



Faculty of Design

2021

Fruitful Friction as a Strategy to Scale Social Innovations

Buckenmayer, Maria Belén, Gonçalves, Milene and Mulder, Ingrid

Suggested citation:

Buckenmayer, Maria Belén, Gonçalves, Milene and Mulder, Ingrid (2021) Fruitful Friction as a Strategy to Scale Social Innovations. In: Proceedings of Relating Systems Thinking and Design (RSD10) 2021 Symposium, 2-6 Nov 2021, Delft, The Netherlands. Available at <http://openresearch.ocadu.ca/id/eprint/3855/>

Open Research is a publicly accessible, curated repository for the preservation and dissemination of scholarly and creative output of the OCAD University community. Material in Open Research is open access and made available via the consent of the author and/or rights holder on a non-exclusive basis.

The OCAD University Library is committed to accessibility as outlined in the [Ontario Human Rights Code](#) and the [Accessibility for Ontarians with Disabilities Act \(AODA\)](#) and is working to improve accessibility of the Open Research Repository collection. If you require an accessible version of a repository item contact us at repository@ocadu.ca.

Fruitful friction as a strategy to scale social innovations

A conceptual framework to enable the emergence of common ground in multi-stakeholder social innovation projects

Maria Belén Buckenmayer, Milene Gonçalves, Ingrid Mulder

Social innovations are promising to tackle today's complex global challenges, especially when they scale, leading to a higher impact, which can generate a societal transformation. The current work elaborates on scaling deep, a specific scaling strategy aiming to shift cultural values, mindsets and beliefs. However, applying this strategy in practice is not straightforward. Therefore, we first aim to develop an actionable strategy that supports social innovators in their scaling efforts. Our research findings show that scaling deep can be defined as an (1) internal transformation process, (2) a social process, with (3) friction being an enabler for change. Second, these insights inform a framework that makes scaling deep more actionable and helps social innovators to use fruitful friction as a strategy to scale deep. The current study adds a new viewpoint to the scaling deep context and presents a concrete starting point of the scaling deep strategy by linking it with the creation of common ground.

Keywords: Social innovation; Multi-stakeholder collaboration; Common ground; Scaling deep; Framing

Introduction

New approaches to overcome complex societal problems of today are the need of the hour, especially to enable the transition to a sustainable future (Abbasi et al., 2019). Here, social innovations - new practices that address complex societal problems while meeting social needs - are promising. As such, social innovations can present new ways to tackle global problems on a local scale, which can create a transformation at a systemic level while shaping societal beliefs, routines and behaviours. Societal transformation is a complex and interwoven innovation process, as it connects many socio-technical realms. Westley and Antadze (2010) argue that in order to reach a broader impact, innovations have to scale their innovations across organisations, contexts and society. In other words, the focus of scaling social innovations lies on increasing their impact on a societal level in order to tackle the social or environmental issues they aim to address with their innovation (Davies & Simon, 2013).

There are a variety of well-known strategies and approaches to scaling an innovation (e.g., Westley & Antadze, 2010). Moore and Riddell (2015) identify three overarching categories of scaling that facilitate innovations to increase their impact and enable systemic change: scaling out, scaling up and scaling deep (see Figure 1). Scaling out focuses on reaching a greater number of people and replicating an initiative. Using the metaphor of a tree, scaling out can be seen as seeds of a tree being scattered. Scaling up refers to the changing of laws and policies, which, in the context of the metaphor, can be depicted as the biological structure of a tree that gives boundaries and provides a frame to grow or act. Lastly, scaling deep refers to mindset changing within a context, where values, beliefs, relationships and cultural practices are transformed. Like Figure 1 shows, scaling deep can be represented as the roots of a tree. The roots ground the tree in the soil and create deep connections with other trees. They are invisible from the surface but strengthen it and make it resilient. Scaling out and scaling up happen at the surface, visible and tangible for the actors involved. Conversely, scaling deep is a process that is intangible, invisible and hard to grasp.

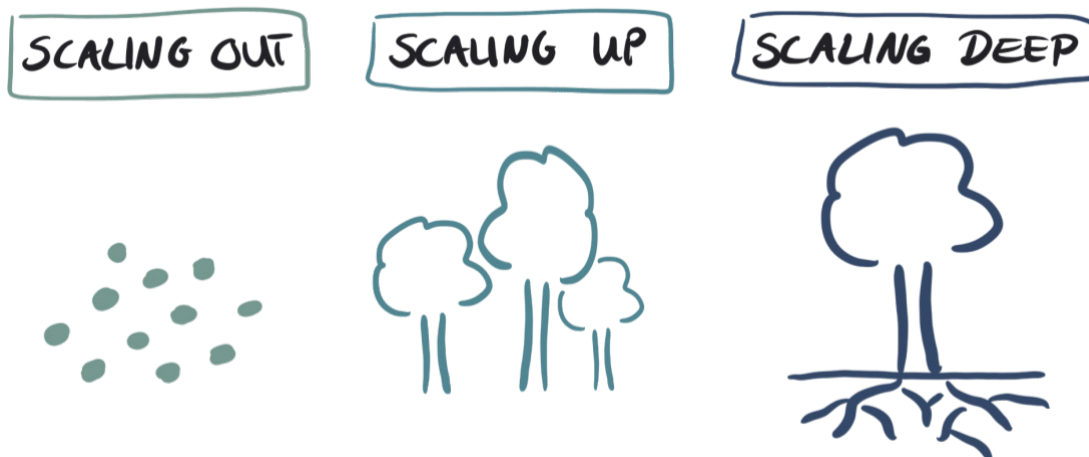


Figure 1. Three scaling strategies after Moore and Riddell (2015). This paper focuses on the exploration of the scaling deep strategy.

While scholars (e.g., Moore & Riddell, 2015; Strasser et al., 2019) realise that all three strategies are important to apply in order to reach systemic change, there is an uneven amount of knowledge and resources available, comparing scaling deep with the other two strategies to support their application in practice. Scaling deep is (by definition) about change and transformation. However, what exactly should be changed and transformed and how can this be achieved? Several studies (e.g., Westley & Antadze, 2010; Lyon & Fernandez, 2012) provide a sophisticated overview of steps and approaches to apply scaling up and scaling out strategies. Nonetheless, because of its invisible and intangible nature, there is no clear understanding of how scaling deep can take place and how social innovations can apply it. This gap in knowledge presents the need to further explore this field and provide clarification and new ways to make the scaling deep strategy more tangible and applicable.

The context of social innovations

Social innovations do not act in silos but are woven in a web of different stakeholders, partners, organisations and communities, a complex system where these actors are involved and engaged (De Koning et al., 2019) (see Figure 2). Building networks and communities is one important condition for social innovations' success. In those so-called diffuse projects, where tasks and ownership are spread between multiple people from different organisations there are often no clear responsibilities and there are a lot of uncertainties about the process and outcome (Yee & White, 2016).

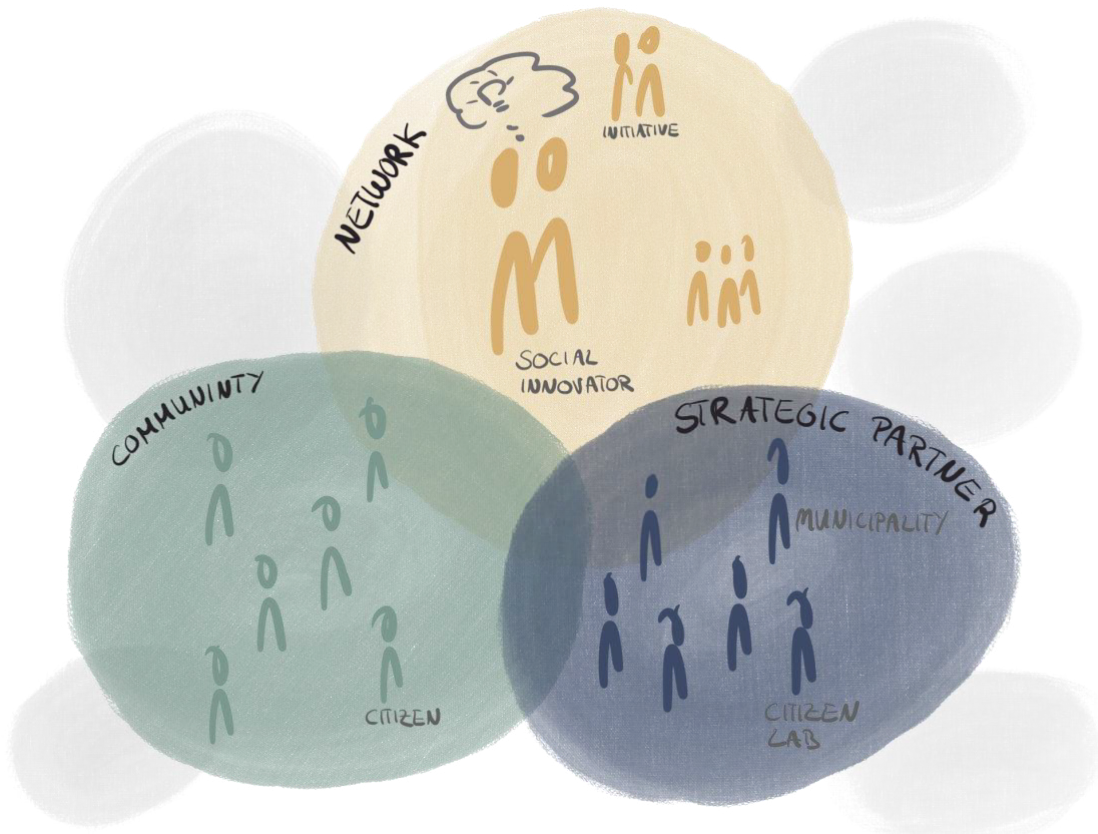


Figure 2. Social innovation stakeholders, divided into three categories: community, network and strategic partner.

The division of responsibility and decision-power in public sector organisations and projects are often unclear (Yee & White, 2016). Figure 3 shows that the diverse backgrounds, expertise and expectations of actors involved in social innovation projects often means that people have their own goals, language and way of thinking and those aspects might not always align with each other, which can cause a lack of a shared understanding and lead to misunderstandings.

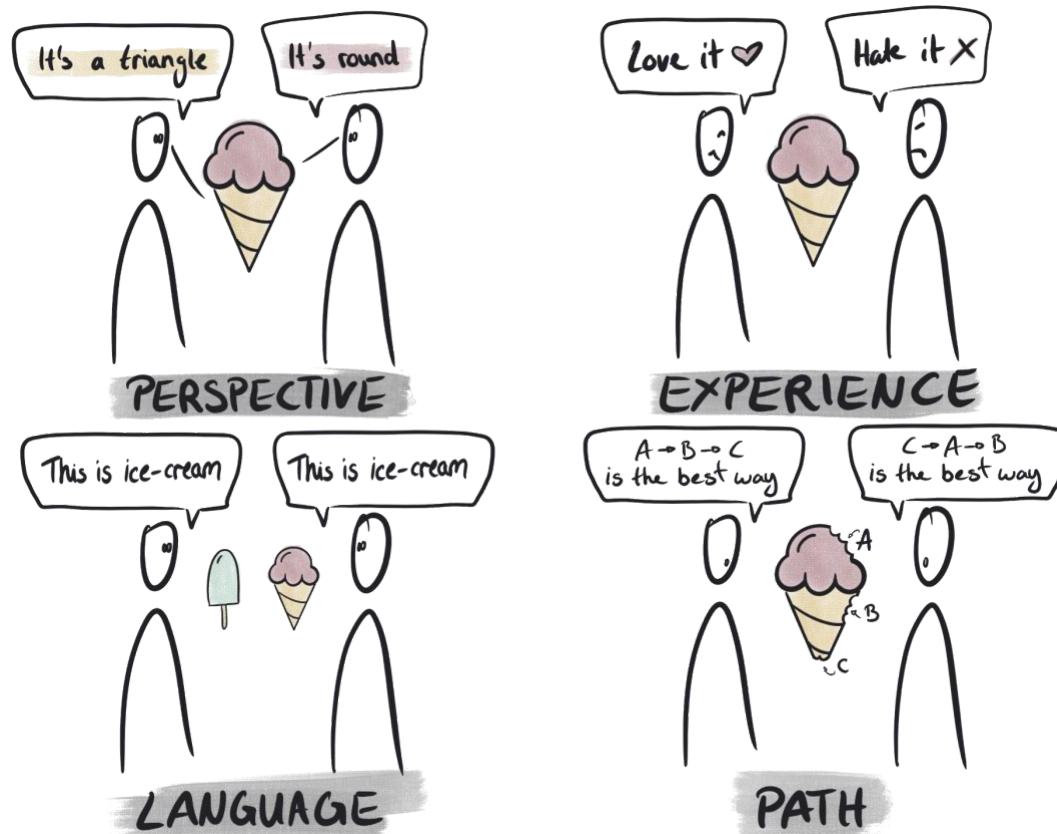


Figure 3. Four main factors that can cause misunderstanding between innovators and their stakeholders.

As stated by literature, reaching some level of a common ground between stakeholders is an important aspect when dealing with complex problems within multi-stakeholder projects (Beers et al., 2006; Bromme, 2000; Moor, 2018). This is particularly relevant in the scaling phase of social innovations, when trust-based relationships are built with a variety of new stakeholders. Although, common ground is defined as “a common cognitive frame of reference between the partners of interaction” (Bromme, 2000, p.119), the relational component is key. Frames help people to diagnose, define and make sense of a situation and can be seen as principles, rules or patterns that every person has (Dorst, 2011). In addition, shared understanding can be divided into shared meaning and shared agreement on this meaning. The ongoing process of creating new understanding and reaching shared agreement on new meanings seems to be a prerequisite for collaborative learning (Mulder, 2004). Moor (2018) and Beers et al. (2006) argue that establishing a common ground is a process that should happen deliberately and that common ground needs to be made explicit. Beers et al. (2006) emphasise the importance of making individual perspectives explicit to reach a common ground. Hereby, it is not only about sharing but also about seeing similarities and differences to gain an understanding of the varying viewpoints. In the current work, we aim to trigger the process of creating new understandings, by integrating different viewpoints.

The role of design in social innovation

Design, being a discipline that has evolved from creating products and services towards one that enables change through new ways of working and looking at things (Manzini, 2014), has expanded to include collective problem-solving approaches (Dorst, 2011). Designers help to tackle complex societal problems by supporting social innovations, governments and organisations in their way towards a sustainable future. Meroni (2008) highlights the ability of designers to facilitate strategic dialogues by asking the right questions and triggering conversations. As such, they are able to direct stakeholders towards a shared understanding and vision.

The current work explores the phenomenon of scaling deep and aims to understand how design can facilitate the emergence of common ground and enable social innovators to make use of the scaling deep strategy. The corresponding research question is: *How can design be used to transform the abstract and theoretical concept of scaling deep into a more tangible approach?* The objective is to achieve a change in relationships and cultural

roots to create a deep transformation that builds trust for productive long-term collaborations amongst social innovators and their stakeholders. At first sight, common ground, scaling deep and design may not be directly connected. In the following sections, we will demonstrate that there is an opportunity to combine those aspects into a framework that allows social innovators to build a common ground with stakeholders as one way to enable scaling deep. Given that scaling deep is an abstract and intangible concept, the current work explores one of many possible ways to define an actionable strategy that supports social innovators in their scaling journey. In the next section, we set the context of study and present the methodology used, which allowed us to derive insights and build a framework, to better understand scaling deep and its potential. We will conclude with the proposition of a framework to scale deep in a more actionable and fruitful way.

Methodology

The current work is part of a larger programme called DESIGNSCAPES. The DESIGNSCAPES consortium brings together cities, industries, small businesses and research actors to better understand how design tools and methods can strengthen grassroots initiatives, public sector organisations and policymakers to innovate. During the period of the current research ten, social innovation projects in Europe that aimed to scale their innovation from one context to another were supported financially and with training modules by the consortium. The collaboration with DESIGNSCAPES enabled us to gain a practical perspective into the scaling journey of social innovators. Although all ten pilots were invited to join, four of them were engaged more actively in the current study.

For the construction of the conceptual framework the main research question has been divided into two sub-questions, which are as follows:

Sub-RQ 1: What does scaling deep mean and look like from a theoretical perspective?

Sub-RQ 2: How does, or can scaling deep look like from a practitioner's perspective?

This division allowed us to explore the phenomenon of scaling deep from a theoretical and practical perspective. The goal was to understand the context of scaling social innovations and identify opportunities.






| | | |
|----------|---|--|
| Goal | Understand scaling deep & identify starting points for design. | Understand social innovations context, needs & approach. |
| RQ | Sub-RQ1 What does scaling deep mean and look like from a theoretical perspective? | Sub-RQ2 How does or can scaling deep look like from a practitioners perspective? |
| Activity |  Literature review  Informal-calls  Semi-structured interviews  Documents analysis  Creative sessions | |
| Output | Conceptual framework - Fruitful friction towards a common ground | |

Figure 4. Overview of process and methodology used.

As shown in Figure 4, to explore scaling deep from a theoretical perspective, a literature review was conducted to understand the basic concepts relevant to social innovations, system change, societal transitions and the new role of design. To understand scaling deep from a practitioners' perspective different qualitative research activities were performed. This encompassed semi-structured interviews, informal calls, document analysis and creative sessions with the cases. In particular, the creative sessions were used to test and evaluate the framework in practice and to develop it further into a toolkit that can be used by social innovators. Thus, this framework allows them to practically apply the scaling deep strategy. These research activities enabled us to understand the context of social innovations and their ways of scaling. In addition, we identified the main struggles social innovators face when scaling.

We conducted four semi-structured online interviews, via the video calling platform Zoom, with different DESIGNSCAPES cases. After initial get-to-know each other calls, cases were interviewed in a semi-structured way, each interview lasting about 1-1,5 hours. An interview guide was prepared for each interview, but relevant topics were pursued when appropriate. The semi-structured interviews allowed us to get an in-depth understanding of the cases projects, their needs and concerns when entering the scaling phase.

In order to support and converge the research, a document analysis was carried out. Different documents related to the DESIGNSCAPES cases (e.g., DESIGNSCAPES application forms, cases websites) were analysed to enrich the understanding of the context of the social innovations and scaling stage, in addition to the qualitative interviews.

Besides the interviews and additional information, different creative sessions with cases were conducted, which informed the creation of the conceptual framework. Three creative sessions were held online using the collaboration platform Miro and the video calling provider Zoom. Each of the sessions lasted about 1-2 hours.

The data was analysed using the method of inductive thematic analysis which allows identifying patterns of meaning across a qualitative data set in a systematic way (Braun & Clarke, 2012). By applying this method to the data collected during the different research activities we identified recurring patterns which together with the literature led to the main insights that will be presented in the next section.

Main insights on scaling deep from a practical and theoretical perspective

The research reveals three main aspects of scaling deep that we consider important when aiming to translate this strategy into something tangible and facilitate a transformation process to create a shared understanding between social innovators and their stakeholders. The following insights inform the construction of the framework.

Scaling deep is an internal process

Scaling deep has been identified as an internal transformation process that starts with becoming aware of one's own implicit, intangible frames and ways of thinking leading to willingness for change. Being an internal process means that the change can not be forced onto someone but needs to happen within the person. Nevertheless, we discovered that people can be triggered to reflect and become aware of different perspectives.

In literature, scaling deep is loosely defined by the interchangeable use of the following concepts: mindsets, values, beliefs, attitudes and opinions (e.g., Moore & Riddell, 2015; Strasser et al., 2019). Figure 5 aims to bring a more nuanced overview of how these concepts relate to each other.



Figure 5. Definition of the different terminology used in literature when describing scaling deep.

A mindset is created in an iterative process through new experiences, information or interactions and is constantly shaped by the mindset of others. Gupta and Govindarajan (2002) as well as Buchanan and Kern (2017) describe that the more conscious we are of our way of thinking, the more openly and likely we will change our mindset, especially if we have the right skills and conditions. Creating a favourable situation in which a person can reflect on their mindset is a first step in enabling a mindset shift (Paunesku, 2019). Consequently, the more aware we are of our mindset the more open we are to allow different perspectives and the more likely we are to change our mindset. This also means that a person can be prompted to change their mindset by another person through various interventions, creating a certain environment or even through subtle nudges like using a specific language (Rissanen et al., 2019). However, the decision to change still lies within the person, which makes scaling deep an internal transformation process (see Figure 6), where becoming aware of your own way of thinking is the first step to change. The question that arises from this observation is if and how individual frames can be made explicit and expressed. Here, the creative sessions were used to explore different ways to do so.

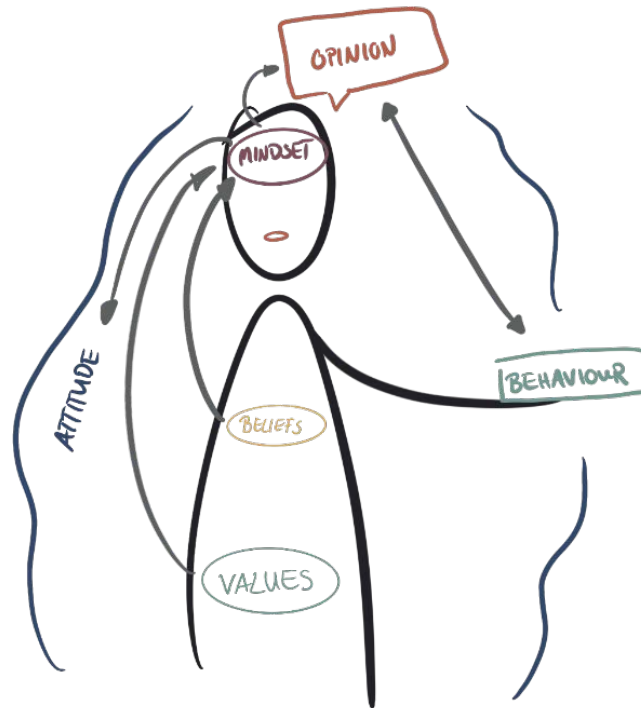


Figure 6. Changing values, mindsets and beliefs is also an internal process that starts with becoming aware of those implicit aspects.

Scaling deep is a social process

Mindset is only one part of the complex cognitive process that forms and influences our thinking and behaviour. Frames (e.g., Dorst, 2011) or mental models (e.g., Vink et al., 2019; Van der Bijl-Brouwer & Malcolm, 2020) are similar concepts. Frames, being defined as a set of assumptions, implicit values and goals that define what people consider important and how they perceive situations are very much connected to the notion of mindsets, values and beliefs. Likewise, these concepts are hard to identify and express, as they are implicit, tacit, intangible and subconscious (Hey et al., 2007). The frame formation process by Hey et al. (2007), illustrated in Figure 7, highlights that the creation of shared frames, based on the integration of different viewpoints, at the beginning of a new project between project partners allows for better collaboration.

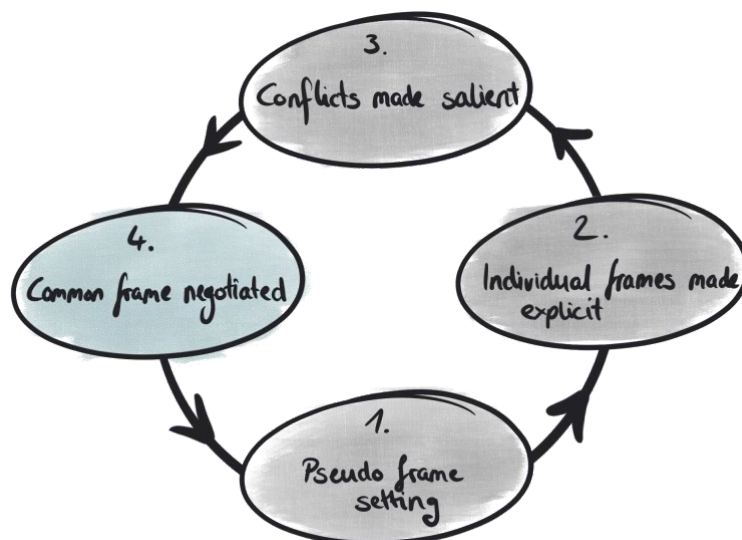


Figure 7. Creating a common frame is important at the beginning of a new project. Process visual adapted from Hey et al. (2007).

In this process (1) pseudo-frame setting refers to the initial understanding of the project (e.g., the project name or mission statement). However, individual frames are not expressed yet. (2) Individual frames are made explicit in an ongoing process throughout the project and happen when members express their point of view or expectations during team interactions. (3) Conflicts are made salient when different or conflicting frames emerge and are made explicit. Once differences in individual frames emerge the creation of common frames (4) can take place. With a common frame, we refer to alignment of the individual frames in the first place, rather than that all frames need to overlap completely or reach total agreement. Instead, as indicated by Hey et al. (2007), a shared understanding early in a project ensures a productive collaboration. Building on Hey et al. (2007) frame formation process, we conclude that being confronted with new information and experiences in interaction and communication with others allows us to make implicit frames explicit and see new connections, which enables an internal transformation. This makes scaling deep a social process (see Figure 8), that is about expressing and integrating individual and collective perspectives in interaction and communication with others.

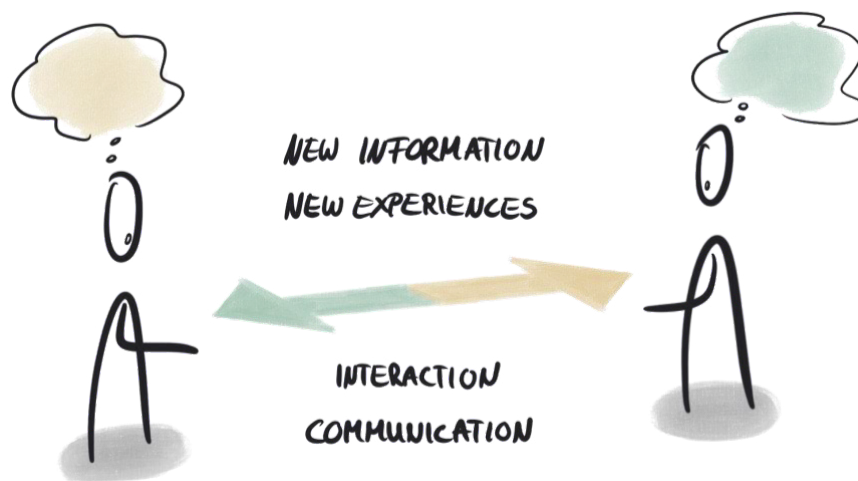


Figure 8. Scaling deep is a social process that is enabled by new information and experiences.

As such, we conclude that the primary goal of scaling deep in the context of social innovations is not changing people's mindset but allowing them to become aware of their way of thinking. In this way we can acknowledge and appreciate new perspectives and identify similarities and differences amongst peoples' mindsets. Those steps facilitate finding a certain level of a shared understanding that builds the base for trusted collaborations.

Friction as a catalyst for change

The role of conflict and conflicting frames seems to be an essential topic to enable change. Many scholars have acknowledged that friction (referring to inconsistencies, conflicts or confronting perspectives), when dealt with, can facilitate self-awareness but also the emergence of a common understanding (see Van der Bijl-Brouwer, 2018; Dorst, 2011; Greenhalgh & Papoutsis, 2019; Hey et al., 2007; Strasser et al., 2019; Vink et al., 2019).

One significant cause of change in mental models is a persons' detection of an inconsistency. When a person reaches an impasse with their existing mental pattern, they are likely to revise their related mental models to some extent (Vink et al., 2019). That refers to the step 'conflicts made salient' in Hey et al' framing process (2007), as shown in Figure 7. A person's realisation that others have different perspectives causes a conflict because it goes against their current worldview, assumptions and principles and makes them question those (see Figure 9).

Even though differences in values, needs, goals and vision can create troubles and hinder progress, Strasser et al. (2019) argue that if the conflict is deliberately addressed it can "generate new levels of mutual understanding, empathy or alignment about goals". Likewise, Dorst (2011) sees conflicting frames as a necessity rather than a hurdle for problem-solving since the friction results in a reframing of the problem situation. Dealing with those paradoxes is what Dorst recognises as a key design capacity.

Hence, friction can be a catalyst rather than a barrier for change. The potential here lies in deliberately triggering and addressing friction to deepen individual awareness and collective understandings. However, collective

understanding is not that people simply agree, but that they are aware that their viewpoints differ and can still work together because they have a common goal.

Being confronted with different perspectives facilitates people to become aware of their implicit frame. However, for this friction to become fruitful, it needs to be made explicit and addressed. We propose that addressing friction in the context of scaling deep provides an interesting starting point to enable social innovations to scale deep.

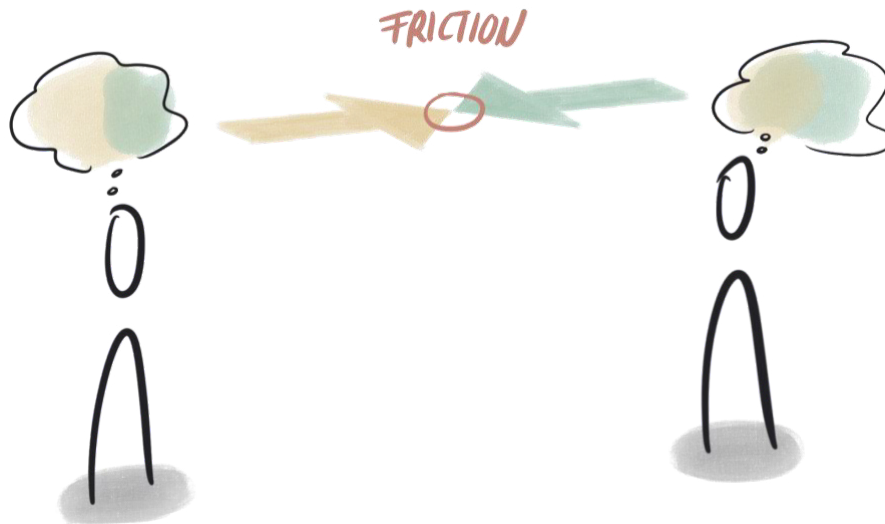


Figure 9. Scaling deep can be facilitated by friction.

Scaling deep redefined

In conclusion, scaling deep is an internal transformation process where implicit, deeply rooted values, beliefs, ways of thinking and world interpretations are addressed and questioned which can lead to their transformation. The change should happen within the individual and cannot be forced onto someone. However, interaction with others can enable the shift to happen. Figure 10 shows how our insights inform the (redefined) process of scaling deep. The process starts with (1) becoming aware of one's own implicit frame, which needs to be made explicit (2) to allow friction between others' frames to emerge (3). Conflicting frames facilitate that different individual frames are transformed (4) by the integration of different viewpoints.

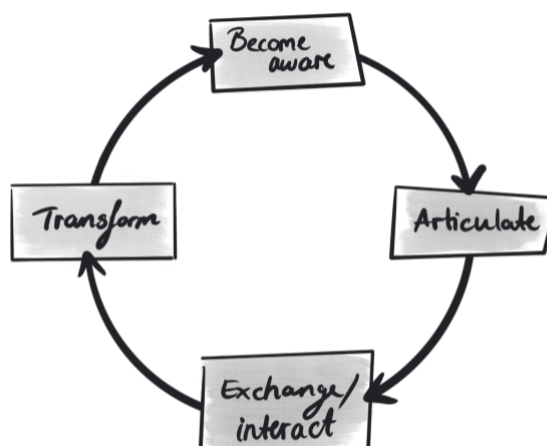


Figure 10. The scaling deep process.

Thus, scaling deep is a process that, in the context of social innovations, needs to happen in collaboration with stakeholders to raise awareness of differences in perspectives regarding a project and create alignment with

stakeholders on a conceptual level. The shared understanding forms the basis for productive collaboration (Moor, 2018) and therefore greatly influences whether scaling efforts are successful.

Fruitful friction towards common ground

Summarizing the insights of the research into a conceptual framework allows us to create a better understanding of the scaling deep process. Figure 11 illustrates the resulting framework, which constitutes a process of how fruitful friction is used to create common ground.

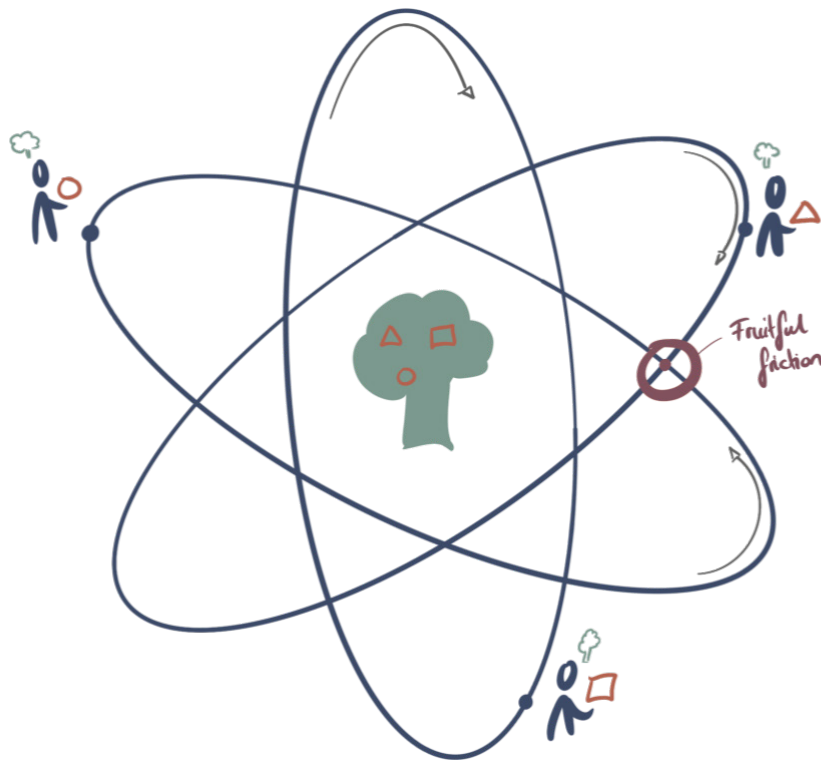


Figure 11. Overview of the conceptual framework. The green tree represents the common ground that is shared by all actors involved.

To better understand the conceptual framework, the metaphor of an atom with electrons and a nucleus is used as follows.

The electrons – actors

In the ecosystem of social innovation, multiple stakeholders and partners need to be involved for innovation to be scaled. The different actors in a social innovation project are represented by the electrons which are in constant movement, moving around the nucleus. Each of them has their own routines, goals, ambitions, organisational structure, resources, views on the problem and solutions.

The nucleus – common ground

In the middle is the nucleus which is the shared vision that they are all working towards and what unites them. The nucleus represents the shared understanding, it is what all of the individuals have in common and what builds the base for their collaboration.

Collision points – fruitful friction

Collision is what enables fruitful friction and also symbolises when fruitful friction can happen. Namely, when new stakeholders meet and their individual frames are expressed, which may lead to the exploration of common ground.

Fruitful friction is the process of causing friction deliberately to engage people in a fruitful sense-making activity that facilitates the emergence of common ground. The friction has two purposes (or forms): First, it is used to trigger people and make them aware of their implicit individual frames. Second, the expression of conflicting frames allows seeing similarities and differences in frames, enabling the integration of different viewpoints, which may lead to the emergence of a shared understanding.

Common ground established in a co-creative way can build co-ownership, acceptance and facilitate actors to embody change (Paton & Dorst, 2011; Puerari et al., 2018). In other words, it is aimed to trigger friction deliberately, to enable people to express their implicit frames and facilitate the emergence of a shared understanding.

Our observations and interviews, coupled with literature review, revealed that a core aspect and starting point of scaling deep is to create fruitful friction, to make people aware and open to acknowledge different perspectives. Then, it is important to translate those into a common ground, which captures an emergent shared understanding. Figure 12 explains the five phases of the process of creating a shared understanding.

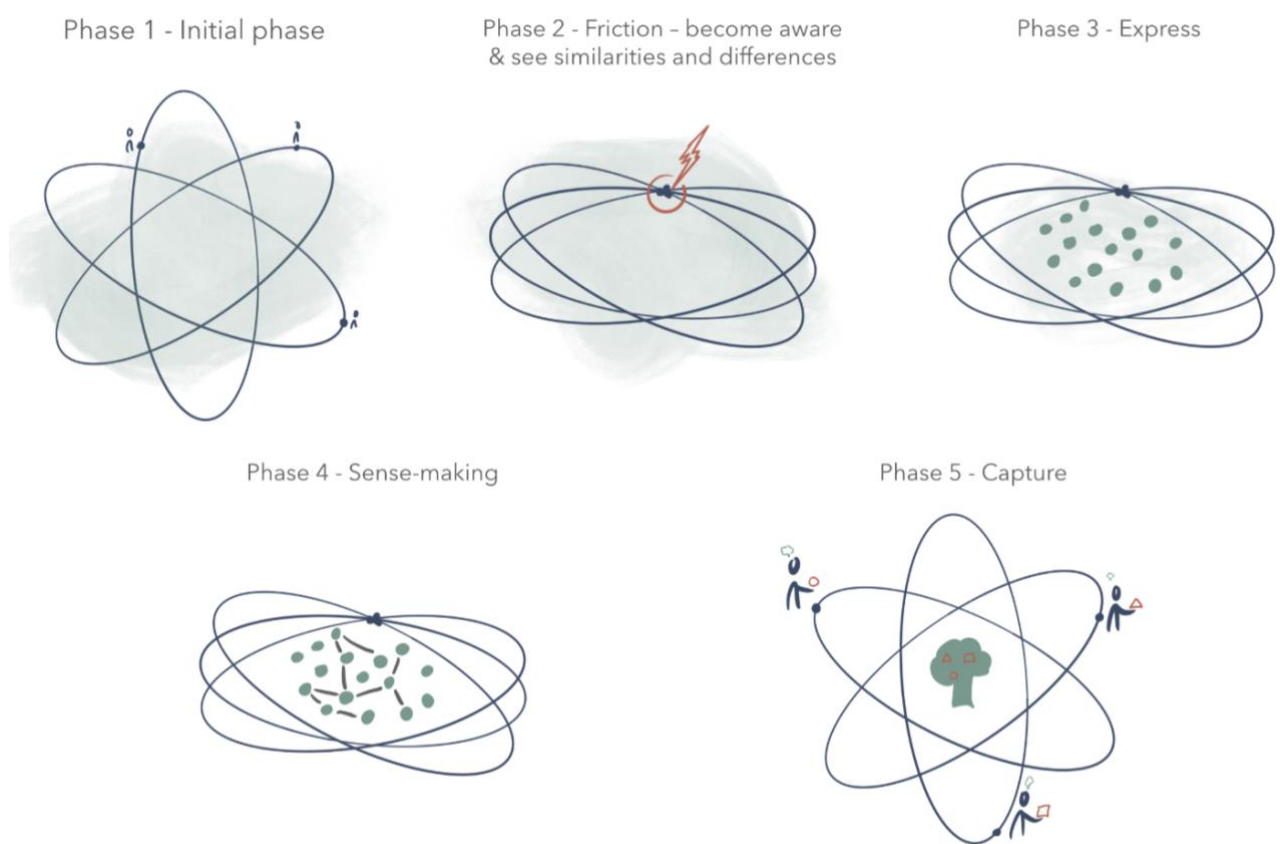


Figure 12. Five phases of the conceptual framework to create a shared understanding using the concept of fruitful friction.

Phase 1 - Initial phase

At the beginning of a new collaboration, there is no clear understanding, everything is blurry. Everyone has a vague idea of what unites them and what makes them different but it is not yet expressed or clear to themselves and to others. Actors in the project have not deliberately talked about their goals and ambitions, their way of looking at the problem and solution.

Phase 2 - Friction – become aware & see similarities and differences

When actors come together friction is triggered to make people aware and reflect on their own way of thinking as well as how others think. This stage is focused on individuals' personal reflection in interaction with others.

Phase 3 - Express

This phase is about expressing the individuals' perspective and acknowledging the different frames to identify similarities and differences.

Phase 4 - Sense-making

Being aware of the different viewpoints is what enables the collective sense-making where a new connection is made and new meaning emerges. Here is where a shared understanding is formed and co-created.

Phase 5 - Capture

The newly formed common ground should be captured verbally and visually in order to make it actionable for the project. Once this stage is completed, actions can be derived.

For the purpose of evaluating whether this framework indeed facilitates stakeholders becoming more aware of their implicit frames, helps recognising other peoples' frames and leads to changing mindsets, we have developed a toolkit that incorporates these steps into actionable activities. When those tacit, intangible concepts are expressed, friction and conflicting frames may be revealed, which starts the reframing and collective sense-making process that facilitates the emergence of common ground. Friction is hereby an important lever to trigger change, as long as it is fruitful. This means that expressed differences (which may reveal conflicting frames) can be considered and transformed into a new preferably collective understanding about basic concepts of the project like a shared goal or path. Although the focus of this study lies on the development of the framework, the work of Buckenmayer (2021) provides more details about the toolkit.

Discussion

The aforementioned framework is relevant for the scaling deep process and social innovations in different ways. The framework uses friction deliberately to make people aware and express their own frame, which is the first step towards a mindset shift. This builds on the notion that friction, rather than being a barrier for change, can instead be an enabler (Dorst, 2011; Hey et al., 2007; Strasser et al., 2019). With the framework, we lay out one way how the occurring friction can become fruitful and contribute to internal transformation processes. Especially in multi-stakeholder projects, friction is often inevitable. Therefore, it is relevant to deal and address this friction deliberately to create awareness of conflicting ways of thinking and openness for change. The multitude of perspectives that are often not explicitly expressed may cause misunderstandings and trouble collaborations. Here, the framework can give explicit guidance to trigger fruitful friction to enable a change in mindsets and scale deep.

The framework uses collective sense-making as a way to reach common ground, which has been indicated as an essential step to tackle complex, multi-stakeholder projects (Moor, 2018; Beers et al., 2006). Greenhalgh and Papoutsi (2019, p. 3) state that collective sense-making should be encouraged by “ask questions, admit ignorance, explore paradoxes, exchange different viewpoints, and reflect collectively“. Following this notion, the framework makes an apt approach to scale deep. Aligning on a common ground is one possible way to create ownership and acceptance and makes it an important aspect for social innovators scaling efforts. The level of alignment however is not fixed but fluid. Here in particular, the designer's ability to deal with paradoxes and dilemmas to guide the process is valuable (Ozkaramanli, 2017). In this way a common understanding, which reveals a collective mindset, can be established.

The process shown in Figure 12 demonstrates one way how social innovation can engage in combining scaling deep with reaching a shared understanding with stakeholders. The benefit of creating a shared understanding while at the same time engaging in scaling deep makes this process more practical for the social innovation context. It presents a structured way to make use of friction fruitfully to reach a certain level of common ground. Nevertheless, in this paper the framework remains conceptual. To increase the actionability of the presented strategy the framework has been used to inform the development of a more hands-on approach with practical steps for social innovators. A toolkit and workshop format were developed to enable social innovators to conduct an online workshop with stakeholders (Buckenmayer, 2021). With this toolkit, implicit frames can be made explicit and a shared understanding is co-created. The first evaluation sessions showed promising results proving that the framework facilitates developing a tool that helps social innovators to act.

Conclusion

The 'Fruitful friction towards common ground' framework presents our approach to use fruitful friction as a strategy to scale deep. The research insights and framework contribute to the body of knowledge on how design can enable social and urban innovation. In the academic design field, the notion that tension and friction in today's complex world are unavoidable and therefore needs to be dealt with is more and more recognised (Dorst 2011; Greenhalgh & Papoutsi, 2019). The potential that lies in paradoxes and conflicting frames has been recognised by many authors, such as Dorst (2011), but also by Fokkinga and Desmet (2012), with their concept of negative rich experiences to trigger positive outcomes.

The framework shows one way to make scaling deep more actionable and tangible for social innovators by putting it into a more context-related process. The framework provides a more concrete application of the scaling deep strategy by relating it with the creation of common ground, which is a need for multi-stakeholder projects such as social innovations. In this way, the relevance of scaling deep becomes more clear for the actors involved in a social innovation project.

While the study shows promising results, the field still offers a lot of opportunities for further research. This paper could not explore how deep and elaborate the level of alignment should ideally be. Likewise, alignment can take very different forms, reaching from a shared language towards having common goals. Further research could explore these variables, thus sharpening the framework and enriching its theoretical foundation.

The collaboration with DESIGNSCAPES allowed this project to accompany different social innovations in their scaling journey. The interviews and research activities provided a snapshot into innovators projects and scaling efforts. However, scaling social innovations is a process that takes longer than the time this project lasted. Accompanying social innovators in a more long-term oriented research could enable to gain a more holistic view of the complexity of this process and allow to gain deeper insights into social innovation to identify patterns that recur over time. Those insights could allow a more strategic use of scaling deep strategies and understand the interconnectedness with other scaling strategies. It can be concluded that the current work contributes to understanding the role of design for social innovation, and adds a new perspective to the scaling deep context. We have identified one way to support social innovations in their scaling journey by using fruitful friction as a strategy to scale social innovations.

Acknowledgement

This paper is part of the DESIGNSCAPES program, a Horizon 2020 EU funded coordination and support action, under Grant Agreement No. 763784, which explores the context of urban environments to develop a transferable methodology for capacity building to achieve a better uptake, further enhancement and upscaling of Design Enabled Innovation throughout Europe.

References

- Abbasi M. et al. (2019). A Triplet Under Focus: Innovation, Design and the City. In: Concilio G., Tosoni I. (eds). *Innovation Capacity and the City. SpringerBriefs in Applied Sciences and Technology*. Springer, Cham. https://doi.org/10.1007/978-3-030-00123-0_2
- Beers, P. J., Boshuizen, H. P. A., Kirschner, P. A., & Gijsselaers, W. H. (2006). Common ground, complex problems and decision making. *Group Decision and Negotiation*, 15(6), 529–556. <https://doi.org/10.1007/s10726-006-9030-1>
- Braun, V., & Clarke, V. (2012). Thematic analysis. In H. Cooper, P. M. Camic, D. L. Long, A. T. Panter, D. Rindskopf, & K. J. Sher (Eds.), *APA handbook of research methods in psychology, Vol. 2. Research designs: Quantitative, qualitative, neuropsychological, and biological*, American Psychological Association, 57–71. <https://doi.org/10.1037/13620-004>
- Bromme, R. (2000). Beyond One's Own Perspective: The Psychology of Cognitive Interdisciplinarity. In P. Weingart, and N. Stehr, (Eds.), *Practicing Interdisciplinarity*. Toronto, Canada: University of Toronto Press, 115–133.

- Buchanan, A., & Kern, M. L. (2017). The benefit mindset: The psychology of contribution and everyday leadership. *International Journal of Wellbeing*, 7(1), 1–11. <https://doi.org/10.5502/ijw.v7i1.538>
- Buckenmayer, M. B. (2021). Fruitful friction as a strategy to scale social innovations (pp. 165–217). Retrieved from <http://resolver.tudelft.nl/uuid:8172d668-a365-42b8-a632-cdaa4f32befa>
- Davies, A., & Simon, J. (2013). How to grow social innovation: A review and critique of scaling and diffusion for understanding the growth of social innovation. In *5th International Social Innovation Research Conference*, 2(4), (September).
- De Koning, J. I. J. C., Puerari, E., Mulder, I., & Loorbach, D. (2019). Landscape of participatory city makers: A distinct understanding through different lenses. *FormAkademisk - forskningstidsskrift for design og designdidaktikk*, 12(2). <https://doi.org/10.7577/formakademisk.2706>
- Dorst, K. (2011). The core of “design thinking” and its application. *Design Studies*, 32(6), 521–532. <https://doi.org/10.1016/j.destud.2011.07.006>
- Fokkinga, S., & Desmet, P. (2012). Darker shades of joy: The role of negative emotion in rich product experiences. *Design Issues*, 28(4), 42–56. https://doi.org/10.1162/DESI_a_00174
- Greenhalgh, T., & Papoutsis, C. (2019). Spreading and scaling up innovation and improvement. *BMJ*, l2068. <https://doi.org/10.1136/bmj.l2068>
- Gupta, A. K., & Govindarajan, V. (2002). Cultivating a global mindset. *Academy of Management Executive*, 16(1), 116–126. <https://doi.org/10.5465/AME.2002.6640211>
- Hey, J. H. G., Joyce, C. K., & Beckman, S. L. (2007). Framing innovation: negotiating shared frames during early design phases. *Journal of Design Research*, 6(1–2), 79–99. <https://doi.org/10.1504/jdr.2007.015564>
- Manzini, E. (2014). Making things happen: Social innovation and design. *Design Issues*, 30(1), 57–66. https://doi.org/10.1162/DESI_a_00248
- Meroni, A. (2008). Strategic design: where are we now? Reflection around the foundations of a recent discipline. *Strategic Design Research Journal*, 1(1), 31–38. <http://hdl.handle.net/11311/513142>
- Moor, A. de. (2018). A Community Network Ontology for Participatory Collaboration Mapping: Towards Collective Impact. *Information*, 9(7), 151. <https://doi.org/10.3390/info9070151>
- Moore, M.-L., & Riddell, D. (2015). *Scaling Out, Scaling Up, Scaling Deep: Advancing Systemic Social Innovation and the Learning Process to Support it*. McConnell Foundation. JW McConnell Family Foundation & Tamarack Institute.
- Mulder, I. (2004). Understanding Designers, Designing for Understanding Collaborative learning and shared understanding in video-based communication. Enschede, the Netherlands: Telematica Instituut
- Lyon, F., & Fernandez, H. (2012). Strategies for scaling up social enterprise: lessons from early years providers. *Social Enterprise Journal*, 8(1), 63–77. <https://doi.org/10.1108/17508611211226593>
- Ozkaramanli, D. (2017). Me against myself: Addressing personal dilemmas through design. <https://doi.org/10.4233/uuid:5b36ba74-d629-4ee2-9f08-edeb33d5ca59>
- Paunesku, D. (2019, March 31). 5 Strategies for Changing Mindsets. Retrieved October 14, 2020, from <https://medium.com/learning-mindset/5-strategies-for-changing-mindsets-ce2de5f92056>
- Paton, B., & Dorst, K. (2011). Briefing and reframing: A situated practice. *Design Studies*, 32(6), 573–587. <https://doi.org/10.1016/j.destud.2011.07.002>

- Rissanen, I., Kuusisto, E., Tuominen, M., & Tirri, K. (2019). In search of a growth mindset pedagogy: A case study of one teacher's classroom practices in a Finnish elementary school. *Teaching and Teacher Education*, 77, 204–213. <https://doi.org/10.1016/j.tate.2018.10.002>
- Puerari, E., de Koning, J. I. J. C., von Wirth, T., Karré, P. M., Mulder, I. J., & Loorbach, D. A. (2018). Co-creation dynamics in Urban Living Labs. *Sustainability*, 10(6), 1893. <https://doi.org/10.3390/su10061893>
- Strasser, T., de Kraker, J., & Kemp, R. (2019). Developing the Transformative Capacity of Social Innovation through Learning: A Conceptual Framework and Research Agenda for the Roles of Network Leadership. *Sustainability*, 11(5), 1304. <https://doi.org/10.3390/su11051304>
- Van der Bijl-Brouwer, M. (2018, February). The power of trust and motivation in a designing social system. In *Relating Systems Thinking and Design (RSD6) 2017 symposium*. Systemic Design Research Network. <http://hdl.handle.net/10453/123009>
- Van der Bijl-Brouwer, M. & Malcolm, B. (2020). Systemic Design Principles in Social Innovation: A Study of Expert Practices and Design Rationales. *She Ji*, 6(3), 386–407. <https://doi.org/10.1016/j.sheji.2020.06.001>
- Vink, J., Edvardsson, B., Wetter-Edman, K., & Tronvoll, B. (2019). Reshaping mental models – enabling innovation through service design. *Journal of Service Management*, 30(1), 75–104. <https://doi.org/10.1108/JOSM-08-2017-0186>
- Westley, F., & Antadze, N. (2010). Making a difference: Strategies for scaling social innovation for greater impact. *Innovation Journal*, 15(2), 1–19.
- Yee, J. and White, H. (2016). The Goldilocks Conundrum: The 'Just Right' Conditions for Design to Achieve Impact in Public and Third Sector Projects. *International Journal of Design*, 10(1). <http://nrl.northumbria.ac.uk/id/eprint/26777/>