

Co-design Management Framework for Community Empowerment through Local Government - Design School Collaboration

Derya Irkdas Dogu, Onur Mengi, Deniz Deniz and Ozgul Kilincarslan
Izmir University of Economics, Turkey

derya.irkdas@ieu.edu.tr

onur.mengi@ieu.edu.tr

deniz.deniz@ieu.edu.tr

ozgul.kilincarslan@ieu.edu.tr

DOI: 10.34190/EKM.21.016

Abstract: The notion of empowerment in the context of co-design is vastly studied in community architecture, community design, participatory planning, social innovation, and knowledge management. Despite the growing literature on co-design in various disciplines, there is a need for a comprehensive approach to co-design that explores different meanings and manifestations of communities that are under the influence of continuous change and transformation in urban areas. Our aim is to investigate (1) how the co-design process could be enhanced to foster community empowerment and (2) which design methods and tools could be explored to align with the paradigm shift towards a new model of co-design that aims to include biodesign, which sees nature as a co-creator and co-designer. This study proposes a new framework of community empowerment for a [re]-defined co-design management framework as an outcome of the collaboration between the local government and planning agencies and the Design School of Izmir University of Economics, Turkey. Methodological framework - derived from the Double Diamond diagram developed by the Design Council, illustrates a co-design system to integrate various actors; stakeholders (designers, local authorities, academics), community representatives (users, NGOs and civil initiatives, independent designers and artists). The findings address the opportunities to grasp the potential of co-design and generate new collaborations among actors including living organisms. This enables us to reconsider how co-design, as a knowledge management tool, can be utilized for empowering communities in urban areas, and to examine how it can be reframed for more livable urban environments. Through the construction of our framework, one of the crucial outcomes addresses the co-evolution that challenges the human-centered design paradigm and evolves it towards co-designing with living systems. Thus, the final framework becomes multi-scalar and multi-directional, and requires constant vertical and horizontal movement between, and within, various micro-, meso-, and macro-levels of knowledge interactions.

Keywords: Co-design, management framework, community empowerment, living systems

1. Introduction

Since the 1970s, the term empowerment has been studied within the context of social work (Solomon 1976) and community psychology from which it can be broadly defined as “the mechanism by which people, organizations, and communities gain mastery over their lives” (Rappaport, 1987). This operates by developing both critical awareness and knowledge about their situation, and by utilising skills and capacities to participate and shape their own environment (Zamenopoulos and Alexiou, 2018). The notion of empowerment in the context of co-design is explored in community architecture (Sanoff, 2007), community design (Bødker, 1996), planning (Friedmann, 1992), social innovation (Manzini, 2015) and participatory design. As the literature suggests, more explicit interpretations of empowerment within specific contexts (Sadan, 1997) and some distinctions about empowerment during and after design (Storni, 2014), criticise the very notion of empowerment (Correia and Yusop, 2008) that may refer to inclusiveness, but also to conflicts and competition (Scrivener, 2005). In some cases, urban redevelopment brings about dramatic sociocultural, economic and environmental changes that may result in the loss of community engagement and sense of belonging (Loures et al, 2016). This requires a reconsideration of co-design to build capacity by ‘empowering people’ (Muratovski, 2016). Co-design creates opportunities for communities to contribute with their social and cultural knowledge in the design process, providing information to designers about their local context, cultural habits, and taboos (Cumbula et al, 2013).

Co-design with communities delivers social learning that can be seen as a process of knowledge exchange between a local community and the design team. This process is also relevant to the collaborative nature of the co-design process (Sanders and Stappers, 2008) where knowledge management for sharing and exchange is essential. A similar approach can be seen in the knowledge management model of Mattelmäki and Sleeswijk Visser (2011) who also generates a collaborative process where users and other stakeholders are involved with several different types of benefits that have been found in a co-design process. Therefore, there is a need for a

systematic co-design approach, which explores different meanings and manifestations of the empowerment of communities that are under the influence of continuous change and transformation in urban areas.

This paper introduces a unique framework for community empowerment exploring the co-design processes to enhance citizen engagement as well as to include nature as an actor. The methodology exploits ecological and network-based considerations through non-specialist actors and enables collaboration and participation opportunities for all. The findings present a new co-design model with living-systems and the implementation of this framework.

The structure of this paper builds on three major sections; investigating the role of co-design in community empowerment to explore dimensions of co-design from planning to community development perspective, exploring the co-design practices in collaborative approaches through recently emerged, nature oriented projects in the city of Izmir-Turkey, (re)framing the co-design processes for community empowerment through the engagement of community and living systems as major stakeholders.

2. The Role of Co-design in Community Empowerment

The co-design process can be described as participatory design where different stakeholders and users both have considerable contribution, control, and involvement to the process. Our approach to co-design for community empowerment is associated with the studies that focus on the balance of contribution, control, and involvement. Cottam and Leadbeater (2004) extends this balance to, (1) the system and users' needs, (2) unique benefits and better value for users, (3) improvement of mutual learning and understanding, (4) combination and integration of different people's ideas, (5) enhancement of communication and collaboration between people.

It is also crucial that social circumstances, habits and attitudes are integrated into values and preferences that produce a better match for community needs, which in turn improves community's perceptions of co-design.

2.1 Planning, Public Policy and Co-design

Spaces and places of co-creation have also been found to have an effect on their socio-spatial environment as "vehicles for creativity in urban planning processes" (Scholl and Kamp, 2016, p. 89) as well as for appropriate public policies. For the planning practice, co-creation (or participation in his terms) and empowerment has become goals to be achieved rather than strategies to be used in public policies (Friedmann, 1993). Co-design started to be considered as "an updated term of participatory design" due to its key principle of involving all stakeholders in the design process (Steinmueller, 2001). It evolves into "the creativity of designers and people not trained in design working together in the design development" (Sanders and Stappers 2008, p.6) and emerges through a "realm of collaboration which both the professional designers and the other participants need to enter together" (Lee, 2008, p.33). Urban and regional planning, public policy, architecture, and different scales of design professions vastly utilizes participation in (design)thinking processes. Given the variety of implementation areas, there is a need to develop a better understanding of co-design, as well as suitable methodologies for studying the dynamics of its elements in practice (Puerari et al, 2018). From the public policy perspective, co-design interventions are defined as an approach to planning that shifts the development of urban spaces from the realm of urban planners to a collaborative domain between practitioners and users. In a planning sense, co-design brings together the various stakeholders involved in the design of an urban environment through a collaborative way of imagining and prototyping the space's potential use. It becomes an approach to urban planning that stresses the participation of actors in development of new spatial and social environments. As a policymaking approach, co-design is described as a design-led process involving innovative and participatory concepts and tools to involve various types of people and knowledge in public problem solving (Blomkamp, 2018). Embedding design in local governments entails not only upskilling policymakers in designerly processes, but also incorporating other disciplinary expertise and actors into the design process, which would necessitate knowledge exchange and knowledge transfer to allow for community to engage. Co-design allows communities to add their social and cultural experience to the design process by providing designers with knowledge about their local environment.

2.2 Community and Codesign

The emergence of co-design is mostly correlated to design approaches including user-centered design and participatory design. User-centered design was defined in the 70s as a new and promising approach and characterized by the translation of user knowledge into principles of design. The main principles are that designers and decision makers should understand the needs of the users to build trust for increasing efficiency

of design outcomes through participation (Nisbett and Wilson, 1977). Moreover, according to Ehn (1993) the user-centered design approach basically considered users who provide expertise to formulate and conceptualize ideas. The particular approach was also described as a set of methodologies and an attitude towards accepting that people have different perceptions of the design process which are provided with appropriate tools to explain them. Thus, participatory design includes theories as well as practices that emphasize the role of the end-users as full participants in the design process (Sanders, 2005).

For the concern of this paper, the term 'co-design' is derived from user-centered design which is also closely associated with participatory design. These two approaches are marked the way co-design came to be defined and understood which can be considered "an updated term of participatory design", as it shares its key principle of involving all stakeholders in the design process in order to ensure that the end-product meets user needs, and has a high rate of adoption (Steinmueller, 2001). Co-design refers to the creation of a common vision, social learning and mutual understanding among all actors and stakeholders, that all those involved in the design process who have different points of views and expectations (Fien et al, 2007). In this respect, the field of social design defines co-design as a method to do something and influence the design and implementation processes. It is important to identify the relation between the co-design process and sustainability. It has been argued that the co-design process can be instrumental for boosting the potential for sustainability in communities' involvement in design contributes to project ownership where community's social capital, values and needs to be accounted for as a crucial factor for sustainability.

Furthermore, the term 'empowerment' has been widely used in co-design contexts as diverse as community architecture (Sanoff, 2010), community planning (Friedmann, 1992), social innovation (Manzini, 2015) and participatory design (Bødker, 1996) where Toker (2007) also points out that the notion of empowerment is used as a key concept to define the aim of public participation in community design.

2.3 Empowerment and Co-design

Empowerment has been defined as 'the mechanism by which people, organizations, and communities gain mastery over their lives' (Rappaport, 1987, p.122). Regarding, empowerment takes place at multiple levels (Zimmerman 2000; Sadan 1997) at a personal level of an individual empowerment), at a socio-political level of a group's life (community empowerment), but also in certain cases at a professional level of human and non-human structures that instigate an empowerment process (professional empowerment). On the other hand, co-design can also be defined "as a key concept to define the aims of participation in community design" (Torek, 2007). Furthermore, co-design is reconsidered as an empowerment process and useful insights are introduced for design researchers undertaking co-design projects with non-experts (Zamenopoulos et al, 2019). For the scope of our paper, looking into a 'complex transformative process' of empowerment enables us to consider different capacities of co-design: "1) to bring to the fore one's own issues and practices and influence the design task (power over), 2) to make sense of one's own matters of concern, frame design problems and develop design solutions (power to), 3) to connect and act in concert with others to pursue a set of objectives (power with), and 4) to unlock and transform one's own knowledge and resources to carry out design tasks (power within)" (Zamenopoulos et al, 2019; p.6). These capacities enable us to reconsider our co-design approach beyond humans, to designing for/with/within nature.

2.4 Living Systems and Codesign

Emerging design practice is adopting from a technical-object ethos towards an organic-systems ethos (Dubberly 2008, Evenson et al, 2010) where the role of the designer is moving from detached expert to collaborator.

Understanding the changes in the design field from a form-giving activity to creating systems and services to support human interactions (Buchanan 2001, Sanders and Stappers, 2008), to designing with living-systems becomes relevant to facilitate a new co-design framework that utilizes methods of biodesign. From a co-design perspective, service experiences are co-constructed and designing flexible systems requires co-evolution where two objects sense and respond in relation, and act according to each other. Our approach to co-design with living-systems appropriates co-evolution by enabling users to create and edit their environment while encouraging knowledge-exchange and engagement.

3. Rethinking Co-design through a Management Framework: a new proposal for community empowerment

3.1 Methodology: Local Government - Design School Collaboration

When cities are considered as natural, living and evolving structures, the most important factor that makes up this structure is the existence of a system that regulates nature and ensures its formation, continuity and transformation. When this integrity formed by man-made (artificial) and nature-made (natural) infrastructures in cities is considered as an ecosystem, the question of how this system works is important in terms of how we approach the whole. Local Government - Design School collaboration proposes an ecosystem that brings together artificial and natural infrastructures in a wider framework, using co-design methods in cooperation with nature, to empower communities while creating ecological awareness. Local Government - Design School Collaboration was initiated by the local government and Izmir University of Economics, to rethink the co-design process for community empowerment in Izmir. Since 2019, both parties are conducting activities to make contact with the potential actors to create, prototype and test ideas. Thus, our method offers a great opportunity to get in contact with a huge variety of different stakeholders, ordinary citizens as by-passers and municipality staff. The stages of this collaboration enable us to use design methods and tools to explore the shift from engaging people to empowering community and involving nature.

3.2 The case of Izmir

From the concept of 'high quality growth', especially after the recent global financial crisis, local governments in many cities are organizing around public policies that transform the structure of production so as to increase regional welfare. Public policies that increase social welfare are built around environmental sustainability and new industrialization policies that enhance the circular economy. The creative industries provide indirect contributions to the growth of the economy through knowledge, product and network partnerships, as well as contribute to the creative capacity of the region in which they operate. High quality growth objectives of cities are determined in line with the public policies emphasized in UNIDO (2020), OECD (2019) and EU (2020) publications on new industrialization policy, covering the concepts of environmental sustainability, circular economy, and the improvement of public services with a participatory logic.

According to the Report on Analysis of Creative Industries in Turkey (2021), creating regional and national culture management policies, providing supports for to access finance and management and conducting planning and infrastructure works aimed at establishing creative centers are among the duties and responsibilities of macro level of actors such as municipality, chamber of commerce, regional chamber of industry. The below table (Table 1) reviews the recently emerged, nature oriented projects by non-governmental organizations in İzmir between 2000-2021 in terms of the use of co-design practices and knowledge share. Projects are also classified regarding how nature is involved:

Table 1: Recently emerged, nature oriented projects by non-governmental organizations in İzmir (micro level actors)

Creative Initiative	Project	Web page	Co-design	Knowledge Sharing	Nature Empowerment
İzmir Biyoatlas	Biodiversity Dijital Atlas of İzmir Province	https://www.izmirbiyoatlas.org/?AspxAutoDetectCookieSupport=1	-	X	for Nature
Ruritage	Heritage for Rural Regeneration	https://www.ruritage.eu/tag/izmir/	-	X	for Nature
BITOT	West Izmir Community Supported Agriculture	https://www.bitot.org	-	X	for Nature
Doğa Okulu	Living Building	https://dogaaskina.org/hikaye/	X	X	with Nature
Kemeraltı KomBost	Community Garden	http://kemeraltikombost.com/tr	X	X	with Nature

The increase in the number of projects conducted with the partnership of at least two actors at micro, medium and macro levels bring along the expansion of the creative ecosystem in İzmir. Micro-level actors identified as creative initiatives, communities, networking activities, creative centers and non-governmental organizations account for the core of İzmir's Creative Industries Ecosystem.

Although there are several ongoing projects in İzmir with a focus on knowledge sharing, the projects taking nature into account are relatively smaller in number and even less concerned with a co-design perspective.

3.3 Need for a New Approach

Co-creation and/or collaboration are approaches that are increasing among industrial practice and in university-government collaborative exercise, the two approaches are influencing each other in ways that promote acts of collective creativity. However, there are different views about the role and level of involvement of the actors of this collective creativity in the design process. According to Sanders and Stappers (2008), any act of collective creativity shared between people is co-creation. The phases of a design process can be broken down to four phases as: pre-design, generative, evaluative and post-design (Sanders and Stappers, 2014). When these phases are overlapped with design research methods; tools, probes and generative toolkits, these are usually seen in the pre-design and generative phases. This revised version of the design process developed by Sanders and Stappers (2014) introduces two mindsets: designing for and designing with, which correspond to the user as subject and as shareholder. In our methodological approach, we intend to represent how co-design practices are being applied in terms of; design stages that were used, actors that were involved, methods that were applied and the final outcomes that were achieved creating new kinds of localized solutions with a stronger emphasis on community empowerment and a focus on nature. Although every output represents a greater complexity to be read, community empowerment and nature remains central.

3.4 A New Co-design Framework

Our methodological framework (Figure 1) originates from the Double Diamond diagram (Design Council, 2004). We intend to develop a co-design framework to integrate various actors; stakeholders (designers, local authorities, academics), community representatives (users, NGOs and civil initiatives, independent designers and artists); and living-systems. This new model presents a multi-scalar and multi-directional structure as it requires constant vertical and horizontal movement between, and within, various micro-, meso-, and macro-levels of knowledge interactions. Thus, there is an opportunity to grasp the potential of co-design and generate new collaborations among actors.

The framework aims to collect user-specific design data and create awareness between the user and nature. It also aims to provide environments where users can communicate with their environment and reconstruct their own daily routines and physical experiences. In other words, it aims to create a new way of interaction that enables people to actively interact with their surroundings and to change space consciousness with the help of new spatial solutions. In addition, it includes solutions and practices that will strengthen public memory by improving public dialogue.

Double Diamond diagram presents four stages for divergent and convergent thinking. First two stages -discover and define- focuses on understanding, rather than assuming, the problem with the involvement of both stakeholders and community. The challenge here is the designer's ability to understand the user's generative problems which may differ from technical to cultural challenges. The designer's role is then identified to develop products that are consciously integrated with the knowledge gathered from appropriate research methods.

The kick off to the first stage started as a series of co-design sessions with the municipality and university members with an objective to carry out research in direct contact with the city and it's community. The project was endorsed with a protocol between the two stakeholders presenting a project focusing on particular areas that would be integrated into nature in İzmir based on public feedback about the space and its use. In early sessions both stakeholders applied design research methods (see Figure 1) to familiarize with the users and the place to bring shared solutions to daily life. Investigating these areas, the focus group and the natural habitat required a specific adaptation of methods and tools to raise the level of community empowerment as well as to introduce a model involving living-systems. The outcome of these early stages lead us to make a tentative categorization for a social, economical and nature oriented co-design framework. Looking at these possibilities, we have organized a workshop with community members, during the Good Design İzmir_4 (annual design festival in İzmir since 2016) week, to identify their insights and to foresee the challenges, needs and

opportunities of our framework. Investigating good practices from the art and design field, and for testing out the framework we invited designers and artists to propose different answers to our defined problem in the following stages; develop and deliver. While defining this challenge and the co-designing process, creatives were encouraged to collaborate with living-systems and were given an introductory seminar with micro-biologists.

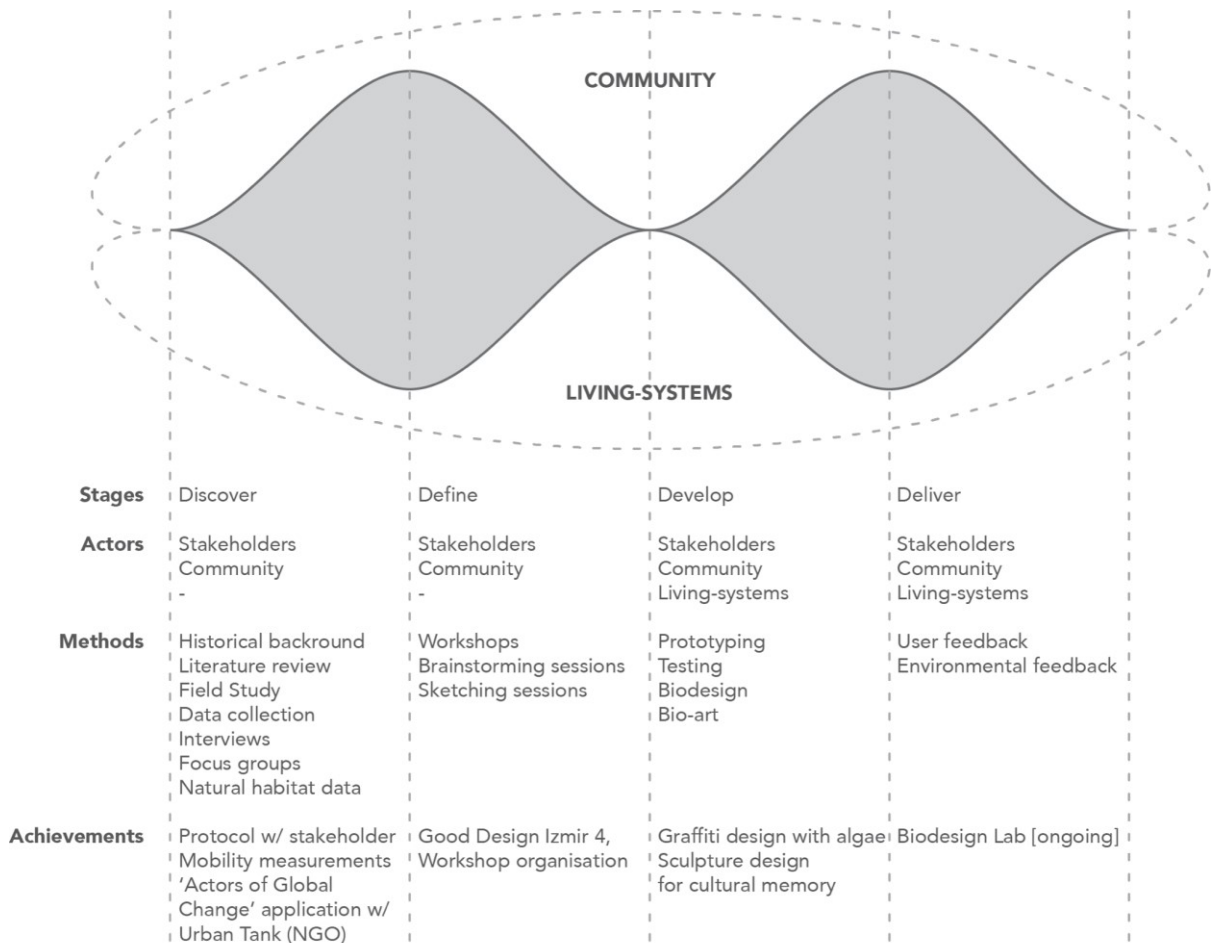


Figure 1: Co-design Management Framework for Community Empowerment

Two different art and design proposals were suggested: a nature-based sculpture application referencing collective memory for place attachment in a particular area in Izmir and a symbiotic algae graffiti application for the river bed banks around it for increasing a sense of belonging.

The final result of this initiative is to include the practical applicability of the framework and the involvement of multiple actors in multi-scalar and multi-directional interactions, as well as the sustainability competence of the entire process. The development of a new co-design management framework, its implementation and other issues encountered during the research period can trigger a new process of community empowerment and the involvement of living-organisms in a new co-design model. It challenges our perception and understanding of co-design by reconsidering a living-matter, something that is sensitive and reactive to its surroundings, and how it is incorporated to the design process either with their dynamic properties as a material or their ability to perform new functions and meanings (Irkdas Dogu and Pinto, 2020). Therefore, it proposes an opportunity to develop into a real service, eventually to be scaled up and replicated in other urban environments, as a nature-like-network.

4. Conclusion

Empowerment is described as the process of empowering people to gain control over their lives, to gain control over the forces and actions that affect their lives, to increase their wealth and qualities, and to develop capacities to gain access, partners, networks, and a voice in order to gain control. Empowerment is used to articulate a view of co-design as a mechanism that assists people in taking charge of their lives, and also developing vital awareness and knowledge about their situation, as well as developing long-term skills and capacities to engage

in and form their own environment outside the boundaries of a specific project. In this respect, co-design holds great promise for policy as a way of dynamically involving people and stakeholders to find solutions to complex urban problems. It has the potential to generate further creative ideas, improve economic efficiencies through enhancing responsiveness, promote collaboration between groups, re-establish confidence between people and government officials, and have profound effects on participants' agency and health. Biodesign, on the other hand, appears as a new approach to co-design, challenging the human-centered design paradigm and shifting it towards co-designing with living organisms. Our findings enable us to consider co-design through designing *with* living-systems, where we aim to create environmental awareness among the inhabitants and passers-by of our designated hub. We try to find answers through a Bio-design Lab in practice which appears to be influential both in local action strategies and livability of our environment. The framework presented in this paper has an open nature, hence it can be modified in different urban contexts by modifying inputs, indicators and parameters.

Regarding the collaboration between universities and local governments, the idea of bio-lab we achieve through the process is composed of diverse knowledge of a multi-disciplinary team of designers, architects, artists and engineers. Local government has experience in public projects; policy aspects of design applications and citizen feedback while the university is experienced with research-based knowledge, experimental product and material development.

The practical implications of Biodesign Lab would boost the visibility of this framework, and it will also serve as a hub to run and manage a series of urban research and actions with living systems. Design with living systems through participatory design tools and methods to improve social inclusion, and develop community-based design strategies to endorse place attachment and identity, and eventually enhance community empowerment beyond the human aspect. This paper contributes to the practical applicability of a new co-design model and the involvement of multiple actors in multi-scalar and multi-directional interactions, as well as the sustainability competence of the entire process. Yet, our framework cannot be generalized to large scale applications and needs to be adjusted to local and case specific projects.

References

- Analysis of the Creative Industries in Turkey NUTS 2- Regions Level: Focus on İzmir, (2021) [pdf] İzmir: Development Agency <<https://izka.org.tr/wp-content/uploads/2021/01/Yaratıcı-Endüstriyel-Raporu.pdf>> [Accessed 9 March 2021].
- Buchanan, R. (2001) "Design Research and the New Learning", *Design Issues*, Autumn, Vol 17, No.4, pp 3–23.
- Blomkamp, E. (2018) "The promise of co-design for public policy", *Australian Journal of Public Administration*, Vol 77, No.4, pp 729-743.
- Bødker, S. (1996) "Creating Conditions for Participation: Conflicts and Resources in Systems Development", *Human-Computer Interaction*, Vol 11, No. 3, pp 215–236.
- Correia, A. and F. D. Yusop. (2008) "I Don't Want to Be Empowered: The Challenge of Involving Real-World Clients in Instructional Design Experiences", Proceedings of the 10th Anniversary Conference on Participatory Design Conference, Indianapolis, IN: Indiana University, pp 217–219.
- Cottam, H. and Leadbeater, C., (2004) *RED paper 01: Health: Co-creating services*. London: Design Council.
- Cumbula, S., Sabiescu, A. and Cantoni, L. (2013) "Co-design with communities. A reflection on the literature". *IDIA 2013*. Design Council. (2005) The Design Process: What is the Double Diamond?. [online] Available at: <<https://www.designcouncil.org.uk/news-opinion/design-process-what-double-diamond>> [Accessed 17 March 2021].
- Dubberly, H. (2008) "Design in the age of biology: shifting from a mechanical-object ethos to an organic-systems ethos." *Interactions*, Vol 15, No. 5, pp 35–41.
- Ehn, P. (1993) Scandinavian Design: On Participation and Skill. In: D. Schuler and A. Namioka, eds. 1993. *Participatory Design: Principles and Practices*. N.J.: Lawrence Erlbaum, pp 41-78.
- Evenson, S., Rheinfrank, J. and Dubberly, H. (2010) "Ability-centered design: from static to adaptive worlds", *Interactions*, Vol 17, No. 6, pp 75-79.
- Fien, J., Charlesworth, E., Lee, G., Morris, D., Baker, D., & Grice, T. (2007). *Flexible guidelines for the design of remote Indigenous community housing*, AHURI-Positioning Paper 98, pp 1-68.
- Friedmann, J. (1992) *Empowerment: The Politics of Alternative Development*, Blackwell, Cambridge.
- Irkdas Dogu, D. and Pinto, R. (2020) Design with living-systems: Designing self-designed mushrooms. In: E. Gönlügür and A.E. Kurtgözü (eds) *İyi Tasarım İzmir: DÖNGÜ*. İzmir: IBB press, pp 82-103.
- Lee, Y. (2008) "Design Participation Tactics: The Challenges and New Roles for Designers in the Co-Design Process." *CoDesign*, Vol 4, No.1, pp 31–50
- Loures, L., Meireles, F., Costa, L. and Loures, A. (2016) "Rising from ruins: From derelict spaces to sustainable landscapes—the Portuguese case" *International journal of systems applications: Engineering & Development*, No. 10, pp 156-161.
- Manzini, E. (2015) *Design, When Everybody Designs: An Introduction to Design for Social Innovation*. MIT Press, Cambridge.
- Muratovski, G. (2016) "Empowerment by design", *Journal of Design, Business & Society*, Vol 2, No.2, pp 1893.

- Mattelmäki, T. and Sleeswijk Visser, F. (2011) Lost in CO-X - Interpretations of Co-Design and Co-Creation. in L-LC Norbert Roozenburg (ed.), *Proceedings of IASDR'11, 4th World Conference on Design Research, Delft University*. International Association of Societies of Design Research (IASDR).
- Nisbett, R. E. and Wilson, J. D. (1977) "Telling More Than We Know: Verbal Reports on Mental Processes", *Psychological Review*, Vol 84, No.3, pp 213 -259.
- OECD, (2019) Economic Policy Reforms 2019: Going for Growth. [pdf] Paris: OECD Publishing. Available at: <https://read.oecd-ilibrary.org/economics/economic-policy-reforms-2019_aec5b059-en#page7> [Accessed 15 December 2020].
- Puerari, E., De Koning, J.I., Von Wirth, T., Karré, P.M., Mulder, I.J. and Loorbach, D.A. (2018) "Co-creation dynamics in urban living lab", *Sustainability*, Vol 10, No.6, pp 1-18.
- Rappaport, J. (1987) "Terms of Empowerment/Exemplars of Prevention: Toward a Theory for Community Psychology 1", *American Journal of Community Psychology*, Vol 1, No. 2, pp 121–148.
- Rous, B. S. and Nash, J. B. (2020) "Visual Communication as Knowledge Management in Design Thinking". *The Handbook of Applied Communication Research*, 233-248.
- Sadan, E. (1997) *Empowerment and Community Planning*. Hakibbutz Hameuchad, Tel Aviv.
- Sanders E.B.N. (2005) Information, Inspiration and Co-creation. In: *6th International Conference of the European Academy of Design*, Bremen, Germany.
- Sanders, E.B.N. and Stappers, P.J. (2008) "Co-Creation and the New Landscapes of Design", *CoDesign*, Vol 4, No. 1, pp 5-18.
- Sanders, E.B.N. and Stappers, P.J. (2014) "Probes, toolkits and prototypes: Three approaches to making in codesigning", *CoDesign: International Journal of CoCreation in Design and the Arts*, Vol. 10, No. 1, pp. 5-14.
- Scholl, C. and Kemp, R. (2016) "City labs as vehicles for innovation in urban planning processes", *Urban Planning*, Vol 1, No.4, pp 89-102.
- Solomon, B. B. (1976) *Black Empowerment: Social Work in Oppressed Communities*. New York: Columbia University Press.
- Steinmueller, E. W. (2001). "ICTs and the possibilities for leapfrogging by developing countries", *International Labour Review*, Vol. 140, No. 2, pp 193-210.
- Toker, Z., (2007) "Recent trends in community design: the eminence of participation", *Design Studies*, Vol 28, No. 3, pp 309-323.
- UNIDO, (2020) Annual Report 2019 - Safeguarding the Environment. [pdf] Vienna: United Nations Industrial Development Organization. Available at:<<https://www.unido.org/sites/default/files/files/2020-05/Annual%20Report%202019%20%28Eng%29.pdf>> [Accessed 12 January 2021]
- Zamenopoulos, T. and Alexiou, K. (2018) "Co-Design as Collaborative Research". In: Facer, K. and Dunleavy, K. (eds) *Connected Communities Foundation Series*. Bristol: University of Bristol/ AHRC Connected Communities Programme.
- Zamenopoulos, T., Busayawan, L., Alexiou, K., Kelemen, M., De Sousa, S., Moffat, S. and Phillips, M. (2019) "Types, obstacles and sources of empowerment in co-design: the role of shared material objects and processes", *CoDesign*, [online], Available at:<<https://doi.org/10.1080/15710882.2019.1605383>> [Accessed 22 June 2019].
- Zimmerman, M. A. (1995) "Psychological Empowerment: Issues and Illustrations", *American Journal of Community Psychology*, Vol 23, No. 5, pp 581–599.

Copyright of Proceedings of the European Conference on Knowledge Management is the property of Academic Conferences International and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.