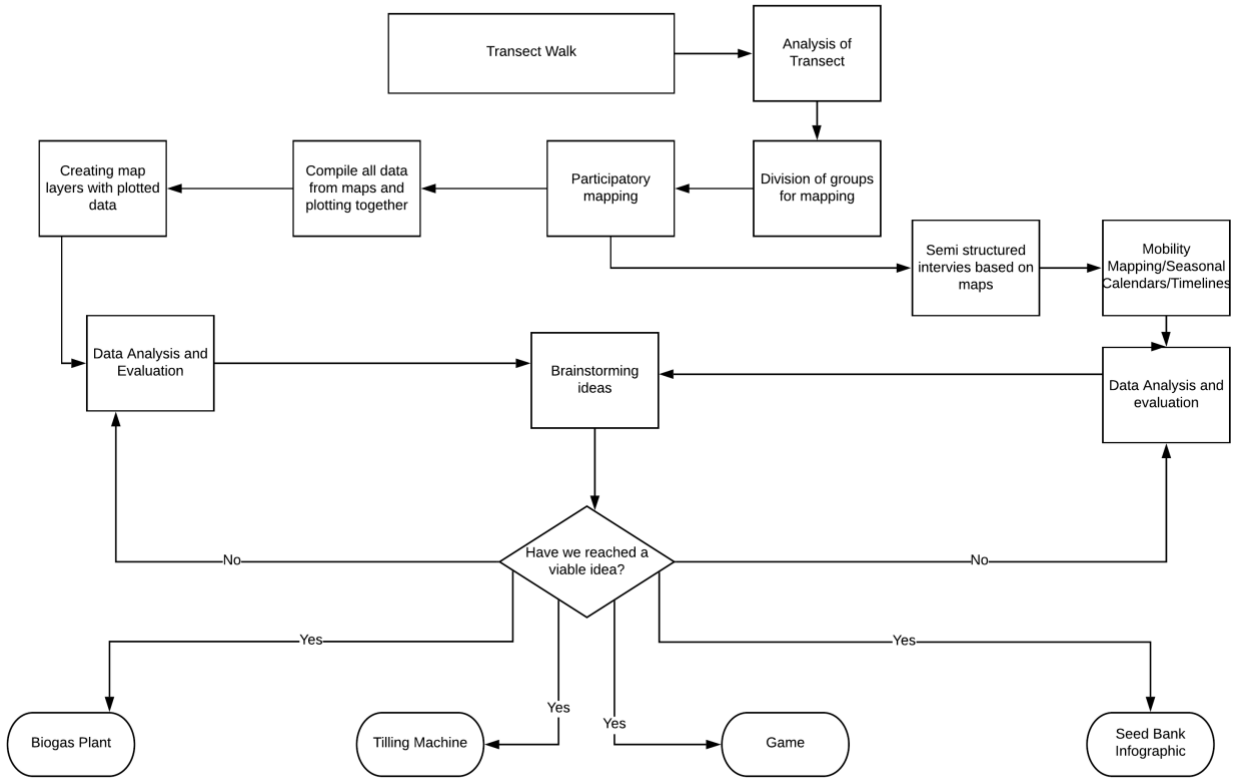

Figure 2: Flow Chart of CBPR Methods Utilized in Design Research.

Student researchers worked in groups and each group conducted structured exercises in participatory mapping and modelling, transect walks, seasonal calendars, timelines, and mobility mapping (Figure 2). Each group was facilitated by a key resident as a guide. Travel between these six villages was on foot due to the absence of motorable roads. The villages were roughly located 3 to 4 kilometres apart and the researchers walked 10-12 kilometres each day on average and covered two villages in a day. Extensive transect walks were followed by discussions and participatory mapping with the villagers to validate the data. Transect walks included a key individual from the village who walks along with the group of researchers elaborating on everything that they encounter on their path including natural resources like ponds, water sources, trees, plantation, terrain and soil (Figure 3).

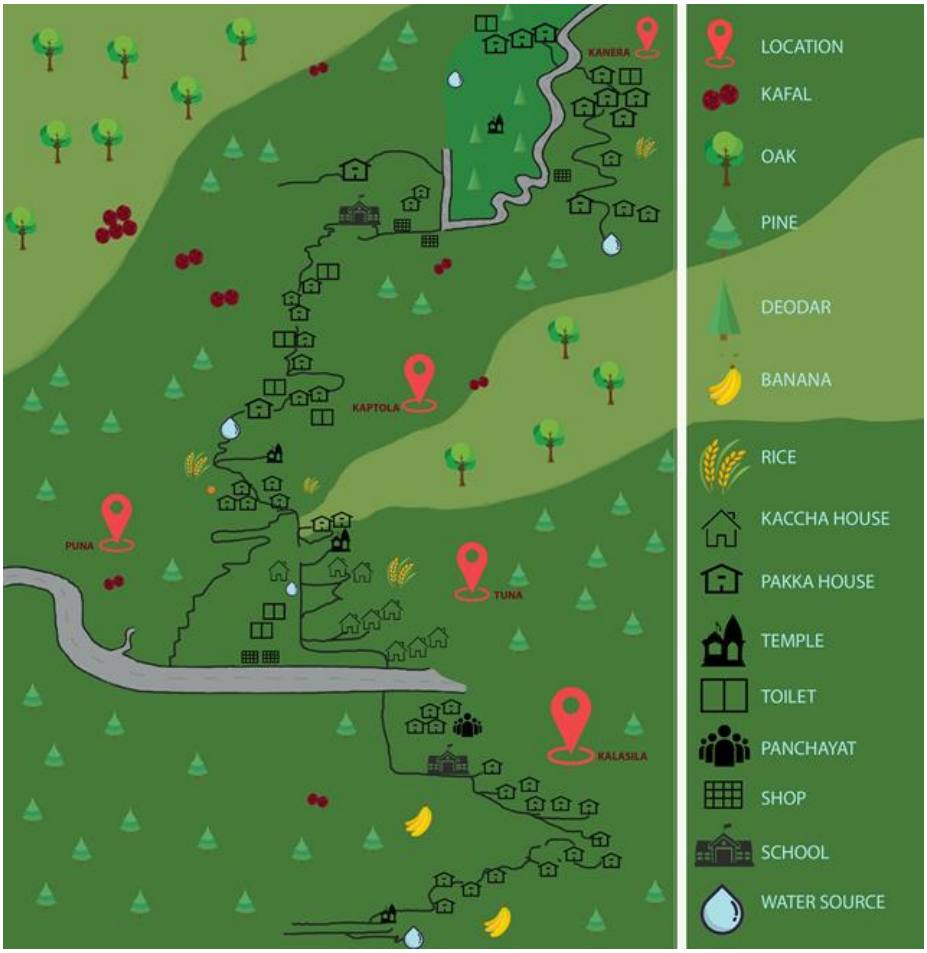

Figure 3: Digitisation of a Transect Walk Recorded during Study.

The village residents cross-verified the transect walks with participatory maps they drew on paper and by utilizing locally available materials like branches, twigs, stones. Participatory mapping included three key individuals from each group: a team leader responsible for overseeing the event and later documenting it, the designated note-taker who recorded important information and any relevant details during the drawing of the maps and the facilitator who introduced mapping, aided the drawing of maps and moderated the process. To keep the process relaxed and spontaneous, discussions and mapping exercises were conducted in natural settings like fields, homes and the panchayat ghar (local meeting hall).

Transect walks from all groups were collated and data gathered from all walks was tabulated and used in creating maps using parameters like population, local and natural resources, type of housing, occupations, livestock, etc. A base map of the general geographic region was then superimposed with layers of these parameters for quick observations and discussions.

Figure 4: Village women drawing mobility maps from memory and lived experience.

Mobility maps were used to explore the movement patterns of individuals in their daily lives and movement and migration patterns of the community (Figure 4). Other relevant tools that were used in data collection included seasonal-calendar, which helped in understanding how seasons affected the livelihood of those with agriculture and other seasonal occupations. It was also used to gain insight into how individual and community practices and behaviour changed with seasons.

Timelines were created and studied to understand key events both in the village and in the lives of individuals. Interview and dialogue formed a part of every interaction. It was a principal tool used in interaction with the school children of the junior and senior schools highlighting both complementary and contrasting perspectives of children and the older population of the village. During transects, mapping, and conversations with the residents of the village, researchers observed and asked questions, listening and discussing in-depth to co-identify problems and uncover opportunities for design intervention.

The participatory exercises also covered local stakeholders from both governmental and non-governmental institutions. Students interacted with the village sarpanch (locally elected head), the members of panchayat (locally elected governing body), school teachers, ashas (government healthcare workers) and local business owners. The research activities and findings were shared among groups and augmented with secondary research from multiple sources over the next week based on which they identified key areas to work upon. These areas were further analyzed to unearth specific problems with probable design solutions. Data collection on the field was analogue as well as digital, using large charts and notebooks, along with digital videos and photographs.

Primary Source of Income	Crops Grown	Food Eaten	Farthest Travel	Cattle Owned
Labourer	Bhatt, Masoor, Wheat	Rice, Pulses, Chapati	Haldwani	4
Insurance Agent	Bhatt, Masoor, Wheat	Rice, Pulses, Chapati	Berinag	3
Labourer	Wheat, Rice	Non-Vegetarian	Berinag	7
Labourer	Wheat, Rice, Polyhouse Vegetables	Rice, Pulses, Chapati	Nearest Hospital	2
Pradhan (Chief)	Pulses, Wheat, Rice	Rice, Pulses, Chapati	Haldwani	6
Labourer	Pulses, Wheat	Rice, Pulses, Chapati	Berinag	2
Small Wheat Mill	Pulses, Wheat	Non-Vegetarian	Haldwani	4
Labourer	Pulses, Wheat, Rice	Non-Vegetarian	Many Places	3
Labourer	Pulses, Wheat	Non-Vegetarian	Bareilly	2
Teacher	Pulses, Wheat	Non-Vegetarian	Char Dham	2

Table 1: Sample Table of Data Collected (Group 1).

All written data were pooled by all groups and digitised and tabulated at the end of each day. A data framework was established to ascertain feasible ideas to reach viable service solutions, prototypes, and materials. All collected data from six villages was tabulated and differences and commonalities noted (Table 1). Information collected was superimposed over participatory maps and analyzed to study and gather areas of interest for each group of students.

Findings and discussion

The test project at Maldevta, which preceded the PRA exercise in the six villages, played a crucial role in ameliorating the apprehensions regarding the mechanisms of conducting the walk. It helped build an understanding of biases like seasonal bias, spatial bias, profession bias and personal biases that may present themselves at times during their visit to the village.

A hands-on experience of biases in rural development tourists was key learning wherein the walk brought to fore the gaps in data gathered via observation and prevailing conditions. A cursory walk that did not reveal much of infrastructure in the village was contrasted with the information obtained directly from villagers about the presence of multiple schools with varied mediums of instruction, a health-care centre, the panchayat house, and a recreation center in the village. By comparing this walk with the study in villages of Berinag, the student researchers were able to distinguish between the variations that were present in the villages based on seasons, topography, population density and facilities.

Impact of transect walks

Transect maps enabled the student researchers to outline the physical research area. Resource transects that were used in obtaining information about village resources and locally available materials brought to fore conversations around ‘naulas’ in these villages. A naula is a shallow man-made tank that is built around a groundwater source to collect water (Figure 5). Diminishing and dried up naulas and conservation efforts and their efficacy was discussed and explored. Reduction in agricultural activities owing to migration resulted in drying up of naulas due to lack of maintenance. Data on migration was also strengthened by studying the mobility of the villagers through mobility maps. Mobility maps were instrumental in studying the daily movement of local people going through their everyday tasks and their commute in and out of the village. Drudgery and effort required in moving through terraced fields were also uncovered. They also highlighted migration patterns and the rate of migration every year. Using these inputs and coupling them

with resource transects, student researchers were able to hypothesize avenues that had the potential to reduce migration.

Figure 5: Naula, a traditional water conservation system to replenish groundwater.

Research on local wealth

Figure 6: A game idea based on recognizing the value of local crops and the challenges to cultivation (Group 2).

Resource transects also played a crucial part in discovering the availability of beneficial Himalayan herbs in the village. Conversations and unstructured interviews supplemented the information of low awareness of the utility and potential marketability of these herbs. The idea of planting information early into the minds of schoolchildren was explored. Channels like custom literature, books, and games to improve knowledge on local flora and fauna interactively were explored. Later as a part of the project a board game to generate interest in farming and impart information on the benefits of herbs like lemongrass, khas (vetiver), oak, amla (Indian Gooseberry) and reetha (Indian soapberry). This was observed by the student researchers as a future entrepreneurial opportunity for the locals. It led to the development of a board game idea for children based on recognizing the value of local crops and the challenges to cultivation (Figure 6).

Designing systems for easy sustenance

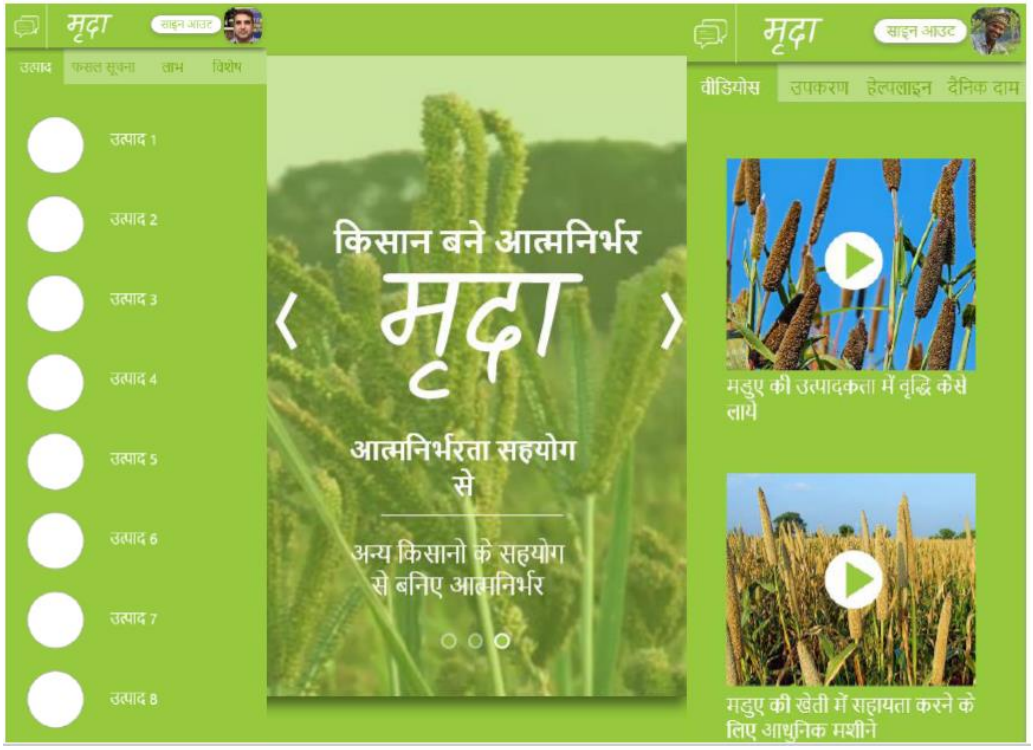

Figure 7: A Hindi Devnagri Script Interface designed to connect local foxtail millet farmers with agricultural experts and buyers (Group 3).

Current farming techniques like sowing and tilling done manually due to unsuitable terrain for mechanized farming presented an opportunity to create lightweight devices to reduce drudgery. Transect walks and participatory mapping in the villages brought forward the painful and lengthy process of sowing maduwa (foxtail millet), the local staple grain. Participatory mapping identified issues like higher costs and lower availability of essential commodities including foods, consumables, and cooking fuel due to no motorable access in the villages. A model that included a government-aided setup where waste from livestock could be used in creating a biogas system to provide cheap fuel and compost was discussed. The system would utilize a lump sum amount from the government and with the fuel and compost it produces, it would cover its cost in a few years. There were also ideas for modification in farming tools for the specific topographical conditions and requirements of popular crops grown there. An Interface designed to connect local foxtail millet farmers with agricultural experts and buyers was prototyped as a solution to several problems being experienced by the millet farmers (Figure 7).

Working with administration

Figure 8: Participatory Exercises with students of local school facilitated by the school administration.

Exercises in plotting personal timelines helped highlight health issues, especially those related to pregnancy and neonatal care by village women. Timelines were able to give insights into challenges in getting good healthcare in these remote villages. Methods followed by local Asha workers (health workers) to track the health and vaccinations of pregnant and lactating mothers and babies were studied to identify lacunae and a system was proposed to reduce lapses and improve self-tracking.

Besides these project ideas, tools like seasonal calendars and daily schedules contributed to ascertaining patterns in agriculture and related activities. Student researchers were able to utilize tools of community-based participatory research not only for quickly building rapport with the villagers, but they also gathered more data, opinions, and facts and information than they could have via faceless survey questionnaires or formal interviews. Ice-breaking exercises with school children led to an understanding of the mindset of the youth who see migration as an inevitability (Figure 8). Due to the relaxed nature of questioning and discussion, the villagers were more willing and comfortable in discussing their lives and conditions.

Conclusion

This paper presents our findings from an exploratory field study in six remote villages in Uttarakhand, India, integrating Community Based Participatory Research and Design Thinking approaches. The main aim was to develop an empathetic framework of research that eases both the student researchers and people of the community into easy dialogue.

Probing into overt and conspicuous findings along with voicing the ideas and concerns of the local populace was the primary benefit derived from the participatory exercises. Student researchers used these tools to find and prioritize problem areas that affected the local people the most. The selected problems needed to reflect the needs, aspirations, and requirements of the community and the village. Active participation from the villagers motivated all the stakeholders and propelled them into detailed conversations about the hardships faced living so remotely, obstacles in sustenance, and reasons for migration. It also functioned as a trust-building exercise between the student researchers and the village community.

The scope of this research is limited to the application of Community-Based Participatory Rural Research as a research method in social design. The study series is ongoing and has presented promising results which

may open many channels of improved and detailed research methodology and user interaction in settings that students may not have been exposed before. Community-based participatory research, with its intense emphasis in human beings and their power to create and recreate, holds distinct promise in being used as a design tool for social good. This paper presents the findings of our first exploratory stage in this direction. Future areas of research will involve further exploration into co-designing activities with more tangible and entrepreneurial outcomes.

Acknowledgements

We thank Doon University for giving us the freedom to explore trans-disciplinary curricula within the higher education framework. We acknowledge the Design students of cohort 2015 as enthusiastic and creative participants in the research. This research would not have seen fruition without the willing and open-minded cooperation of the local authorities and residents of the villages of Jabukathal, Tana, Puna, Kalasila, Bajet, and Kaneda in Uttarakhand, India. We are also grateful to our colleagues whose guidance and inputs on rural development in Uttarakhand informed our research throughout.

References

Armstrong, L., Bailey, J., Julier, G., & Kimbell, L. (2014). Social Design Futures: HEI Research and the AHRC. University of Brighton.

Aryana, B., & Cetin O.D. (2015). an Analysis of the Influence of Design Activism and Socially Responsible Design Approaches. 11th Europan Academy of Design Conference, 1–11. http://doi.org/10.13140/RG.2.1.1870.4809

Bonsiepe, G. (2006). Design and democracy. Design Issues, 22 (2), pp.27--34. https://doi.org/10.1162/desi.2006.22.2.27

Bradbury, H. (2020). Action Research, Concept of. SAGE Research Methods Foundations. https://doi.org/10.4135/9781526421036805697

Brydon-Miller, M. (2001). Education, research, action: Theory and methods in participatory action research. From Subjects to Subjectivities: A Handbook of Interpretive and Participatory Methods, New York, 77–89. https://doi.org/ 10.4324/9781351033268

Buchanan, R. (1992). Wicked Problems Thinking in Design. Design Issues, 8(2), 5–21. https://doi.org/ 10.2307/1511637

Buchanan, R. (2001). The Problem of Character in Design Education: Liberal Arts and Professional Specialization. 17(4), 3–24. https://doi.org/10.1023/A:1011286205584

Coghlan, D., & Brydon-Miller, M. (2014). Participatory Rural Appraisal. The SAGE Encyclopedia of Action Research, 607–608. https://doi.org/10.4135/9781446294406.n268

Cohen, L., Manion, L., & Morrison, K. (2011). Research Methods in Education. London: Routledge. https://doi.org/10.4324/9780203720967

Cornwall, A., & Jewkes, R. (1995). What is participatory research? Social Science & Medicine, 41, 1667–1676. https://doi.org/10.1016/0277-9536(95)00127-S

Datta S.K., & Virgo K.J. (1998). Towards Sustainable Watershed Development through People's Participation: Lessons from the Lesser Himalaya, Uttar Pradesh. Mountain Research and Development, Aug. http://doi.org/10.2307/3674034

Fazey, I. N., Schäpkeb, G., Canigliac, J., Pattersond, J., Hultmane, B., van Mierlof, F., & Wyborn, C. (2018). Ten essentials for action-oriented and second order energy transitions, transformations and climate change research. Energy Research & Social Science, 40, 54–70. https://doi.org/10.1016/j.erss.2017.11.026

Fuad-Luke, A. (2009). Design activism: beautiful strangeness for a sustainable world. Earthscan: London. https://doi.org/10.2752/175470710X12735884221050

Israel, B.A., Schulz, A.J., Parker, E.A., & Becker, A. (1998). Review of community-based research: Assessing partnership approaches to improve public health. Annual Review of Public Health, 19, 173-202. https://doi.org/10.1146/annurev.publhealth.19.1.173

Jackson, R.M., & Wangchuk, R. (2004). A Community- Based Approach to Mitigating Livestock Depredation by Snow Leopards. Human Dimensions of Wildlife, 9(4), 1–16. https://doi.org/10.1080/10871200490505756

Joshi, D. U. (2013). Decentralisation of public service delivery in the Central Himalayas: The myth of community participation. Policy and Society, 32(1), 23–32. https://doi.org/10.1016/j.polsoc.2013.01.001

Kindon, S., Pain, R., & Kesby, M. (2009). Participatory Action Research. In International Encyclopedia of Human Geography. https://doi.org/10.1016/B978-008044910-4.00490-9

Krueger, R. A., & King, J. A. (1998). Involving community members in focus groups. Focus group kit 5. Thousand Oaks, CA: SAGE. http://dx.doi.org/10.4135/9781483328140

Mosse, D. (1995). Social analysis in participatory rural development. PLA Notes, 24, 27–33.

Narayanasamy, N. (2009). Participatory Rural Appraisal - Principles, Methods and Application. Sage Publications. http://dx.doi.org/10.4135/9788132108382

Peaty, D. (2009). Community-Based Tourism in the Indian Himalaya: Homestays and Lodges. Journal of Ritsumeikan Social Sciences and Humanities, 2, 25–44. Retrieved from http://www.ritsumei.ac.jp/acd/re/k-rsc/hss/book/pdf/vol02_04.pdf

Pottier, J. (1997). Towards an ethnography of participatory appraisal and research. In: Discourses of development: Anthropological perspectives. Grillo, R.D. & Stirrat, R.L. (Eds). Berg, Oxford and New York, 203–227. Retrieved from https://eprints.soas.ac.uk/id/eprint/329

Sanders, E. B., Stappers, P. J., & Ave, O. P. (2008). Co-creation and the new landscapes of design. (March), 1–16. https://doi.org/10.1080/15710880701875068

Shea, A. (2012). Designing for social change: strategies for community-based graphic design. New York: Princeton Architectural Press.

Singh, S., Lotz, N., & Sanders, E. (2018). Envisioning Futures of Design Education: An Exploratory Workshop with Design Educator. Dialectic, 2(1), 15–42. http://dx.doi.org/10.3998/dialectic.14932326.0002.103

Souleles, N., Savva, S., & Ferreira, A. M. (2017). The challenge of embedding design for social change and innovation in Higher Education curricula and the role of DISCERN (DesIgn for Social Change and innovation through a EuROpean Network). In 9th International Conference Senses and Sensibility 2017. http://doi-org/10.1037/0096-3445.134.2.258

Souleles N., Ferreira A.M., & Savva. S. (2020). Threshold Concepts and Design for Social Change. In: Goossens R., Murata A. (Eds) Advances in Social and Occupational Ergonomics. AHFE 2019. Advances in Intelligent Systems and Computing, 970. http://doi-org/443.webvpn.fjmu.edu.cn/10.1007/978-3-030-20145-6_8

Souleles, N. (2017). Design for social change and design education: Social challenges versus teacher-centred pedagogies. The Design Journal, 20 (sup1), S927–S936. https://doi.org/10.1080/14606925.2017.1353037

Thorpe, A., & Gamman, L. (2011). Design with society: why socially responsive design is good enough. CoDesign, 7(3-4), 217–230. https://doi.org/10.1080/15710882.2011.630477

Wallerstein, N., & Duran, B. (2003). The conceptual, historical, and practice roots of community based participatory research and related participatory traditions. Community-based participatory research for health, 2752. https://doi.org/10.13140/RG.2.2.34282.72648

Wood, J., Knowler, D., & Gurung, O. (2008). Assessing the prospects for community-based wildlife management: the Himalayan musk deer (Moschos chrysogaster) in Nepal. Human Dimensions of Wildlife, 13(1), 16-30. https://doi.org/10.1080/10871200701812910

International Journal of Design for Social Change, Sustainable Innovation and Entrepreneurship

discern

https://www.designforsocialchange.org/journal/index.php/DISCERN-J

ISSN 2184-6995

Educational needs in cultural and arts entrepreneurship of women from marginalised backgrounds: A needs analysis for a social design intervention

Nicos Souleles, Stefania Savva, Ana Margarida Ferreira, Andrew Laghos

Published online: November 2020

To cite this article:
Souleles, N., Savva, S., Ferreira, A.M., & Laghos A. (2020). Educational needs in cultural and arts entrepreneurship of women from marginalised backgrounds: A needs analysis for a social design intervention. Discern: International Journal of Design for Social Change, Sustainable Innovation and Entrepreneurship, 1(1), 27-36.

Educational needs in cultural and arts entrepreneurship of women from marginalised backgrounds: A needs analysis for a social design intervention

Nicos Souleles[a], Stefania Savva[b], Ana Margarida Ferreira[c], Andrew Laghos[b]

[a]Cyprus University of Technology, Art+Design: elearning lab, Limassol. nicos.souleles@cut.ac.cy
[b]Cyprus University of Technology, Art+Design: elearning lab, Limassol. stefania.savva@cut.ac.cy
[c]IADE, Universidade Europeia, Av. D. Carlos I, 4, 1200-649 Lisboa.
[c]UNIDCOM/IADE - Unidade de Investigação em Design e Comunicação, Av. D. Carlos I, 4, 1200-649 Lisboa.
ana.margarida.ferreira@universidadeeuropeia.pt
[d]Cyprus University of Technology, Art+Design: elearning lab, Limassol. andrew.laghos@cut.ac.cy

Abstract

Despite the recognition that cultural and creative industries can foster significant economic potential and are one of Europe's most dynamic sectors, contributing to the creation of millions of jobs across the European Union, there is a noticeable lack of cultural and arts entrepreneurship programmes of study. The project CREATION (Cultural and Arts Entrepreneurship in Adult Education), funded under Erasmus+ Strategic Partnerships for adult education, seeks to redress this situation through a social design intervention comprising the development of a framework for adult education for the creative and cultural sectors across Europe, with a specific focus on aspiring women entrepreneurs from marginalised backgrounds (migrants, refugees and asylum seekers). This study provides a needs analysis to inform the identification of the required educational needs for the target groups. It comprises desk research of the related literature plus data from an online survey. The synthesis of the prominent themes that emerged from this study indicates the need for a multifaceted instructional design approach that combines both the essential generic skills in entrepreneurship and acknowledges the structural, contextual and educational challenges that are characteristic of the target groups.

Keywords: Entrepreneurship, Education, Women, Marginalised, Culture, Arts

Introduction

The creative industries are the focus of different lifelong learning programmes across Europe that aim to address adult training needs for a future workforce in a sector that requires a set of diverse skills to engage with cultural and arts entrepreneurship. In a study by Essig (2017, p. 21), the author reminded us that education for cultural and arts entrepreneurship has moved on from the early 'pioneering phase' and is now transiting the 'conceptual phase', where related education is further defined, necessitating a 'robust body of empirical research'. The view that education, skills and relevant training are not sufficiently addressed in the sector was also identified in a comprehensive report by the Culture Unit of the Utrecht School of Arts written for the European Commission (2010). The authors argued that the proliferation of entrepreneurship education programmes in recent years have commercial success as the sole purpose. They do not cater to the creative industries where creative and cultural outcomes are considered more significant than financial outcomes (2010, p. 10; Bridgstock, 2012, p. 129). For this article, the terms 'cultural and arts entrepreneurship', 'arts entrepreneurship' and 'entrepreneurship in the cultural and creative sector' refer to similar endeavours and are used interchangeably and as they appear in the reviewed literature.

The rationale for engaging with the early 'conceptual phase' of cultural and arts entrepreneurship was articulated as a policy priority area by the European Union in 2007. The European Commission's document on a European Agenda for Culture in a Globalizing World (2007) made an explicit connection between the contribution of the cultural industries and the creative sector in general and growth and employment. Subsequently, in the same document, the European Commission set as a specific objective to "...Promote capacity building in the cultural sector by supporting the training of the cultural sector in managerial competences, entrepreneurship..." (2007, p. 9). This objective stems from the recognition that the cultural and creative industries can foster significant economic potential and are one of Europe's most dynamic sectors, contributing around 2.6 % to the EU GDP and provide quality jobs to around 5 million people across the European Union (EU) (European Commission, 2010, p. 2).

Following on from the acknowledgement that the sector can contribute towards growth and employment, the project CREATION (Cultural and Arts Entrepreneurship in Adult Education, www.creationproject.eu), funded under Erasmus+ Strategic Partnerships for adult education, seeks to develop a social design intervention comprising a framework for adult education for the creative and cultural sectors across Europe with a specific focus on aspiring women entrepreneurs from marginalised backgrounds (migrants, refugees and asylum seekers). The purpose of this article is to provide a needs analysis that informs the development of the appropriate pedagogical framework for the target group. This needs analysis comprises two parts. First, desk research was undertaken on literature, including appropriate European Union (EU) documents, to track down useful existing pre-published information. Second, an online survey in the form of a questionnaire (Appendix 1) was undertaken (n = 55) for two months in early 2020, inviting representatives from academia, the cultural and arts sector and entrepreneurs as well as others to comment on their perceptions on what the required set of skills is for the target group. The outcomes of this needs analysis derived from the synthesis of both these parts, i.e. the literature review and data from the online questionnaire.

Literature review

The project CREATION identified marginalised women to include all those with a migrant, refugee and/or asylum seeker background. The European Institute for Gender Equality, however, provides a raison d'être for what makes these groups marginalised. Marginalised groups are those that within a given culture and context are at risk of being subjected to multiple levels of discrimination due to the interplay of different factors including their social status, sex, gender, age, ethnicity, religion or belief, health status, disability, sexual orientation, gender, education, income, or living in various geographic localities. Being a member of such groups or even being perceived to belong to them increases the risk of inequalities in terms of access to rights and use of services in a variety of domains, such as access to education, employment, health, social and housing assistance, protection against domestic or institutional abuse, and justice (European Institute for Gender Equality, 2020).

In the context of entrepreneurship, marginalised groups were identified in a study by the Enterprise Research Centre (2018) to include the following four groups: a) migrant entrepreneurs, b) ethnic minority entrepreneurs, c) women entrepreneurs, and disabled entrepreneurs. Each one of these groups is confronted with unique challenges in addition to those faced by entrepreneurs. For example, migrant entrepreneurs tend to lack understanding of the culture of their new country and combined with poor language skills they are unable to access the support available for new entrepreneurs (Enterprise Research Centre, 2018, p. 8). Ethnic minority entrepreneurs are confronted – among others – with racism, unawareness of available sources of finance, low adoption of Information and Communication Technologies as well as dealing with language and cultural differences (Enterprise Research Centre, 2018, p.

13). The lack of relevant education and managerial skills combined with having to operate in a predominantly male-dominated sector, are among the issues that impede women entrepreneurs. There are also overlaps with the previous groups in terms of difficulties in accessing finance and support (Enterprise Research Centre, 2018, pp. 14-16). Lastly, disabled entrepreneurs dealing with a wide variety of physical and/or mental disabilities, in common with previous under-represented in the sector groups – and among other challenges – struggle to access specialist advice and start-up funding (Enterprise Research Centre, 2018, p. 18).

The academic literature on entrepreneurship, in general, is extensive. However, the related literature on entrepreneurship in the cultural and creative industries is limited (Chang & Wyszomirski, 2015, p. 11). A meta-analysis of this literature by Hausmann and Heinze (2016) indicates that this literature comprises mostly theoretical/conceptual approaches to the topic and case studies. The second point to note from this meta-analysis – and something identified by a few authors – is the lack of an agreed understanding and commonly accepted definitions of entrepreneurship in the cultural and creative sector and what this entails. However, the overlapping areas in these varied definitions suggest that entrepreneurship in the sector entails, in a broad sense, a variety of cultural activities, diverse artistic outputs and products, cultural enterprises and the creation of tangible cultural capital. In a meta-analysis by Chang and Wyszomirski (2015, p. 24), the authors attempted a 'preliminary' definition based on their analysis that encapsulates the term in the following description: "...[arts entrepreneurship is] a management process through which cultural workers seek to support their creativity and autonomy, advance their capacity for adaptability, and create art as well as economic and social value." This description is adopted as a working definition for this needs analysis, and it serves as a useful stepping stone to help identify the skillset required to foster entrepreneurship among aspiring women entrepreneurs from marginalised backgrounds.

In a broad report by the Directorate-General for Enterprise and Industry of the European Commission (2008, p. 26), the expert group comprising a multinational team of European experts acknowledged that there are different emphases on how and what to teach, depending on disciplinary differences. However, the expert group recommended that the common elements of Higher Education (HE) entrepreneurship, irrespective of disciplines, should entail instructional programmes that foster, among others, creativity, innovation, a proactive attitude, decision-making and leadership skills and an ability to work with uncertainty and recognise opportunities. The same report concluded that traditional instructional methods do not relate well with the development of entrepreneurial competencies, and multi-disciplinary partnerships are an essential element for the development of enterprising abilities (2008, p. 29).

In a study from the United Kingdom with a specific focus on how entrepreneurship is delivered in HE for the creative industries (Clews, 2007), the author highlighted the prevalence and significance of project-based and work-based learning. Although this study did not seek to identify the range of competencies taught to learners in the creative industries, it identified the significance of soft skills such as networking, team-building and team-working (Clews, 2007, p. 51). The learners who participated in this study identified as core competencies of entrepreneurship education for the creative industries good commercial skills, business management and good communication skills and as desirable attributes the ability for opportunity spotting and problem-solving (Clews, 2007, pp. 56-58). Similarly, it is argued that entrepreneurial failures in the sector are due to "a lack of strategic thinking, finance, and opportunity recognition skills" and "shortcomings in business management skills, market knowledge and networking skills (Thom, 2016, p. 6).

The characteristics of entrepreneurship in the cultural and creative industries were elaborated upon by a report produced by the Utrecht School of the Arts (2010). Although the focus is on providing an

understanding of the sector from the perspective of related industries, it is possible to discern the 'transversal problems' that are common to these industries (Utrecht School of the Arts, 2010, p. 6) and thus identify some areas to address through educational programmes. A major theme that emerged from this report highlights the challenge that small creative enterprises are confronted with if they want to expand. Networking and clustering to benefit from a collective position are options to pursue because in the cultural and arts sector many professionals are likely to be self-employed (Bridgstock, 2012, p. 124).

Other challenges include access to knowledge about market opportunities, appropriateness of business models, knowledge of Intellectual Property Rights (IPR), locating funds and seeking financing. These themes are part of the recurring skills noted in the literature on entrepreneurship. For example, in an extensive study by Thom (2016, p. 13) the 'crucial' entrepreneurial skills were identified as the abilities to think creatively, apply strategic thinking and planning, recognise and realise opportunities, network, exercise leadership and understand finance and marketing. For reasons of convenience, we will refer to these recurring general skills as generic, i.e. they form an important component of all programmes of study in entrepreneurship.

What hinders the identification of specific learning needs, vis-à-vis entrepreneurship for women as well as minority ethnic groups, is the lack of extensive research in this area (Chreim, Spence, Crick, & Liao, 2018; White, 2018). We take for granted the need for generic skills, but there are indications that due to contextual factors (culture, ethnicity and religion) these skills can be negatively skewed concerning women and ethnic groups (Chreim et al., 2018, p. 4). For example, in a report that specifically focused on women's entrepreneurship (Halabisky, 2018), the ability to locate funds and effectively seek financing was identified as a characteristic challenge for women entrepreneurs, who are confronted with greater difficulty in this area than men (Henry et al., 2007, p. 246). This applies across all EU states (Halabisky, 2018, p. 14).

The educational value of mentoring is identified as a generic element for all entrepreneurship studies, on the premise that it can facilitate guidance and support while at the same time it is perceived by learners as offering exposure to real-life practice (Final report of the expert group, 2008; Halabisky, 2018, p. 18). The significance of mentoring to address the challenges women are confronted with is an oft-repeated theme in the literature on policies that support women entrepreneurs (Henry et al., 2007, p. 262; Bridgstock, 2012, p. 132). Mentoring – by successful women entrepreneurs – is explicitly proposed for aspiring ethnic women entrepreneurs, who are often confronted with the combined disadvantages of gender and ethnicity. While the generic educational challenges are common among all groups, mentoring for ethnic women can offer, among other things, insights into non-business issues, such as dealing with perceived gender expectations within certain cultures and managing a work/life balance regarding childcare (Chreim et al., 2018, p. 9).

A concept used in the literature to describe the dimensions of ethnic entrepreneurship is 'embeddedness'. This relates to the spectrum of social agencies and networks and structural parameters (the politico-institutional and socioeconomic environment) that host the aspiring entrepreneur and the degree to which the latter encounters these either as obstacles or as advantages (Chreim et al., 2018, p. 2; Rath, & Swagerman, 2016, p. 154). The implications for education in cultural and arts entrepreneurship for women from marginalised backgrounds are not immediately obvious. Awareness of 'embeddedness' and all that this entails does, however, point towards a multi-level skillset that includes the ability to evaluate opportunities within the respective socio-political contexts.

Emergent themes

For two months in early 2020, a total of fifty-five (n = 55) respondents answered the online questionnaire (Appendix 1). The data were gathered through convenience sampling due to time limitations, and this infers the possibility of a sampling error and lack of representation of the target population. However, the sampling process can also be considered as a wide delimitation. The authors deliberately sought a wide-ranging spectrum of opinions, inviting all those who consider themselves informed on the subject, irrespective of their background, to complete the questionnaire.

For the first question of the online survey, most respondents (36.36%) identified themselves as professionals. Some indicative descriptions they provided to qualify their professional roles include teacher of English as a second language, project manager, freelance consultant, product developer, trainer, linguistic mediator, professional in the field of cultural heritage and architecture and vocational education expert. The second-biggest category of participants (29.09%) was academics, and among the listed disciplines were textile printing, architecture/design for built environments, inclusive design, fashion design and design and multimedia. The third group in size was entrepreneurs (18.18%), followed by those that did not identify with any of the previous categories and listed themselves as 'others' (9.09%). The last and smallest group comprised of postgraduate students (7.27%).

After repetitions and redundancies were removed, the outcomes from the second question (Appendix 1) were mapped (Table 1) and classified according to the following four divisions: a) Personal attributes; b) Personal skills (hard and soft); c) Structural/contextual challenges; and d) Distinctive issues for cultural and arts entrepreneurship. Predictably, the replies to the second question confirmed the range of generic skills that are an important component of all programmes of study in entrepreneurship and are identified in the literature review. This mapping exercise also provides a list of distinctive social, structural and educational challenges that are unique to cultural and arts entrepreneurship for women from marginalised backgrounds.

Personal attributes	Personal skills (hard and soft)	Structural / contextual challenges	Distinctive educational challenges
• Courage • Confidence • Perseverance, persistence • Grounded, strong sense of self • Self-efficacy • Diligence • Resilience • Assertiveness • Adaptability, flexibility • Willing to take risks • Motivation, passion • Be a dreamer, have a vision • Open-minded • Emotional intelligence	• Communication • Ability to learn • Persuasiveness • Presentation skills • Creative thinking, problem-solving, critical thinking • Networking • Budgeting, business planning, accounting • Management • Negotiating • Teamworking • Interpersonal skills • Leadership • Digital marketing, social media skills • Fundraising • Use of technology • Public speaking	• Access to systems and services • Cultural and gender inequalities • Integration	• Intercultural competencies • Mentoring • Ability to recognise, analyse and question the power structures that marginalise • Overview of actualities in culture and creative industries • Basic knowledge of art history

	• Understanding of social processes • Knowledge of IPR		

Table 1: Mapping of attributes, skills, and contextual and distinctive educational challenges.

Selected indicative statements from the respondents illustrate how the respondents perceived some of the items in Table 1. For example, "… [women from marginalised backgrounds] need opportunities, access to systems, services and education to be able to learn about which skills they have and can build on and to be exposed to cultural, arts and other sectors as part of that learning. From this exposure, awareness there are discovered interests to pursue and pathways to take" (Respondent #50). And "They [women from marginalised backgrounds] need to be well networked beyond their locality and community. This often needs to be done with the support of a cultural intermediary/support person to help make connections and 'translate' key information. Women from marginalised backgrounds often experience discrimination for structural reasons rather than through a lack of their skills and competencies. In other words, it is not all about their skills but it is about the environment, the social and cultural inequalities in society" (Respondent #43). Last, "… [women from marginalised backgrounds] must be well-aware of their rights and [be] able to defend them. Strategic thinking, communication skills and creativity [are needed]" (Respondent #16).

Next, the respondents were asked to rank (1 = Lowest, 12 = Highest) in terms of importance twelve skills identified in the literature review. Figure 1 represents this ranking. The total value for each item in the chart represents the cumulative average of choices among all the respondents. As an overview, the differences between all of them can be considered minimal, and this suggests not a prioritisation in terms of the educational value, but rather a pedagogical framework that incorporates all of them or at least as many as possible.

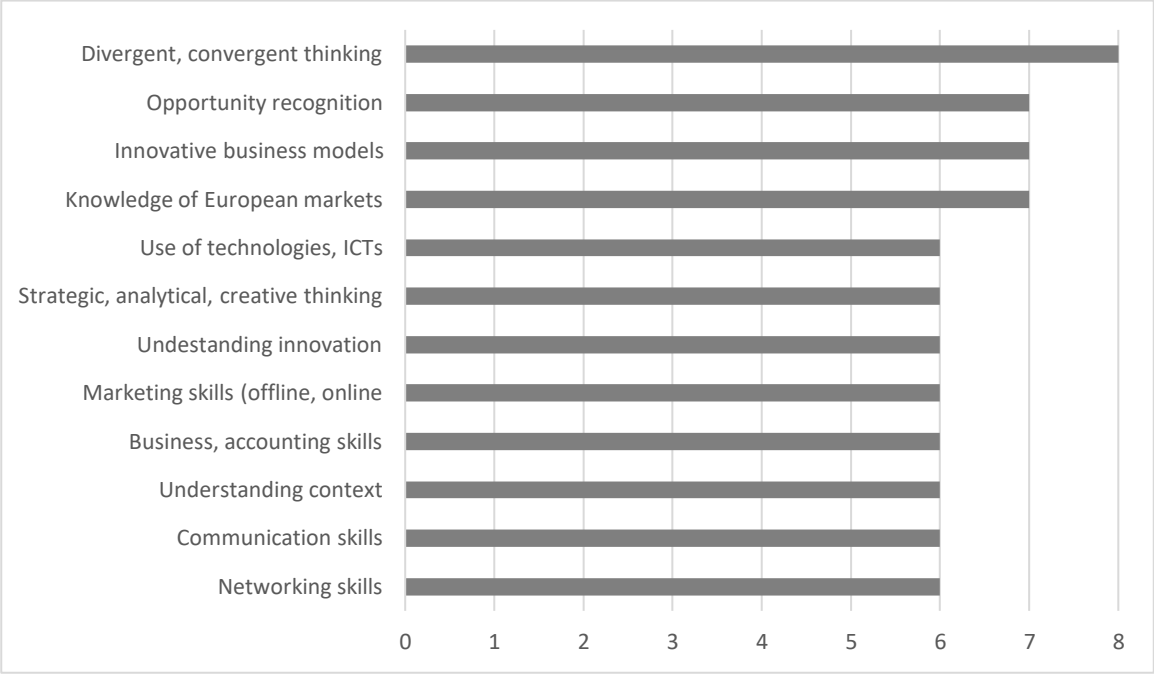

Figure 1: Ranking of skills.

The last question of the online questionnaire sought qualitative data on what the respondents perceived to be the characteristic challenges and opportunities for women from marginalised backgrounds to succeed as cultural and arts entrepreneurs. Repetitions, redundancies and overlaps were removed, and replies that offered insights and something not previously identified is quoted as stated.

> *"They [women from marginalised backgrounds] might be stuck with a label that chokes their creative process by making them create only about their marginalising context. Having a point of view and a message doesn't mean you are stuck with your identity and can only create about yourself and your reality. Artists imagine (Respondent #55)."*

> *"…They [women from marginalised backgrounds] are locked in downward spiral ecosystems that punish ambition/risk-taking and reward submission/status-quoting. To name just a few of the components of this ecosystem: political and social power, gender, race, class, legitimacy, elitism, language, literacy, education, information, exposure, access, finance, social and financial capital … What they do have in their favour is talent, cultural and social literacy, commitment, intelligence (tactical and emotional), spiritual strength/ wisdom, resilience and a strong sense of self (Respondent #53)."*

> *"…There are also opportunities to change the context of the status quo/establishment and apply out of the box thinking to create new, unique, and unexpected industries/creative businesses and practices (Respondent #50)."*

> *"…The main challenge is to convince yourself to become an entrepreneur, especially for women from marginalised backgrounds. Culture and arts are emerging business sectors where interesting opportunities can arise, therefore entrepreneurial and innovative training is necessary to support those women in meeting this challenge (Respondent #24)."*

Conclusion

This needs analysis aims to inform a social design intervention comprising the development of an appropriate pedagogical framework in cultural and arts entrepreneurship for women from marginalised backgrounds. The synthesis of the prominent themes that emerged from the literature review and the data from the online questionnaire points towards the need for a multifaceted instructional design approach that combines both the essential generic skills in entrepreneurship and an acknowledgement of the structural, contextual and educational challenges that are characteristic of the target group. Ideally, the instructional strategies and overall pedagogical framework to be developed will approach these themes as intertwined and interconnected, but also recognising the unique challenges that confront women from marginalised backgrounds.

References

Bridgstock, R. (2012). Not a dirty word: Arts entrepreneurship and higher education. Arts & Humanities in Higher Education, 12(2–3) 122–137.

Chang, J.W., & Wyszomirski, M. (2015). What is arts entrepreneurship? Tracking the development of its definition in scholarly journals. Arivate: A Journal of Entrepreneurship in the Arts, 4(2), 11-31.

Chreim, S., Spence M., Crick D., & Liao X. (2018). Review of female immigrant entrepreneurship research: Past findings, gaps and ways forward. European Management Journal, 1-13.

Clews, D. (2007). Creating Entrepreneurship: entrepreneurship education for the creative industries. Brighton, UK: Higher Education Academy Art, Design, Media Subject Centre.

Commission of the European Communities. (2007). Communication from the Commission of the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Region on the European agenda for culture in a globalizing world. Brussels: Commission of the European Communities [COM(2007) 242 final].

Culture Unit of the Utrecht School of Arts. (2010). The Entrepreneurial Dimension of The Cultural and Creative Industries. Utrecht: Hogeschool vor de Kunsten.

European Institute for Gender Equality, 2020. Marginalised Groups. Retrieved from https://eige.europa.eu/thesaurus/terms/1280

Final report of the expert group. (2008). Entrepreneurship in higher education, especially within non-business studies. Brussels: European Commission, Directorate-General for Enterprise and Industry.

Essig, L. (2017). Same or Different? The "Cultural Entrepreneurship" and "Arts Entrepreneurship" Constructs in European and US Higher Education. Cultural Trends 26 (2), 125-137. Doi: dx.doi.org/10.1080/09548963.2017.1323842

European Commission. (2010). Green Paper. Unlocking the potential of cultural and creative industries. Brussels: European Commission [COM(2010) 183 final].

European Commission. (2008). Entrepreneurship in Higher Education, especially in non-business studies – Final Report of the Expert Group. Brussels: European Commission, Directorate-General for Enterprise and Industry

Halabisky, D. (2018). Policy brief on women's entrepreneurship. OECD SME and Entrepreneurship Papers, No. 8, OECD Publishing, Paris. DOI: 10.1787/dd2d79e7-en

Hausmann, A., & Heinze, A. (2016). Entrepreneurship in the cultural and creative industries: Insights from an emergent field. Artivate: A Journal of Entrepreneurship in The Arts 5(2), 7-22.

Henry, C., Orser, B., Coleman, S., Foss, L., Welter, F., Ahl H., Berglund, K., Braun, P., de Bruin, A., Diaz-Garcia, C., Gawell, M., Lawton Smith, H., Lewis, K., McGowan, P., Nziku, D., Pettersson, K., Sheikh, S., Tillmar, M., & Yousafzai, S. (2017). Women's entrepreneurship policy: a 13-nation cross-country study. In T. Manolova, S. Tatiana, C. Brush, L. F. Edelman, A, Robb, & F. Welter (Eds.), Entrepreneurial ecosystems and growth of women's entrepreneurship: A comparative analysis (pp. 244-278). Cheltenham, UK: Edward Elgar.

Rath, J., & Swagerman, A. (2016). Promoting ethnic entrepreneurship in European cities: Sometimes ambitious, mostly absent, rarely addressing structural features. International Migration Review, 54(1), 152–166.

Thom, M. (2016). Crucial skills for the entrepreneurial success of fine artists. Artivate: A Journal of Entrepreneurship in the Arts, 5(1), 3-24.

White, J. C. (2018). Toward a Theory of Minority Entrepreneurship in the Non-Profit Arts Sector. The Journal of Arts Management, Law, and Society, 1-13.

Wishart, M. (2018). Under-represented entrepreneurs: A literature review. Coventry, UK: Enterprise Research Centre, Warwick Business School.

Appendix 1

Question 1: Are you a) An academic/researcher? In what discipline? b) A professional? What is your occupation? c) An entrepreneur? d) Other? Please provide a brief description.

Question 2: In your view, what are some skills and competencies women from marginalised backgrounds need to succeed as cultural and arts entrepreneurs?

Question 3: Rank each item below separately in terms of importance for women to succeed as cultural and arts entrepreneurs (1 = Lowest, 12 = Highest).

Strategic, analytical, creative thinking
Divergent, convergent thinking
Opportunity recognition
Understanding innovation
Understanding context
Communication skills
Innovative business models
Marketing skills (online/offline)
Knowledge of European markets

International Journal of Design for Social Change, Sustainable Innovation and Entrepreneurship

discern

https://www.designforsocialchange.org/journal/index.php/DISCERN-J

ISSN 2184-6995

Action-centred design to find opportunities in times of multiple crises: Designing a toolkit from a participatory conference

Alastair Fuad-Luke, Seçil Uğur Yavuz, Corinna Sy, Jennifer Schubert, Kris Krois

Published online: November 2020

To cite this article:
Fuad-Luke, A., Yavuz, S.U., A., Sy, C., Schubert, J., & Krois, K. (2020). Action-centred design to find opportunities in times of multiple crises: Designing a toolkit from a participatory conference. Discern: International Journal of Design for Social Change, Sustainable Innovation and Entrepreneurship, 1(1), 37-49.

Action-centred design to find opportunities in times of multiple crises: Designing a toolkit from a participatory conference

Abstract

The global crisis around the COVID-19 pandemic raises questions about our societal conditions while amplifying the challenges of our existing multiple crises to wider questions of sustainability. Such crises, which are both threat and opportunity, have been highlighted for 50 years within the design domain which has re-orientated towards ideas of ecological, social and economic transition and transformation. Against this background, a 7-year old conference series, presciently called By Design or By Disaster, had to convert to an online format during the COVID-19 lockdown in Italy. Applying eco-social and participatory design principles the participants of the conference, Beyond Crisis, co-created 21 parallel workshops tasked with the aim of each generating three actions on diverse topics reflecting the interests of the participants. Live reports and synthesis of the actions generated a broad mapping of the situation to help build a spirit and momentum for social-ecological transformation through design. Subsequent analysis of the content of the workshops and actions led to the development of a prototype opensource toolkit, the Toolkit for Designing Actions in Times of Multiple Crisis, that facilitates the creation of action plans with multiple actors. This toolkit for *action-centred design* has the potential to help diverse actors deal with multiple crises while simultaneously helping reconfigure our societal and human to other-than-human relations by materialising *preferable* rather than probable or possible futures.

Keywords: Action-centered design, Diverse actors, Multiple crises, Toolkit, Transition, Social-ecological transformation

Transition and transformation in times of multiple crises

As the (still unfolding) realities of the COVID-19 pandemic reveal the fragility of our systems and infrastructures, questions asked of our societal condition over the last 60 years rise to the surface once again but with a new urgency. The pandemic amplifies the challenges as a phenomenon of our multiple crises - climate warming, destruction of biodiversity and habitat, the externalised costs of a neo-liberal global economic system and more (multiple crises reference). As the philosopher Antonio Gramsci sagely observed, crises destabilize socio-economic relations and cultural narratives of hegemonic regimes while simultaneously opening opportunities for the emergence of new symbolic and social possibilities (Gramsci, 1971). Against the dramatic, generational event of the current pandemic, the need to ask critical questions about how we embark on urgent social-ecological transformation is pressing. Here we adopt Driessen et al.'s definition of 'societal transformation' as 'alterations to society's systemic characteristics and encompassed social, cultural, technological, political, economic and legal change' (Driessen et al., 2013, 2 cited in Brand, 2016). Brand acknowledges that there are many possible definitions of transformation because as a diverse concept it has 'broad containers and epistemic terrains' that depend upon implicit or explicit assumptions and on cognitive interests (Brand, 2016, p. 4). Nonetheless, these observers highlight the huge ontological, epistemological and cultural challenge that transformation represents to human societies.

Notions of transition to more sustainable ways of living, working and modes of being through design have a long root of advocacy through ecological and social design in the 1970s, promoted by Victor Papanek, Tomas Maldonado, Ian McHarg and others (Papanek, 1974; Maldonado, 1972; McHarg, 1969). They believed that designing has to be cognisant of human and ecological needs and be underwritten with new political, economic and design value systems to respond to contingent realities. In the last 20 years, these earlier design theories and practices were linked with the concepts of Design for Sustainability (DfS)

(Charter & Tischner, 2001; Manzini & Jegou, 2003), sustainable product services systems (Roy, 2000), transformation design (Burns et al., 2006), design for social innovation (Chick, 2012; Hillgren et al., 2011; Manzini, 2014), design activism (Fuad-Luke, 2009; Thorpe, 2012), transition design (Irwin, 2015; Irwin et al., 2015) and other emergent theories and practices. However, there has generally been little engagement from the design disciplines with transition management theory developed by various Dutch scholars such as Geels, Schot, Kemp, Loorbach and others from the early 2000s onwards and transformation perspectives from other disciplinary fields that try to better understand and map how societies can change themselves. A key theoretical model underlying transition towards more sustainable development is the framework of the Multi-Level Perspective (MLP) identifying the socio-technical landscape, regime and niche innovators.

Exploring and questioning the role of design, designers and designing in societal transformation is pivotal to teaching and research at the Faculty of Design and Art in the Free University of Bozen-Bolzano, South Tyrol, Italy. Since 2015 it has operated a Master in Eco-Social Design and 2018 formed a research cluster entitled "trans-form" (Fuad-Luke, 2020) focused on 'exploring design, art and social practices addressing political and eco-social issues'. As a core part of the curriculum activities, the Masters students and teachers co-curate an annual conference called By Design or By Disaster (DoD) (2020) - a prescient naming given the ongoing circumstances of the COVID-19 pandemic. The first DoD conference, focusing on the transformative role of eco-social design practices in the transition towards more sustainable ways of living and working, was launched in Bolzano in South Tyrol in April 2013. Since then, except for the year 2014, it has been an annual conference steadily building an audience and a network of hundreds of researchers, designers, artists, NGOs, and others from Italy, Germany, Austria and other EU member states. The focus is on the dissemination of new practices, case studies and initiatives complemented by keynote talks, mini-talks, open workshops (suggested and facilitated by the participants), performances and other activities aimed at maximising discourse between the participants in a convivial approach and situation. Since 2018 DoD has partnered with the Hier und Da festival in the village of Mals/Malles in the Obervinchgau/Sopra Val Venosta, South Tyrol, Italy. Mals/Malles is a village renown in South Tyrol and internationally as a community who rejected the use of pesticides in the municipality through a referendum and its resistance to the dominant agricultural infrastructures, systems and policies (Ackerman-Leist, 2017). The community runs the Hier und Da festival (Hier und Da, 2020). As a result of the COVID-19 lockdown in Italy in March DoD20, scheduled for April 2020, was postponed to 1-4 October 2020. Yet the opportunity was seized in April 2020 to create an online conference, entitled "Beyond Crisis" to open up questions as to the threats and opportunities presented to transition to more sustainable societies and the role design and designers can play.

A participatory approach to creating an online conference in the COVID-19 crisis

A team from the Masters programme, trans-form research cluster and external collaborative partners from other universities and not-for-profit organisations came together to organise *Beyond Crisis* a two-day online conference and workshop event. The key questions framing the conference were:

- How to use the virus-induced situation to build up momentum for social-ecological transformation?
- Is the corona crisis an opportunity or threat to social-ecological transformation?

A series of other, minor questions also framed the vision of the conference:

- How can we establish another leading narrative that encourages positive actions?
- What can we do now to nourish positive transformations and prevent the dystopian developments?

- What are the strategies, alliances and actions that can be activated for this purpose?
- Which framings, narrations, images and aesthetics are promising?

Through the DoD blog and its extensive international network, a call was put out for proposals for workshop themes based on the above questions. During just 2 weeks, over 350 participants registered their backgrounds ranging from design practitioners and researchers, heterodox economics (Degrowth and Feminism Alliances), sustainability studies and practices (Environmental Governance, Ecovillages, etc.) to political activism. Data was gathered through the online registration form in which the participants were asked to offer a contribution (talk, workshop or theme or topic) and express their expectations about the conference. The organizing team analyzed the data and through several iterative sessions using post-its with affinity clustering on a Miro whiteboard, identified topics of interest, fields of knowledge and themes that could be tackled during the conference within a "workshop jam". Over 25 workshop themes were generated by this participatory process through the inputs of the registered participants (Figure 1.). Some workshops were proposed by facilitators with a specific topic, while some thematic workshop themes emerged based on the analysis of the interests and expertise of the registered participants.

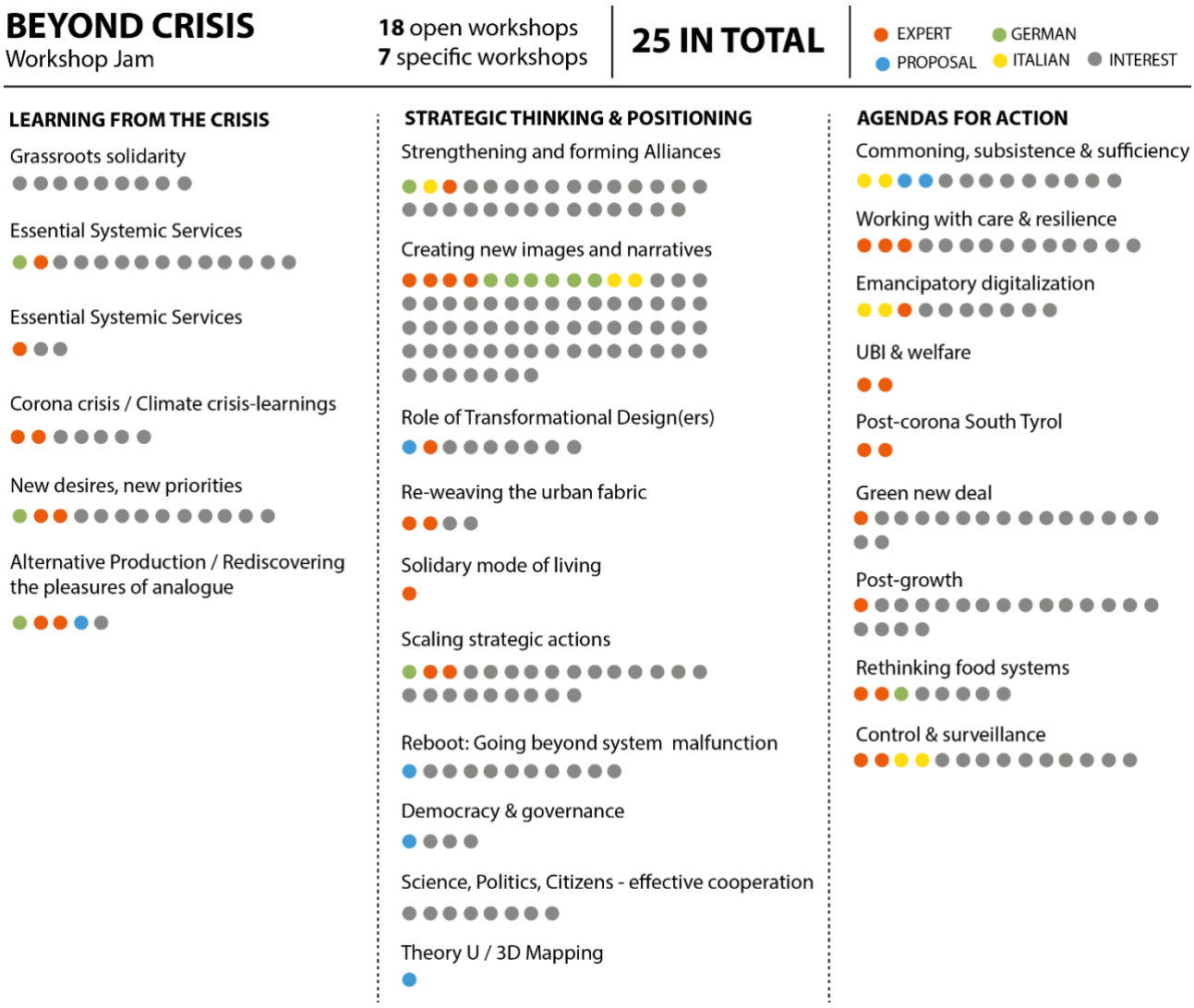

Figure 1: The 25 workshops proposed by the registrants of the conference, synthesised by part of the conference team.

Online modes of participation

The online format of the conference has its limits due to the restriction of screen-based communication. Therefore, the aim of the conference team was to use various interactive tools (such as Miro whiteboards with a workshop template, break-out rooms in Zoom and online social events such as a Social Presencing Theatre) to enhance the engagement of the participants providing an experience of conviviality, lively collaboration and of "social undistancing" as Saskia Hebert called it. The conference team tested Bigbluebutton and other open-source platforms for hosting the conference. However, due to the time constraints and technical limitations the Zoom platform was chosen since it was the tool with the best performance enabling a dialog between so many participants. Additionally, a live stream of the main conference inputs via Youtube was possible for those participants who did not wish to use Zoom due to data privacy issues.

The conference was held over two days. On the first day, 9 experts shared their visions and thoughts around the conference topic with online presentations. Following these talks, and throughout the conference, short breakout sessions of ten minutes were organized by randomly assigning four people to discuss and reflect on the conference issues.

The second day started with some warm-up activities such as yoga and social presencing theatre, which were proposed and conducted by the participants themselves. The main activity was the workshop jam comprising 21 workshops in the programme to which participants subscribed (Figure 1). A maximum of 13 participants per workshop ensured groups were small enough to encourage interaction online. All workshops were offered in parallel sessions.

Two different types of workshops were offered:

- Seven specific workshop formats were planned, facilitated and moderated by the participants and/or speakers who proposed their formats during the registration process.
- Eighteen thematic workshops were compiled according to affinity cluster analysis from the online registration forms. These workshops combined open space format, which means that they were facilitated and guided by the group itself, and the pro-action cafe, facilitating the move from questions to actions. This made it possible to offer multiple parallel workshops, as no major infrastructural preparation was required, but a custom-designed whiteboard, a Miro template (Figure 2), helped facilitate the process. The template offered a short instruction, a set of icons and post-its and was structured in four basic process steps: Introduction, Discussion, Idea development and Conclusion leading to three concrete Action Points. To support this open process, ensure a basic structure and provide visually substantive outcomes, each workshop had a visual note-taker, mainly students experienced in Miro but also external volunteers.

On the second day at the plenum session of the conference a spokesperson from each group presented a brief narrative of their workshop with the focus on the three action points. This was followed by a synthesis of the Action Points from all workshops by two of the authors (see Figures 3 and 4, below).

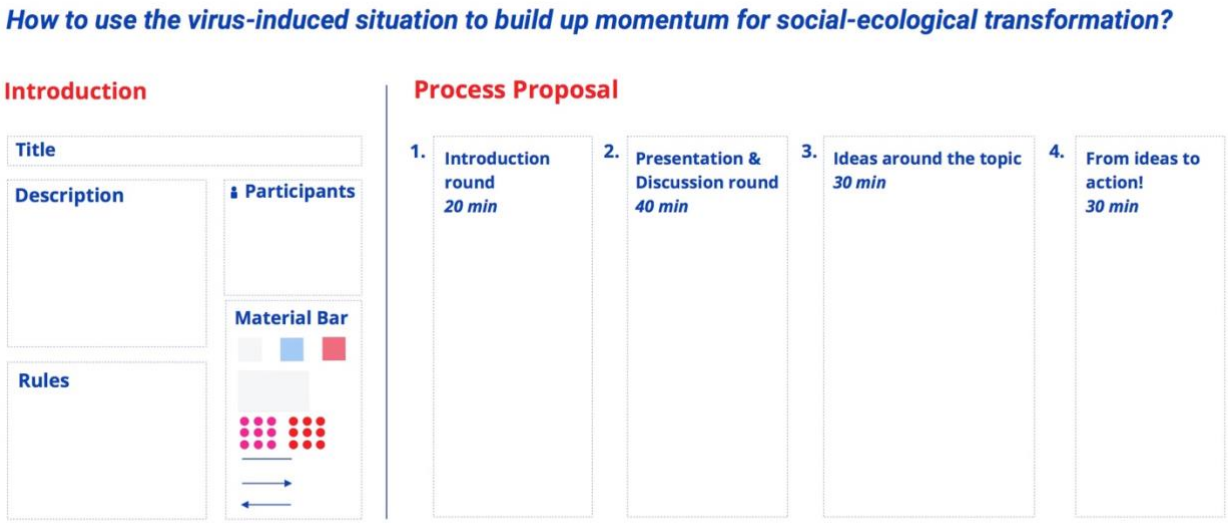

Figure 2: The Miro template used by all the workshop groups.

To provide an interactive feedback system for the participants at the end of the conference, another online tool, Mentimeter (2020), was used. Participants were asked open-ended questions (for example: "What are the inspirations, outcomes, learnings you gathered in the conference?" and "What is next? What actions will you take?"). The results were simultaneously shown to all participants through sharing on-screen. The record of the feedback gathered with Mentimeter gave rise to the possibility to analyse expectations, insights and the actions of and by the participants while revealing their sentiments about the experience. A collective impression of co-presence in digital space emerged as the mind maps grew in real-time.

Real time analysis and synthesis of workshop outputs for the conference audience

After the workshops finished in the morning session of the second day, two of the authors cut and pasted the three specific actions from each workshop into a text document then undertook a pre-coding of the actions to draw out critical key words, following coding methods developed by Saldaña (2013). As this iterative process unfolded one author sketched the concepts and words generated by the key words (Figure 3). The visual map shows the main concepts and the interrelations between them starting from the centre which represents the individual at a micro level and expands to actions that can be done collectively at a macro level. As seen in the illustration, most keywords range between two different states, for instance: micro-macro, individual-collaborative, digital-analogue, possible-impossible, secure-insecure, showing the fact that the crisis triggers a flexible, versatile, plastic thinking to cope with uncertainty and instability. Moreover, this visual and word mapping embraces keywords connected to ideas and solutions that are open and accessible, emphasizing the need for shared knowledge to overcome the obstacles in the times of crisis.

Figure 3: A visual and textual summary of key actions mentioned by the workshop groups.

Another author tried to ascertain where the actions were intended to take place systemically by assigning them to the micro, macro or meso level in a Multi-Level Perspective framework (Geels & Schot, 2007) used by transition management theorists or by assigning them to categories of actions that could apply across all the levels (Figure 4). There was a perceived need across many of the workshops to do system infra-(re-)structuring by "keeping the good and changing the bad" through supporting essential systems and building regenerative systems together, that is, by "co-creating difference". At the macro level this requires "new politics"; at the meso level, "new rights"; and at the micro-level, "new stories, new lives". This requires a (significant?) shift in attitudes and habits of individuals, groups and institutions which were better exemplified in five intertwined categories:

- New values
- New languages, bodying (embodied experiences) and imaginaries
- New responsibilities and civic approaches
- New upward pressures (from the lower levels)
- New dispersed tools and skills

… suggesting radical shifts in how we perceive and act in and on our world(s), with whom and for whose benefit. This ontological shift was best described as acquiring new languages and bodying (expressing this through embodied feelings and actions) and imaginaries through: "Bursting the bubbles, generating hope through action and exciting narratives, doing quantitative easing (euphemism for government central banks to print money or create bonds that inject liquidity into economies) for the people not the corporates, and by challenging politics by civic actions."

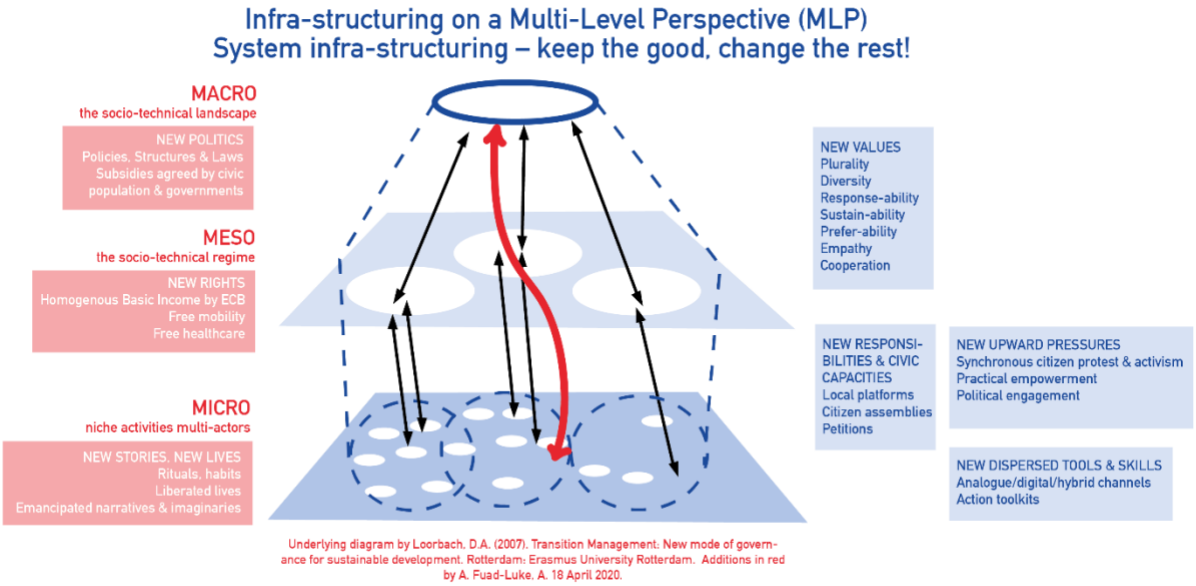

Figure 4: Workshop actions summarised across a Multi-Level Perspective (MLP) diagram.

There was a sense from the conference participants that the participation, discourse and synthesis of outputs built a shared awareness of the threats and opportunities for transition during the COVID-19 circumstances. Also, it was clear that experiencing the conference seemed to empower people emotionally and interpersonally.

Post-conference outputs: The toolkit for designing actions in times of multiple crises

The Mentimeter results for the question "What is next?" was answered by 50 participants. The results range from personal actions to collective ones. Most of the answers were emphasizing the importance of alliances and multidisciplinary perspectives for imagining and building more sustainable futures. Some reported that they would continue working on the ideas developed during the workshop jam in the future, expanding their group to take actions in their localities, such as community building, taking political actions, searching for funding, etc. Two of the groups of workshop participants actuated and formally organised active groups to generate specific initiatives - the Strategic Alliances Group and Diverse Economies Resource Fund.

After the conference two of the authors revisited the original *action outputs* of the 21 conference workshops and the keyword coding exercise used to give the conference participants an initial synthesis of the actions within the transition management framing of the Multi-Level Perspective model. An extended keyword list was generated by going through the Word document of the original actions a second time. Keywords were allocated to emergent categories in a new coding exercise. Keywords were then checked against the final category list and either left in the original category or placed in one of the new categories, which were as follows: Issue/Topic/Theme; Concept; Attitude; Facilitation Tools; Actors; and Actions. These categories were used to develop a set of cards and a process - the Toolkit for Designing Actions in Times of Multiple Crises (Figure 5) - that can be used to develop an action plan by/for a group of actors for a particular Issue/Topic/Theme and/or Concept.

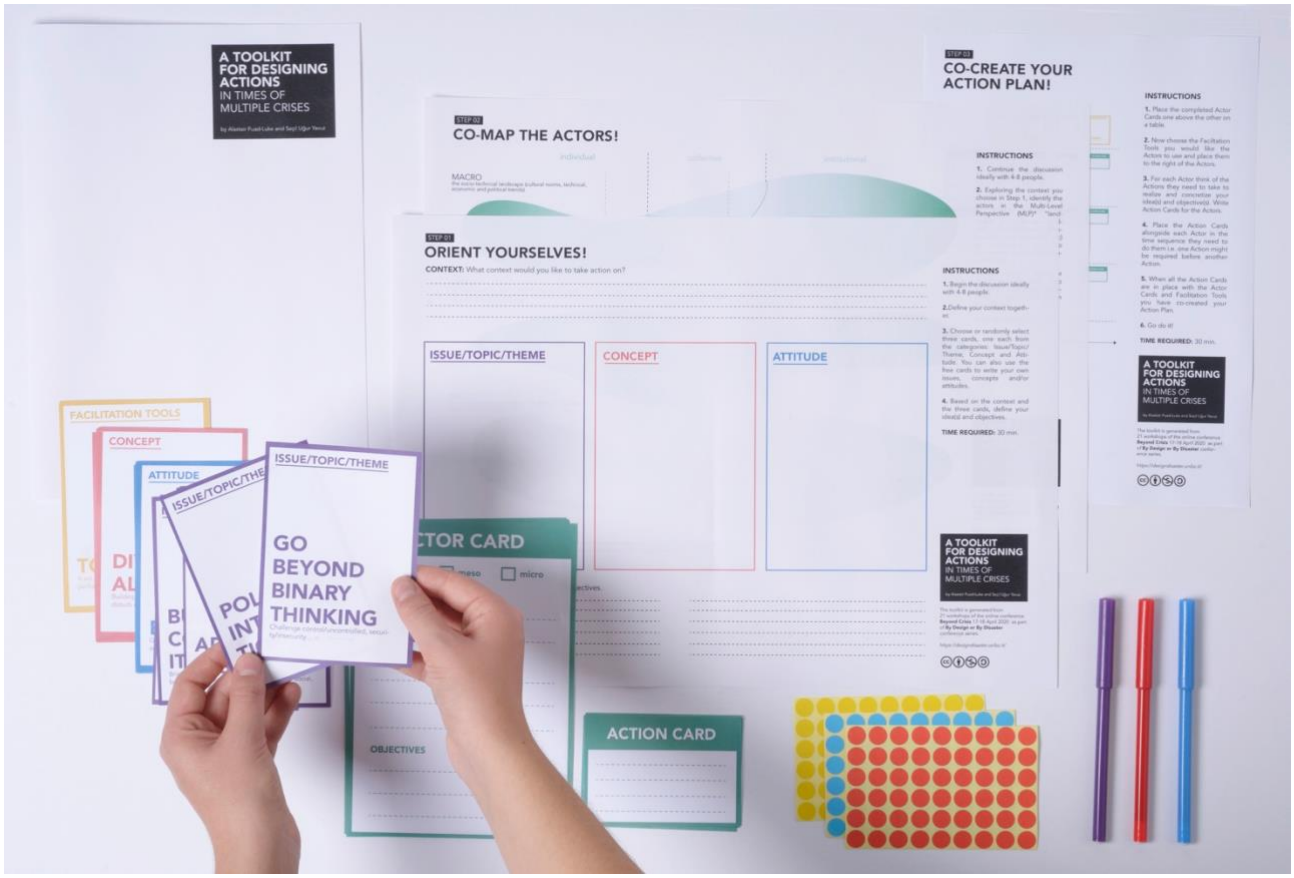

Figure 5: An overview of the Toolkit for Designing Actions in Times of Multiple Crises illustrating the cards, maps and action plan.

The Toolkit provides a stimulating and flexible process for a group of people to co-generate an action plan for a particular context aimed at interventions to facilitate the transition to more sustainable projects and practices. There are three main steps to follow with the Toolkit:

Step 01 Orient yourselves!

1. Begin the discussion ideally with 4-8 people.
2. Define your context together.
3. Choose or randomly select three cards, one each from the categories: Issue/Topic/Theme, Concept and Attitude. You can also use the free cards to write your issues, concepts and/or attitudes.
4. Based on the context and the three cards, define your idea(s) and objective(s).

Step 02 Co-map the actors!

1. Continue the discussion ideally with 4-8 people.
2. Exploring the context you choose in Step 1, identify the actors in the Multi-Level Perspective (MLP) “landscape”. Actors can be individuals, collective (groups, communities, not-for-profits etc.) or institutions but also non-human or other-than-human actors.
3. Now select Actors that can best help deliver your idea(s) and objective(s) to create your Action Plan.

Step 03 Co-create your action plan!

1. Place the completed Actor Cards one above the other on a table.
2. Now choose the Facilitation Tools you would like the Actors to use and place them alongside the relevant Actors.
3. Finally, for each Actor, think of the Actions they need to take to realize and concretize your idea(s) and objective(s). Write Action Cards for the Actors.
4. Place the Action Cards alongside each Actor in the time sequence they need to do them i.e. one Action might be required before another Action.
5. When all the Action Cards are in place with the Actor Cards and Facilitation Tools you have co-created your action plan (Figure 6).

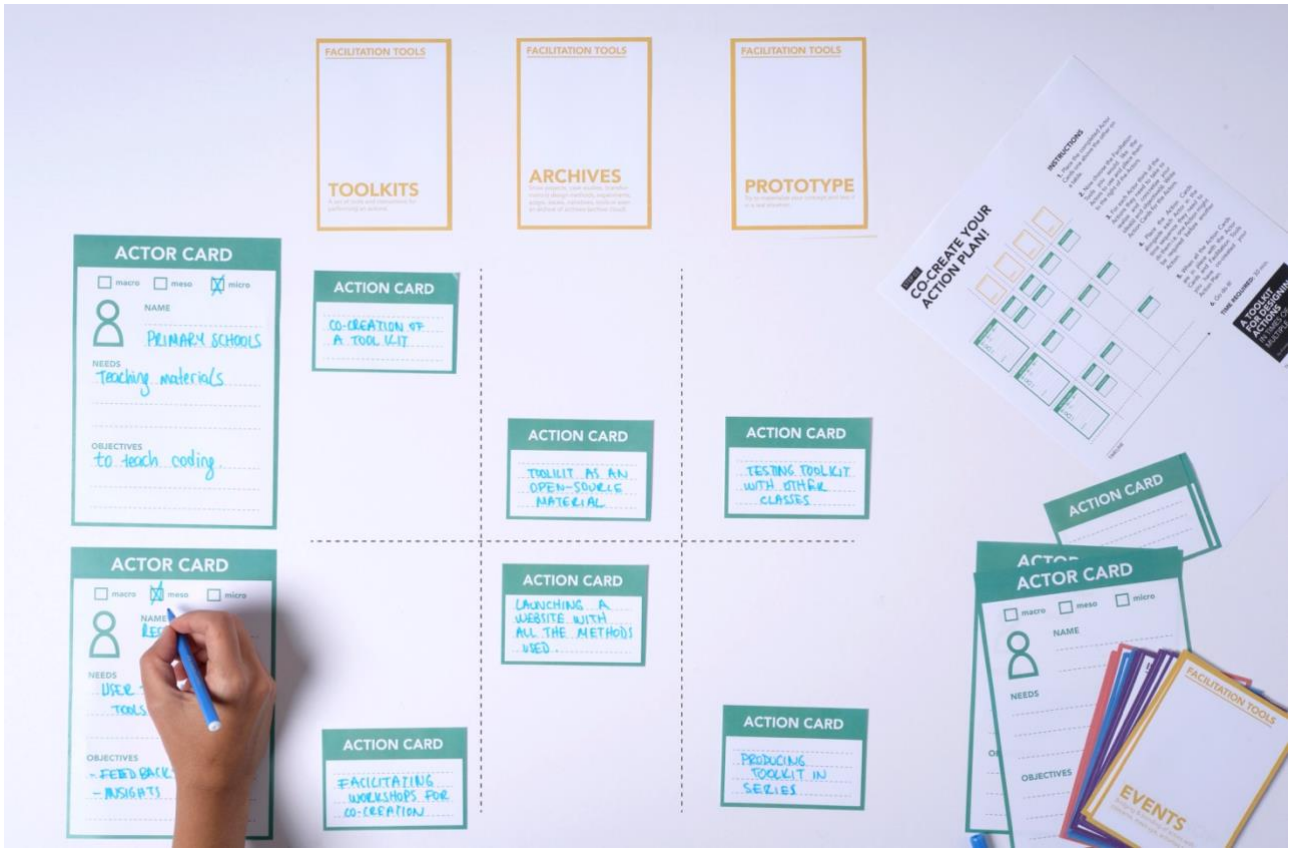

Figure 6: Completing the Actor and Action cards generates the action plan.

Playing with the Toolkit cards facilitates deep discourse around the Issue/Topic/Theme or a Concept, or both and shows how different Attitudes can dramatically affect the dialogue and outcomes for the chosen context. Blank cards also offer the opportunity for participants to write down their own issues, topics, themes, concepts or attitudes and to invent new facilitation tools. New card proposals for the blank cards will grow and enrich the toolkit by each contribution. Brainstorming the potential actors, their needs and objectives also helps build a more systemic awareness of who can contribute to creating new actions that can change or improve a situation or context.

Reflections and next steps

The wide range of participants attending the conference and trans-/interdisciplinary participatory and dialogic design processes helped people from diverse knowledge domains turn workshop discussions into action plans for the contexts where they wanted to encourage ecological and social transformation. The diversity of actions suggested was notable for embracing and integrating actions at the macro, meso and micro levels of a Multi-level Perspective showing a more effective “bigger picture” of areas for change in

the socio-technical landscape, socio-technical regime and how a diversity of actions at the niche level could couple with actions at the higher levels. Adopting a Multi-Level Perspective analysis helps people to get out of their own knowledge and action bubbles and to see the bigger systemic challenges. This can reveal opportunities for seeing and building unusual (strategic) alliances to challenge or disturb existing socio-economic and political systems.

The design processes deployed during the online conference - including the co-designing of the 25 workshop themes, the participatory design templates and working in small groups - helped frame and deal with different aspects of the COVID-19 situation and revealed the connections between the multiple crises. Moreover, most of the participants tended to see the Covid-19 crisis as an opportunity, although they did recognize threats from the existing socio-technical regime.

As the conference was framed around "designing actions" and inviting the participants to come up with action plans, the results of the workshop jam were showing a range of characteristics of how to design, plan and take actions in the multiple crises. Therefore, the conference not only gave rise to many real actions that were taken afterwards by the groups of participants but also to a toolkit that emerged from the valuable insights and ideas generated by the workshop participants. This toolkit represents the participatory nature of the conference, as its content was based on the participants' action plans. Whether to be a pandemic or other type of crisis, we urge to come up with not only new ideas centred with a human perspective but to take well-designed actions that are in the center of a network of multiple actors including, in Latour's framing of human and other-than-human actors in Actor-Network Theory (ANT) (Latour, 2005). This will help drive the transition towards *preferred* rather than probable, possible or wild card futures (Hancock & Bezold, 1994). Although the focus in the conference was towards human, cultural and social factors, our contingent realities involve biological, ecological and microbial factors so we should also consider an ontological shift towards "natureculture" and multispecies co-existence in symbiosis (Haraway, 2003, 2016). In this sense, we also need an ontological shift in design(-ing) towards *action-centred design* where the contributions of human and other-than-human actors co-regenerate our damaged (eco-)systems through social and material infrastructuring (Star & Ruhleder, 1996). Action-centered design does not seek to put any actors whether to be human or non-human in the center, but to focus on actions that interrelate actors - humans and other-than humans. The prototype Toolkit for Design Actions in Times of Multiple Crises can catalyse fresh thoughts, perceptions, actions and new modes of production that can potentially change the "distribution of the sensible" (Ranciere, 2013 [2000]) and hence challenge the existing socio-technical regimes that exacerbate our multiple crises. The emergence of the toolkit from the conference activities can nourish positive transformations by helping people think about novel strategies, alliances and actions by bringing together different kinds of actors. In doing so actions are generated which create their new narratives challenging existing uncontested narratives towards further dystopian developments. The toolkit, available for download from the DoD blog (By Design By Disaster, 2020) was further tested at the Hier un Da festival in October 2020 to generate more positive narratives for social-ecological transformation.

Acknowledgements
The authors would like to thank all the students, teachers in the Free University of Bozen-Bolzano and diverse contributors, speakers and workshop facilitators outside the university who made the *Beyond Crisis* conference a success during the Covid-19 lockdown. Full acknowledgements are detailed here, https://designdisaster.unibz.it/conference-beyond-corona-and-capitalism-17-18-april-2020/. The Toolkit for Designing Actions in Times of Multiple Crises is open-source and available online on the https://designdisaster.unibz.it/the-toolkit-for-designing-actions-in-times-of-multiple-crises/

References

Ackerman-Leist, P. (2017). A Precautionary Tale: How One Small Town Banned Pesticides, Preserved Its Food Heritage, and Inspired a Movement. Canada: Chelsea Green Pub Co.

Armstrong, B. U. (2016). "Transformation" as a New Critical Orthodoxy. The Strategic Use of the Term "Transformation" Does Not Prevent Multiple Crises. GAIA 25/1(2016): 23–27.

Burns, C., Cottam, H., Vanstone, C., & Winhall, J. (2006). Transformation design. RED Paper 02, February 2006. London: The Design Council.

By Design or By Disaster (2020). Blog of the MA Eco-Social Design, Free University of Bozen-Bolzano. Retrieved from: https://designdisaster.unibz.it/

Charter, M., & Tischner, U. (2001). Sustainable Solutions. Developing products and services for the future. London: Routledge.

Chick, A. (2012). Design for Social Innovation: Emerging Principles and Approaches. Iridescent, 2(1), 78-90. DOI: 10.1080/19235003.2012.11428505

Driessen et al. (2013). Societal transformations in the face of climate change. Research priorities for the next decade. Paper prepared for the Joint Programming Initiative Connecting Climate Change Knowledge for Europe (JPI Climate). DOI: 10.13140/RG.2.1.2504.5920

Fuad-Luke, A. (2020). Trans-form. Retrieved from: https://www.unibz.it/en/faculties/design-art/research/transform/

Fuad-Luke, A. (2009). Design Activism: Beautiful Strangeness for a Sustainable World. London: Earthscan.

Geels, F.W., & Schot, J. (2007). Typology of sociotechnical transition pathways. Research Policy, 36, 399-417.

Gramsci, A. (1971). The prison notebooks. Q. Hoare and G.N. Smith (eds. & transl.). New York: International Publishers.

Hancock, T., & Bezold, C. (1994). Possible Futures, Preferable Futures. Healthcare Forum Journal, March/April 1984, 23-29.

Haraway, D. (2003). The Companion Species Manifesto: Dogs, People, and Significant Otherness. Vol. 1. Chicago: Prickly Paradigm Press.

Haraway, D. (2016). Staying with the Trouble. Making Kin in the Chthulucene. Durham, NC: Duke University Press.

Hier und da (2020). Hier und da festival. Retrieved from: https://gutleben.da.bz.it/hier-und-da-festival.html

Hillgren, P-A; Seravalli, A., & Emilson, A. (2011). Prototyping and infrastructuring in design for social innovation, CoDesign, 7(3-4), 169-183. DOI: 10.1080/15710882.2011.630474

Irwin, T. (2015). Transition Design: A Proposal for a New Area of Design Practice, Study, and Research. Design and Culture, 7(2), 229 - 246.

Irwin, T., Koskoff, G., Tonkinwise, C., & Scupelli, P. (2015). Transition Design. Retrieved from: http://design.cmu.edu/sites/default/files/Transition_Design_Monograph_final.pdf

Latour. B. (2005). Reassembling the Social: An Introduction to Actor-Network Theory. Oxford: Oxford University Press.

Maldonado, T. (1972). Design, Nature and Revolution. Toward a Critical Ecology. Harper and Row: New York, NY, translated by Mario Domandi.

Manzini, E. (2015). Design, When Everybody Designs. An Introduction to Design for Social Innovation. Cambridge, MA: MIT Press.

Manzini, E., & Jégou, F. (2003). Sustainable Everyday: Scenarios of Urban Life. Milan: Edizioni Ambiente.

McHarg, I. (1969). Design with Nature. Garden City. New York: Published for the American Museum of Natural History [by] the Natural History Press.

Mentimeter (2020). Mentimeter. Retrieved from: https://www.mentimeter.com/

Papanek, V. (1974). Design for the Real World. St Albans, UK: Paladin.

Rancière, J. (2013 [2000]). The Politics of Aesthetics. London: Bloomsbury Academic, 2013. First published in France under the title Le Partage du sensible: Esthétique et politique, La Fabrique-Éditions, 2000.

Roy, R. (2000). Sustainable product-service systems. Futures, 32(3-4), 289–299. DOI: https://doi.org/10.1016/S0016-3287(99)00098-1

Saldaña, J.M. (2013). The Coding Manual for Qualitative Researchers, 2nd edition. London: Sage Publications.

Star, S. L., & K. Ruhleder. (1996). Steps Toward an Ecology of Infrastructure: Design and Access for Large Information Spaces. Information System Research 7(1), 111–134.

Thorpe, A. (2012). Architecture & Design versus Consumerism. How design activism confronts growth. London and New York: Routledge.

International Journal of Design for Social Change, Sustainable Innovation and Entrepreneurship

discern

https://www.designforsocialchange.org/journal/index.php/DISCERN-J

ISSN 2184-6995

Comparing methods of transport in an age of social distancing

Rime Cherai, Jonathan Gayomali, Nuria Benítez

Published online: November 2020

To cite this article:
Cherai, R., Gayomali, J., & Benitez, N. (2020). Comparing methods of transport in an age of social distancing. Discern: International Journal of Design for Social Change, Sustainable Innovation and Entrepreneurship, 1(1), 50-64.

Comparing methods of transport in an age of social distancing

Rime Cherai[a], Jonathan Gayomali[b], Nuria Benítez[c]

[a, b, c]re(s)public collective. collective@respubliccollective.com

Abstract

This article explores the new urban mobility paradigm in an after COVID-19 world. The pandemic has dramatically changed the conditions under which users access and use public transportation. Analysing mobility in cities across the world – New York, Mexico City – the study highlights the dense demand for public transportation solutions in those two different megalopolises. The experience of COVID-19 pandemics has shed the light on the necessity of rethinking the current offer and creating a new set of adaptive solutions which replace sanitary safety as a central element of assessment. To what extent are COVID-19 and the possibility of other spreading of viruses affecting how common modes of transportation are thought about and used? The article revises first the modes of transportations. Emphasizing the unique challenge of social distancing imposed by the pandemic, the study covers its consequences for users, cities authorities as well as operators. While it appears as a condition to contain the spread of the virus, it is also part of an economic equation for operators, who might struggle soon to cover growing operational costs, while running their networks with a smaller number of travellers. Finally, the study opens the discussion on the opportunity offered by the pandemic to redesign and rethink our mobility more adaptively and sustainably.

Keywords: Design, Social Design, Social Change, Sustainability, Innovation, Technology, Social Enterprises, Social Awareness, Social Responsibility

Introduction

The tragic spread of COVID-19 nationally has resulted in disparate impacts across cities and sectors. INRIX analytics allows for the analysis of movement in each of the country's cities, and movement within cities, to provide an accurate representation of the dramatic changes observed. Several overlying trends have emerged: First, consumer trips are down massively while freight trips have decreased to a much lower degree. Second, trip reductions in metros closely track official guidance regarding work from home, social distancing, and shelter in place restrictions. As this crisis progresses, it is likely more cities will come to resemble those most impacted.

INRIX Trip Analytics provides a powerful means to measure and describe just how these changes are manifesting across the country and world which we're providing access to in the free dashboard below. To better capture the re-emergence of cities and businesses, INRIX has also developed metrics and visuals to measure activity, regardless of the mode using INRIX Visit Analytics metadata. We call this, "Activity Re-Emergence Trends".

To what extent are COVID-19 and the possibility of other spreading of viruses affecting how common

modes of transportation are thought about and used? When common methods such as subway, private automobile, bicycle, and bus are not able to function at their peak capacity, leaving them unable to focus on density and efficiency, are they capable of adapting? What circumstances are lost and what new opportunities are created? In asking these questions we will look to current narratives of transportation strategies and struggles.

> "*A modal shift occurs when one mode has a comparative advantage in a similar market over another. Comparative advantages can take various forms, such as costs, capacity, time, flexibility or reliability*." (Ronrigue, 2020)

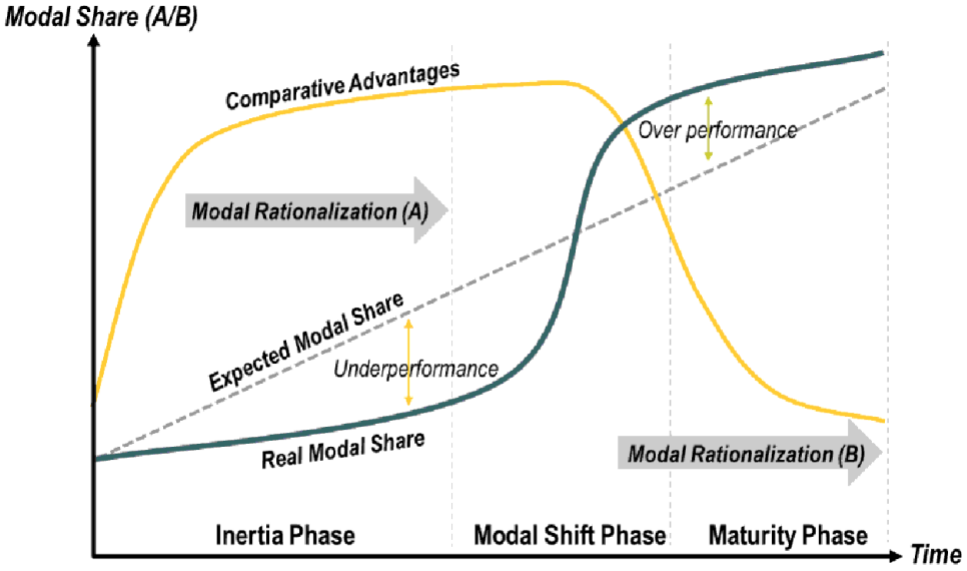

Image 1: Principles of Modal Shift | The Geography of Transport Systems.

Precedents

New York, United States

The daily work commute in New York City offers a wide range of modes of transportation. Although most New Yorkers work within the same Borough that they live, from the subway to the ferries, there are many options to their daily destination.

New York City's mean travel time to work is 33.3 minutes (U.S. Census Bureau, 2018). Of all people who commute to work in New York City, 39% use the subway, 23% drive alone, 11% take the bus, 9% walk to work, 7% travel by commuter rail, 4% carpool, 1.6% use a taxi, 1.1% ride their bicycle to work, and 0.4% travel by ferry (U.S. Census Bureau, 2017). 54% of households in New York City do not own a car and rely on public transportation (U.S. Census Bureau, 2009). With roughly 50% of the population using public transportation and 50% taking private transportation, New Yorkers have heavily relied on transportation that uses density as its main form of efficiency.

The pandemic has had a massive impact on M.T.A. ridership and is even seeking a $4 Billion virus bailout. This is because ridership has fallen 60 percent on the subways, 49 percent on the buses and as much as 90 percent on commuter railways (Goldbaum, 2020). As the largest transportation system in the United States, New York's early trends are telling of what is to come for other large metropolitan areas in the country.

Even before the pandemic, New York has seen an uptick in bicycle usage. Because of an increase of bicycle deaths in the past few years, safety measures have come into place including a plan called the "Green Wave". The plan calls for "installing 30 miles of protected bike lanes every year, as well as 2,000 new bike parking spaces on an annual basis" (NYCDOT, 2019). Recently, there have been new talks of building the first bridge from Queens to Manhattan in decades, with access to only pedestrians and cyclists (Hu, 2020). The Queens Ribbon, designed by former city traffic commissioner Samuel I Schwartz would be much narrower than the adjacent Queensboro Bridge.

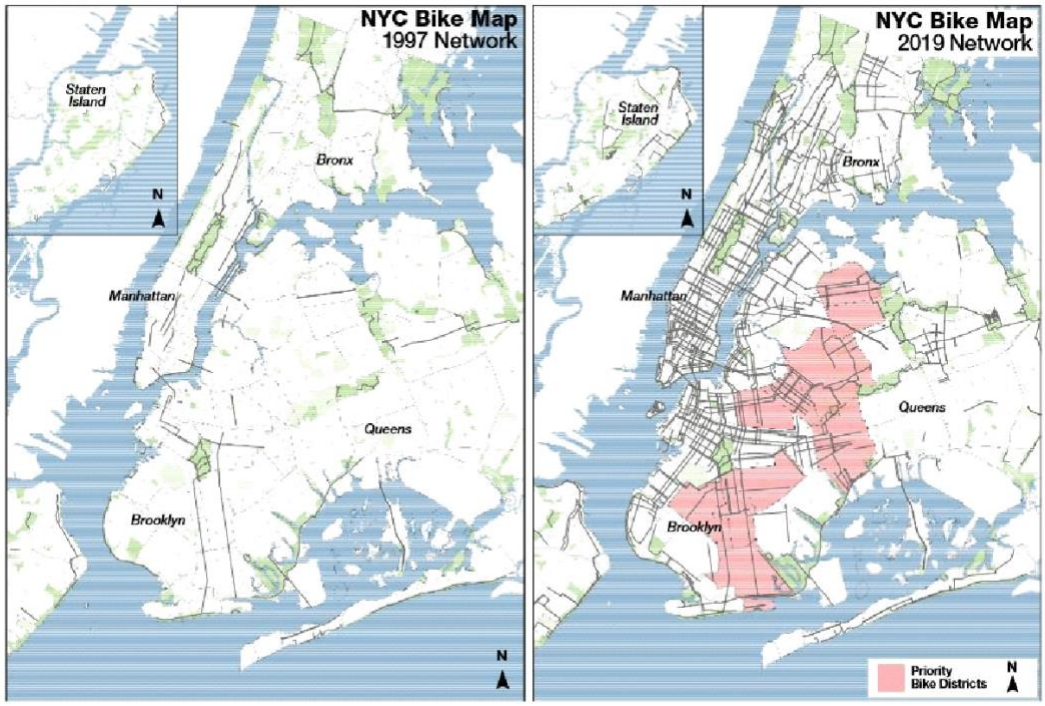

Image 2: NYC Bike Map 1997/ 2019 | Green Wave: A Plan for Cycling in NYC.

The trend of bicycle usage will likely continue to trend upward, with some bicycle shops in Brooklyn selling up to twice the normal amount. By the end of April, many distributors all over the United States have sold out completely.

There is a question as to whether the transportation trends of pre-COVID-19 will return to what it once was. With many people still working from home, according to a study by Global Workplace Analytics,

estimates are that “25-30% of the workforce will be working from home multiple days a week by the end of 2021.” So maybe social distancing on trains will not be so much of a health concern, but an economic one.

Mexico City, Mexico

Basic Statistics of Federal Motor Transport go up to 2018. However, INEGI records 444,350,000 passengers in the subway monthly, and almost 213,000,000 monthly passengers for the MetroBus (RBT). These numbers may illustrate most passengers in the city, but the reality is not such. Today, in Mexican cities, transportation is dominated by automobile use, and it outweighs the economic and social benefits of living in a city. This is predominantly because car users only cover their private costs related to the use of their cars, but not the social costs of increased congestion and poor air quality generated because of it. Local pollution generated by gasoline combustion is estimated to be linked to the almost 14 thousand deaths in 2008 due to poor air quality, according to the World Health Organization (WHO, 2012). 24,000 deaths a year and 40,000 wounded are caused by road accidents and cost 126 billion Pesos a year, or, approximately 1.3% of GDP (Ministry of Health, 2008; Cervantes, 2009).

Recent estimates point to an alarming trend in increased car use in the last two decades, as the kilometres travelled by vehicles in the country (VKT – Vehicle-Kilometre Travelled) have practically tripled, moving from 106 million VKT in 1990, to 339 million VKT in 2010 (Medina, 2012). This growth, given the conditions of public transportation and urban development, means that urban mobility becomes so inefficient that not only does it not contribute to the country’s economic development, but it affects the quality of life of its inhabitants, due to the serious costs it generates and that are not covered by those generating them. The increase in automobile use has also upset Mexico’s trade economics. 30 percent of Mexico’s income comes from the production and export of oil (OECD, 2010). With the increase in automobile use and increased need for gasoline, Mexico has begun importing gasoline and it has become the principal import in the country (147 billion pesos in 2010). National gasoline price stabilisation mandates international price comparison, resulting in a 76.6 billion pesos subsidy in 2010 and estimated to be 169.5 billion in 2011. This is more than the amounts spent on national poverty alleviation programmes combined. This policy is regressive, as 70% of this subsidy supports the wealthiest third of the population (Scott, 2010; 2011). This not only contributes to the external fragility of the economy but puts pressure on public finances and creates social inequality. (ITDP Mexico, 2012). More remains to be said after the development of Uber in Mexico City. Because of the health contingence, the new Secretary of Mobility, Andrés Lajous, enhanced the definition of emerging bike lanes, installed in the country's capital running parallel to the central routes of transportation.

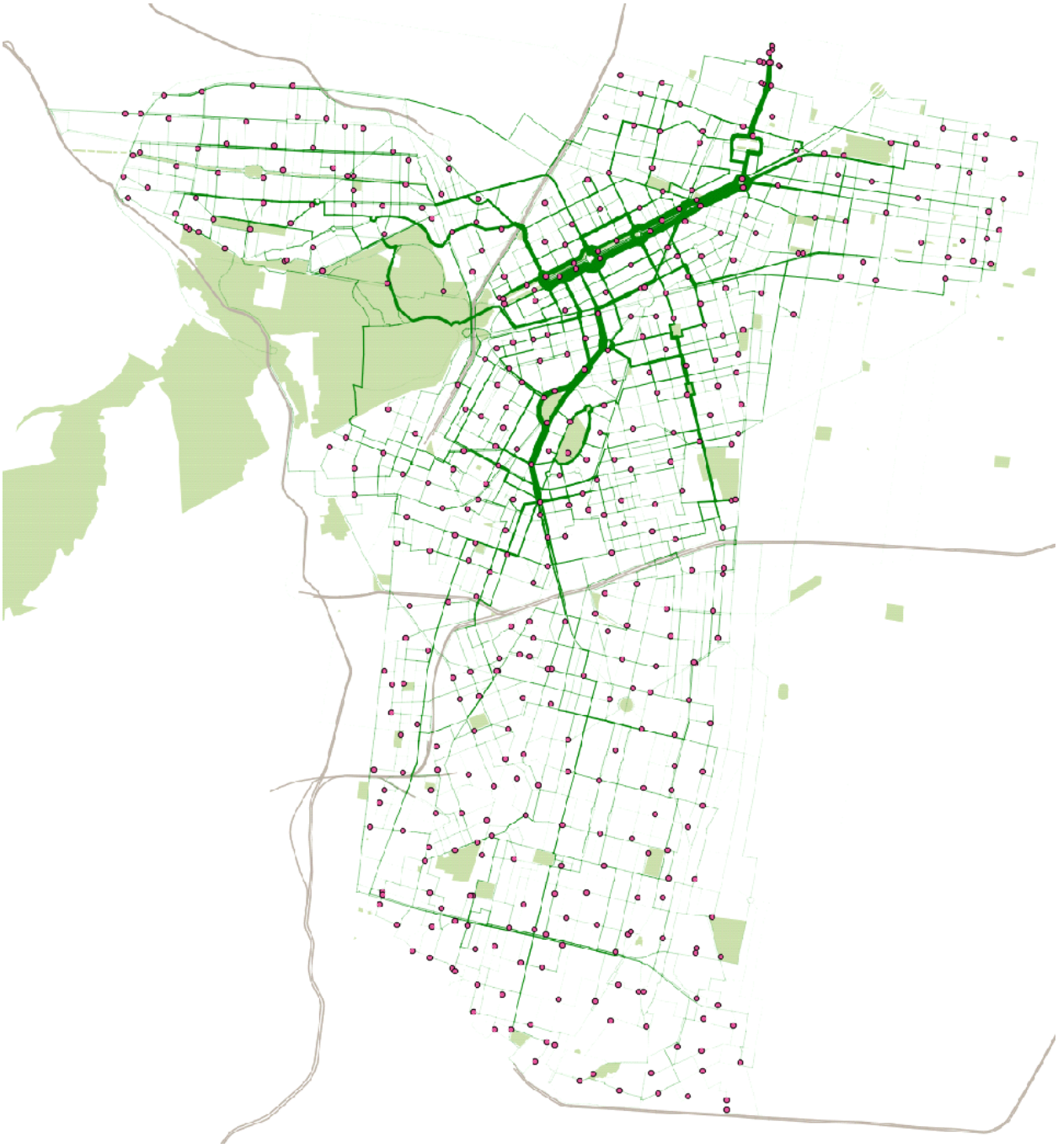

Image 3: Ecobici is a shared bicycle system in Mexico City, complementing the city's public transportation network. Implemented in 2013, with 276 stations with 4,000 bicycles with an average of 25,000 users per day and 95,780 registered members.

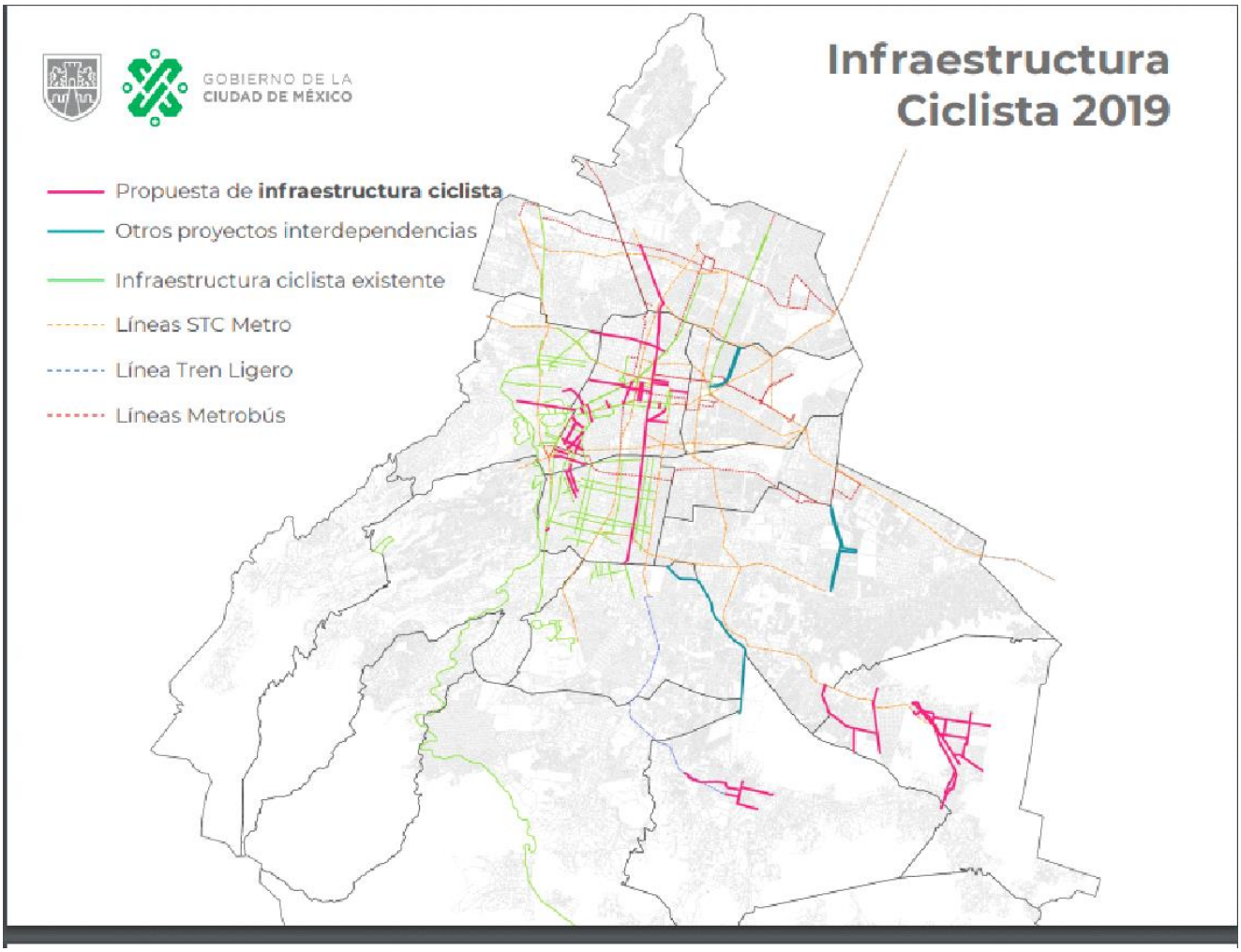

Image 4: Green lines represent existing cycling infrastructure; dashed red the rapid bus transit system; dashed orange the subway system. [Pink: cycling infrastructure proposal; blue: other interdependent projects; green: existing cycling infrastructure; dotted yellow: subway lines; dotted blue: light train; dotted red:BRT system]

Cities such as Copenhagen, Denmark have an outstanding bicycle infrastructure. Around 45 percent of the inhabitants commute to work, school or university by bike, covering around 1.4 million kilometres every day. According to a study, even more people in the Greater Copenhagen area bike to work every day than in the entire USA (Herrmann, 2020). Its target is hat 75% of all movement will be on foot, by bike or by public transport (Kobenhavns Kommune). Copenhagen has been ranked as one of the most liveable cities in the world (Mercer, Forbes, Copenhagen Capacity); it might not be an assumption that much of this has to do with connectivity, accessibility and transportation within short distances, as well as walking and cycling as main transportation modes.

ANALYSING MODES OF TRANSPORTATION

Urban mobility is in most cities worldwide the result of a complex system. It is (i) shaped by policies and

regulations, (ii) highly dependent on the availability of land and its integration into a wider city design strategy, and finally (iii) fully relying on consumer preferences and behaviours. In a study published in 2018, Mckinsey was analysing transportation in 24 cities around the world. Aiming at apprehending the relationship and causality link between urban transportation and quality of life for the users, Mckinsey's experts identified five factors which they believed model the user's experience. These factors were: availability, affordability, efficiency, convenience and sustainability. While this study was still relevant two years ago, COVID-19 outbreak has completely changed the paradigm and has brought back travellers' safety as the core element of the mobility scheme.

Half across 2020, cities are showing a decrease in mobility due to the pandemic. For example, landing in mid-April, a report written by an MIT economics professor concluded that New York's subway system was "a major disseminator—if not the principal transmission vehicle" in the city's COVID-19 outbreak. Urban populations have opted for avoiding mass transportation systems when needed to mobilize. As a result, one can already anticipate the long-standing fears of sharing urban spaces and more especially public transportation, that might outlive durably the virus.

Image 5: Santiago Arau, Pantitlán subway station in mid-April at 6pm, 2020.

In reflecting what currently exists in these cities, the modes of transportation can be analysed not only in terms of what is traditionally measured but now also in terms of sanitary safety. This includes social distancing, and sanitary conditions, recurrent disinfection, use of masks for travellers, etc. An unprecedented concern, as transportation densely mobilised millions of people daily before the pandemic. How can safety be guaranteed by government and mobility strategies, if crowds cannot be avoided? How can this affect satisfaction with modes of transport? Satisfaction can be defined as "the

comparison between a traveller's experience and his or her expectations, and the affective response related to this. (Soest, 2019).

As people are increasingly returning to work and their pre-COVID lifestyle, governments and city authorities are facing the challenge of reassuring the users of the safety of public transport. In a recent survey run by Oliver Wyman, 52% of respondents shared their discomfort in using public transportation. As the lockdown was eased in Paris, authorities willing to avoid crowded situations had established a set of rules to enable the users to travel safely. The chosen solution was a required permission form justifying the reason for the journey. A few acceptable reasons were listed, amongst which medical appointments, urgent family reasons, or the necessity to work from the office. However, as highlighted in the Oliver Wyman study, on the long haul, public transport operators need the flow of passengers to return to a minimal level for them to be able to maintain their networks.

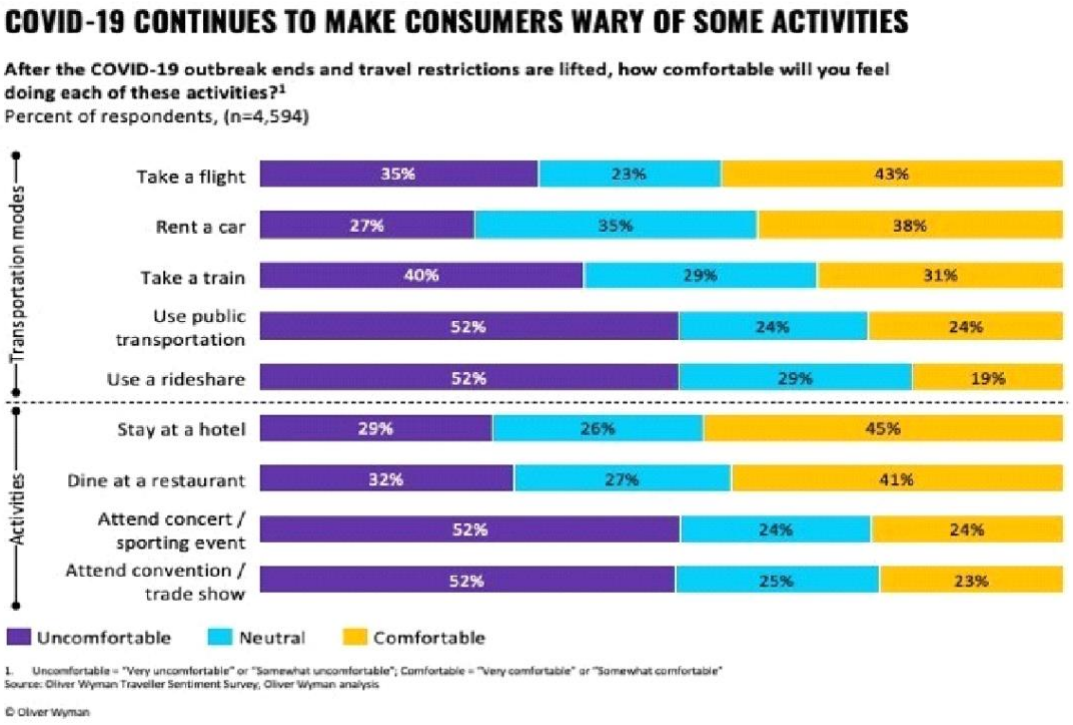

Image 6: Oliver Wyman, Traveller Sentiment Survey, Comfort after COVID-19. [At the bottom: 1. Uncomfortable: "very uncomfortable" or "somewhat uncomfortable"; "Comfortable: "very comfortable" or "somewhat comfortable". Source: Oliver Wyman Traveller Sentiment Survey, Oliver Wyman analysis.]

In an article released in April 2020, The New York Times was sharing the conclusions of the Harvard University T.H. Chan School of Public Health: a link can be established between COVID-19 deaths and air pollution. Ironically, COVID-19 could result in increased use of private means of transportation, amongst which cars. This glooming perspective would consequently generate more traffic congestions in urban areas, energy consumption and most of all pollution and eventually deteriorate the air quality.

In fact, in terms of energy consumption, modes of transportation can be discussed in both direct and indirect factors. Direct factors range from fuel, charging, etc, while indirect factors include such things as maintenance of both the vehicle itself and of infrastructure (Pérez-Martínez & Sorba, 2010)." The average energy consumption rates from passenger transport by car are about three times higher than from transport by bus. Aircraft are 23 times less efficient than high-speed trains and 16 times less than bus transport. In other studies, cars have been found to consume 2.4 more energy per passenger-kilometer than buses, and aircraft consume 27 times more than rail transport. (Pérez-Martínez & Sorba, 2010).

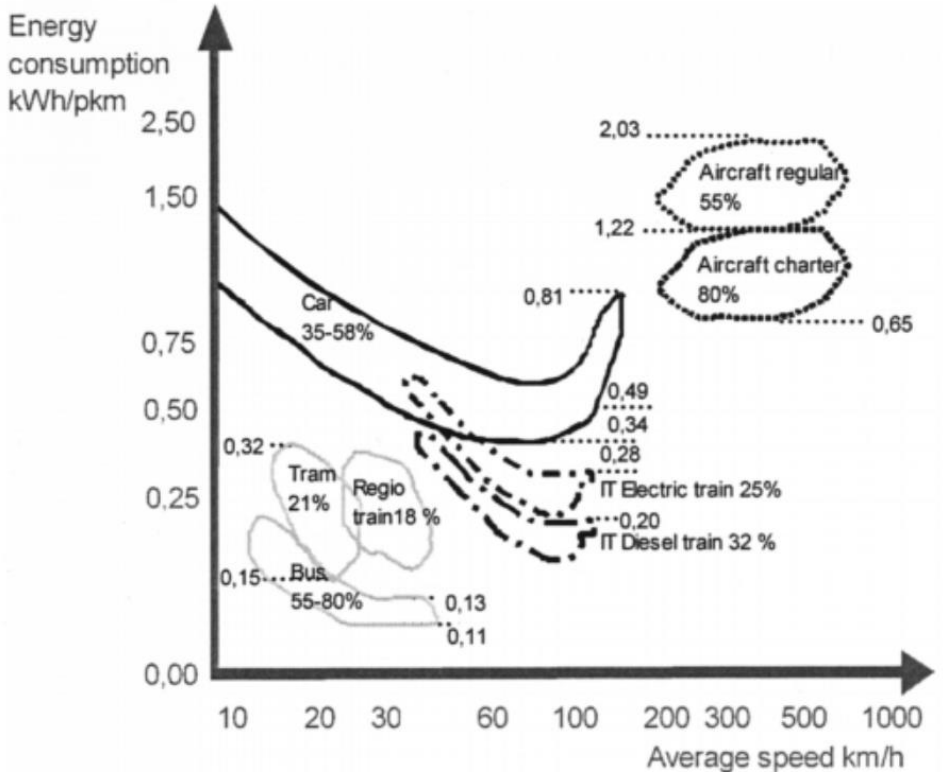

Image 7: Energy consumption of passenger transport modes, average speed and occupation rate: Aircraft: scheduled airlines and charter, intercity train (IT): eclectic and diesel tractions: regional train (electric traction), tram, bus and car (ITF, 1990, Pérez-Martínez, P., & Sorba, I. (2010).

While many of these modes are developing new technologies, the shift in usage and therefore energy consumption also means a development in how cities look at efficiency. With health concerns being placed at the forefront, other factors must be utilized to curb the drops in public transportation.

Table 1: Energy consumption factors and rates for different modes of passenger transport

Transport mode	Seats	Average speed (km h^{-1})	Occupancy (%)	Energy consumption (kWh vkm^{-1})	(kWh pkm^{-1})	(kWh skm^{-1})
Regional train [a] (RT)	724	59	37	35.21	0.13	0.05
Intercity train [a] (IT)	190	71	36	6.28	0.09	0.03
Intercity express train [a] (IET)	189	89	70	10.81	0.08	0.06
High-speed train [a] (HST)	350	160	66	17.00	0.07	0.05
Middle-class car [b] (high-low occupation)	5	100	58-35	0.96-0.86	0.33-0.49	0.19-0.17
Standard bus [b] (high-low occupation)	50	45	80-55	4.59-3.61	0.11-0.13	0.09-0.07
Aircraft [b] (high-low occupation)	266	700	80-55	262.17-299.04	1.22-2.03	0.99-1.12
Train [b] (medium-long distance)	190	100	36-31	15.70-16.82	0.23-0.28	0.08-0.09

Source: [a] García (2005a), [b] ITF (1990). Note: RT, IT, IET, HST, mean values are for Spain. Mean values for medium-long distance trains are for Europe.

Image 8: Energy consumption factors and rates for different modes of passenger transport (Pérez-Martínez, P., & Sorba, I. (2010).

Positively, COVID-19 could represent an opportunity for authorities and citizens to redesign mobility within cities, and reshape it towards a healthier mode. An example of this would be the growing trend of cycling, already started a few years ago, who has known unprecedented acceleration these last weeks. To accompany the growing interest in this way of transportation, local governments across France have been urged to create new bike lanes. Therefore, Paris under the leadership of its Mayor Anne Hidalgo, has been provided with an additional 650km of lanes for cyclists during the pandemic.

CONNECTION CURRENT INFRASTRUCTURE AND SOCIAL DISTANCING TRENDS

As social distancing trends take hold over cities, and travel, private automobile utilization has become a greater factor than normal. In the United States, as the typical vacation season approaches, the national VMT is approaching new lows.

According to a study by INRX, “Nationally, VMT (Vehicle miles travelled) fell to its lowest level for the seven days beginning April 6, 2020, where it fell 48% below the baseline, pre-COVID level of travel. These, along with other indicators, reveals that the summer travel season will not be as large as in years past. IHS Markit estimates that travel by car, though increasing mode share by 10% over last year, will still be more than three percent lower overall (Pishue, 2020).”

If private automobile travel is up 10% of mode share, what does this mean for other areas of transportation within the US? The correlation between metropolitan areas and their corresponding state are sometimes linked, however, cities such as Dallas and Houston are in the bottom 33% of VMT growth while the state of Texas placed in the middle tier (Pishue, 2020). This disconnect between city and state brings questions into borders and the separation of the urban and the rural.

Interventions of policy and urban design may be able to curb the trends to realign with the current built-in infrastructure, but questions remain on how to make that shift. “To design effective interventions to bring about a shift in modes of transport that better aligns with the carbon reduction and health agendas it is particularly useful to explore how transport systems are currently perceived (Soest, 2019).” An example of this stems from an academic study from the Pennsylvania State University studied four towns in France regarding making a shift from private automobile to bus and had significant findings towards behavioural change. The reason for the study is a hypothesis of the psychosocial theories of behavioural change.

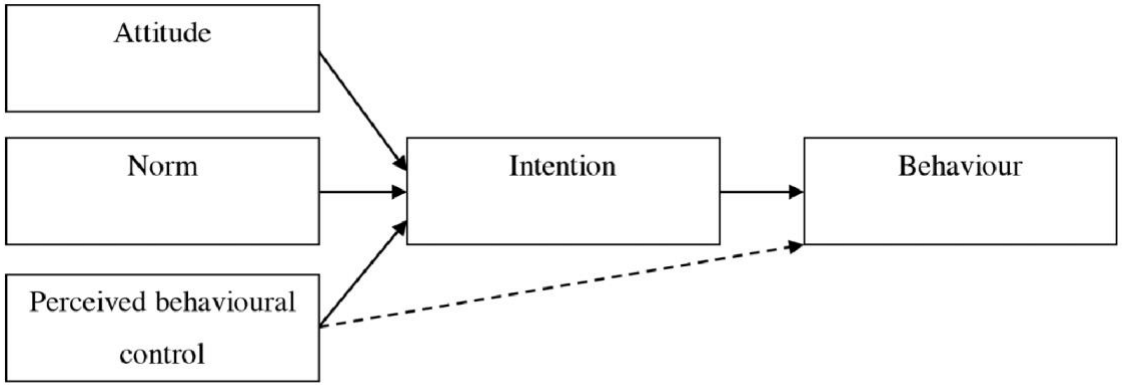

Image 9: Theory of Planned Behaviour (Yoshinori & David, 2019).

> “*To be effective, travel policies need to go along with techniques to break inertia. At the same time, changing mobility behaviours requires a competitive and effective bus network. Both are complementary. When taking the bus becomes objectively attractive compared to driving a car, such a program can lift barriers that would hinder a potential massive modal shift (Yoshinori & David, 2019).”*

If looking to similar current users to modal patterns, the applicability of the shift to various modes of transportation can be implemented with a similar rationale to various cultures of travel and commuting.

DISCUSSION

The meaning of this shift is rooted in the idea that as people adapt to new working and lifestyle conditions, their mindset on transportation must also adapt to completely make the cultural change. What are the drivers in this shift? Some modes of transportation are proving to be more adaptable than others with plans of expanded access and applicability while some are only limited to changing singular factors such as distance and regularity. In July 2020, Chicago Department of Transportation added 66 new stations, and 3,500 additional bikes into the far South Side in direct response to the pandemic (Clafey & Hofer, 2020). Meanwhile, the speed at which we adapt differs from city to city, being driven by a multitude of both non-political and political factors.

> *"A generalist top-down approach to urban planning involves consultation with a wide range of senior stakeholders, such as those responsible for city governance, leaders of the different communities within the city and those for whom cities provide a focus of their professional activities (Rogers, Shipley, Blythe, Braithwaite & Brown, 2014)."*

Can the immediate need of adaptability meet the needs and speed of a forced rapidly changing lifestyle? Comparing current precedents of cities and cultures and their willingness to adapt as both the outcome of public and governing bodies can potentially lead to a response that shifts the culture of transportation for the better.

REFERENCES

Soest, D. V., Tight, M. R., & Rogers, C. D. (2019). Exploring transport perceptions across urban areas using free associations. Transportation Research Part F: Traffic Psychology and Behaviour, 65, 316-333. Doi:10.1016/j.trf.2019.08.005

Pishue, B. (98033). INRIX 2020 Summer Travel Predictions (pp. 1-7, Rep.). Kirkland, WA: INRIX.

Pérez-Martínez, P. J., & Sorba, I. A. (2010). Energy Consumption of Passenger Land Transport Modes. Energy & Environment, 21(6), 577-600. Doi:10.1260/0958-305x.21.6.577

U.S. Census Bureau (2018). American Community Survey (ACS) and Puerto Rico Community Survey (PRCS), 5-Year Estimates. Retrieved from https://www.census.gov/quickfacts/fact/table/NY/LFE305218#LFE305218

U.S. Census Bureau (2017). American Community Survey 1-Year Estimates. Retrieved from https://archive.vn/20200213125620/https://factfinder.census.gov/bkmk/table/1.0/en/ACS/17_1YR/B08406/1600000US3651000#selection-1425.9-1424.2

US, Census Bureau (2009) American Community Survey. Retrieved From "Table B08201. Household Size by Vehicles Available – Universe: Households".

Lister, K., & G. (2020, April 12). Work-at-Home After Covid-19-Our Forecast. Retrieved from https://globalworkplaceanalytics.com/work-at-home-after-covid-19-our-forecast

Boarnet, M. G., Greenwald, M., McMillan, T. E. (2008). Walking, Urban Design, and Health: Toward a Cost-Benefit Analysis Framework. Retrieved from: https://journals.sagepub.com/doi/abs/10.1177/0739456X07311073?journalCode=jpea

NYCDOT, et al. (2019). Green Wave: A Plan for Cycling in New York City.

Hu, W. (2020). A Bridge From Queens to Manhattan, but No Cars Allowed. Retrieved from https://www.nytimes.com/2020/06/24/nyregion/nyc-bridge-bike-pedestrians.html

Goldbaum, C. (2020). M.T.A., Citing Huge Drop in Riders, Seeks $4 Billion Virus Bailout. Retrieved from https://www.nytimes.com/2020/03/17/nyregion/coronavirus-nyc-subway-federal-aid-.html

ITDP (2012). Transforming Urban Mobility in Mexico: Towards Accessible Cities Less Reliant on Cars. Mexico: British Embassy Mexico City.

Arcadis Consultancy (2017). Sustainable Cities Mobility Index 2017, Bold Moves.

Rogers, C. D., Shipley, J., Blythe, P., Braithwaite, P. A., Brown, C., Collins, . . . Leach, J. M. (2014). Future urban living – A policy commission investigating the most appropriate means for accommodating changing populations and their needs in the cities of the future.

Ronrigue, J. (2020, September 19). Principles of Modal Shift. Retrieved from https://transportgeography.org/?page_id=1823#:~:text=A modal shift occurs when, each of these factors vary

Yoshinori, S., & David, S. (2019). Modal Shift from Car to Bus: A French Case Study in a Rural Context Based on an Integrated Psychosocial Approach (58th ed.). TRANSPORTATION JOURNAL.

Bouton, S., Knupfer, S. M., Mihov, I., & Swartz, S. (2018, December 11). Urban mobility at a tipping point. Retrieved from https://www.mckinsey.com/business-functions/sustainability/our-insights/urban-mobility-at-a-tipping-point

Jean-Pierre Cresci and Joris D'Incà (2020). Safer public transport during COVID-19. Oliver Wyman. Retrieved from https://www.oliverwyman.com/our-expertise/insights/2020/jul/safer-public-transport-during-COVID-19.html

Cresci, J-P., D'Incà, J. (2020). How to make commuters feel safe after COVID-19. World Economic Forum. Retrieved from https://www.weforum.org/agenda/2020/07/masks-subway-disinfectant-how-to-make-commuters-feel-safe-after-COVID-19/

Peter Beech (2020). COVID-19 usher golden age cycling coronavirus pandemic bicycle. World Economic Forum. Retrieved from https://www.weforum.org/agenda/2020/05/COVID-19-usher-golden-age-cycling-coronavirus-pandemic-bike-cycle

Mike, C., & Hofer, S. (2020). CDOT And LYFT Join Alderman Howard B. Brookins Jr. And Advocates To Announce DIVVY Expansion Into Far South Side. Retrieved from https://www.chicago.gov/city/en/depts/cdot/provdrs/bike/news/2020/july/cdot-and-lyft-join-alderman-howard-b--brookins-jr--and-advocates.html

Friedman, L. (2020). New Research Links Air Pollution to Higher Coronavirus Death Rates. The New York Times. Retrieved from
https://www.nytimes.com/2020/04/07/climate/air-pollution-coronavirus-covid.html

SYSTRA: Life for buses after lockdown. (n.d.). Retrieved from https://www.systra.co.uk/en/covid-19/covid-19-public-transport170/article/life-for-buses-after-lockdown

(2020) Paris public transport: What is running and what are the rules? Retrieved from https://www.thelocal.fr/20200511/paris-public-transport-what-is-running-and-what-are-the-rules

(2020) OpenSpace to adapt use of real-time passenger movement system for COVID-19 support. Retrieved from https://www.globalrailwayreview.com/news/99112/openspace-adapt-real-time-passenger-movement-system-COVID-19/

International Journal of Design for Social Change, Sustainable Innovation and Entrepreneurship

discern

https://www.designforsocialchange.org/journal/index.php/DISCERN-J

ISSN 2184-6995

Innovating with social justice: Anti-oppressive social work design framework

Aakanksha Sinha

Published online: November 2020

To cite this article:

Sinha, A. (2020). Innovating with Social Justice: Anti-oppressive Social Work Design Framework. Discern: International Journal of Design for Social Change, Sustainable Innovation and Entrepreneurship, 1(1), 65-77.

Innovating with social justice: Anti-oppressive social work design framework

Aakanksha Sinha[a]

[a]Department of Social Work, Seattle University, USA. sinhaaa@seattleu.edu

Abstract

The world is experiencing myriad social, economic and political challenges that have exasperated inequities across communities. While there have been significant efforts to respond to the challenges, dwindling funds, hierarchical organizational structures, and an over-reliance on traditional methodologies have impacted the ability to create systemic changes. These limitations have paved the way for social innovation to create novel ideas to address social issues. Innovation has predominantly come from the field of business, engineering, design and public policy. Surprisingly, social work, with a professional mandate of advocating for social change and uplifting the voices of communities has made limited contributions to the field of social innovation. This paper introduces Anti-Oppressive Social Work Design (AOSWD) framework, which integrates the principles of anti-oppressive social work practice and a design method, Human-Centred Design (HCD). It explains how social workers can use AOSWD to develop collaborative power through empathy-building, co-creation and integrated feedback. Through the establishment of collaborative power, it explains how the role of HCD can be expanded from an approach to develop user-friendly programs, to a tool for social workers to create a change in thinking in how they view and tackle complex issues. A case example of its implementation in a non-profit organization in Seattle, WA has been provided. The paper has implications for social service professionals in the areas of training, organizational design, research and evaluation.

Keywords*:* Social Innovation, Human-Centred Design, Social Justice, Social Work, Anti-Oppressive Practice, Design Thinking

Background

The 21st century has witnessed a myriad social, economic and political challenges that have exasperated the inequities across the world. While governments, corporations, social service organizations, and grassroots movements have been responding to the challenges, dwindling funds, hierarchical organizational structures, and an over-reliance on traditional methodologies have impacted the ability to create systemic changes. These limitations have paved the way for social innovation to create novel ideas and processes that address social issues and improve the quality of human life at the micro and macro levels (Pol & Ville, 2009). Predominantly, the professions of business, engineering, design and public policy have been instrumental in leading the efforts related to social innovation (Brock & Steiner, 2009; Mirabella & Young, 2012). As a result, the innovations to challenge societal issues have been influenced by their professional values, skillsets as well as goals.

Despite a rich history of responding to complex social problems through innovative practices, social work has made limited contributions to the field of social innovation. Over the years, the practice of social work has transformed into a medium to deliver individualized services to ensure the well-being of individuals, families and communities rather than confronting social inequities (Clifford & Burke, 2009). Additionally, social work practice overwhelmingly emphasizes the use of evidence-based practices and authority-based models as primary solution mechanisms within the profession. These models are developed with

assumptions of a linear path from problem definition to an analysis of options and development of solutions for the client. However, this process is contradictory to the realities of the environment in which social workers and their clients operate, which are often ill-structured and complex.

Although the traditional and dominant methods gave have aimed to support communities that are marginalized, they have often left them disempowered, and unable to break away from the cycle of oppression and inequities. With the increased acknowledgement of the role of systemic inequities as a determinant of sustained positive social change, social workers across the world have been working towards developing and incorporating new ways of approaching existing problems. Anti-Oppressive Practice (AOP) framework has been one of the ways that the social work profession has been actively integrating social justice concepts within the practice, policy and research realms. Dominelli (1994; 1996) has defined AOP as a framework that addresses the role of social and structural inequities in the problems faced by clients and the solutions developed to address them. This shifts the focus from individualizing problems towards addressing the deep-rooted structural factors. AOP embodies a person-centred philosophy; an egalitarian value system concerned with reducing the deleterious effects of structural inequalities upon people's lives; a methodology focusing on both processes and outcomes; and a way of structuring relationships between individuals that aims to empower users by reducing negative effects of structural hierarchies on their interaction and the work that they do together (Dominelli, 1994, p. 3). While many social workers support this approach to incorporate social justice values, there is limited evidence of how it can be tangibly used within their day to day practice.

The framework of AOP closely aligns with the values of Human-Centred Design (HCD) which is a design and management framework that uses analytic and creative processes to engage people in opportunities to experiment, create and prototype models, gather feedback and redesign (Razzouk & Shute, 2012). Design thinking gives prime importance to the inclusion of citizens or end-users to define the problem, and develop solutions. Specifically, it emphasizes the need to work collaboratively and iteratively to ensure that all stakeholders can work together to bridge gaps in each-others learnings and create client-focused solutions (Mintrom & Luetjens, 2016). The origins of HCD can be traced back to the works of innovative architects, and designers in the early 20th century. Herbert A. Simon and Buckminster Fuller were instrumental in introducing the idea of centring the experiences and challenges of service users when developing products and services. Simon (1969) in his pioneering work "The Sciences of Artificial", emphasized the need for all professions to learn how to iterate, test and incrementally improve design to best meet the needs of the clients as well as experience the world more richly. Horst and Webber (1973) in their work "Dilemmas in a General Theory of Planning" for the first time introduced the idea of design thinking as a tool to understand and solve social problems. They suggested that the solutions for social problems lie in the use of HCD framework that emphasizes on developing deep empathy with the clients and their context. This not only helps to better define the problem itself but also opens the possibility of finding solutions that are more effective, sustainable and aligns with the needs of the people being impacted.

In recent decades, HCD has gained significant momentum in developing creative solutions that focus on a diverse set of social issues through various global and national organizations. For example, IDEO, a global design company was one of the first organizations that used HCD to tackle social issues that impacted communities at large. They have created myriad tools and processes that have focused on the importance of client voices in the development of solutions. Till date, they have leveraged this model to create client-centred solutions in areas such as waste, emergency disasters, literacy, and health amongst others (IDEO, 2020). United Nations Children's Fund (UNICEF), has established an Office of Innovation that systematically

integrates HCD principles in all aspects of country-level work that is done by UNICEF staff, and grassroots workers. This includes situational analysis, development of insights that inform country programs, designing of inclusive and scalable models across various sectors, and participatory evaluation of the progress of country-level programs (UNICEF, 2016). This has helped UNICEF to develop country and community-specific child-centred programming to tackle problems such as malnutrition, illiteracy, pregnancy-related complications, amongst others (Malan & Newberry, 2019). While this framework has helped larger organizations, it remains largely untapped by local organizations, and social movements that are accountable for responding to individual and community level needs regularly. This can be attributed to being inundated by large caseloads, and limited financial and human resources, social workers are often unable to have the capacity to think innovatively. By having a structured way to enable social innovation and entrepreneurship within their organizational settings, social workers can build on social capital, knowledge and experience of existing organizations as well as leverage the resources within the community. Additionally, they can also use these frameworks for efforts that take place outside formal organizations, such as grassroots movements, community advocacy etc. This paper introduces social workers to the Anti-Oppressive Social Work Design (AOSWD) framework, which integrates the values of AOP within the three phases of HCD (inspiration, ideation and implementation), and provides an alternative lens that can inform how social workers view and tackle complex social issues.

Anti-Oppressive Social Work Design Framework (AOSWD)

Till date, the HCD framework has predominantly been used to create solutions that are focused on efficacy related to aesthetics, composition, usability and other technicalities (Buchanan, 2001). The term “human-centred” has therefore been defined to centre clients in the design process to ensure that the programs developed can be easily adapted by the target communities. However, upon using an AOP lens, one can interpret “human-centred” to advance human rights and dignity. By doing so, social workers can use HCD to evaluate how the services developed are positively or negatively impacting the civil, political, economic, social and cultural rights of people that they are designed for.

The AOSWD framework by integrating AOP and HCD approach empowers social workers to explore ways to pave the way for socially-just innovation. Here the focus is not only to create user-friendly programs but also dismantling oppressive systems that disproportionately impact marginalized communities. Additionally, it contributes towards Berzin and Pitt-Catsouphes (2014) efforts to expand the concept of social innovation to focus on the social justice element within outcomes. It also recognizes that social innovation can take place in multiple ways, including entrepreneurial efforts by individuals, organizational change through intrapreneurship as well as a combination of the two through partnerships between organizations and communities (Berzin & Pitts-Catsouphes, 2014; Berzin & Camarena, 2018). Specifically, the AOSWD framework embeds values of critical self-reflection, understanding the socio-cultural political and economic context, and establishing trusting relationships within the three HCD phases of inspiration, ideation and implementation. By doing so, it provides social workers with a way to use their professional values and existent skills to innovate by transforming the way we examine problems, the structure of organizations within which social workers function, and programs that have an objective to uplift the rights and dignity of our clients.

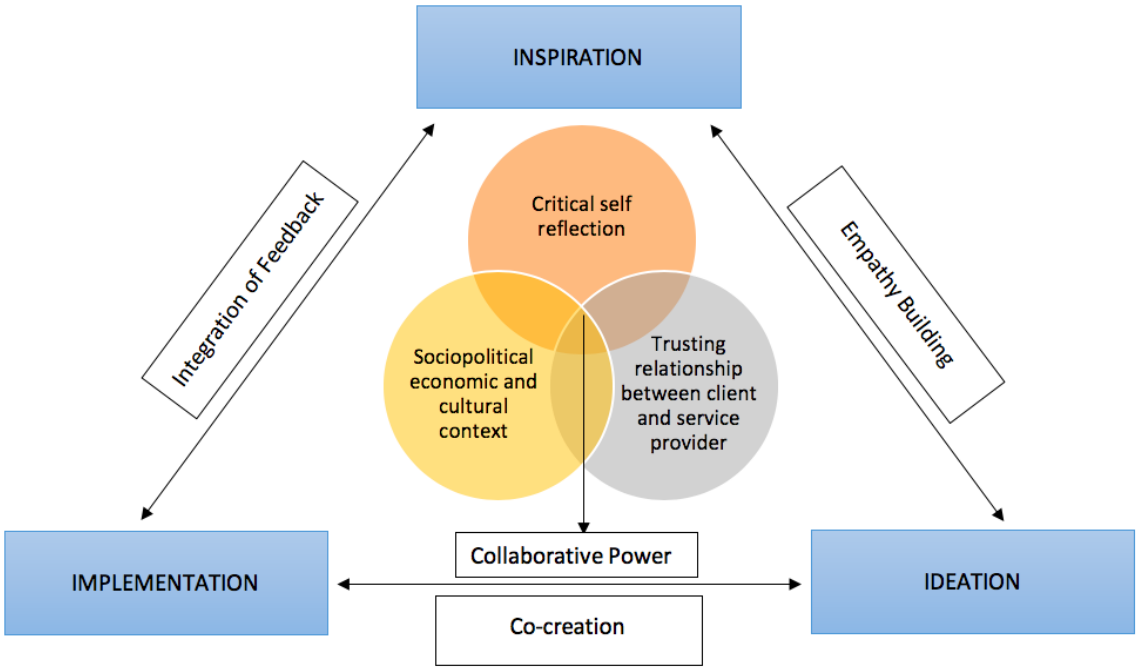

Figure 1: Anti-Oppressive Social Work Design Framework.

Figure 1 displays the AOSWD framework. This framework operates within the larger HCD process, which includes the 3 phases of inspiration (data gathering), ideation (solution development) and implementation (solution execution). The first phase, inspiration, is primarily focused on developing deep empathy with the clients. The second phase, ideation, is aimed to consolidate and analyse the information gathered from clients, and develop a range of potential solutions for the identified challenge. The third phase, implementation, focuses on two aspects, that is, execution of the prototypes and evaluating their effectiveness. In this phase, a few high-fidelity solutions are implemented cost-effectively and rapidly. Also, feedback from all stakeholders is gathered to evaluate the efficacy of the various prototypes. Each of these phases is bi-directional and interconnected, thus indicating the fluidity and dynamic nature of HCD framework. Additionally, both ideation and implementation phases are mediated through inspiration, thus emphasizing the importance of centring the voices of the clients, and the consistent integration of their experiences in the design process.

The AOSWD framework hypothesizes that the HCD process can only be an effective way to innovate within the social work profession if collaborative power between the service providers and clients is established in all three phases. Collaborative power can be defined as a collective action and mutual support that is developed out of a shared understanding of the reality in which we operate (Pinderhughes, 2017). This departs from the predominant way in which power is often understood and used in social service agencies, especially when working with marginalized communities. Pinderhughes (2017) highlights that power is commonly defined as having enough control over forces affecting life to meet individual and group needs, secure necessary resources, and bring desired goals. In the social service arena, this power is often used to exert authority and make decisions on behalf of the clients. Providers often use top-down measures to protect and provide for communities they serve, thus excluding them from actively participating in their change process. Fitzsimons and Fuller (2002), Pinderhughes (2017), Romney (2005), and Tew (2006) have emphasized that building power with clients, allows a shift in entrenched identities of the service provider as the controller of resources and the client as the passive recipient. It, therefore, opens opportunities for all participants to be included in the process of social change. The AOSWD framework indicates that to

build collaborative power between the client and service provider, the process of social change has to include (i) understanding of the socio-political, cultural and economic context of the client, (ii) ability of the social worker to critically self-reflect and (iii) developing trusting relationships between the client and social worker (Figure 1). Within the HCD framework, this collaborative power between social workers and clients can be established through (i) empathy building at the inspiration phase, (ii) co-creation at the ideation phase and (iii) integrating feedback at the implementation phase.

Phase 1 Inspiration: Empathy building

"Empathy-building" in the AOSWD framework is a process imperative to develop deep relationships between the client and service provider, and a way to assess the systematic marginalization of communities that social workers serve (Bennett & Rosner, 2019; Morgaine & Capous-Desyllus, 2015). Typically, empathy can be defined to understand and respond to the emotional state and ideas of another person (Barker, 2003). However, within the context of AOSWD, empathy-building entails a detailed understanding of not only the individual but also the structural inequities faced by them. According to Segal (2011) and Berzin and Pitt-Catsouphes (2014), by understanding the complex social conditions and experiences of others, it promotes innovation that challenges poverty, discrimination and inequity.

Within this phase, empathy can be developed during (i) rapport building process with the clients, (ii) exploration of client challenges, and (iii) assessment of systemic causes of the identified challenges. The empathy-building process will foster deep relationships between the social worker and client, thus paving the way for collaborative innovation to create social change. Cultivating empathy will require social workers to engage in critical self-reflection, and use assessment measures that shift the focus from individual blame to structural inequities. By integrating reflexivity, social workers are less likely to impose their biases and assumptions on the clients. This, in turn, improves their skills to understand client's experiences and to contextualize it within the socio-political, cultural and economic environment within which the individual, family or community operates.

Phase 2 Ideation: Co-creation

Co-creation within the AOSWD framework refers to the process of developing services and programs by dismantling the hierarchical power dynamics between the service provider and clients. This process embraces the values of social workers as being embedded in the community and dedicated to bringing change through the involvement of various stakeholders rather than in an isolated fashion. Additionally, it recognizes that to create an effective solution that applies to the target community, the process of program design has to be inclusive of their views right from the time of conceptualization of the problem to the implementation of the solution. This is different from the widely used EBP model, which has been lauded as the gold standard for effective programs, but at the same time has been critiqued for its lack of effectiveness in marginalized communities (Sinha et al, 2020). One of the major limitations of the EBP model is that while marginalized communities are included in the feasibility tests, they are often excluded in the conceptualization of the program or intervention, and are therefore not designed to address their unique challenges. Martinez et al. (2010) have suggested that for EBP to be effective in a minority or marginalized communities, the knowledge and experiences of community members should be included when designing interventions.

The co-creation process through systematic integration of voices of the community departs from the focus on social workers as controllers of resources, and decision-makers on behalf of the clients. It provides clients and social workers a platform to collaborate and develop ideas that contribute to a common mission of social change (Sinha, 2020). This not only reduces distrust regarding the social workers and social service

agencies but also leads to an increased buy-in from clients to advocate for change for themselves as well as their community.

Phase 3 Implementation: Integration of feedback

Integration of feedback from clients in the AOSWD framework is imperative to develop programs that target the complex and dynamic realities of marginalized communities. In most social service settings, the feedback from clients is gathered to evaluate the effectiveness of a program after it has been fully implemented. This method of gathering feedback assumes that the social programs operate in a static environment, and cannot be iterated to meet the changing needs of the clients. Additionally, the feedback has been viewed to determine whether a program should be continued or not, rather than assessing how it can be improved to make it more responsive to the needs of the clients (Hasenfeld, et al.,2004).

The integration of feedback within the AOSWD framework, recognizes the dynamic social, political and economic context in which the social workers and their clients operate. It highlights that to create effective programs, there is a need to systematically integrate continuous feedback of clients so that the programs can align with their changing needs and realities. In addition to this, the AOSWD framework within the inspiration phase highlights an essential ethical principle of social work, which is to respect the inherent dignity and value of the clients (NASW, 1996). By acknowledging, and incorporating the feedback of the clients as a method to improve services, the social workers and agencies take a step forward to value them as equal partners in the process of social change. The collaborative power in this phase will therefore enable social workers to test the novel ideas, critically assess their effectiveness and iterate programs to align with the complex nature of client realities.

The next section provides an example of how AOSWD framework was used to develop a Community Social Council, aimed at empowering the voices of residents living in affordable housing units managed by Community Roots Housing (CRH) in Seattle, WA.

AOSWD in practice: A case of Community Roots Housing

Community Roots Housing is a corporation established in 1976 that owns and manages 48 properties throughout the Seattle area (Community Roots Housing, 2020). It currently provides safe and affordable housing to more than 2000 residents from a variety of income levels. The residents include individuals and, families who are transitioning from homelessness, single parents and their children, seniors with limited incomes, and recent immigrants. As a Public Development Authority (PDA) and Community Development Corporation (CDC), it is committed to providing programs, services and activities to promote and support community engagement. This service is carried out by the Resident Services Program unit within the organization.

To ensure that the services are better aligned with the needs of the residents, a redesign process to develop a community-informed residential services program was conducted. The objective of this process to develop a framework to integrate client voice throughout the process of program design, development and implementation. Thus, improving Community Roots Housing's ability to clearly define the needs clients, and create nuanced solutions that integrate the values of dignity, autonomy, equality and solidarity (Mintrom & Luietjens, 2016; Sarmiento-Pelayo, 2015).

Methods

The redesign process utilized the AOSDW framework to create deep empathy between the Community Roots Housing staff and the residents, with an ultimate objective of creating a community-informed

resident services program. To inform this process, a mixed-methods needs assessment was conducted to gather information regarding their living conditions, challenges and strengths. To gather quantitative data, a survey was sent to residents in all 46 buildings managed by Community Roots Housing. The survey was completed by 373 residents and provided information on (i) demographics, (ii) assessment of the current housing, (iii) assessment of basic needs, (iv) and community residential engagement needs. In addition to this, in-depth interviews were conducted with 15 residents to gather information about residents' beliefs regarding their wellbeing, living situation, and community engagement. The information gathered increased the understanding of the lived experiences of the residents, which was an imperative step in the empathy-building stage. The research yielded significant insights about the prioritization of needs, barriers in the utilization of resources offered, the importance of community trust and gaps in understanding between service providers and clients.

To ensure that the information was systematically integrated into the co-creation process, the research results were used to develop "Personas" (Figure 2). Three personas of residents were developed to highlight the key opportunities and challenges that emerged from the results. In addition to this, a word cloud was also developed to communicate the prioritized needs and challenges of the residents. Both tools were used to ensure that the participants in the co-creating process had a holistic understanding of the context of the challenges and strengths of the clients.

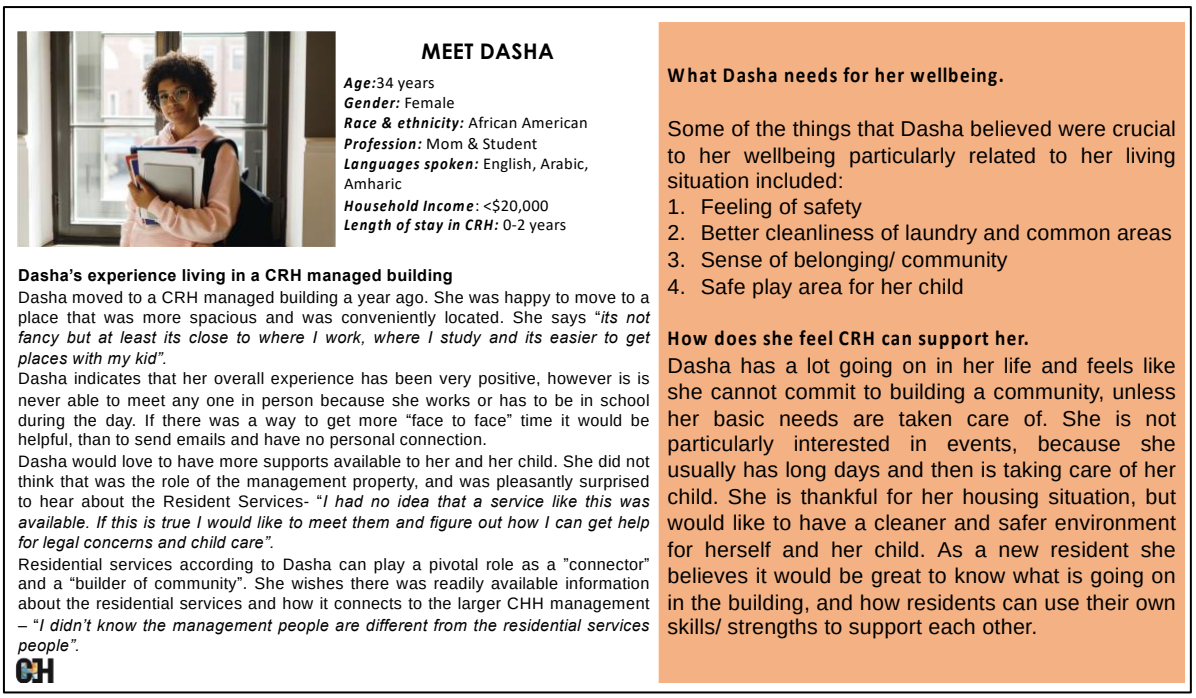

Figure 2: Community Roots Housing Resident Persona.

Co-creation Process

The design team consisted of 14 participants: 5 Resident Services Program staff, 1 research assistant, 1 facilitator, and 7 resident representatives from 5 distinct buildings. They engaged in two 5-hour design sessions to review the needs assessment results and, personas which were direct reflections of the challenges and successes of many residents. The empathy-building phase was therefore focused on discovering the underlying systemic issues within the research results. This helped all participants gain a mutual understanding of the social, political, economic and cultural context in which the residents and Community Roots Housing function. It also prompted the staff to critically reflect on their biases regarding

the residents, thus assessing the appropriateness of services offered. This phase led to the development of three main criteria that drove the development of potential solutions for the overarching objective of "How might we reimagine the residential services program to empower residents to feel more valued and heard in their living community?". The three criteria included: 1) programs or services should be directed towards making residents feel included and valued in the community, 2) clear communication between the staff and residents to increase accountability, and 3) resident leadership to integrate community strengths and interests within programs offered.

The participants engaged in the co-creation phase by creating a minimum of three actionable ideas that would incorporate all three criteria. To ensure collaboration between staff and residents, the participants were divided into three groups, such that, each included at least 1 staff member and 2 residents. A total of 9 actionable ideas were created. All 9 ideas were presented to the full design team. Along with the description of the idea, the residents and staff from each team discussed the feasibility and, impact from an organization and client perspective. Each participant was asked to vote for 1-2 ideas that they believed would be the most effective. All participants unanimously chose one idea, that they believed would empower the residents and, bridge the gap between the management and clients. This idea focused on developing a resident council that would integrate resident voices in all decisions regarding types of services needed, effective implementation of programs, and creating community identity. The residents, staff and facilitators collaborated to improvise and finalize the concept.

The final prototype "Resident Leadership Council", was assessed against the three design criteria and the overall objective of the design process, that is, empowering residents to feel more valued and heard in their living community. Upon this assessment, three changes were made that integrated the complex realities of the residents and Community Roots Housing. Firstly, the name of the council was changed to "Resident Social Council" to ensure that a hierarchical power dynamic does not arise between resident leaders and the larger resident community. Second, all council members and staff would be required to attend anti-bullying, conflict resolution training, to ensure that they can develop skills to successfully navigate challenging conversations with residents and staff. Lastly, a list of feasibility criteria was established to ensure that the council had buy-in and financial support from Community Roots Housing.

Outcomes for Community Roots Housing

The use of the AOSWD framework ensured that the residents' voices were centred throughout the process of the needs assessment, analysis of results, and development of the final product, that is, The Resident Social Council. By building empathy with the clients keeping in mind, their social, political, economic and cultural context, staff were able to critically reflect on the efficacy of current programs. Additionally, staff recognized their bias as service providers in assuming the needs and wants of residents. On the other hand, clients had an opportunity to learn about the complex realities of organizations and barriers in developing client-centred programs. By developing a sense of trust, both, clients and staff were able to collaborate to develop a program that would not only integrate the opinions of clients but would also be cost-effective and sustainable for the organization itself.

Implications for the social services profession

The AOSWD framework, embodying the true essence of the social work profession which is rooted in social justice; attempts to provide social workers with a tangible way in which they can integrate their professional principles with that of innovation. It also attempts to expand the scope of social workers to be innovators, intrapreneurs and entrepreneurs that partner with their clients to develop ideas that meet immediate needs effectively as well as works towards structural reform. This can further strengthen the

overall field of innovation, by prioritizing the core values of service to others, advocating for social justice, recognizing the dignity and worth of a person, importance of human relationships, integrity and trustworthiness, and professional competence. It can therefore redefine social innovation to be focused on uplifting human rights and dignity rather than solely developing solutions to meet the immediate needs of their clients. This framework can be integrated by social workers and other social service professionals in three specific areas (i) professional training of professionals, (ii) service delivery and evaluation by small to medium non-profits, and (iii) assessment of needs and assets.

To tackle the grand challenges that are being experienced by our society, social workers should be trained in skills that build their capacity to think and act innovatively. Currently, social innovation curriculum is mostly housed in management and design schools. Recently, some social work programs across the globe have introduced courses to train students in social innovation (E.g. social work programs in Boston College, Boston University, San Diego State University, University of Denver, and the University of Toronto amongst others). However, they seldom integrate social justice principles within the curriculum and do not apply to the social service settings in which most of the social workers will be placed. The AOSWD framework provides an opportunity for educators to expand the training in innovation principles to all social service professionals while prioritizing values of social justice. Faculty teaching social work courses can integrate the AOSWD framework as a theoretical lens for assessing case studies, conducting needs assessments, and analysing the effectiveness of solutions. Additionally, the framework can also be used as a way to develop specific skills, such as (i) assessing client problems within their context, (ii) collaborating to create solutions that are feasible, sustainable and account for the multidimensional nature of human problems, and (iii) critically reflecting on their positionality as service providers and its influence on the programs created.

AOSWD framework is a beneficial tool for small to medium size non-profits that are often limited in their resource capacity. The AOSWD framework can be used as a cost-effective organization tool to help service providers (i) assess the alignment of their programs with values of equity and anti-oppression, (ii) redesign services, programs and policies to ensure that they are reflective of the needs of the clients, and (iii) prioritize services to leverage community strengths thus making it more cost-effective and sustainable. The framework can also be used by social scientists to integrate social justice values in the development and analysis of empirical knowledge. This is particularly useful for community-based researchers and evaluators that are often assessing the needs and assets of communities, as well as the effectiveness of services provided. By using AOSWD lens the research process can systematically integrate the recognition of the power of communities, focus on emancipation and can be action-oriented (Lather, 1986; Parada & Wehbi, 2017; Strega & Brown, 2015); thus, integrating and centring the client's problems and context.

Conclusion and way forward

Social workers and other helping professionals, similar to designers have the power to impact people's lives in a very significant manner. An oppressive service, policy or product can have a long-lasting negative effect on the lives of the people that use it, as well as the larger community. In the same way, a program or policy that systematically incorporates social justice values can empower communities and improve their overall quality of life. This paper provides one of the first frameworks of how the professional values and skillsets of designers and social workers can be leveraged to create socially just, cost-effective and sustainable solutions for marginalized and vulnerable communities. To ensure that the efficacy of this framework can be measured, it should be implemented in diverse settings, including skill training, organization development, program design and evaluation. By doing so, social workers and other social service professionals can develop flexible ways to use the framework to benefit the communities they work with.

References

Barker, R.L. (2003). The social work dictionary (5th ed.). NASW Press.

Berzin, S.C. (2012). Where is Social Work in the Social Entrepreneurship Movement? Social Work, 57(2), 185-188.

Berzin, S.C., & Camarena, H. (2018). Innovation from Within: Redefining How Non-profits Solve Problems. Oxford University Press.

Berzin, S.C., & Pitt-Catsouphes, M. (2014). A Social Work Approach to Social Innovation. International Journal of Innovation, Creativity and Change, 1(4), 7-18.

Bennett, C.L., & Rosner, D.L. (2019). The Promise of Empathy: Design, Disability, and Knowing the "Other". Computer-Human Interaction, 4(9), 1-13.

Brock, D., & Steiner, S. (2009). Social entrepreneurship education: Is it achieving the desired outcome? SSRN 1344419. DOI: 10.2139/ssrn.1344419

Buchanan, R. (2001). Human Dignity and Human Rights: Thoughts on the Principles of Human-Centered Design. Design Issues, 17(3), 35-39.

Clifford, D., & Burke, B. (2009). Anti-Oppressive Ethics and Values in Social Work. Palgrave MacMillan Publishing.

Cohen, B.J. (2012). Design-based Practice: A New Perspective for Social Work. Social Work, 56 (4), 337-346.

Community Roots Housing (2020). Our Story. Retrieved from https://communityrootshousing.org/our-story/

Council on Social Work Education (1994). Handbook of accreditation standards and procedures. Council on Social Work Education Press.

Dalrymple, J., & Burke, B. (1995). Anti-oppressive Practice: Social Care and the Law. Open University Press.

Danso, R. (2009). Emancipating and Empowering De-Valued Skilled Immigrants: What Hope Does Anti-Oppressive Social Work Practice Offer? The British Journal of Social Work, 39(3), 539-555.

Dominelli, L. (1994). Anti-racist Social Work Education: Models for practice. MacMillion Press LTD.

Dominelli, L. (1996). Deprofesionalizing Social Work: Anti-Oppressive Practice, Competencies and Postmodernism. The British Journal of Social Work, 26(2), 153-175.

Hasenfeld, Y., Hill, K., & Weaver, D. (n.d.). A participatory model for evaluating social programs. The James Irvine Foundation. Retrieved from https://www.racialequitytools.org/resourcefiles/Eval_Social.pdf

IDEO (2020). About us. https://www.ideo.com/

Lather, P. (1986). Research as Praxis. Harvard educational review, 56(3), 257-278.

Malan, J.L., & Newberry, J. (2019). Human Centered Design in the Field. UNICEF. Retrieved from https://www.unicef.org/innovation/media/12111/file

Martinez, K., Callejas, L., & Harnandez, M. (2010). Community-Defined Evidence: A Bottom-up Behavioral Health Approach to Measure What Works in Communities of Color. Emotional & Behavioral Disorders in Youth, 10(1), 11-16.

Mintrom, M., & Luetjens, J. (2016). Design Thinking in Policymaking Processes: Opportunities and Challenges. Australian Journal of Public Administration, 75(3), 391-402.

Mirabella, R., & Young, D.R. (2012). The development of education for social entrepreneurship and nonprofit management. Diverging or converging paths? Nonprofit Management & Leadership, 21(1), 43-57.

Morgaine, K., & Capous- Desyllas, M. (2015). Anti-Oppressive Social Work Practice. Sage Publications.

National Association of Social Work, NASW (1996). Code of ethics. Retrieved from https://www.socialworkers.org/About/Ethics/Code-of-Ethics/Code-of-Ethics-English

Parada, H., & Wehbi, S. (2017). Reimagining anti-oppressive social work research. Canadian Scholars.

Pol, E., & Ville, S. (2009). Social Innovation: Buzz word or enduring term? The Journal of Socio-Economics, 38, 878-885.

Pinderhughes, E. (2017). Conceptualizing of How Power Operates in Human Functioning. In Pinderhughes, E., Jackson, V. & Romney, P.A. (Eds.), Understanding Power: An Imperative for Human Services (27-62). NASW Press.

Razzouk, R., & Shute, V. (2012). What is Design Thinking and Why Is It Important? American Educational Research, 82(3), 330-348.

Rittel, H.W.J., & Webber, M.M. (1973). Dilemmas in a General Theory of Planning. Policy Sciences, 4(2), 155-169.

Rogers, J. (2012). Anti-oppressive social work research: reflections on power in the creation of knowledge. Social Work Education, 31(7), 866-879.

Romney, P. (2005). The art of dialogue. In P. Korza, B. Schaffer Bacon, & A. Assaf (Eds.), Civic dialogue, arts & culture: Findings from animating democracy (pp. 57-79). Americans for the Arts Press.

Sarmiento-Pelayo, M.P. (2015). Co-design: A central approach to the inclusion of people with disabilities. Revista de la Facultad de Medicina, 63, 149-154.

Segal, E.A. (2011). Social Empathy: a model built on empathy, contextual understanding and social responsibility that promotes social justice. Journal of Social Service Research, 37(3), 266-277.

Simon, H.A. (1969). The Sciences of Artificial. MIT Press.

Sinha, A. (2020). Creating Collaborative Solutions with Communities using “Gift Explosion”, and “See it My Way”. Stanford Social Innovation Review.

Sinha, A., Hanna, M., & McRoy, R. (2020). Chapter 6: Domestic Children. In Hanna, M., Fong, R., Rolock, N. & McRoy, R. (Eds.), Introduction to Child Welfare: Building a culturally responsive, multisystemic, evidence-based approach. Cognella Academic Publishing.

Strega, S., & Brown, L. (2015). Research as resistance: revisiting critical, indigenous, and anti-oppressive approaches. Canadian Scholars Press.

Tew, J. (2006). Understanding power and powerlessness: Towards a framework for emancipatory practice in social work. Journal of Social Work, 6(1), 33-51.

Traube, D.E., Begun, S., Okpych, N., & Choy-Brown, M. (2017). Catalyzing Innovation in Social Work Practice. Research on Social Work Practice, 27(2), 134-138.

UNICEF (2016). Human-Centred Design: Accelerating results for every child by design. Retrieved from https://www.unicef.org/innovation/media/5456/file

International Journal of Design for Social Change, Sustainable Innovation and Entrepreneurship

discern

https://www.designforsocialchange.org/journal/index.php/DISCERN-J

ISSN 2184-6995

Co-design for social innovation and organisational change: Developing horizontal relationships in a social enterprise through walking

Mirian Calvo[a], Madeleine Sclater[b]

[a]ImaginationLancaster, Lancaster University
[b]The Glasgow School of Art

Published online: November 2020

To cite this article:
Calvo, M., & Sclater, M. (2020). Co-design for social innovation and organisational change. Discern: International Journal of Design for Social Change, Sustainable Innovation and Entrepreneurship, 1(1), 78-98.

Co-design for social innovation and organisational change: Developing horizontal relationships in a social enterprise through walking

Mirian Calvo[a], Madeleine Sclater[b]

[a]ImaginationLancaster, Lancaster University, Lancaster, LA1 4YW, United Kingdom. M.calvo@lancaster.ac.uk
[b]The Glasgow School of Art, Glasgow, G3 6RQ, Scotland. M.sclater@gsa.ac.uk

Abstract

Although an emerging body of literature identifies co-design as a promising approach to addressing the most urgent social challenges, little research has been undertaken about how co-design can support social change within the communities and organisations with which they collaborate. This is important because behavioural and organisational change is usually associated with the emergence of social innovations. These pressing socio-cultural challenges require interdisciplinary expertise, and we argue that the practice of co-design is an approach that provides such expertise. Co-design by its nature is collaborative and can respond to the cultural demands of a society eager to participate. These demands require significant research to better understand how the practice of co-design can be a catalyst for social change and social innovation. In this paper, we explore what is meant by co-creation, social design, and co-design within the theoretical context of this study. We present a case study that focuses on a social enterprise committed to sustainability operating within the Highlands and Islands of Scotland. Here we examine the transformative process - associated with co-design - that the social enterprise and its members encountered. Participatory Action Research (PAR) was implemented as the research approach to this study informed by ethnographic and co-design methods. The analysis suggests that the co-design process empowered the social enterprise and its members, enabling them to co-develop responsive and empathetic attitudes among themselves. Co-design supported organisational changes by nurturing collaborative attitudes, expanding perspectives about social issues and releasing latent human abilities and assets.

Keywords: Design for social change, Social design, Co-design, Social innovation, Participatory design, Mutual learning, Co-creation, Participatory architecture, Community architecture.

Getting together in the era of participation

In the last half-century, there have been calls to consider new design methods (Sanders & Stappers, 2008). According to Cross (1972), traditional design by its nature excludes people from the creative process and so fails to address the complexity of current challenges. The 21st century is witnessing diverse challenges: human migration (Ahmed, 2017), environmental sustainability, climate change, cutbacks in public services, increasing social inequality, privatisation of education and healthcare (Silverman & Patterson, 2015), the current pandemic etc. All of these challenges impact our everyday lives, constraining our possibilities to choose based on our needs. Cross (2011, p. 15) observes: "…we are on a journey from an industrial world ruled by certainty, precision, and logic to a natural world characterized by unity, unpredictability, and complexity". In examining the impact of co-design, methodological frameworks must now be capable of capturing the dynamic processes of social change. The calls for change embrace democratic principles that are embedded in a myriad of practices and which aim to support the increasing demands on participation. Practices such as co-creation, social design and design activism, co-design and participatory design are intertwined (Bason, 2010). They share the idea that creativity resides in everyone and therefore any creative process should include participants covering the social spectrum – private, public and voluntary sectors, and involving all types of citizens. Jungk (1973) envisioned a motivational shift in design which would radically reshape the future of the discipline. This shift has arrived (Fuad-Luke, 2017); society now

requires designers back in the public sphere, with greater involvement in socio-political problems and civil society (Swann, 2002). These challenges require interdisciplinary expertise, and we argue that the practice of co-design is an approach that provides such expertise (Meroni, Selloni & Rossi, 2018).

In this paper, we examine how the practice of co-design in the voluntary sector, driven by social demands, can support the flourishing of 'boundary spaces' where the participants can re-negotiate their interpersonal bonds, and support organisational changes. Boundary space is a notion introduced by Gutiérrez et al. (1995), with the term 'third space', to describe situations where people who have different roles and perspectives encounter each other in power-balanced and horizontal terms, expanding the boundaries of both. It depicts a theoretical space of confluence where individuals approach from their different perspectives (Calvo, 2019a). We explore the notions of co-creation, social design, and community-based co-design to describe the theoretical context of this study. We follow this with a case study that focuses on a social enterprise in which we examine how a co-design project functioned as a catalyst for a transformative process of behavioural and organisational changes. Participatory Action Research (PAR) was implemented as the research approach to this study informed by ethnographic and co-design methods. Finally, we discuss the findings of the analysis in terms of: (i) moving from hierarchical to horizontal organisational relationships; (ii) sprouts of behavioural and organisational change; and (iii) interpersonal learning.

Literature review

In this section we investigate the theoretical conceptions about co-creation, the socialisation of design, and community-based co-design, leading us to narrow the scope of this study and reformulate the key focus of research – how co-design can become a catalyst for social innovation and organisational change.

Co-creation

Ideas of co-creation can be found in management disciplines (Prahalad & Ramaswamy, 2004) to explain the shift in business models from a centred to a customised view of products. Tseng and Piller (2003) illustrate enterprise models adopting mass customisation, rather than mass production. They identify a gap in understanding the impact of integrating users into value-creation processes in knowledge management. They describe the necessity for further research on methods of a customer-centred enterprise - a kinship of user-centred design - which has yielded benefits relating to consumer products such as value chain, customisable offer and knowledge-transfer (Fogliatto, Da Silveira & Borenstein, 2012). Sanders and Stappers (2008, p. 6) refer to co-creation as "any act of collective creativity", comprising a wide range of processes. Bason (2010, p. 144) defines co-creation as the process of "…placing people's wants, needs and situations at the centre of the creative process as a powerful way to generate the insights that allow us to create with people and not for them". These are the prime insights influencing the landscapes of design that are expanding its frontiers towards fields such as service design or organisational design. 'Design-with-people' merges a society eager to participate with the principle that everyone is creative - hence we all design (Manzini, 2015).

According to Bason (2010), co-creation brings two benefits: divergence and execution. Divergence appears when an increase in the number of ideas and inspirations brought about by diversity prompts more appropriate solutions. Divergence has a direct relationship to the introduction of different knowledge-based approaches, such as the application of ethnographic research and qualitative data-gathering where researchers become participant-observers. Hess and Adams (2007) add that divergence enables conversations with a fresh slant on the same issue, hence changing perspectives and inviting new solutions. Execution refers to human agency and anchors the participants throughout the whole creative process to ensure success (Bason, 2010; Halse et al., 2010). Further, Gillinson, Horne and Baeck (2010) disclose their

'radical efficiency model' after analysing more than one hundred case studies from different contexts which follow co-creation processes with a focus on reshaping public services. In the report, they chronicle ten successful social innovations. The radical efficiency model offers an opportunity for profound transformations in designing and delivering public services through centralised-strategies towards supporting local action and change. Like Nygaard and Bergo's (1975) local knowledge-production strategy at the dawn of participatory design, Gillinson et al. (2010) recommend that governments devolve power to local communities who have the responsiveness and empathy required to enable social innovation. They identify four steps to pursue this: (i) developing 'new insights' through divergence; (ii) 'new customers' – redefining the notion of users; (iii) 'new suppliers', that means paying attention to who does the job – this includes re-contextualising the role of users; and (iv) 'new resources' – releasing latent human abilities, forgotten assets, and strengthening institutional networks. The aim focuses on engendering new perspectives about social issues. This leads to innovative transformations of services – based on the people experiencing them.

Socialisation of design

Design research increasingly concentrates on exploring approaches that can foster social innovation, shifting from design driven by the market to design motivated by social demands, promoting meaningful social impact towards sustainability (Manzini & Meroni, 2014). Design methods have been applied in the public sphere (e.g. public services, community-based development, architectural transformations, etc.) aiming to achieve creative solutions that meet the needs and desires of people, going beyond conventional methods (Mulgan, 2014). Design is ubiquitous in contemporary life (Fuad-Luke, 2009). This is evident in the spread of rapid urban transformations (e.g. China's urban development) and manufacturing technologies, which mediate in human interactions – an upward trend in pandemic times. Papanek (1972) observes we all design all the time, as design embeds itself with human agency. From this perspective, people can adopt design roles (knowingly or unknowingly) in reshaping their everyday life – blurring the frontiers of design and raising tensions between the distribution of design competences, between professional designers versus non-professionals collaborating in a design process (Manzini, 2015). The socialisation of design is a conscious act "…geared to goals, objectives and aims within a broad societal context…" (Fuad-Luke 2017, p. 281), thereby "…in the intimate interweaving between aesthetics and the political… an interesting answer to the activist nature of design activism is to be found" (Markussen, 2013, p. 39). The research literature considers 'the political' (Mouffe, 2013) dimension of design as the condition of dissent that each individual may experience within a concrete designerly situation. The political dimension of design could be used to re-mould pervasive and conventional structures of power because such dimension embodies activist strategies for transforming community paradigms and values (Calvo & De Rosa, 2017).

Design, as social action, has the potential to raise awareness of sustainable ways of living and working together; it assists in renegotiating the relationships we establish within the socio-material culture of human situations – between what we do and how we feel about doing it (Markussen, 2013). Design aesthetics thus embeds emotional reconfigurations and the allocation of meaning into such socio-material culture. It involves incorporating people's needs within the designing process to foster alternative forms of inhabiting and reshaping identities, hence eliciting social and behavioural change (Calvo & De Rosa, 2017). It also requires methodologies able to study human agency and its interactions with the socio-materials of situations, and we argue that co-design is capable of intervening in people's perceptions and affecting their behaviour. Underpinning such a behaviour change is mutual learning which also supports the flourishing of networked communities and interpersonal bonding. Building trust, engaging with social conventions, norms of cooperation and partnership, networking and community engagement, as well as formal and informal organisations, play a key role in behavioural change, which can lead to organisational change and social

innovation (Ostrom & Ahn, 2009). That is why, increasingly, design research pursues evidencing about mutual trust and empathetic relationships established with their partners and stakeholders. Qualitative inquiry has been gaining relevance in social design as it provides the means to systematically document human interaction and participation. In this sense, ethnographic research - used in this study - provided a set of methods that enable the design-researchers to gather meaningful data.

Community-based co-design

Co-design as a design strategy increasingly resonates in community engagement and the voluntary sector. Due to the democratic and open-ended nature of the design process, co-design aims to confront societal issues in the public sphere (Fuad-Luke, 2009). User-centred design, on the other hand, seems unable to address those challenges as it objectifies people in the design process and serves consumer products. Gay and Hembrooke (2004, p. xvii) illuminate a "…shift from user-centered design to context-based design... from a focus on human-computer interaction to a focus on human interaction that is mediated by technology in context". This shift emerged in the 1980s and 1990s in the field of interaction design (see Kaptelinin and Nardi, 2006; Spinuzzi, 2005; Zahedi, 2011) when its definition expands: from being focused on the computer, moving towards designing the sociocultural (hybrid) spaces of human interaction (Winograd, 1996). As Kaptelinin and Nardi (2006, p. 10) state, our society is increasingly designed, "furnished with technologies at every turn". These statements recognise the relevance of the social environment in configuring human interactions ('designerly' situations); and emphasise the intentionality (emotions, motivations and subjectivities) behind any design outcome. Bannon (1991) advocates for a change in the systems design process, from meeting ergonomic specifications (human factors) to foregrounding greater involvement of the people acting with technology (to human actors) on the whole design spectrum. Consonant with the insight that the ultimate input is on the users (people) to define their functionality, technology is then understood as an important part of human activity with a mediating role in their development. In user-centred design, social scientists were brought to mediate between designers and users (Simonsen & Robertson, 2013). Over time, as Sanders (2002) describes, both disciplines mutually learnt that the most productive designs come from a direct exchange of experiences when the stakeholders come together (Gay & Hambrooke, 2004; Zahedi, 2011). Both disciplines found strong allies in their combination (Brandt et al., 2013; Sanders, 2002). With a focus on participatory experiences, co-design emerges as pledging to address "…the most pressing societal challenges…" (Meroni et al., 2018, p. 17). Sanders (2002) uses the term post-design, a distinctive attitude to people, who, given appropriate tools to configure a hybrid language (Ehn, 2017), become creative contributors to the design process.

Selloni (2017) illustrates co-design as a form of community engagement to strengthen communities, and as a prior step to co-production. Co-design is also associated with social innovation as it can create a 'third space' (Muller, 2009) where the multiplicity of expertise and perspectives (divergence) can be disclosed and assembled (Manzini, 2015). Cruickshank et al. (2012) define innovation as a systemic process requiring collective and creative activities to be performed by interdisciplinary expertise that emphasises knowledge-exchange amongst participants and disciplines (Cruickshank, 2010). Collier and Williams (2013) propose 'reflective practice' to solidify such knowledge, out of what we learn and experience in the community.

The notion of co-design refers to the act of collective creativity applied throughout the whole design process (Sanders & Stappers, 2008). This paradigm shift also involves a shift in the role of designers, who move from designer-to-designer to designer-to-public, and more recently, to public-to-public roles. Here, designers need to acquire/emphasise social skills to facilitate 'public designerly engagements' (Lindström & Ståhl, 2016). In public-to-public relationships, those 'non-trained-in-design' still contribute to the designing (Lee & Ho, 2012), thereby democratising (and socialising) the design process. In designerly engagements,

designers intervene in public spheres, in a designer-public relationship, where people are perceived as experts, and designers adopt roles of support (Ehn, 2008). With grassroots and bottom-up social innovations, communities take the lead and designers serve as triggers for local action (execution), their role is to activate and facilitate civic-collective creativity (Lee & Ho, 2012), alongside designing the socio-materials of designerly engagements for 'the co-articulation of issues' (Lindström & Ståhl, 2016).

Methodology and case study

This section presents the methodological approach and the methods deployed in a case study conducted with rural communities in the Highlands and Islands of Scotland and associated with a three-year UK-AHRC funded design research project, called Leapfrog. Focused on transforming public engagement, Leapfrog explored the role of co-design in strengthening communities and involving them in the designing of engagement tools to invigorate public-community engagement.

This study adopted a participatory action research (PAR) approach to develop the methodology because it foregrounds participants and their context as the core of the investigation (Whyte, 1991). It also embeds social change as part of the research agenda – aiming to produce a positive social impact on communities (Walter, 2009). PAR stems from Lewin (1946), a social psychologist focused on shifting away from the scientific tradition and establishing democratic principles in research, to reshape research itself (Chevalier & Buckles, 2013). PAR is an applied research approach oriented to address social issues. It is open to innovations or contributions that may arise from its interaction with other disciplines. PAR is usually represented by a spiral of stages where each stage informs the next one, once the research-community partnership identifies a focal social issue: (i) initial planning; (ii) action; (iii) observation; (iv) reflection-informed planning (see Walter, 1993, p. 3).

PAR was implemented in this study as the meta-process of a methodological framework developed by the research team with four phases: (i) preparation for co-design; (ii) co-design situations; (iii) follow-up; and (iv) systematising learning. These phases structured the 'Tools for Renewal' research project, a case study where ethnographic and co-design methods were deployed to gather data about how co-design can support interpersonal and organisational changes in social enterprises.

Case study: Tools for renewal

'Tools for Renewal' consisted of a six-month co-design project with the Newbold Trust, a social enterprise based Forres, N-E of Scotland. Its mission is to consider sustainable ways of living together in the region. The trust had initiated a transformation - shifting away from an organic and unstructured community to a social enterprise. This internal shift involved the renewal of both its physical assets and its identity as a social enterprise. The Newbold community felt isolated from community life in Forres and the region. They wanted to open up the doors of their property to include local communities in the physical transformation and decision-making of their future spatial uses. The participants' reasons to participate in the project were largely related to commitment to sustainable causes, seeking to nurture their personal inner life and curiosity.

The flourishing of social connections was the ultimate motive of Newbold community's decision to embrace the project. The research aim was to identify ways to establish long-term community engagement by systematically inviting local communities to participate in the renewal of their facilities, as well as in the re-shaping of their identity. After a series of co-design situations, 'walking' (Careri, 2002; Ehrström, 2016) emerged as the principal method by which to engage such communities, and a postcard tool was co-designed to gather the insights of the participants who engaged in the facilitated walks.

Preparation for co-design

This first step comprised three stages: (i) initiation and planning; (ii) historical research; and (iii) interviews. During the initiation and planning stage, conversations were held with the community and public partners – collectively defining the problématique; establishing a bidirectional dialogue for identifying the challenge and focus; co-designing a research plan and timeline, and inviting participants to sign the informed consent agreement and gain ethical approval from the institutions involved. Semi-structured interviews and visits were then conducted to build rapport and trust, but also to begin understanding the personal context and motivations of participants. During the visits, we walked around the Newbold property (Figure 1), a Victorian house and approximately seven acres of grounds. Focused on seeing at first hand the spatial assets for renewal, design-researchers gathered accounts of the context of research while adopting a participant-observer role. Touring around the Newbold grounds, the research team and the Newbold community began building mutual understanding.

Figure 1. Route and map of the facilitated walk.

Co-design situations

This phase was the most intense and immersive engagement with participatory activities. It comprised several methods: catalysis workshop, co-design workshops, prototyping tests, semi-structured interviews, reflective group sessions, participant-observation, and tool delivery events.

Catalysis workshop

Designed to enhance the construction of group dynamics, the catalysis workshop brought participants together to share their personal experiences about the Newbold services and spatial assets. Twelve participants came from the Newbold Trust, the Findhorn Foundation and the Forres local community. After introducing the project, the facilitated walk began. Here the design-researchers adopted participant-observer roles. They mingled with the small group of people that moved naturally from one spot to another (see Figure 1, and steps 1-9). We all walked in small groups, feeling comfortable, observing our surroundings and letting ourselves be embraced by the environment. Two members of Newbold provided an improvised narrative connecting the physical spaces with the past, present and future desires of Newbold. Eventually, the participants started imagining possible changes and alterations that could be made as they walked through those spaces; they wrote or drew on the tools that were designed for data-gathering and analysis. People continued to organically form small groups. The act of walking closer together functioned as a way to initiate a conversation and the thread of the conversation became the way to connect the group until we reached the next spot (Figure 2). Walking was a means to break down the hierarchies of power between the members of the Newbold community. In the next activity, a group reflective session, Participant 1 said:

> *"…I felt freedom when people were walking; we were not in this situation, staring at each other. Here it is more difficult to express myself. When we were walking, we were talking at the same time freely."*

Figure 2. Facilitated walk at Newbold Trust.

The catalysis workshop created horizontal group dynamics. The group reached the point where participants started building other types of relationships. Working together, in this case, did not mean collaborating. Each staff member in charge of each department tended to work independently and autonomously. In their work with the Newbold community, the research team also observed a certain degree of intra-personal friction. There was an ideological split between two groups: those who pushed to turn Newbold into a sustainable and self-sufficient business and others who resisted the change and longed for the return of a bohemian lifestyle.

Co-design workshop 1

During this workshop the participants went through four main phases: 1) a reflective session on previous engagements, 2) deepening understanding and reaching a collective agreement, 3) idea-generation and prototyping activities, and 4) presenting concepts/prototypes and selecting proposals. The first co-design workshop aimed to reflect collectively upon the previous walking experience, and, as a collective, to co-design ideas where walking could be adapted as the Newbold Trust method for engaging local communities in the long-term. There were ten participants.

The day began with lunch and an opportunity to analyse the data collected during the catalysis workshop. Using string hanging from side to side across the room, the participants began organising the insights according to their collective criteria, shaping a timeline of interventions based on the values of the group (Figure 3). This helped them to consider what type of exchange they were looking for in engagement and the methods they might need to use to gather, interpret and act on information accumulated during the exchange. This activity sought to break with the hierarchical dynamics that the participants unconsciously brought to the workshop, an influence that would allow members to behave freely without wondering if they should agree with the ideas of a superior. This enabled participants to collectively identify different approaches to their strategic plan.

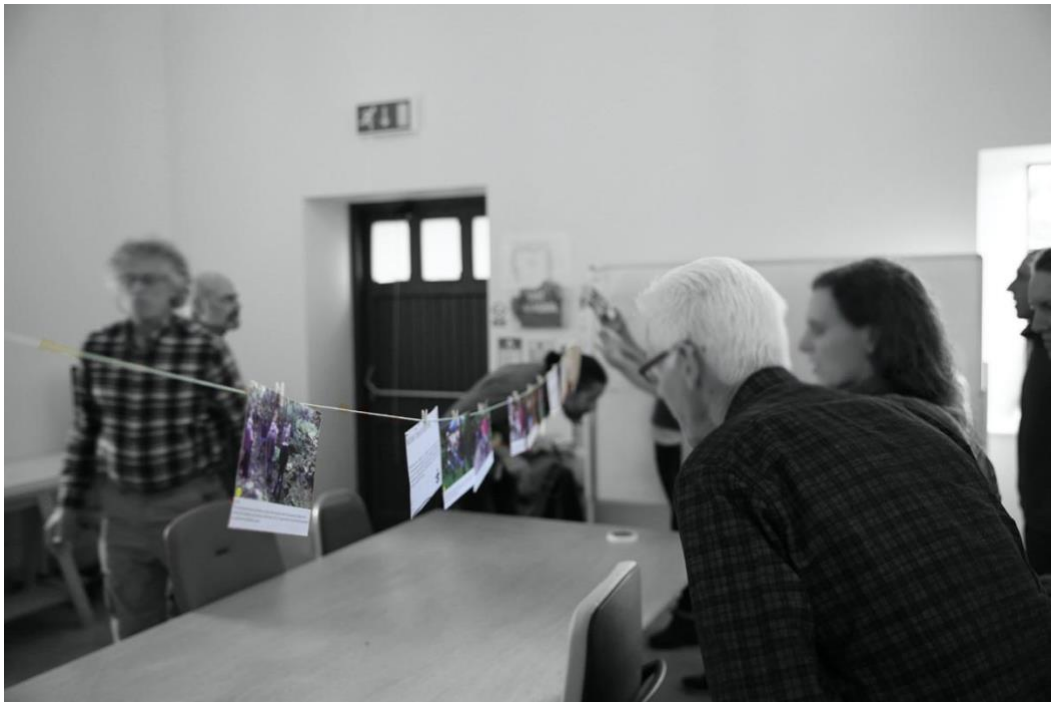

Figure 3. Hang-it-up collective activity (priority building).

The participants were then divided into groups comprising three people and sent on a 'discovery journey' around the Creative Campus, Glasgow School of Art, in Forres. The participants approached the activities with joy - going with the flow - and generally feeling comfortable. In turn, they gained the ability to put themselves in the place of their future walkers and built collaborative attitudes towards those they engaged within the co-design process. For instance, unconsciously, participants 3, 4 and 12 realised that they were not able to write their insights, so they used each other's backs as improvised support to write their thoughts, showing a collaborative attitude (Figure 4).

Figure 4. Discovering activity.

An interesting insight was the importance of somehow tailoring and planning the route of the walk into the purpose of the engagement. Participant 3 commented:

> *"The flow of the walk needs to be tied into how someone who does not know about this place may interact with it and how one feels. The reason why we are doing this is how to interact with the space. That would be also related within the experiences."*

This session allowed them to gain a better understanding of their participation in the project. P6 said: "Walking around the fields stimulated emotional responses. It is more about qualities. Looking at that as a way to imaging the development of Newbold". Participant 10 mentioned:

> *"Similar to when we were using the tool in Newbold, we were imaging how the space could be transformed within the narrative. How do we develop that thing and how do we tell the story right from the entry gate? It is really the narrative, the story that we want to tell people***."**

The narrative was a crucial component that needed to be addressed. The participants naturally began to imagine possibilities. The sharing of spatial and personal experiences shifted away towards co-producing ideas. The workshop produced three idea-prototypes and the group decided to focus on one.

Semi-structured interviews

The interviews foregrounded how co-design situations were providing new conditions for them to learn more about their team. Participant 2 said: "…in these two workshops I think I found the learning at watching us as a group, how the interactions happened, what formed the group dynamic and perspective". The process was helping them to redefine their interpersonal relationships, an adjustment of behaviour. Participant 1 said: "…because we are in a different environment, I am learning how they (staff) approach a problem, how they react when they have something new to build…".

Prototype-test

In-between co-design workshops, participant 5 facilitated a walk with a group of Erasmus students and collected the observations written on the prototype. He brought his insights into the experience to initiate the following co-design workshop.

Co-design workshop 2

Participant 5 outlined the use of walking as the method to offer the students an inclusive and comfortable atmosphere to spark informal conversations and so imagine through stimulating all the channels of learning. Participant 5 said:

> *"For me, it was a strong sense of engagement with the people. This was a tool (prototype) that helped me engage in more dialogue as we moved around with the people. The tool gave me a sort of structure to build the narrative."*

Researchers noticed no hierarchical relationships between the participants. Next, participants were split into small groups of two or three people and spent the rest of the workshop co-designing new iterations of the tool (prototype) to enhance it. After collective selection focusing on a new prototype of the tool, the group decided to test it again, in a series of facilitated walks during the Harvest Festival.

Participant-Observation

The Harvest Festival was the biggest community event Newbold organised and included sharing activities with other local communities. Two facilitated walks were planned on the agenda of the community event. On average, both walks had around twelve participants, most of the visitors/eco-tourists. Like the catalysis workshop, the walk sparked small groups who walked together, having conversations between themselves, asking questions and sharing their ideas about the spatial assets. They engaged with the narratives of the walk-in an informal atmosphere (Figure 5). In the end, the participants spent some time writing their reflections about their experience and gave the prototypes back. The research-community team reflected on the activity and concluded that the prototype worked well, although some adjustments needed to be addressed. The design team developed a third version, more flexible and adaptable, according to the needs and purposes of the walk.

Figure 5. Facilitated walk at the Harvest Festival.

Tool Delivery Event

The workshop began with a collective and reflective session. An insight emerged: the qualities of physical space and their rotation contributed to the emanation of interpersonal learning. Participant 7 said:

> ‘‘*When you go out of the house (*Newbold *House) and you have conversations like these with the same people but out of your usual environment, you understand maybe better or from a different way. This becomes a tool to know each other better, differently.”*

They all agreed that the project helped them to know each other better and hence start working as a team. Then they tested the final prototype and reported minor touches. By the end, all the participants had built their tools for renewal, which they took away with them. Finally, the research team thanked them for their commitment during the project. This would not have been possible without all of their hospitality, kindness and open-minded approach, and the project drew to an end.

Follow-up

The follow-up phase consisted of revisiting some of the participants once the case study was complete, using (i) participant-observation and conducting (ii) reflective interviews, observing the course and consequences of the co-design situations in perspective; perceiving a potential change in the agency. Participant 1 said: “…you have to solve problems every day and sometimes you do not have time to stop and think about how to do things. On this, we learnt that we needed to stop and think and talk and create these conversations.” According to him, the co-design workshops foregrounded the beginning of a unique moment that impacted the way he perceived the other participants, unfolding hidden personal competencies and skills. It activated his learning and this led to reshaping the group dynamic. For

participant 3, the co-design project provided a learning outcome: the need to collaborate towards a common goal. He stated: "…going through that process and learning how it is not about roles, it is about the different perspectives that helped us solve problems, create new tools". He understood the relevance of merging different perspectives as a synergy that renegotiated the relational patterns of working together and their feelings about this way of working.

The organisation had embedded the walks, held and facilitated regularly with wider communities. Yet the tool needed more preparation and planning. They were in an evolving and transformative process. Participant 6 expressed surprise about the process, however, he said: "…my only reservation is that it was too quick and I think we needed more time to expand on what we were doing…". He commented that they had embedded the *hang-it-up* activity in their meetings. He reflected, comparing both experiences and concluded: "…I might consider moving more, getting up and moving as a really important part of decision-making."

Findings

This section presents the findings of the analysis phase (systematising learning) where affinity diagramming was adopted, an ethnographic method consisting of arranging pieces of paper-based data on a physical space like a wall and follows a three-phase process (each one illuminating a higher level of abstraction): item, pattern and structural analysis (LeCompte & Schensul, 1999). The process went through three phases of affinity diagramming, re-arranging the items by affinity, bottom-up, and consolidating theoretical structures. Out of this process, three findings were identified:

Walking enabled changes: from hierarchical to horizontal organisational relationships

The use of facilitated walks (Ehrström, 2016; Kanstrup, Bertelsen, & Madsen, 2014) animated an engagement process amongst participants. Walking proved to be a useful method to read and imagine those physical spaces - revealing opportunities and dilemmas - through a process that reduced interpersonal conflict and foregrounded the third space (Gutiérrez, 2008; Muller & Druin, 2012; Muller 2009). In this, the disruptive aesthetic of design was a key dimension that opened a space between emotions and human agency, leading to consciousness-raising (Markussen, 2013; Fuad-Luke, 2017, 2009; DiSalvo, 2012; Rancière, 2010). The walk aimed to create the space for collective reflection about issues where social and physical dimensions converged. By discussing in small groups and letting the surroundings to embrace the conversations, the walk helped participants to see things differently. Participant 11 shared:

> ‘‘*The walk was a really good idea and the reasons I am giving are because we saw and spoke to each other about different perspectives. It also was fun to be with you and to understand your ideas both verbally and visually, and critically navigate throughout the space. It sparked loads of ideas. I liked it because it made me slow down, observe, and feel the spaces.”*

The activity generated an embracing atmosphere for the participants to reflect in situ and contribute to the focus of the project. The walk activated visual and kinaesthetic learning processes. It also broke down the hierarchies that sometimes can be found in traditional environmental conditions, such as round tables indoors. Careri (2002) states that walking is an art form which discloses an interpretation of ourselves within the environment, and aesthetic recognition through the experience of understanding (Rasmussen & Wright, 2001) - a production of collective meaning.

Sprouts of behavioural and organisational change

During the follow-up, participant 6 reflected on adopting "…moving as an important part of decision-making…", denoting potential social change. About this, participant 2 said: "…I realised it is so important to have all that design planning before doing. I have just finished a permaculture design certificate. I think this project will help to inform that as well". Other evidence of change was to see that participants adopted walking and the hang-it-up activity in their community meetings. Participant 1 shared:

> "*…the process helped to open ourselves up and our relationship is a little different now. We are more comfortable. For instance, we used to have a non-flexible system. Every week we had like a business meeting, and we decided, during the process, we would have meetings when we needed them."*

The climate created during the workshops stimulated participants to behave differently and feel free to be themselves, acknowledging a change in their attitudes. Participant 6 said:

> "*…by the fact of us being a group, I felt like all the stuff of me having to perform or do something, just about me personally and my need to perform well, that just fell apart. That just did not happen, so I was comfortable and enjoyed it."*

Inter-personal learning

This finding draws on 'people skills', comprising skills and competencies such as learning to listen to people, building trust and respect for different perspectives, changing perceptions and expanding mutual understanding towards working together. For example, participant 5 said: "…it taught me a little bit to just be open to other ideas, be able to contribute but be open to other ideas because it is a group". They learnt how to collaborate better by making their attitude more open to listening to others. Participant 5 added: "…having the input of many people I realised is much more powerful, because everybody is involved, we can develop something which everybody is comfortable with…", raising awareness of collective ownership. Participant 4 shared: "…I am interested in seeing how we are coming together as a team, working together and not just running the place…". Participant 2: "…It helped me see that what I think is not always the most appropriate design, whereas with co-design most things are thought of and everyone feels ownership…". Participant 6: "…what I have learnt is the deeper level of trusting of the group process". On changing perceptions, he added: "…I have learnt about other people, a couple of people who were able to see clearly and that helped me to have a different view of them".

Discussions and conclusions

This study has investigated the arguments pointing to co-design as a suitable methodology to confront socio-cultural challenges (Meroni et al., 2018; Fuad-Luke, 2017, 2009; Ehn, 2017; Smith et al., 2016) that threaten and constrain our present and future qualities of life. Today we live in turbulent times. The ripples of the recent recession are still spreading, globally re-moulding the socio-cultural and political-economic spheres. Economic experts envision another significant recession, as a consequence of the pandemic, which will lead to the post-oil era (Ahmed, 2017). The IPCC (2018) reports the socio-cultural need to urgently reshape our lifestyles and consumerist modes. Internationally, we are witnessing movements arguing for egalitarian power-relationships (e.g. #blacklivesmatter) and social change that embrace sustainable ways of working and living together (e.g. #extinctionrebellion). The challenges at stake require networked communities and interdisciplinary expertise (Meroni et al., 2018) to produce synergies and social innovations capable of adjusting and re-equilibrating the relationship between nature and the built environment, seeking for sustainable ways of inhabiting this world (Manzini & Meroni, 2014). Our literature review has identified how design research approaches are increasingly present in the public sphere (Fuad-

Luke, 2009; Mulgan, 2014), and geared towards addressing complex social issues (Fuad-Luke, 2017; 2009). Some approaches (see Nygaard & Bergo, 1975; Gillinson et al., 2010) recommend governments to set up centralised strategies that empower and support local community-led initiatives, associating local knowledge-production, empathy, and horizontal relationships as key factors in the emergence of social innovations (Ostrom & Ahn, 2009). We argue that 'centralised strategies and local actions' require a greater understanding on how design can be a catalyst for supporting social change processes, and also the need for policies that create the legal framework of interaction, between local actions and centralised strategies.

The challenges society faces are amorphous in their structure and characterised by emergence, nonlinearity, uncertainty, adaptation and constant change (Silverman & Patterson, 2015). We argue that design features in all these challenges. What we have suggested in this study is that co-design, as a socialisation act, has the means to configure boundary spaces (Calvo, 2019a; Edwards, 2011; Gutiérrez et al., 1995; Gutiérrez 2008; Lally & Sclater, 2013). These spaces have the potential to merge the nascent demands of participation (Smith et al., 2017; DiSalvo, 2012; Jenkins, 2006) and the divergence of expertise required to co-articulate the issues, a driving-force that can confront societal challenges. The notion of boundary space is not new in co-design. Muller and Druin (2012) mention it under the term 'third space', a concept built upon Bhabha's (1994) argument that when two or more boundaries (two or more spaces) interact, a boundary space of overlap (a hybrid space) emerges. Bhabha (1994), describes this boundary space as a combination of features coming from all the boundaries interacting. Muller and Druin (2012, p1129) explain that, within this space, "enhanced knowledge exchange is possible". Lee (2008) names it the 'realm of collaboration' which describes a power-balanced space of convergence. Björgvinsson et al. (2012) refer to 'infrastructuring' as the means to create a space for assembling the multiplicity of expertise and divergence (also in Meroni et al., 2018; Smith et al., 2016) regarding the need for co-developing a common design language (Ehn, 2017). In this study, the notion of boundary space finds inspiration from Gutiérrez's (2008) theorisations of the third space, which emerges from differences in the engagement and participation, as well as from the multiple social scenarios that informal situations provide, which are based on egalitarian structures of power-relations. Therefore, the conversation flows under inclusive and comfortable social conventions. Gutiérrez (2008) aligns with Suchman's (2002) association of boundary crossing and mutual learning. The concept of boundary-crossing, developed in the 1990s, reflected the transition of individuals interacting between various practices (Suchman, 1994). Also considered in situated theories of learning (Lave & Wenger, 1991) and in Communities of Practice (Wenger, 1998), it was particularly advanced in educational sciences and psychology.

This study also argues that design-researchers and practitioners have the means to directly intervene in the social environment, through orchestrating and choreographing design activities, supported by techniques, engagement tools and design games (Brandt, Binder & Sanders, 2013). This subtle yet complex designerly act should consider the aesthetic and the 'political' (Mouffe, 2013) dimensions of design. It also requires design-researchers and practitioners to gain socio-emotional competencies to understand participants' ways of feeling and doing (Markussen, 2013) - understanding and stimulating group dynamics and reading the group mood to reorient the flow of engagements as required.

As Markussen (2013) points out, the aesthetic dimension of design is disruptive because it opens up a boundary space, a third space, between the social and performative actions of the participants and the production of 'new' emotions. The aesthetics of a design stimulates emotional responses which cause a disruption by raising awareness of people's activities and how they may feel about it. In this regard, the facilitated walks were orchestrated and choreographed design activities. They were prepared, planned, and geared (designerly) social acts that triggered behavioural change among the participants by reducing

interpersonal conflict and foregrounding third spaces. About this, Kierkegaard and Bretall (1947) observe the benefits of walking, an act that frees simultaneously the body and the mind, enabling thinking. Anderson (2004) builds upon Kierkegaard's reflection on walking, and upon Casey's (2001, p. 684) theorisation about the relationship between the self and place as a “constitutive coingredience”, to develop a walking method to harness 'the inherently socio-spatial character of human knowledge" (Andreson, 2004, p. 254). He emphasises the relaxing effect that the bodily rhythmic moves have on both body and mind, which encourages the use of imagination and unfolds hidden memories and experiences. Kanstrup et al. (2014) review several walking methods and their suitability for participatory and co-design approaches. They identify four key factors to take into account: (i) the relevance of preparing the socio-materials of the walk to spark designerly interactions; (ii) walking methods are time-efficient regarding the enriched data they unfold; (iii) adaptability of walking methods to absorb spontaneous detours of the planned routes and/or of the conversations; and (iv) the importance of “post-walk activities” (Anderson, 2004, p. 59). Walking is a natural human activity, and in this case study, it was re-purposed as a design method to place the participants in a social environment with which most of them were familiar. Yet the facilitated walks engendered boundary spaces, which disrupted participants' everyday thinking, reconfiguring their relationship with the physical and social attributes of Newbold surroundings. The walks enabled the participants to connect in ways they did not connect before. This notion of relational aesthetics aligns with the notion of aesthetics developed by Rancière (2010), a dialogic form of interacting (and learning) with the social environment, which "reorients perceptual space, thereby disrupting socio-culturally entrenched forms of belonging in and inhabiting the everyday world" (Markussen 2013, p. 44).

Giroux (2020) has recently argued that “Hope is the affective and intellectual precondition for individual and social struggle”. Emboldened with hope, educators can use theory to address pressing problems. To meet the challenges of social innovation and organisational change we are advocating the use of theorised co-design, drawing upon key theoretical concepts including, for example, boundary spaces. Giroux also points out that civic courage is required to transform critique into political practice. Co-design, in this sense, is, we think, a form of political practice and can be a catalyst for social change and social innovation. Giroux comments:

> *"Hope as the desire for a future that offers more than the present becomes most acute when one’s life can no longer be taken for granted. Only by holding on to both critique and hope in such contexts will resistance make concrete the possibility for transforming politics into an ethical space and a public act."*

We think that collective consciousness can be aroused through co-design activities, as evidenced in the case study presented in this paper. When combined with imagination, we contest that such consciousness has the potential to enable people to co-design new forms of community that, according to Giroux (2020), "affirm the value of the social, economic equality, the social contract, and democratic values and social relations."

References

Ahmed, N. M. (2017), Failing States, Collapsing Systems. Cambridge, UK: Springer.

Anderson, J. (2004). Talking whilst Walking: a Geographical Archaeology of Knowledge. Area, 36(3), 254–261.

Bannon, L. (1991). From human factors to human actors: The role of psychology and human-computer interaction studies in system design. In J. Greenbaum & M. Kyng (Eds.), Design at Work: Cooperative Design of Computer Systems (pp. 25-44). Hillsdale, NJ: Lawrence Erlbaum.

Bason, C. (2010), Leading Public Sector Innovation. Co-creating for a better society. Bristol: Policy Press.

Bhabha, H. K. (1994). The Location of Culture. London: Routledge.

Björgvinsson, E., Ehn, P., & Hillgren, P-A (2012). Participatory design and democratizing innovation. In Proceedings 11th Biennial PD conference (pp. 41-50). ACM.

Brandt, E., Binder, T., & Sanders, E.B.N. (2013). Tools and techniques. Ways to engage telling, making and enacting. In J., Simonsen & T., Robertson (Eds.), Routledge International Handbook of Participatory Design (pp. 145-181). New York: Routledge.

Calvo, M. (2019a). Co-design and Informal-Mutual Learning: A Context-Based Study Demystified Using Cultural-Historical Activity Theory. (PhD), Glasgow, UK: The Glasgow School of Art.

Calvo, M. (2019b). Rowing Together, Learning Between: Visualising boundary-spaces in community co-design. In iJADE Conference: creating spaces. Goldsmiths University of London, UK, 22-23 February 2019.

Calvo, M., & De Rosa, A. (2017). Design for social sustainability. A reflection on the role of the physical realm in facilitating community co-design. The Design Journal, 20 (Sup. 1), S1705-S1724. Retrieved from https://www.tandfonline.com/doi/abs/10.1080/14606925.2017.1352694

Careri, F. (2002). Walkscapes: Walking as an Aesthetic Practice. Barcelona: Gustavo Gili.

Casey, E. (2001). Between geography and philosophy: what does it mean to be in the place-world? Annals of the Association of American Geographers, 91, 683–93.

Chevalier, J.M., & Buckles, D.J. (2013). Participatory Action Research. Theory and Methods for Engaged Inquiry. Milton Park, Abingdon: Routledge.

Collier, P.J., & Williams, D.R. (2013). Reflection in Action. The Learning-Doing Relationship. In C.M. Cress, P.J. Collier & V.L. Reitenauer (Eds.), Learning Through Serving: A Student Guidebook for Service-Learning and Civic Engagement across Academic Disciplines and Cultural Communities (pp. 83-95). Virginia, USA: Stylus Publishing LLC.

Cross, J. (2011). Informal learning. Rediscovering the Natural Pathways that inspire innovation and performance. Pfeiffer.

Cross, N. (1972). Design Participation: Proceedings of the Design Research Society's Conference 1971. London: Academy Editions.

Cruickshank, L. (2010). The Innovation Dimension: Designing in a Broader Context. Design Issue, 26(2).

Cruickshank, L., Whitham, R., & Morris, L. (2012). Innovation through the design of knowledge exchange and the design of knowledge exchange design. In International Design Management Research Conference: Leading Innovation through Design. Boston, MA, USA, 8-9 August 2012.

Ehn, P. (2017). Learning in Participatory Design as I Found It (1970-2015). In B. DiSalvo et al. (Eds.), Participatory Design for Learning (pp. 7-21). Perspectives from Practice and Research. London: Routledge.

DiSalvo, C. (2012). Adversarial Design. Cambridge. MA: MIT Press.

Edwards, A. (2011). Building common knowledge at the boundaries between professional practices: Relational agency and relational expertise in systems of distributed expertise. International Journal of Educational Research, 50, 33-39. Retrieved from: https://doi.org/10.1016/j.ijer.2011.04.007

Ehn, P. (2008). Participation in design things. In Proceedings Participatory Design Conference (PDC) 2008. Bloomington, Indiana, USA. Retrieved from: https://muep.mau.se/bitstream/handle/2043/7196/Ehn_Participation.pdf?sequence=2&isAllowed=y

Ehrström, P. (2016). Reflections on Deliberative Walks – A Participatory Method and Learning Process. In ESREA: 8th Triennial European Research Conference. Imagining diverse futures for adult education: questions of power and resources of creativity, Maynooth University, Ireland, 8-11 September 2016.

Fogliatto, F., Da Silveira, G., & Borenstein, D. (2012). The mass customization decade: An updated review of the literature. International Journal of Production Economics, 138(1), 14-25.

Fuad-Luke, A. (2017). Design Activism's teleological freedoms as a means to transform our habitus. Agents of Alternatives – Re-designing Our Realities, Berlin. Retrieved from http://agentsofalternatives.com/?p=2539

Fuad-Luke, A. (2009). Design Activism: Beautiful Strangeness for a Sustainable World. New York: Earthscan.

Gay, G., & Hembrooke, H. (2004). Activity-Centered Design: An Ecological Approach to Designing Smart Tools and Usable Systems. Cambridge, USA: MIT Press.

Gillinson, S., Horne, M., & Baeck, P. (2010). Radical Efficiency. Different, better, lower cost public services, (research paper). London: NESTA.

Gutiérrez, K.D. (2008). Developing a Sociocritical Literacy in the Third Space. Reading Research Quarterly, 43(2), 148-164.

Gutiérrez, K., Rymes, B., & Larson, J. (1995). Script, Counterscript, and Underlife in the Classroom: James Brown versus Brown, [Board of education]. Harvard Educational Review, 65(3), 445–471.

Halse, J., Brandt, E., Clark, B., & Binder, T. (2010). Reharsing the future. Copenhagen: The Danish Design School.

Hess, M., & Adams, D. (2007). Innovation in public management: the role and function of community knowledge. The Public Sector Innovation Journal, 12(1), 1-20.

IPCC (2018). Global warming of 1.5°C. In V. Masson-Delmotte et al. (Eds.) revised report on January 2019. Switzerland.

Jenkins, H. (2006). Convergence Culture: Where Old and New Media Collide. New York: New York University Press.

Jungk, R. (1973). Anfange eines anderen Wachstums. In C. Horn, M.P. von Walterskirchen & J. Wolff (Eds.), Umweltpolitik in Europa. Referrate und Seminarergebnisse des 2 Symposiums fur Wirtschaftliche und Rechtliche Fragen des Umweltschutzes an der Hochschule St. Gallen 31 (pp. 34-44). Oktober bis 2. November 1972. Frauenfeld, Stuttgart.

Kanstrup, A.M., Bertelsen, P., & Madsen, J. (2014). Design with the feet: walking methods and participatory design. In PDC '14: Proceedings of the 13th Participatory Design Conference: Research papers, 1, 51-60. Retrieved from: https://doi.org/10.1145/2661435.2661441

Kaptelinin, V., & Nardi, B. (2006). Acting with technology: Activity theory and interaction design. Cambridge, USA: MIT Press.

Kierkegaard, S., & Bretall, R. (1947). Kierkegard anthology. Princeton, N.J.: Princeton University Press.

Lally, V., & Sclater, M. (2013). The Inter-Life project: researching the potential of art, design and virtual worlds as a vehicle for assisting young people with key life changes and transitions. British Journal of Guidance & Counselling, 41(3), 318-338. Retrieved from: https://doi.org/10.1080/03069885.2013.773582

Lave, J. & Wenger, E. (1991) Situated Learning: Legitimate Peripheral Participation. Cambridge: Cambridge University Press.

LeCompte, M.D., & Schensul, J.J. (1999). Designing and Conducting Ethnographic Research, Ethnographers Toolkit, 1. Walnut Creek, CA: AltaMira Press.

Lee, Y. (2008). Design participation tactics: the challenges and new roles for designers in the co-design process. CoDesign, 4(1), 31-50.

Lee, Y., & Ho, D. (2012). The quality of design participation: Intersubjectivity in design practice. International Journal of Design, 6(1), 71-83.

Lewin, Kurt (1946). Action Research and Minority Problems. Journal of Social Issue, 2(4), 34-46.

Lindström, K., & Ståhl, Å. (2016). Politics of Inviting: Co-Articulations of Issues in Designerly Public Engagement. In R.C. Smith et al. (Eds.) Design Anthropological Futures (pp. 183-198). London, UK: Bloomsbury.

Manzini, E. (2015). Design, When Everybody Designs: An Introduction to Design for Social Innovation. (R. Coad, Trans.). Cambridge, Massachusetts: Mit Press.

Manzini, E., & Meroni, A. (2014). Catalysing social resources for sustainable changes. Social innovation and community centred design. IRIS Politecnico di Milano, Catalogo Pubblicazioni POLIMI, 2(02.1).

Markussen, T. (2013). The Disruptive Aesthetics of Design Activism: Enacting Design Between Art and Politics. MIT Design Issues, 29(1), 38-50.

Meroni, A., Selloni, D., & Rossi, M. (2018). Massive Codesign. A Proposal for a Collaborative Design Framework. FrancoAngeli.

Mouffe, C. (2013). Agonistics, Thinking the World Politically. London: Verso.

Mulgan, G. (2014). Design in public and social innovation: what works and what could work better, [online]. Retrieved from: https://media.nesta.org.uk/documents/design_in_public_and_social_innovation.pdf

Muller, M.J., & Druin, A. (2012). Participatory Design, The Third Space in Human-Computer Interaction. In J.A. Jacko (Ed.) The Human-Computer Interaction Handbook: Fundamentals, Evolving Technologies and Emerging Applications. Baton Rouge: CRC Press LLC.

Muller, M.J. (2009). Participatory design: the third space in HCI. in A. Sears & J.A. Jacko (Eds.), Human-Computer Interaction, Development Process (pp. 165-186). Boca Roton, FL: Taylor & Francis Group.

Nygaard, K., & Bergo, O. (1975). The Trade Unions–New Users of Research. Personal Review, 2.

Ostrom, E., & Ahn, T.K. (2009). The meaning of Social Capital and its link to collective action*. In G.T. Svendsen & G.L.H. Svendsen (Eds.), Handbook of Social Capital: The Troika of Sociology, Political Science and Economics. Cheltenham, UK: Edward Elgar.

Papanek, V. (1972). Design for the Real World: Human Ecology and Social Change. New York: Van Nostrand.

Prahalad, C.K., & Ramaswamy, V. (2004). Co-creation Experiences: The Next Practice in Value Creation. Journal of Interactive Marketing, 18(3), 5-14.

Sanders, E.B.-N. (2002). From user-centered to participatory design approaches. In J. Frascara (Ed.), Design and the Social Sciences: Making Connections (pp. 1-8). London: Taylor & Francis.

Rancière, J. (2010). Dissensus: On Politics and Aesthetics. London, UK: Continuum.

Rasmussen, B., & Wright, P. (2001). The Theatre Workshop as Educational Space: How Imagined Reality is Voiced and Conceived. International Journal of Education & the Arts, 2(2). Retrieved from: http://www.ijea.org/v2n2/index.html

Sanders, E. B. N., & Stappers, P. (2008). Co-creation and the new landscapes of design. CoDesign, 4(1), 5-18.

Selloni, D. (2017). CoDesign for Public Interest Services. Springer International Publishing. Milan, Italy: POLIMI DESIS Lab, Department of Design. Retrieved from: https://link.springer.com/book/10.1007%2F978-3-319-53243-1

Silverman, R.M., & Patterson, K.L. (2015). Qualitative Research Methods for Community Development. New York: Routledge.

Smith, R.C., Bossen, C., & Kanstrup, A.M. (2017). Participatory design in an era of participation. CoDesign, 13(2), 65-69.

Smith, R., Vangkilde, K., Kjærsgaard, M., Otto, T., Halse, J., & Binder, T. (2016). Design anthropological futures. London: Bloomsbury Publishing Plc.

Simonsen, J., & Robertson, T. (2013). Routledge International Handbook of Participatory Design. New York: Routledge.

Spinuzzi, C. (2005). The Methodology of Participatory Design. Society for Technical Communication, 52(2), 163-174.

Suchman, L.A. (1994). Working relations of technology production and use. Computer Supported Cooperative Work, 2(1), 21-39.

Suchman, L. (2002). Located accountabilities in technology production. Scandinavian Journal of Information Systems, 14(2), 91–105.

Swann, Carl (2002). Action Research and the Practice of Design. Design Issues, 18(1), 49-61.

Tseng, M., & Piller, F. (2003), The Customer Centric Enterprise: Advances in Mass Customization and Personalization. Berlin: Springer.

Walter, M. (2009). Social Research Methods (2nd Ed.). Australia: Oxford University Press.

Walker, M.L. (1993). Participatory action research. Rehabilitation Counselling Bulletin 37, 2–8.

Wenger, E. (1998). Communities of Practice. Cambridge: Cambridge University Press.

Whyte, W.F. (1991). Participatory Action Research. Newbury Park: Sage.

Winograd, T. (1996). Bringing Design to Software. New York, USA: Addison-Wesley.

Zahedi, M. (2011). Modèle novateur de conception d'interface humain-ordinateur centrée sur l'utilisateur: le designer en tant que médiateur [Innovative user-centred human-computer interface design model: the designer as a mediator]. (PhD), Montreal, Canada: University of Montreal.

International Journal of Design for Social Change, Sustainable Innovation and Entrepreneurship

discern

https://www.designforsocialchange.org/journal/index.php/DISCERN-J

ISSN 2184-6995

Designers as change agents in the Circular Economy

Katja Fleischmann

Published online: November 2020

To cite this article:
Fleischmann, K. (2020). Designers as change agents in the Circular Economy. Discern: International Journal of Design for Social Change, Sustainable Innovation and Entrepreneurship, 1(1), 99-118.

Designers as change agents in the Circular Economy

Katja Fleischmann

Griffith University, Queensland College of Art, Southport, QLD, Australia. k.fleischmann@griffith.edu.au

Abstract

Several global reports have concluded that natural resource extraction at its current levels is unsustainable and will lead to the rapid erosion of the environment and tax global economic growth. One of the alternative paradigms to conserve those resources is the Circular Economy, a system driven by innovation that extends the utility of products as long as possible through a series of strategies that re-use resources. Design can act as a bridging tool and a catalyst for the innovation demanded by the Circular Economy because of its flexibility as a problem-solving discipline. The intermediary role of design can adapt to the complex requirements of Circular Economy stakeholders who want to shift their way of doing business to a more sustainable model, despite formidable policies, economic, cultural and political obstacles. The author explores the evolution and utility of design from a discipline that shapes objects to one that constructs and facilitates complex systems of interactions among collaborators, which in the Circular Economy includes consumers, manufacturers, logistics companies, governments, business and science entrepreneurs. Several examples of design's role in this facilitative process are presented that showcase the power of design to drive social and cultural transformations and re-cast industrial and business processes. Sustainable innovation is the centrepiece of the Circular Economy and design has a significant role to play in its adoption, particularly from a human-centred perspective that can address formidable constraints to its implementation.

Keywords: Circular Economy, Design-led innovation, Service design, Citizen designer, Sustainable innovation, Democratisation of design, Co-creation

Introduction – Why the Circular Economy?

The strain on natural resources in the world is borne out by alarming trends in unsustainable and accelerating resource extraction. The unwelcome by-products of these practices, which are predicted to double by 2050 (UN Environment International Resource Panel, 2019) have been global warming, air and water pollution and a throwaway consumer culture based on cheap credit and products with limited life cycles. The United Nations (UN) Environment International Resource Panel (2019) paints a dire picture of a global resource collapse unless Circular Economy practices are employed. Other reports such as the Circularity Gap Report (Circle Economy, 2019) and the Finnish Innovation Fund Report (Mead, 2018) also conclude that Circular Economy practices can help halve greenhouse gases by 2050 to meet targets agreed to by signatories to the Paris Climate Accord (United Nations, 2015). The 2030 Agenda for Sustainable Development (SDG, 2015) adopted by all United Nations Member States in 2015, lists responsible consumption and production and climate action as global priorities.

Circular Economy principles are also becoming more imperative during the COVID19 pandemic where global supply chain disruptions are slowing down manufacturing, food production, and forcing companies to re-think and reorganise their way of doing business. Circular Economy advocates see the pandemic fostering opportunities to help local communities source scarce resources like medical equipment, drinking water, and face masks through re-tooling of industrial production lines. Sustainability during the pandemic

requires re-thinking of whole systems of delivering goods and services given social distancing and supply chain disruptions (Blériot, 2020; Haigh & Bäunker, 2020).

The Circular Economy is part of a sustainable innovation paradigm which is seen as the "next generation of economic development thinking" in which the protection of the environment is coupled with the notion of business innovation (Saylor Academy, 2012). Reversing destructive natural resource consumption trends is the principle aim of the Circular Economy, a systematic re-framing of resource use based on biomimicry within closed-loop systems. The Circular Economy model draws on natural cycles where the re-uptake of decaying matter feeds the entire ecosystem (Ellen MacArthur Foundation, 2013); in a balanced ecosystem, nothing goes to waste. In the Circular Economy, waste in all its forms becomes a feedstock for new industrial processes, product development and energy production. The Circular Economy extends this idea to products and services through improved product design and moving waste to the top of the supply chain where it can be re-purposed and not dumped in landfills. The Circular Economy economic system shifts responsibility to achieve its goals to a diverse network of key players: end-users, manufactures, logistics companies, governments, and business and science entrepreneurs–who are interconnected and need to engage jointly in the complex undertaking to drive systemic change.

Designers have a key role to play in the system-wide economic changes driving the Circular Economy (Wastling, Charnley & Moreno, 2018) by facilitating the necessary transformations in human interactions, mindsets and relationships. Joore and Brezet (2015) argue that "change actors like designers play a strategic role in innovation and transition processes towards a sustainable society" (p. 92). Designers are already solving complex problems using human-centred approaches that are evidence-based and rely on various forms of user participation when designing for social change (Souleles, 2017). Robinson (2017) makes a strong case for a Social Circular Economy, where responsibility to help the socially disenfranchised, such as the homeless and unemployed, is part of the business landscape. Robinson (2017) sees design uniting "the circular economy and social enterprise concepts to deliver benefits for people, planet and profit" (p. 4). Haigh and Bäunker (2020) agree that designers can help a Circular Economy shape "a more resilient, socially just and environmentally safe world" (p. 1), however, the building of a socially responsible and environmentally sustainable economic system faces well known and formidable obstacles.

The roadblocks stopping the Circular Economy: Vision versus practicalities

For many years, researchers have explored Circular Economy concepts, such as Cradle-to-Cradle design, Regenerative Design, Laws of Ecology, Industrial Ecology, Biomimicry and the Blue Economy. Since 2010, the Ellen MacArthur Foundation (2013; https://www.ellenmacarthurfoundation.org/) has played a leading global role in unifying these concepts and promoting the Circular Economy model, designed to preserve the inherent value of products as long as is feasible (Lewandowski, 2016).

The central concept of the Circular Economy is re-using what is already there and exhausting its utility – a process that by necessity is driven by innovative thinking. Design acts as conceptual bridge between the exigencies of business and the drive to minimise waste using innovative methods. The Circular Economy's vocabulary reflects this paradigm shift with such terms as 'reverse logistics', 'reuse', 'remanufacture', 'extraction of biochemical feedstock, 'regeneration'. All of these terms derive their inspiration from the natural world, where creation and decay form part of a biological cycle that is balanced when healthy and generates waste that is re-incorporated into the ecosystem.

Productive use of waste in all its forms often requires disruptive, innovative practices throughout the value chain (Ritzéna & Sandström, 2017). However, there are substantial impediments to making this vision of an 'ecologically' balanced economy a reality, chief among them are financial incentives for companies, particularly in manufacturing, to change their way of doing business to fit a circular model. Operational logistics have to be restructured in the Circular Economy and attitudes have to shift to accept that investing in circular practices will help companies maintain a profit. Technological barriers also have to be overcome as well as policy challenges prompted by shifts in global politics (IMSA Amsterdam, 2013; Ritzéna & Sandström, 2017; Van Eijk, 2015).

There are also significant policy framework barriers experienced by all countries in which governments are not incentivizing businesses and scientist entrepreneurs through tax breaks, grants and significant seed money investment (De Jesus & Mendonça, 2018; Kirchherr et al., 2018; Van Eijk, 2015). Existing policies may inhibit businesses that want to adopt Circular Economy practices (R2π, 2018). Current events amply demonstrate this reality, particularly with developed nations offshoring mixed recycling for processing which is no longer a viable option. China has initiated a new policy rejecting shipments of mixed recycled waste from overseas that does not meet its stringent contamination thresholds. The crackdown has created an economic crisis among the developed world's recycling businesses (Cole, 2017; Parker, 2018). Countries such as the Philippines and Malaysia have also rejected overseas shipments of recycled waste from Canada and Australia (Denyer, 2019). Some forward-thinking waste managers are now actively searching for industrial processes that can, for example, convert recycled glass into sand for use in roadbeds (Fleischmann, 2019).

The attitude barrier

In a wide-ranging survey among stakeholders and sustainable development experts in the European Union (EU), respondents identified 'cultural barriers' as the major impediment to Circular Economy implementation (Kirchherr et al., 2018). 'Cultural barriers' were identified as low consumer interest and awareness of Circular Economy practices and companies hesitant to collaborate in the value chain because of low virgin material prices, high upfront investment, and regulatory obstructions and limited funding. A lack of urgency and strategic company planning using hard data about the Circular Economy's benefits were also cited as obstacles. The authors also suggest that further Research and Development (R&D) funding will not guarantee the Circular Economy's success in the EU. This finding is supported by Boer (2005), who predicted it is risky to invest in environmental technologies that customers do not want and which governments are unwilling to support. Other authors acknowledge that shifting to a Circular Economy is as much about the shifting mindset of people, as it is about technological innovation (Adrodegari, Pashou & Saccani, 2017; Prendeville & Bocken, 2017; Teso & Walters, 2016).

Geographic barriers also impede Circular Economy practices (Fleischmann, 2019). Many Circular Economy initiatives are centred in metropolitan areas with high population densities and high innovation indices which attract government funding. Regional areas are often geographically isolated, have smaller populations and lower innovation indices. In these areas, Circular Economy initiatives face a lack of funding and expertise (Fleischmann, 2019) and an often 'risk-averse' attitude by businesses and regional governments (Coronado, Acosta & Ferñandez, 2008). Ironically, according to Van Eijk (2015), local governments can drive policy changes much faster. Van Eijk estimates the period for the implementation of regulatory changes on an international level takes about a decade; in the EU policy changes happen in five years and on the local level it takes about a year.

With all these formidable obstacles it would seem the prospects for widespread adoption of the Circular Economy is ultimately unachievable. It is at this point where design can prove its efficacy by helping shift cultural resistance to engagement with the Circular Economy and by providing the innovative business framework for making it a reality. There are ample examples of how designers can drive these critical transitions to a Circular Economy which follows the trajectory of how design has evolved to meet social needs.

From product to service design: The changing role of design in servitisation and business model innovation

Design as a discipline has undergone tremendous changes over the past 30 years from being a mere form giving or styling activity to "being able to influence a company's entire business strategy" (Gardien & Gilsing, 2013, p. 56). Design's aesthetic function has evolved into a tool to focus on people and technology (user-experience design); as a differentiation tool to support branding; as a business tool for fuelling innovation; and finally as a cultural tool enabling transformation (Gardien & Gilsing, 2013; Hernández, Cooper, Tether & Murphy, 2018). Activist designers have also been early adopters of the sustainability discourse initiated through the seminal work of Victor Papanek with his book "Design for the Real World: Human Ecology and Social Change" published in 1971. Since the 1980s, these environmental designers have been instrumental thinkers and practitioners in the green design and eco-design movements.

Although designers have been involved in a systematic approach to reducing environmental impact through green product design, the emotional or behavioural dimension such as user-product attachment has largely been ignored by manufacturers (Ceschin & Gaziulusoy, 2016) – a finding which has a direct bearing on 'cultural resistance' to the Circular Economy. Years before the Circular Economy gained currency as a systematic model, Van Nes and Cramer (2005) found that 78% of products still function when they are replaced, evidence of the throwaway economy. Products are often discarded due to changing user preference and change in fashion (Cooper, 2006). The current so-called 'linear economy' is producing products with a limited shelf life often achieved through built-in obsolescence. A prominent example is the electronic waste created by the purchase of new versions of the same product like mobile phones or smart appliances made obsolete by software upgrades that do not work on older products. Despite growing secondary markets for purchasing used mobile phones such as the iPhone, the consumer-driven economy demands product life spans that are limited and have been decreasing (European Environment Agency, 2017). Van Nes and Cramer (2005) summed up the disposable product problem this way: "This requires the development of dynamic and flexible products, which implies designing for variability and product attachment and preparing the product for future repair or upgrading". Lewandowski (2016) describes this way forward as a holistic approach where products are designed within an ecosystem of carefully managed and re-used resources where product afterlife is part of the equation. In this system, waste is minimized through extended product lifespans in a closed material loop of multiple users rather than individual consumers. As a result, toxic and polluting materials are better controlled (De los Rios & Charnley, 2017).

There are many examples where product designers are already taking a more holistic approach and designing out waste by increasingly using modular design to lengthen product lifespans (European Environment Agency, 2017). A good example of modular production is Fairphone (https://www.fairphone.com/en/), an entrepreneurial European company employing modular product design to break the cycle of consumers buying new mobile phones every time a new model comes out

(Figure 1). The Amsterdam-based mobile phone manufacturer subscribes to the idea that consumers will opt for mobile phones that are designed to last up to five years, are virtually unbreakable, and can be updated with simple modular replacements that consumers can do themselves. Fairphone employs Circular Economy principles of creating smartphones that can be maintained, repaired and upgraded by end-users, are more robust and last much longer than the average smartphone. Next to the modular design, the systems thinking approach extends to ethically sourced materials and supply chains. The self-repair and maintenance of the phone through owners using basic tools and online available repair tutorials (Mestre & Cooper, 2017) are one of the main drivers for increasing product longevity. Fairphone advertises, "if you cannot open it you do not own it".

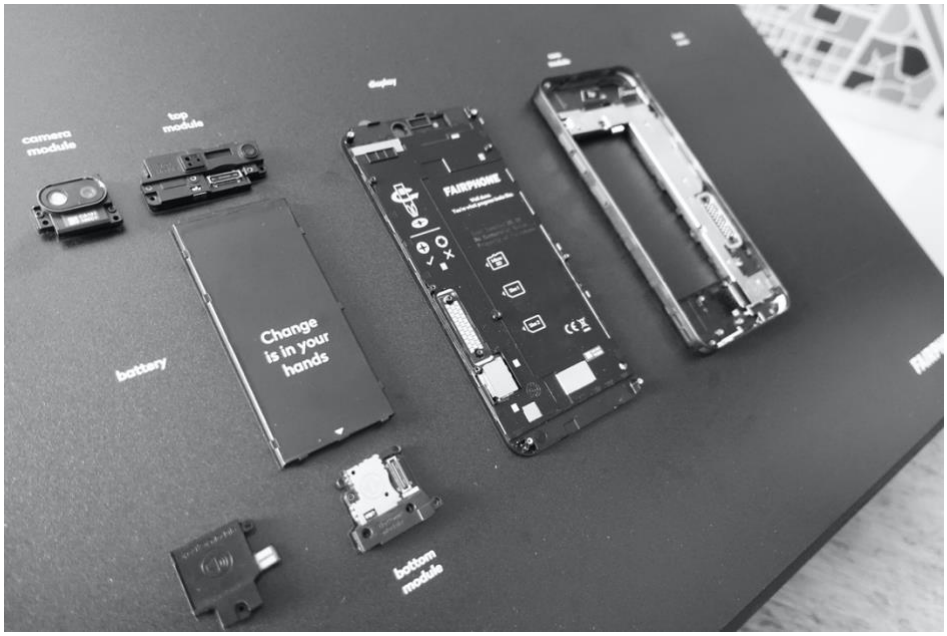

Figure 1: Modular Design Fairphone 3, Source (Creative Commons 4.0). https://en.m.wikipedia.org/wiki/File:Fairphone_3_modules_on_display.jpg.

As Fairphone illustrates, business models are no longer following a linear path. Disruption and digital technology are re-inventing the way consumers participate in economic activities.

Designers are also helping businesses re-define new models of ownership and use. Several authors have suggested that designers can influence business and consumer behaviour and thus meet Circular Economy goals. This is clearly illustrated in the concept of servitisation or Product Service Systems (PSS), where a product is not bought but essentially leased from a producer who maintains it. The PSS concept can apply to anything from office space, to clothing to lighting systems and vehicles.

Rather than re-design an entire production and distribution system, servitisation allows smaller businesses to take the first steps toward engaging the Circular Economy without having to make significant financial investments (Michelini, et al., 2017; Spring & Araujo, 2017). In particular, the Internet of Things (IoT) has lowered the barriers of engagement in circular business model innovation by using technology such as sensors, apps and integrated logistics to redefine the relationship between consumers, products and manufacturers (Spring & Araujo, 2017). Various circular business models are making use of the IoT, especially services as part of the sharing economy like car and bike-sharing (e.g. Bycyclen in Copenhagen,

CitiBike in New York, Mobike in China). Companies such as Lime, which advertises “Micromobility for all” offers electric scooters in congested urban environments and has essentially monetised transportation using phone apps linked to credit cards.

Designers are now involved in developing such service ideas around products which include a “network of actors who produce, deliver and manage the PSS [Product Service System]” (Ceschin & Gaziulusoy, 2016, p. 131). One well-known example of this innovative business model is Pay-per-Lux, where Phillips offers light as a service (ARUP, 2016). The way it works is that companies receive a state-of-the-art smart lighting system with no upfront investment. The customer then pays only for the light that is used. Phillips will update the light system when out of date and will retrieve the original system for secondary use elsewhere.

The automotive industry is also experimenting with innovative, circular business models. Electric car manufacturer Riversimple (https://www.riversimple.com/) is pioneering 'next-generation' electric vehicles by basing its company pricing on an expansive leasing model which includes insurance, repair and maintenance (Ceschin & Gaziulusoy, 2016). In these comprehensive leasing models, the consumer does not ‘own’ the vehicle; Riversimple pays for all the ancillary services motivating the company to design an electric vehicle with minimal energy usage requiring fewer repairs and thus increasing the car’s lifespan. This comprehensive leasing model is an alternative to manufacturers’ dependence on consumers purchasing new model vehicles. Many other well-known companies are trialling the ‘access economy’ or so-called ‘on-demand economy’. For example, IKEA has just announced plans to rent out furniture instead of selling its do-it-yourself flat box products (Pownall, 2019). Smaller businesses like Rype Office has moved beyond the trialling phase and offers three furniture options for customers for lease or purchase that include new, re-made or refreshed furniture with buy-back guarantees (Ellen MacArthur Foundation, 2017b; Rype Office Furniture, n.d.).

Designers are also creating more circular electronic products by creating a service based on user behaviour. Gerrad Street (https://gerrardst.nl/), a Dutch company, is combining a modular design with servitisation. Two alumni from Delft University in the Netherlands, started the company using the concept of servistising a modular design of headphones which they provide to customers on a subscription basis (Looijs, 2017). The business model theoretically creates a cheaper and more sustainable product. In this model, customers pay to use the headphones on a monthly or yearly basis, which entitles them to upgrades and repairs. “The design of their products is modular and no glue is used so they are easy to disassemble, repair or add new hardware” (Ellen MacArthur Foundation, 2017c). Gerrard Street leases its headphones for less than 10£ per month, which for many users is an attractive financial alternative to buying expensive headphones on the open market.

These examples of applying Circular Economy principles to product design clearly illustrate ideas of holistic innovation by creating mass consumer products as a service rather than an owned object with limited utility. Modular design with interchangeable parts that consumers can swap out creates a closed resource loop product system that maximises resources rather than limiting their use. Designers are now engaging in extending product lifetime through durable design and design for maintenance as well as increasing utilisation through sharing schemes or PSS.

Human-centred design for a Circular Economy: The critical role of design-led innovation

The manufacturing process is being re-defined by smart product design, which is one aspect of the Circular Economy. It is an example of design's innovative capacity. The Cox review commissioned in 2005 in the United Kingdom (UK) was the first to articulate clearly that Design is what links creativity and innovation in industry (HM Treasury, 2005). "Design has many different definitions, but at its heart, it is about the process of translating ideas into reality, making abstract thoughts tangible and concrete" (HM Treasury, 2005, p. 3). The International Council Societies of Industrial Design (ICSID) describes design as:

> "…a creative activity whose aim is to establish the multifaceted qualities of objects, processes, services and their systems in whole life cycles. Therefore, design is the central factor of innovative humanization of technologies and the crucial factor of cultural and economic exchange." (DRP, 2013)

The transformational role of design has not been lost on policymakers in many countries. Having identified design and designers as major influential contributors to economies (e.g. Design Council, 2011; DMI, 2015; DesignSingapore Council, 2009) has led to an increase in government-funded support for design-driven innovation programs in countries such as the UK, Denmark and Finland. Countries like Singapore went even further and developed a structured design culture through policy-driven design-led innovation to tackle innovation challenges and economic development. Government driven design support programmes have also powered regional innovation and introduced design-led research methods to non-designers, researchers, businesses and educators (Gulari, Melioranski, Er & Fremantle, 2017).

Design-led innovation: The nuts and bolts

At its heart, design-led innovation is a human-centred process which makes use of real-time research through user engagement, collaboration and co-creation. Design-led innovation is "generally considered whole systems approach providing the ability to combine empathy for the context of a problem, creativity in the generation of insights and solutions, and rationality to analyse and fit solutions to the context" (Alexander, 2013). The core principle of design-led innovation as a solutions-based system starts by investigating and tracking the end-users, their motivations and requirements. Designers spend time with users of products or services to gauge what they want and to discover unarticulated needs through observation, interviewing, video or photo-ethnography, and customer journey mapping. The findings and developed insights are shared with the stakeholders offering the product or service. The creative process of generating new ideas is done collaboratively by integrating various stakeholder perspectives and then prototyping and trialling ideas in an iterative process to come up with the most effective solutions. "Design-led innovation offers methods to drive required business model transformation and is recognized as one of the key enablers in the transition to a Circular Economy" (Fleischmann, 2019, p. 382).

A well-known application of design-led innovation is Design Thinking which has been globally adopted in the business world to drive radical innovation, create competitive advantage and change business culture and behaviour (Brown, 2009; Vianna, et al., 2014). Design Thinking and other design-led innovation methods can be applied at a strategic, service, product or on an organisational level by facilitating a design-driven culture to change the mindsets of employees and customers (Kilian, Sarrazin & Yeon, 2015; Matthews, Townsen & Wrigley, 2016). Designers offer an organic process that allows ideas to rapidly bubble up to the surface, be tested, and then moulded. In very important ways, design-led innovation is a catalyst for ideation between stakeholders along the value chain.

As Aminoff, Valkokari and Kettunen (2016) argue, the transition to a Circular Economy "cannot be achieved if individual organizations advance their own interest independently...[it] requires new value chain partners, or new roles of existing partners and a new kind of collaboration between the participating partners" (p. 629). Designers can help to approach problems from a human-centred perspective and design methods are being used to better understand customers through a collaborative process (Fraser, 2010; Storvang, Jensen, Christensen & Storgaard, 2013).

Examples of design-led innovation are starting to appear in the old economy, state-run businesses such as the postal service in Australia. Collaboration is at the heart of an Australia Post initiative that has identified the Circular Economy as a way to become a better corporate citizen and implement Circular Economy strategies. More importantly, Australia Post (2017) is recognising the role design plays in the process: "…you cannot be at arm's-length in the Circular Economy. It is a co-designed system based on synergies and building connections" (p. 4). Concretely, Australia Post cites its collaboration with Nespresso, the coffee capsule company and a recycling plant in Nowra, New South Wales, Australia to illustrate the re-use/recycling loop in the Circular Economy. Nespresso customers can order a pre-paid Australia Post satchel online or at a Nespresso store and mail up to 130 capsules to the recycling plant where the coffee grounds are composted and the aluminium capsules are made into other products – part of the 're-use' closed loop system advocated by the Circular Economy.

While Australia Post illustrates the technical loop of Circular Economy logistics, the EU is incorporating design-led innovation into the value chain of the Circular Economy by fostering multidisciplinary scientific collaboration – part of the biological loop. The EU has been at the forefront of making scientific advancements, particularly in chemistry, an integral part of 'upcycling' in the Circular Economy. Upcycling is a concept where used materials are converted into something of greater or equal value (LoopedWorks, 2015). Central to this effort is catalysis, a chemical process that has widespread industrial applications in reducing waste on a large scale. Examples of the use of 'green' catalytic processes in the Circular Economy context are plentiful in a laboratory setting but there has been little large-scale commercialisation of the processes that are reducing waste and creating new value. As discussed, the reasons for impediments to commercialisation have largely revolved around business scepticism. While the pathways to commercial success are not as straightforward as chemical conversions, the commercialisation phase of catalytic development is benefitting from design-led collaboration, ideation, prototyping and scalability which can map various approaches involving all stakeholders in the process.

A company already practicing design-led innovation as a path to large scale commercialisation and moving Circular Economy practices beyond the prototype stages is Bolt Threads (2019), a bio-design company in the U.S. The bioeconomy company unifies science with business and design when using biotechnology to develop and promote consumer goods. The company bases its consumer products on engineered yeast to produce a spider silk protein which is spun into yarn and marketed as fast fashion. Bolt Thread focuses "on the consumer in the messaging and design of its products" (Ginsberg & Chieza, 2019, p. 4) and is a good example of a start-up with the potential to scale up its production while having a reduced environmental footprint, a primary Circular Economy goal. Designers also help the company to overcome "a widespread public aversion to genetically modified organisms" (Ginsberg & Chieza, 2019, p. 4) through a design-led innovation process that brings science and business interests together. This unifying characteristic of the design process is clearly producing results in business innovation.

Helping stakeholders to move forward: Circular Economy toolkits

Understanding the Circular Economy and how to make it work within a business or governmental context presents formidable challenges. Bringing so many diverse groups together is being facilitated by Circular Economy 'toolkits' which designers use to help stakeholders map the processes involved in designing Circular Economy initiatives. Toolkits, like those offered by the Ellen MacArthur Foundation and the design consultancy IDEO, reveal the key steps needed to implement Circular Economy principles (Ellen MacArthur Foundation, 2015, 2017a; The Circular Design Guide, 2017). The Circular Economy toolkits are a relatively new way to address social and economic complexities using a process of interviewing, mapping, iterating solutions, and tools for recording results.

Toolkits have a variety of ways of translating the Circular Economy's new vocabulary into meaningful metrics and graphics that illuminate critical components of the Circular Economy closed loop value-chain of product design and service innovation. Toolkits also employ step-by-step methods for selecting stakeholders and increasing their participation in ideation. Some toolkits focus on generating data that helps companies decide on the most sustainable way to source raw materials by comparing 'circularity' of individual products as well as evaluating company-level circularity. Still, others suggest financial models encourage entrepreneurial Circular Economy start-ups (e.g. Evans, et al., 2013; Zero Waste, 2016).

There are currently various open-source Circular Economy toolkits available for companies and policymakers wanting to learn more about how to implement Circular Economy practices. However, there is limited research into the effectiveness of the design and use of these toolkits. Simonchick et al. (2015) highlight that "the choice of a specific toolkit (both visual representation tools and user-research techniques) is highly situation-dependent (e.g. level of access to customer's organization, level of initial insight, time limitations and the needed level of detail etc.)" (p. 8) hence selecting the appropriate toolkit can already influence the level of success. Reigado et al. (2017) explored the Circular Design Guide developed by Ellen MacArthur Foundation and IDEO as an alternative to improve the application of product-service-systems methodologies; the researchers reported the toolkit's strength lies in the process of understanding the problem context and stakeholder engagement, however, the Circular Design Guide lacks practical aspects such as identifying the competitors.

As more toolkits are offered to help implement the Circular Economy, a key question remains underexplored: How effective are the tools inside the toolkit when compared to standard business practices such as due diligence, benchmarking and market scans? It is difficult to measure design's innovation outcomes and quantify how a company's design culture contributes to innovation, including Circular Economy toolkits. Work needs to be done to analyse the effectiveness of these toolkits from a design-led innovation standpoint.

The citizen designer: Co-creating a sustainable future

Consumers are key stakeholders in achieving the Circular Economy vision. The role of the citizen designer was foreshadowed by Lipson and Kurman (2010) who wrote "we will witness a growing amount of consumer-led product development and modification across a wide range of industries that manufacture physical objects" (p. 55). Opportunities for user-customized products have increasingly emerged over the past decade. Shoe and sportswear manufacturers such as Converse, Nike, Adidas and Puma allow their customers to customize products through the use of online services. Customers can influence the final design of their shoes by selecting colours for the outsole, sole or laces and can further personalise their

product by adding a name or a flag (in case of Adidas). Some car manufacturers such as Toyota or VW leave the final stages of design to their customers through an online configuration tool. Customers can configure their car to their needs and unique tastes and ultimately can buy a more satisfying product. This kind of participation in the creation process has seen its latest manifestation in crowdsourcing innovations (Howe, 2006; Lipson & Kurman, 2010). Companies or organisations post creative briefs or challenges on the Internet seeking input or solutions from their customers, employees, partners or the wider community (Hammon, & Hippner, 2012; Libert, Spector & Tapscott, 2008; Maher, Paulini & Murty, 2010). This "open-source dialogue" invites the wisdom of crowds to "collective design" and the customer/citizen being able to influence the outcome and drive change (Duffy & Partners, 2008; Maher, Paulini & Murty, 2010).

Participatory design as a strategic business tool to develop better products, improve brand communication or services has been utilized in the business world for many years. It is best known for involving customers to participate in value-creating activities, such as user-testing products or prototypes to develop new or improved products. Crowdsourcing and co-creation are two newer participatory practices which give a voice to the user and wider public who can add valuable feedback to Circular Economy practices from a public angle. On a large scale, the City of Glasgow, for example, aims to globally crowdsource Circular Economy innovations and wants to implement the winning solutions that the online challenge generates (University of Strathclyde, 2019).

Co-creation, broadly defined as "any act of collective creativity, i.e. creativity that is shared by two or more people" (Sanders & Stappers, 2008, p. 6), differs from crowdsourcing as it allows the end-user or customer to become *actively* involved and an *equal partner* in the creation process (Bason, 2010; Sanders & Stappers, 2008). Therefore, the people who benefit from a service, product or process to be developed or improved are actively participating in the creation process and receive expert status in the creative team (Sanders & Stappers, 2008). Co-creation "is the difference between people creating a great idea for you and people working with you to make a good idea great" (Williams, 2013).

Co-creation has become increasingly popular in the social and public innovation sectors to address complex, global problems from a sustainable perspective (Bason, 2010; European Commission, 2013; Mahy & Zahedi, 2010). Co-creation is seen by many as a central factor of a Circular Economy (Leube & Walcher, 2017) because the "social value of co-creation is fuelled by aspirations for the longer term, humanistic, and more sustainable ways of living" (Sanders & Simons, 2009). Fablabs, for example, provide fruitful ground for shifting the responsibility of creation to the citizen or community groups (Fleischmann, Hielscher & Merritt, 2016). The community-based digital fabrication workshops are often run voluntarily and can generally be freely accessed by the wider public. Ideas and initiatives for change can therefore emerge from the bottom-up and can lead to grassroots innovations – thus being more aligned with the needs of the community (Chilvers & Longhurst, 2013; Seyfang & Smith, 2013). Fablabs can facilitate a creation process that is opposed to the usual top-down approach leading to what Hippel (2005) sees as democratizing innovation.

Although Fablabs have been criticised for non-sustainable practices (Brown, 2015; Fleischmann, Hielscher & Merritt, 2016) – as part of community-based production such as repair cafes and hacker and maker spaces – they are perceived as convergent with the Circular Economy (Ede, 2016). For example, The Great Recovery (2016) project which looked at the Circular Economy from a designer's perspective (2012-2016) used a Fablab to encourage re-use by fixing objects like a broken handle with 3D printing technology

instead of buying a new product. Here the community-based production challenges the planned obsolescence of products through the 'right to repair' credo. Fablabs are also seen as "hotspots for Arduino and sensor technology development, and circular thinking needs this to help unlock the data flows that accompany our products" (The Great Recovery, 2016, p. 29). The Fab City in Barcelona which is seen as "building bridges for circular networks of fabrication" (Sicar, 2018, p. 18) recently opened up a Fab Market to promote distributed manufacturing "where designers can fabricate for low cost and sell their open-source designs globally" (Ede, 2016, p. 10). This new way of production follows a paradigm of 'design global, manufacture local' which "means the 'light' things (bits, information, shared/open source design) travel, but the 'heavy' things (atoms, the physical, manufacturing) stay local" (Ede, 2016, p. 10).

Distributed manufacturing systems, such as Fab Labs, are one way to challenge the mass manufacturing system in a linear economy. These new disruptive business models shorten manufacturing supply chains and are based on low volume, on-demand and bespoke manufacturing. These disruptive models incorporate new modes of interactions via customer-led designs. One such company is Disrupt Sports (2018) which offers bespoke designed sports gear. Customers design their surfboard, skateboard or snowboard. The motto of Disrupt Sports is: "You design, we create, you shred". As a result, instead of producing hundreds of similar surfboards, that may or may not sell, Disrupt Sports produces on-demand, customized products aligned to customer's specifications which guarantee sales and at the same time saves resources instead of manufacturing solely based on marketing.

The democratisation of Design (Fleischmann, 2015), is an important agent in the transition to a Circular Economy. The rise of the prosumer (proactive consumer) and citizen designer is central to the collaborative design process in the Circular Economy. The democratisation of design gives people an agency in making the Circular Economy work. Critics of this process, however, fear "the blurring of the boundaries between amateur and professional design practice" (Massanari, 2012). Advocates see the advantages in co-creation or the user-centred design participation process and welcome the "'open-source' dialogue that invites the audience into the creative process" (Duffy & Partners, 2008). Tim Brown, CEO of IDEO has famously declared "Design is everywhere, inevitably everyone is a designer…" (Brown, 2014). Not everyone agrees; Treder (2015), for example, defines the citizen designer more concretely as a "design participant" – he argues, perhaps everyone is a designer… but not everyone should design.

Conclusion: Future trends

As a discipline, design is a catalyst for change. Designers have always used a flexible, iterative approach to problem-solving, which is an instrumental process in re-imagining the future. The Circular Economy posits a paradigm of a more sustainable world that saves natural resources using nature's ecosystems as a roadmap. The Circular Economy envisions a complete re-ordering of economic and social priorities designed to preserve the world's dwindling natural resources, increase product longevity, reduce waste and phase out the endless cycle of cheap consumer credit fuelling non-stop consumption. There are still formidable policy and economic obstacles blocking the path of this radical transition to a circular way of doing business. Designers and citizen designers as change agents can help remove those obstacles and accelerate the transition to a Circular Economy. However, it is often difficult to communicate the value of design to stakeholders because of intangible qualities such as facilitating collaboration and strategic planning (Bletcher, 2017). There is a lack of understanding about the expansive role designers can take in the transformation to the Circular Economy (Bletcher, 2017).

Tonkinwise (2015) argues that designers are futurists because they deal in fiction, speculation, provocation and discourse — all elements of successful design practices. It is these disruptive traits that allow designers to shape the way we live and how we act, fundamental to the changes the Circular Economy demands of its stakeholders. New Design disciplines, such as Transition Design, incorporate these futurist qualities demanded by the Circular Economy. As an emergent way of addressing large-scale problems, practitioners of Transition Design play a key role in re-framing global problems (Irwin, 2015). The social impact of large-scale changes, such as reducing reliance on fossil fuels for energy, is part of the transitional designers' toolkit. Irwin (2015) argues that Transitional Design is dynamic and by its very nature open-ended and speculative which results in a circular, iterative problem-solving approach.

Designers have taken on a variety of crucial roles which are demanded by the Circular Economy: product designers encourage collaboration and co-creation between experts and amateurs to re-define product life cycles and respond to end-user needs; transition designers are facilitators between key stakeholders; fiction designers re-imagine our future and its possibilities; designers marry technology with logistics; and graphic designers help the world visualise the way to a sustainable future by mapping relationships, information and data.

All these design roles use systems thinking that lies at the heart of the Circular Economy where current patterns of consumption and production are supplanted by sustainable business models such as servitisation and modular products that are leased instead of owned. Time in this leased world becomes a commodity while manufacturers can focus on sustainable product production. These transitions do not happen in a vacuum but require consumers to take ownership of changes with designers leading the discourse. In the Circular Economy, designers become co-creators in designing with the people. Designers adapt their roles to encompass citizen participation in the iterative process.

As Fleischmann (2015) predicted, "the democratisation of design will not go away but will allow more 'non-designers' to become involved in idea generation, development and production of products, services or processes" (p. 103). In the Circular Economy, non-designers are crucial to its large-scale adoption. Approaching social challenges and complex problems such as creating a sustainable future has seen the empowerment of the end-user, citizen or community group by engaging them in the problem-solving process. Designers can unify stakeholders, including the public, governmental agencies, and the business and scientific communities in a common vision that can realise the goals of the Circular Economy. Educators must also adopt a leading role in training the new generation of designers who will have the future tools, creativity and vision to construct the Circular Economy.

References

Adrodegari, F., Pashou, T., & Saccani, N. (2017). Business Model Innovation: Process and Tools for Service Transformation of Industrial Firms. Procedia CIRP, 64, 103-108.

Alexander, H. (2013). Is design-led thinking the secret weapon in today's Australian workplace? Retrieved from https://www.smartcompany.com.au/business-advice/innovation/is-design-led-thinking-the-secret-weapon-in-todays-australian-workplace/

Aminoff, A., Valkokari, K., & Kettunen, O. (2016). Mapping multidimensional value (s) for co-creation networks in a circular economy. Paper presented at the Working Conference on Virtual Enterprises.

ARUP. (2016). Circular Economy in the Built Environment. Retrieved from https://www.arup.com/publications/research/section/circular-economy-in-the-built-environment.

Australia Post. (2017). Transitioning to a Circular Economy: Insights from the frontline Retrieved from https://auspost.com.au/content/dam/auspost_corp/media/documents/circular-economy-white-paper.pdf

Bason, C. (2010). Leading Public Sector Innovation: Co-Creating for a Better Society. Bristol: Policy Press.

Blériot, J. (2020). The Covid-19 recovery requires a resilient circular economy. Medium. Retrieved from https://medium.com/circulatenews/the-covid-19-recovery-requires-a-resilient-circular-economy-e385a3690037

Bletcher, J. (2017). The Constellation: A framework for conceptualising design as a process of innovation. The Design Journal, 20(sup 1), S4552-S4564. doi:10.1080/14606925.2017.1352952.

Boer, F. P. (2005). Research is an investment, not an expense. Applied Catalysis A: General, 280, 3-15.

Bolt Thread. (2019). Way Better Materials for a Way better World. Retrieved from https://boltthreads.com/

Brown, T. (2014). IDEO CEO Tim Brown: 'Everyone Is A Designer'. The Huffington Post. Retrieved from https://www.huffingtonpost.com.au/2014/01/24/tim-brown-davos_n_4635681.html?ri18n=true

Brown, P. (2015). Circular Economy Innovation Project: Feasibility of reusing Waste Electrical and Electronic Equipment (WEEE) for 3D printing. Retrieved from https://www.ellenmacarthurfoundation.org/assets/downloads/schmidt/CEIP-formatted-Article-Final-Phil-Brown.pdf

Brown, T. (2009). Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation. New York: HarperCollins.

Ceschin, F., & Gaziulusoy, I. (2016). Evolution of design for sustainability: From product design to design for system innovations and transitions. Design Studies, 47, 118-163.

Chilvers, J., & Longhurst, N. (2013). Participation in transition(s): emergent engagement, politics and actor dynamics in low carbon energy transitions. Paper presented at the Ecological Economics and Institutional Dynamics: 10th International Conference of the European Society for Ecological Economics (ESEE), Lille, France. http://esee2013.sciencesconf.org/conference/esee2013/boa_en.pdf

Circle Economy. (2019). The Circularity Gap Report 2019. Retrieved from https://docs.wixstatic.com/ugd/ad6e59_ba1e4d16c64f44fa94fbd8708eae8e34.pdf

Coronado, D., Acosta, M., & Ferñandez, A. (2008). Attitudes to innovation in peripheral economic regions. Research Policy, 37, 1009–1021.

Cooper, T. (2006). The value of longevity: Product quality and sustainable consumption. Paper presented at the Sustainable Consumption and Production: Opportunities and Threats, Wuppertal, Germany. https://proyectaryproducir.com.ar/public_html/Seminarios_Posgrado/Material_de_referencia/cooper-Longer%20Lasting%20Products%20Chapter%201.pdf

Cole, R. (2017). Increased China 0.5 per cent contamination limit a ‘very challenging target’. Retrieved from https://resource.co/article/increased-china-05-cent-contamination-limit-very-challenging-target-12253

De los Rios, I. C., & Charnley, F. J. (2017). Skills and capabilities for a sustainable and circular economy: The changing role of design. Journal of Cleaner Production, 160, 110-122.

De Jesus, A., & Mendonça, S. (2018). Lost in Transition? Drivers and Barriers in the Eco-Innovation Road to the Circular Economy. Ecological Economics, 145, 75-89.

Denyer, S. (2019). Malaysia's Mahathir tells rich nations to take back their plastic garbage. Washington Post. Retrieved from https://www.washingtonpost.com/world/asia_pacific/malaysias-mahathir-tells-rich-nations-to-stop-dumping-their-plastic-on-poor-countries/2019/05/30/29b99a32-82b5-11e9-95a9-e2c830afe24f_story.html?utm_term=.c57884a146bd

Design Council. (2011). Design for Innovation: Facts, figures and practical plans for growth. Retrieved from https://www.designcouncil.org.uk/sites/default/files/asset/document/DesignForInnovation_Dec2011.pdf

DesignSingapore Council. (2009). Dsg-II: Strategic Blueprint of the DesignSingapore Initiative, 2009 > 2015. Retrieved from https://issuu.com/micasingapore/docs/blueprint_of_the_designsingapore_initiative

DMI. (2015). Design Value Index Results and Commentary. Design Management Institute. Retrieved from https://www.dmi.org/page/2015DVIandOTW/2015-dmiDesign-Value-Index-Results-and-Commentary.htm

Disruptive Sports (2018), https://www.disruptsports.com/

DRP. (2013). Design Research Portal – Official Definition of Design. Retrieved from https://designresearchportal.wordpress.com/2013/11/05/icsids-definition-of-design/

Duffy & Partners. (2008). Why the Democratization of Design is a Good Thing -- Really. AdWeek. Retrieved from http://www.duffypov.com/duffy-article/1505/why-the-democratization-of-design-is-a-good-thing-really

Ede, S. (2016). The Real Circular Economy. Retrieved from http://postgrowth.org/wp-content/uploads/2016/12/The-Real-Circular-Economy-Sharon-Ede-December-2016.pdf

Ellen MacArthur Foundation. (2013). Towards a Circular Economy: Economic and Business Rational for an Accelerated Transition. Retrieved from https://www.ellenmacarthurfoundation.org/assets/downloads/TCE_Ellen-MacArthur-Foundation_9-Dec-2015.pdf

Ellen MacArthur Foundation. (2015). Delivering the Circular Economy: A Toolkit for Policymakers. Retrieved from https://www.ellenmacarthurfoundation.org/assets/downloads/publications/EllenMacArthurFoundation_PolicymakerToolkit.pdf

Ellen MacArthur Foundation. (2017a). New Circular Design Guide launched by the Ellen MacArthur Foundation and IDEO at Davos. Retrieved from https://www.ellenmacarthurfoundation.org/news/new-circular-design-guide-launched

Ellen MacArthur Foundation (2017b). Circular economy options in once furnishing. Retrieved from https://www.ellenmacarthurfoundation.org/case-studies/circular-economy-options-in-office-furnishing

Ellen MacArthur Foundation (2017c). Gerrard Street: A more circular music experience. Retrieved from https://www.ellenmacarthurfoundation.org/case-studies/modular-design-and-a-new-business-model-create-a-circular-music-experience

European Commission. (2013). Guide to Social Innovation. Retrieved from http://s3platform.jrc.ec.europa.eu/documents/10157/47822/Guide%20to%20Social%20Innovation.pdf

European Environment Agency. (2017). Circular by design: Products in the circular economy. Retrieved from https://www.eea.europa.eu/publications/circular-by-design

Evans, J., Bocken, D., & University of Cambridge & Institute for Manufacturing. (2013). Circular Economy Toolkit – Resources for an Evolving World. Retrieved from www.CircularEconomyToolkit.com

Fleischmann, K. (2015). Democratisation Of Design And Design Learning - How Do We Educate The Next-Generation Designer. International Journal of Arts & Sciences, 8(6), 101–108. Retrieved from http://www.universitypublications.net/ijas/0806/pdf/B5R188.pdf

Fleischmann, K. (2019). Design-led Innovation and Circular Economy Practices in Regional Queensland. Local Economy, 34(4), 382–402. doi:10.1177/0269094219854679.

Fleischmann, K., Hielscher, S., & Merritt, T. (2016). Making things in Fab Labs: a case study on sustainability and co-creation. Digital Creativity, 27(2), 113-131. doi:10.1080/14626268.2015.1135809.

Fraser, H. M. A. (2010). Chapter 4: Designing Business: New Models for Success. In T. Lockwood (Ed.), Design Thinking: integrating innovation, customer experience and brand value (pp. 35-46). New York: Allworth Press.

Gardien, P., & Gilsing, F. (2013). Walking the Walk: Putting Design at the Heart of Business. Design Management Review, 24(2), 54-66. doi:10.1111/drev.10242.

Ginsberg, A. D., & Chieza, N. (2019). Editorial: Other Biological Futures. Journal of Design and Science, 4. Retrieved from https://jods.mitpress.mit.edu/pub/issue4-ginsberg-chieza

Gulari, M. N., Melioranski, R.-H., Er, O., & Fremantle, C. (2017). THE FUTURE OF DESIGN SUPPORT: What Can We Learn From Design Support Experience in the UK, Estonia and Turkey? Paper presented at the Design for Next, 12th EAD Conference, Sapienza University of Rome.

Haigh, L., & Bäunker, L. (2020). Covid-19 and the circular economy: opportunities and reflections. Medium. Retrieved from https://medium.com/circleeconomy/covid-19-and-the-circular-economy-opportunities-and-reflections-7c2a7db70900

Hammon, L., & Hippner, H. (2012). Crowdsourcing. Business & Information Systems Engineering(3), 163-166. doi:10.1007/s12599-012-0215-7.

Hernández, R. J., Cooper, R., Tether, B., & Murphy, E. (2018). Design, the Language of Innovation: A Review of the Design Studies Literature. she ji - The Journal of Design, Economics, and Innovation, 4(3), 249-273.

Hippel, E. v. (2005). Democratizing Innovation: MIT Press.

HM Treasury (2005). Cox Review of Creativity in Business: building on the UK's strengths, 2005. Retrieved from www.hm-treasury.gov.uk/cox

Howe, J. (2006). The Rise of Crowdsourcing. WIRED, June, 2006. Retrieved from http://www.wired.com/wired/archive/14.06/crowds.html.

Irwin, T. (2015). Transition Design: A Proposal for a New Area of Design Practice, Study, and Research. Design and Culture, 7(2), 229-246. doi:10.1080/17547075.2015.1051829.

IMSA Amsterdam. (2013). Unleashing the Power of the Circular Economy. Retrieved from https://mvonederland.nl/system/files/media/unleashing_the_power_of_the_circular_economy-circle_economy.pdf

Joore, P., & Brezet, H. (2015). A Multilevel Design Model: the mutual relationship between product-service system development and societal change processes. Journal of Cleaner Production, 97, 92-105.

Kilian, J., Sarrazin, H., & Yeon, H. (2015). Building a design-driven culture. Retrieved from https://www.mckinsey.com/business-functions/marketing-and-sales/our-insights/building-a-design-driven-culture

Kirchherr, J., Piscicelli, L., Bour, R., Kostense-Smit, E., Muller, J., Huibrechtse-Truijens, A., & Hekkert, M. (2018). Barriers to the Circular Economy: Evidence From the European Union (EU). Ecological Economics, 150, 264–272. doi:10.1016/j.ecolecon.2018.04.028

Leube, M., & Walcher, D. (2017). Designing for the next (Circular) Economy. An appeal to renew the Curricula of Design Schools. The Design Journal, 20(sup 1), S492-S501.

Lewandowski, M. (2016). Designing the business models for circular economy—Towards the conceptual framework. Sustainability, 8(43), 1-28. doi: 10.3390/su8010043

Libert, B., Spector, J., & Tapscott, D. (2008). We Are Smarter Than Me: How to Unleash the Power of Crowds in Your Business. Upper Saddle River, New Jersey Pearson Education, Inc.

Lipson, H., & Kurman, M. (2010). Factory @ Home: The Emerging Economy of Personal Fabrication. Retrieved from http://issuu.com/gfbertini/docs/factory_home_-_the_emerging_economy_of_personal_ma

Looijse, K. (2017). Headphones as a service. (Master). Delft University of Technology. Retrieved from https://repository.tudelft.nl/islandora/object/uuid%3A591c9491-fdbc-40e3-9b99-a69ff488682c

LoopedWorks. (2015). Upcycling, downcycling and recycling explained. LoopedWorks. Retrieved from https://www.looptworks.com/blogs/looptworks-blog/34391171-upcycling-downcycling-and-recycling-explained

Maher, M. L., Paulini, M., & Murty, P. (2010). Scaling up: From Individual Design to Collaborative Design to Collective Design. Paper presented at the 4th international conference on design computing and cognition (DCC), , 12–14 July 2010, Stuttgart, Germany.

Mahy, I., & Zahedi, M. (2010, 7-9 July). When artists and designers inspire collective intelligence practices: Two case studies of collaboration, interdisciplinarity, and innovation projects. Paper presented at the DRS2010: Design and Complexity, Montreal, Canada.

Massanari, A. (2012). DIY design: How crowdsourcing sites are challenging traditional design practice. First Monday, 17(10). Retrieved from http://firstmonday.org/ojs/index.php/fm/article/view/4171/3331.

Matthews, J., Townsen, P., & Wrigley, C. (2016). Changing Mindsets through Design-Led Innovation: An example of Entrepreneurial Learning? Paper presented at the Academy of Management Annual Meeting Proceedings. https://blogs.qut.edu.au/australian-centre-for-entrepreneurship/files/2015/12/015-Judy-Matthews-354332821491646263-paper.pdf

Mead, L. (2018). Sitra Report Highlights Circular Economy as Critical to Achieving Paris Agreement Goals. Retrieved from http://sdg.iisd.org/news/sitra-report-highlights-circular-economy-as-critical-to-achieving-paris-agreement-goals/

Mestre, A., & Cooper, T. (2017). Circular Product Design. A Multiple Loops Life Cycle Design Approach for the Circular Economy. The Design Journal, 20(1), S1620-S1635. doi:10.1080/14606925.2017.1352686

Michelini, G., Moraes, R. N., Cunha, R. N., Costa, J. M. H., & Ometto, A. R. (2017). From linear to circular economy: PSS conducting the transition. Paper presented at the The 9th CIRP IPSS Conference: Circular Perspectives on Product/Service-Systems.

Parker, L. (2018). China's ban on trash imports shifts waste crisis to Southeast Asia. National Geographic. Retrieved from https://www.nationalgeographic.com/environment/2018/11/china-ban-plastic-trash-imports-shifts-waste-crisis-southeast-asia-malaysia/

Prendeville, S., & Bocken, N. (2017). Sustainable Business Models through Service Design. Paper presented at the 14th Global Conference on Sustainable Manufacturing, Stellenbosch, South Africa.

Pownall, A. (2019). IKEA to begin renting furniture as part of wider sustainable push. DeZeen. Retrieved from https://www.dezeen.com/2019/02/20/ikea-rental-furniture-circular-economy-design/

R2π. (2018). Enablers and Barriers to a Circular Economy: Stakeholder Views Report. Retrieved from http://www.r2piproject.eu/wp-content/uploads/2018/08/R2pi-stakeholders-report-sept-2018.pdf

Reigado, C. R., da Costa Fernandes, S., Saavedra, Y. M. B., Ometto, A. R., & da Costa, J. M. H. (2017). A Circular Economy Toolkit as an Alternative to Improve the Application of PSS Methodologies. Procedia CIRP, 64, 37-42.

Ritzéna, S., & Sandström, G. Ö. (2017). Barriers to the Circular Economy – integration of perspectives and domains. Paper presented at the 9th CIRP IPSS Conference: Circular Perspectives on Product/Service-Systems, Copenhagen.

Robinson, S. (2017). Social Circular Economy – opportunities for people, planet and profit. Retrieved from https://www.socialcirculareconomy.com/publications.html

Rype Office Furniture, https://www.rypeoffice.com/

Sanders, E. B.-N., & Stappers, P. J. (2008). Co-creation and the new landscapes of design. CoDesign: International Journal of CoCreation in Design and the Arts, 4(1), 5-18. doi:10.1080/15710880701875068

Sanders, L., & Simons, G. (2009). A Social Vision for Value Co-creation in Design. Technology Innovation Management (TIM) Review, (December). Retrieved from http://timreview.ca/article/310

Saylor Academy. (2012). Sustainability, Innovation, and Entrepreneurship, Chapter 2: Defining Sustainability Innovation. Retrieved from https://saylordotorg.github.io/text_sustainability-innovation-and-entrepreneurship/index.html

SDG. (2015). Transforming our world: the 2030 Agenda for Sustainable Development. Retrieved from https://sustainabledevelopment.un.org/post2015/transformingourworld

Seyfang, G., & Smith, A. (2013). Grassroots innovations for sustainable development: Towards a new research and policy agenda. Environmental Politics, 584-603.

Simonchik, A., Iriarte, I., Hoveskog, M., Halila, F., & Justel, D. (2015). Bridging service design tools and business model innovation (BMI) for servitization in B2B context. Paper presented at the The Spring Servitization Conference (SSC 2015), Servitization: the theory and impact, 18–19 May 2015, Aston Business School, Aston University, UK.

Sicar, S. (2018). Fab CITY: The Mass Distribution of (Almost) Everything (T. Diez Ed.). ISSUU.

Souleles, N. (2017). Design for social change and design education: Social challenges versus teacher-centred pedagogies. The Design Journal, 20, S927-S936. doi:10.1080/14606925.2017.1353037

Spring, M., & Araujo, L. (2017). Product biographies in servitization and the circular economy. Industrial Marketing Management, 60, 126-137.

Storvang, P., Jensen, S., Christensen, P., & Storgaard, M. (2013). Facilitating Innovation through Design in a Danish Context - a framework for design capacity. Paper presented at the 2nd Cambridge Academic Design Management Conference, Cambridge, England.

The Circular Design Guide. (2017). Ellen MacArthur Foundation and IDEO. Retrieved from http://circulardesignguide.com/

The Great Recovery. (2016). Designing for a circular economy: lessons from the Great Recovery (2012-2016). Retrieved from https://www.thersa.org/globalassets/pdfs/reports/the-great-recovery---designing-for-a-circular-economy.pdf

Teso, G., & Walters, A. (2016). Assessing Manufacturing SMEs' Readiness to Implement Service Design. Procedia CIRP, 47, 90-95.

Tonkinwise, C. (2015). Just Design: Being Dogmatic about Defining Speculative Critical Design Future Fiction. Medium: Visual Design. Retrieved from https://medium.com/@camerontw/just-design-b1f97cb3996f

Treder, M. (2015). Why everyone is a designer… but shouldn't design. TNW (The Next Web). Retrieved from https://thenextweb.com/dd/2015/07/28/why-everyone-is-a-designer-but-shouldnt-design/.

UN Environment International Resource Panel. (2019). Global Resource Outlook 2019. Retrieved from https://wedocs.unep.org/bitstream/handle/20.500.11822/27518/GRO_2019_SPM_EN.pdf?sequence=1&isAllowed=y

United Nations. (2015). What is the Paris Agreement? Retrieved from https://unfccc.int/process-and-meetings/the-paris-agreement/what-is-the-paris-agreement

University of Strathclyde. (2019). The City of Glasgow aims to crowdsource circular economy innovations. Institute for Future Cities. Retrieved from http://ifuturecities.com/the-city-of-glasgow-aims-to-crowdsource-circular-economy-innovations/

Van Eijk, F. (2015). Barriers & Drivers towards a Circular Economy. Retrieved from https://www.circulairondernemen.nl/uploads/e00e8643951aef8adde612123e824493.pdf

Van Nes, N., & Cramer, J. (2005). Influencing product lifetime through product design. Business Strategy and the Environment, Special Issue: Sustainability and Design, 14(5), 286-299. doi:https://doi.org/10.1002/bse.491

Vianna, M., Vianna, Y., Adler, I. K., Lucena, B., & Russo, B. (2014). Design Thinking - Business Innovation: MJV Press.

Wastling, T., Charnley, F., & Moreno, M. (2018). Design for Circular Behaviour: Considering Users in a Circular Economy. Sustainability, 10, 1-22. doi:10.3390/su10061743.

Williams, J. (2013). 'Co-creation' is the New Crowdsourcing. The Best Awards 2013. Retrieved from http://www.theguardian.com/best-awards/co-creation-is-the-new-crowdsourcing

Zero Waste. (2016). Circular Economy Business Toolkit. Retrieved from http://www.nzwc.ca/focus/circular-economy/toolkit/Pages/default.aspx

International Journal of Design for Social Change, Sustainable Innovation and Entrepreneurship

discern

https://www.designforsocialchange.org/journal/index.php/DISCERN-J

ISSN 2184-6995

Reviewer Acknowledgements for Discern: International Journal of Design for Social Change, Sustainable Innovation and Entrepreneurship, Vol. 1, No. 1

Discern wishes to acknowledge the following individuals for their assistance with peer review of manuscripts for this issue. Their contribution towards the quality of the journal is greatly appreciated.

Violeta Clemente, *University of Aveiro, Portugal*

Dhriti Dhaundiyal, *Doon University, India*

Katja Fleischmann, *Griffith University, Australia*

Alastair Fuad-Luke, *Free University of Bozen-Bolzano, Italy*

Andrew Laghos, *Cyprus University of Technology, Cyprus*

Carlos Andres Ortega, *Universidad del Valle, Colombia*

Claire Pillar, *Cyprus University of Technology, Cyprus*

Fenja Ellen Sepers, *Studio Abound, Holland*

Aakanksha Sinha, *Seattle University, United States*