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Designerly Approaches for Shaping Social Structures

Catalysing Intentional Change in Social Systems

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Abstract

With growing interest in systemic design, there is a demand for designerly approaches that can aid practitioners in catalysing intentional social systems change. As social structures have been recognized as a critical leverage point for systems change, this paper conducts an exploratory analysis of how designerly approaches can be developed to intentionally shape social structures. By combining theory and ‘research through design’ experiments, this paper presents a portfolio of experimental designerly approaches for shaping social structures and identifies four key design principles to guide systemic design practitioners in doing this work. This research contributes to the open, pluralistic and evolving methodology of systemic design by showing alternatives to system mapping that can help practitioners address the invisible structure of systems and re-entangle themselves in the systems they seek to change.

Introduction

Many of our social systems around the world are showing strain, from government to healthcare to religious organizations. While design theory and practice have always been concerned with social systems, whether implicitly or explicitly (Buchanan, 2019), there has been a resurgence in the popularity of systems thinking in recent years, particularly under the banner of systemic design (Jones & Kijima, 2018). Systemic design brings an action-oriented approach to change in complex social systems (Jones, 2014; Ryan, 2013). Amid the systemic design community, there is no consensus around the best approach for catalysing systems change through design, rather a plurality of methods and approaches are being encouraged (Sevaldson & Jones, 2019).

One common approach to doing systemic design is the creation of a map that helps to visualize the complexity of social systems, such as giga-maps (Sevaldson, 2011) or synthesis maps (Bowes & Jones, 2016). Although identifying various elements, such as actors, materials, information, roles, and their relationships within the focal systems, the existing mapping methods can easily overlook the invisible structures that drive behaviour and relationships within these systems. These structures, often referred to as *social structures*, are the shared and entrenched norms, rules, roles and beliefs that guide actors’ thoughts and actions (Scott, 2014). Social structures have been recognized as key leverage point for changing social systems (Meadows, 2008).

In addition to acknowledging social structures more explicitly, systemic design approaches must also address questions around how actors can become aware of the important, but often highly invisible, structures in order to map them. Furthermore, there is a risk that the creation and use of such system maps can inadvertently lead to a problematic separation between those who are doing the mapping and

the social system that is being mapped, whereas there is growing recognition that design practitioners themselves are embedded in these social structures and systems they wish to change (Rodrigues & Vink, 2016).

Therefore, the purpose of this research is to explore the development of designerly approaches for social systems change that focus on intentionally shaping social structures. To do so, we combine empirical ‘research through design’ experiments with literature on social structures from institutional theory. Through this process, we develop a portfolio of designerly approaches and a set of design principles for shaping social structures. This research strengthens the domain of systemic design by building practical insights about how to tap into a critical leverage point for systems change. In particular, we contribute to this evolving discourse by providing learnings from experimentation with new design formats that work to address some of the limitations of traditional system mapping techniques.

To begin, we offer a brief background on design methods in systemic design and their limitations with regards to social structures. We then provide an overview of our methodology for conducting this research and summarize the different designerly approaches for understanding and reshaping social structures that we experimented with, explaining key examples. Finally, we highlight design principles for understanding and shaping social structures to catalyse systems change through designerly approaches.

Background

Design methods have a long history beginning around the 1960s with the development of more simplistic, rational methods to systematize design practice (Bayazit, 2004). Later generations of design methods integrated an understanding of social systems to better account for complexity and support the activities of reflective practitioners (Bousbaci, 2008). Within the maturing domain of systemic design, the scope and complexity that design practitioners are dealing with when using design methods have continued to expand (Jones, 2013).

This demand has been met with the development of a new set of methods that attempt to embrace super-complexity. One emerging technique in this domain is giga-mapping: an “extensive mapping across multiple layers and scales, investigating relations between seemingly separated categories and so implementing boundary critique to the conception and framing of systems” (Sevaldson, 2011). Other similar ways of visualizing complexity have been developed within the systemic design domain, such as synthesis maps that build on visual languages from systems theory, including causal loop diagrams, and offer a clearer narrative structure than that of giga-maps (Bowes & Jones, 2016).

In addition, recent systemic design methods developed have taken the focus on mapping relations one step further by building out three-dimensional models that use material properties to create a more nuanced relational vocabulary (Aguirre Ulloa & Paulsen, 2017). In this same vein, other designerly approaches have worked with objects and participants’ bodies to map the constellation of actors and their dynamics with a system (van der Lugt, 2017). Amid this evolving landscape, there is growing recognition of the important role that aesthetics play when employing designerly approaches to catalyse systems understanding and change (Vink, Wetter-Edman & Aguirre, 2017).

Systems theory highlights that understanding underlying structures is critical to knowing why systems behave the way they do and reinforces that these structures are a key point of intervention for systems change (Meadows, 2008). However, the emergent set of systemic design approaches are not explicit about how practitioners can move beyond understanding relations to come to appreciate these structures formed by patterns of relations. In social systems, these structures are simply called ‘social structures’. This term emerged in the 1870s from the work of Herbert Spencer, who applied a metaphor from biologic organisms to explain that societal functions were performed by structures similar to that of organs (Martin & Lee, 2015).

Social structures are essential elements of everyday life that are typifications and patterns of actors’ interactions (Berger & Luckmann, 1991). Over time as social structures institutionalize, they become taken for granted and invisible to actors (Greenwood et al., 2008). Because these structures are formed by actors, ‘doing things together’, they are inhabited by actors, not something that is separate from them (Hallett & Ventresca, 2006). These qualities of social structures, make it challenging for actors to become aware of social structures, a critical prerequisite to intentionally changing them (Lawrence, Leca & Zilber, 2013). Given this background, there is a need for further exploration around how designerly approaches could be leveraged to build awareness of and actively shape social structures to support intentional social systems change.

Methodology

This research employs an abductive approach that combines both theoretical and empirical sources of input (Van Maanen et al., 2007). In particular, it draws from one of the most vibrant and active discussions regarding how people can influence social structures - the discourse on institutional theory in organizational studies (Greenwood et al., 2018). Within this discourse, there has recently been considerable attention to how people purposively influence social structures (Lawrence and Suddaby, 2006). However, there is also acknowledgement of the need to better bridge these academic discussions with practice (Hampel et al., 2017). As such, our research combines these theoretical insights from institutional theory with a ‘research through design’ approach that involves action research that taps directly into the tacit knowledge of designing through contextualized design experiments (Frayling, 1993). A ‘research through design’ approach is grounded in a distinctly designerly way of knowing that is focused on the artificial world (Cross, 1999). However, within this research tradition, there is a recognized need to integrate ‘research through design’ with other forms of explicit knowledge, such as theory, to build transferable insights (Friedman, 2008).

Table 1 summarizes the designerly approaches used during the different research through design experiments that were conducted and their inspiration from institutional theory. Each of these methods has been adapted from and inspired by other design methods and approaches to specifically focus on building people’s awareness of and ability to shape social structures. For example, the “a day in *my* life” approach, builds on the “day in the life” design method that is traditionally used to do a descriptive walk through of a customer’s daily activities (Stickdorn & Schneider, 2011). However, building on insights from institutional theory about how actors are enacting social structures in an ongoing way (Hallett & Ventresca, 2006), the approach was revised to shift the focus from the daily life of a customer, to helping all actors unpack their own daily experiences. Furthermore, in this adapted approach, after storyboarding their daily experience, participants work with others in a group to identify the social

structures at play in each other's daily life. Some examples of these designerly approaches are described in more detail in the following section.

Table 1. Description of designerly approaches and related insights from institutional theory

| Designerly Approaches | Description | Insight from Institutional Theory |
|------------------------------|---|--|
| Social structure archaeology | Doing ethnography with attention to social structures and then re-creating the artefacts that uphold existing social structures to support reflection | Artefacts are physical enactments or carriers of social structures (Scott, 2014) |
| Story unwriting | Reading the story out loud, first to unpack the physical elements of the story, then a second time to identify the unwritten rules, norms, roles and beliefs | Stories can help people become aware of hidden social structures (Ruebottom & Auster, 2017) |
| Aesthetic disruption | Staging unsettling or disruptive experiences that prompt actors to reflect on social structures they are enacting | Actors aesthetic and bodily experiences are useful triggers building awareness of social structures (Creed et al., 2019) |
| Fishbowl improv | Improvisation in front of a group where the audience dictates unpacks changes to the "rules of the game" along the way | The process of surfacing of others' experiences is necessary to evaluate invisible social structures (Nilsson, 2015) |
| Iceberg framework | Using a framework to map out the physical enactments and invisible social structures of a situation and then determine what social structures should be changed | Creating, disrupting and maintaining social structures is essential for social systems (Lawrence & Suddaby, 2006) |
| Re-crafting artefacts | Physically re-crafting a representative artefact to explore the relationships between that artefact and related social structures | Working with artefacts can help actors better apprehend taken for granted social structures (Raviola & Norbäck, 2013). |
| Tiny tests | Simple experiments carried out in an actors' everyday life to explore what diverging from existing social structures feels like and potential consequences | Reshaping social structures often leads to unintended consequences that only become visible through action (Pawlak, 2011) |
| Design diaries | Using prompts to write down ongoing reflections related to shaping social structures and the implications | Examining how social structures play out in the past can build understanding about the malleability of the future (Suddaby & Foster, 2017) |
| A day in my life | Participants draw a storyboard of a typical day in their life and then pass the storyboards around the group, allowing other people to identify the invisible social structures playing out | Social structures are not something 'out there' but rather are enacted by actors (Hallett & Ventresca, 2006) |

| | | |
|----------------------|--|---|
| Systemic-self matrix | Using a matrix, actors unpack current social structures within a particular system and how they are themselves enacting them, before exploring possible future social structures | Changing social structures involves people changing their own identities and enactments (Raey et al., 2017) |
|----------------------|--|---|

In this study, we involved over 900 participants in 19 design experiments to test out the new approaches that been developed with the explicit purpose of helping participants become aware of and shape social structures in various social systems. The table in the Appendix summarizes the main ‘research through design’ experiments that were conducted during this study, including the approaches employed, the different groups that participated, the location of the experiment, the number of participants and the date. These approaches reflect different levels of fidelity as some have been refined over years whereas other have only been used once or twice. These experiments have been conducted in Canada, the Netherlands, Germany, Sweden and Norway in various settings, including at conference workshops, in educational environments, within design teams, and inside healthcare and other social systems.

Portfolio of Designerly Approaches for Shaping Social Structures

The designerly approaches employed make up a portfolio, shown in Figure 1, for shaping social structures. Within the portfolio these approaches are spread across two axis - the primary designing entity (individual vs. collective) and the main goal of the approach (awareness vs. change). The placement of each approach in this portfolio has been defined based on the relative emphasis of each approach, even though these categories are not mutually exclusive. Below we provide an example of one of the approaches within each of the four quadrants – collective awareness, collective change, individual awareness, and individual change.

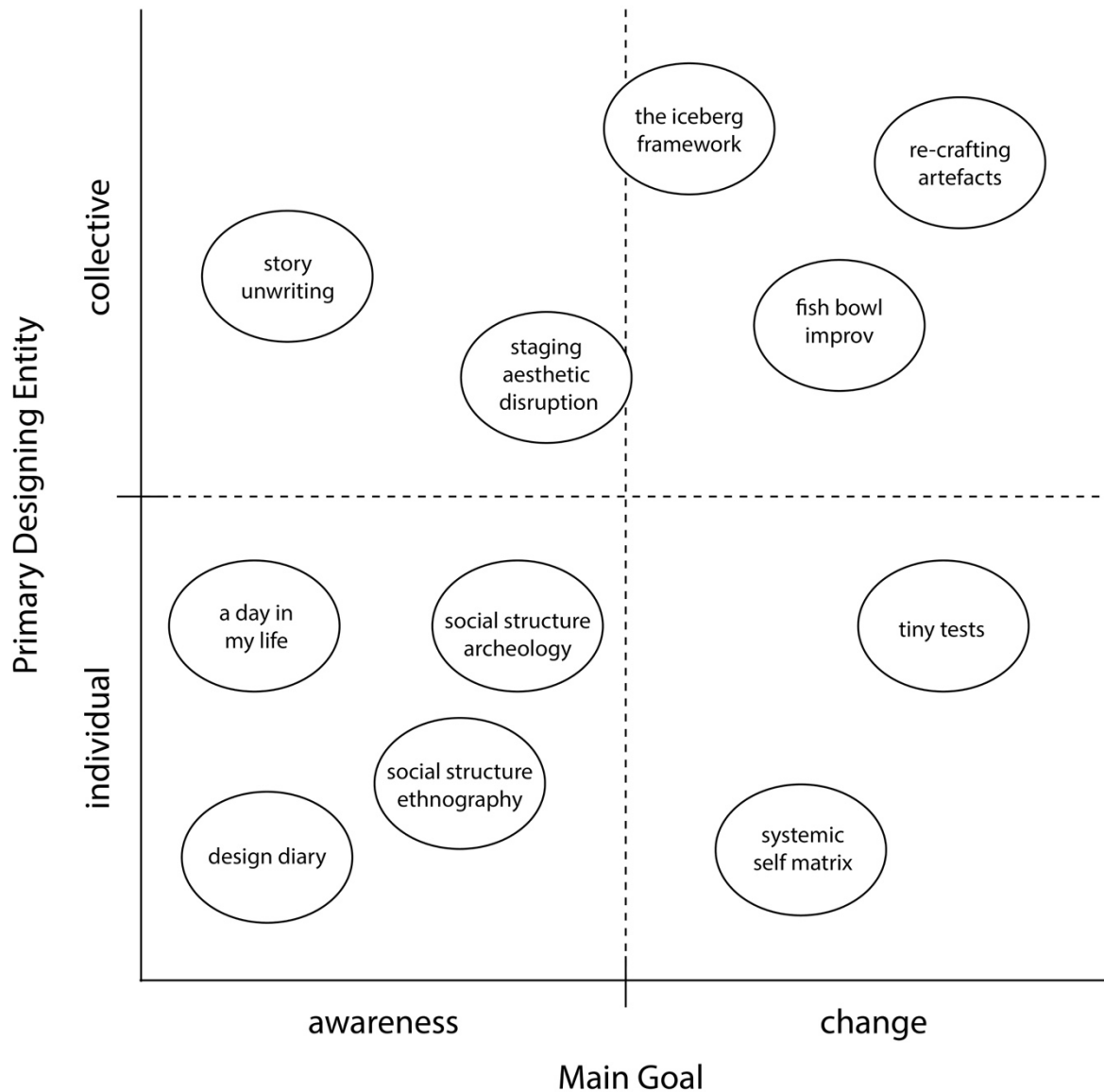


Figure 1: Portfolio of designerly approaches to shaping social structures

Designerly Approaches for Collective Awareness

Two approaches employed related to collective awareness: staging aesthetic disruption and story unwriting. The main purpose of these approaches was to cultivate awareness of taken for granted social structures within a group of participants. To exemplify this set of approaches, we explain the process of using story unwriting. The approach involves developing a narrative inspired by real events or based on an interview with a specific actor. Then the story is read out loud to a group several times. The first time the individuals in the group is asked to unpack the physical elements of the story that one could experience through their senses, perhaps through the perspective of one of the characters in the story. Then, when the story is read the second time, the individuals in the group are asked to listen “between the lines” for the unwritten rules, norms, roles and beliefs illuminated within the story. Next, the group pairs up or works in groups of threes to discuss their perspective on the story and the invisible social

structures that they uncovered. Below is an excerpt from one story that was used to explore the social structures related to diagnosis in a hospital:

The room was silent, except for the tick, tick, tick of clock. Despite the snowstorm outside, the office was overheated and stuffy. The neurologist removed her jacket and placed it slowly on the desk in front of her, as if she was stalling. She gave Richard what seemed like a half-hearted smile before for she began. Richard looked pale and was staring blankly at the doctor's files, when she finally spoke.

"Richard, I am afraid I have some bad news." Richard didn't look up. Julie screeched her chair as she moved closer to Richard and took his sweaty, but cold hand in an attempt to reassure him.

"After all the assessments, we have a diagnosis". Julie squeezed Richard's hand a bit tighter. "From the blood tests and imaging we did, we can rule out other causes for your memory loss. We think you have Early Onset Alzheimers." Richard continued staring, but with each word, Julie seemed to sit straighter and straighter in her chair.

By reflecting on that story participants started to uncover possible unspoken, shared beliefs and norms, such as "healthcare happens in the doctors' office", "disease is individual" and "the family caregiver is secondary".

Designerly Approaches for Collective Change

The designerly approaches that related to collective change included: the iceberg framework, re-crafting artefacts, and fishbowl improv. The purpose of these approaches was to encourage a group of actors to collectively and intentionally reshape existing social structures. To understand these approaches further, we can unpack the example of fishbowl improv. Here, a number of people are asked to improvise different scenarios with different social structures to understand their differences and the implications of altering social structures. Figure 2 shows an example of two people improvising doctor-patient interactions in a typical primary care appointment. First, one or two participants were asked to improvise their version of what a doctor's visit looks like together in front of the group. After the improvise the scenario, the facilitator worked with the group to unpack the invisible social structures or "unwritten rules of the game" that were at play during this doctor visit. Workshop participants called out unwritten rules like "the patient is the disease" and "the doctor knows best". Next, everyone wrote down a headline about an innovation in the doctor-patient relationship that might be seen in a newspaper in the year 2020. Inspired by participants' future headlines, the group identified which of the rules of the game they would need to break, make, or maintain to realize this future. Based on these changes to the invisible social structures, the participants improvised the new scenario and the group reflected on the implications together.



Figure 2. Fishbowl improv at Radboud Reshape, the Netherlands (Photograph by Radboud REshape)

Designerly Approaches for Individual Awareness

The approaches related to building individual awareness of social structures include: a day in my life, design diary, social structure ethnography, and social structure archeology. As an example, we can unpack the 'a day in my life' approach, which aims to get actors to unpack their daily lives to better understand the ways in which they are enacting social structures. While the purpose is to support individual reflection, the activity requires also other participants to be completed. First, each participant is asked to individually draw pictures in the form of a storyboard of a typical day in their life, as shown in Figure 3. Then each person holds up their story board and verbally describes their typical day using the storyboard. Once everyone has shared their typical day to the group, the participants pass their papers clockwise for someone else to help unpack some of the rules, norms, roles, and beliefs that are being enacted in that person's day under the related pictures. The group keeps passing the papers along to the next person adding on to the notes of the previous person about what social structures are being enacted until each person gets back their original storyboard. Then participants are given time to read and reflect on the notes and share any insights back with the group about social structures they do not normally consider they are enacting.



Figure 3. Day in my life activity with students at Linköping University, Sweden

Designerly Approaches for Individual Change

The two approaches that relate to individual change are: tiny tests and systemic-self matrix. The tiny test approach helps to illuminate some of the dynamics at play in this category of methods. The aim of this approach was to encourage actors to experiment with intentionally reshaping social structures and learning from the process. Tiny tests are intended to be simple experiments in actor's everyday life to test out what it might be like to act in ways that are divergent from existing social structures. Each participant is asked to plan their own test and the associated learning goals beforehand. A tiny test could be something such as a doctor wearing their plain clothes in a clinic for a day or taking about something that is taboo during a lunch time work conversation. The intention is for actors to reflect on what happens during and after their experiment with intentionally reshaping how they enact a particular social structure in their everyday lives. Figure 4 is a photo from one tiny test where a trainer tested out the delegation of the planning of a training session to the team members to explore alternative training norms.



Figure 4: Example of a tiny test from healthcare practitioner in Eskilstuna, Sweden

Design Principles for Catalysing Change in Social Systems by Shaping Social Structures

Based on the reflections from the research through design experiments with the portfolio of approaches, this research details four design principles for catalysing social systems change. These design principles include: 1) make the invisible visible together (collective awareness), 2) collaboratively change the rules of the game (collective change), 3) see yourself as part of the system (individual awareness), and 4) embrace design in your everyday life (individual change). Each of these design principles and their implications for practitioners of systemic design are briefly described in more detail below.

1. Make the invisible visible together (collective awareness)

Through experimentation with designerly approaches, it became clear that, in order to build the collective awareness of social structures, there is work to be done to make the invisible aspects of the system more visible and conscious. By making norms, rules, roles and beliefs more visible or tangible, it is easier to reflect on them and critique them as a group. To support this group process, it was helpful to delineate an arbitrary boundary around a particular system and use a particular example of the

experiential elements of this system in order to surface the hidden social structures. Without an arbitrary boundary and example, reflection was often unfruitful and disconnected, making it difficult to build a common understanding within the collective. In this way, a short story of a typical experience in a system seem to provide to be a fruitful starting place for building collective awareness of social structures in a way that was timelier and more accessible than general reflection. However, doing this with the support of visual aids, for both the story and the documentation of related social structures, was important for enabling clear conversation.

2. Collaboratively change the rules of the game (collective change)

In order to support collectives to work at intentionally changing social structures, it was valuable to get the groups practicing how they might change the rules of the game. By doing this, they could experience with their own bodies what it feels like to enact together different social structures. Furthermore, this allowed groups to compare variations of existing social systems with different rules of the game and understand the implications of these potential changes. Such a process is critical for working together to assess the consequences of changing social structures at a small scale with different perspectives and inputs. In addition, this helps to illuminate potential shifts in power that come with changing social structures and can aid the group in understanding and strategizing around what it would take to make such a shift happen. Furthermore, to support actors' bodily engagement, discursive artefacts that challenged existing social structures were a key asset that helped groups open up new possibilities and alternatives for how social structures might be divergent from the status quo.

3. See yourself as part of the system (individual awareness)

Building individual awareness of social structures demands that actors see themselves as embedded and entangled in the systems they are trying to change. It is easy for actors to talk or work in ways that focus on how others need to change, but harder to make those changes themselves. Key ways of supporting actors to see themselves in the system involved having actors document their own actions and interactions and sharing them with others. In order to recognize one's own role in reproducing and reshaping these taken for granted social structures, there is often a need for support from others with diverse perspectives. Thus, paradoxically seeing ourselves more holistically requires being seen by others who can help mirror and question our role in upholding the social structures that to us generally remain invisible.

4. Embrace design in your everyday life (individual change)

Because shaping social structures happens beyond the confines of a design project or workshop, and is done in an ongoing way by all actors, there is a need to build the design capabilities of all actors to more consciously shape social structures in their everyday lives. That is not to say that systems change is the responsibility of individual actors, but rather that actors can better understand their own role in reshaping social structures, and leverage it within a collective, by experimenting with their own ability to live or work in a different way, even for a short period of time. New formats are needed to enable diverse individuals to explore their role in intentionally changing social structures. Conducting and documenting small personal experiments, proved to be a valuable means of catalyzing this process.

Conclusion

The portfolio of designerly approaches developed here illuminates possible strategies for systemic design to more explicitly work with individuals and collectives in shaping social structures to catalyze social system change. These alternative approaches require further experimentation and development

with attention to the necessary conditions and their potential unintended consequences. There is also a need for further evaluation of their usefulness and applicability to other contexts. Hence, we have refrained from using the term “methods” to describe these activities, as these formats are not fully refined, universal recipes for shaping social structures, but rather evolving, messy approaches that align with this intention. Furthermore, it is important to mention that these approaches are far from neutral and themselves enact particular social structures. Thus, attention must be paid how these approaches might contribute or bias the type of social structures that are identified or the ways in which these social structures are altered. Nevertheless, the design principles and portfolio of designerly approaches outlined in this paper offer a humble input into the ongoing evolution of systemic design practice. This research shows possible approaches for cultivating systems change in a way intentionally targets the invisible structures of social systems that are key leverage points for change and works to re-entangle the designer and the social system they are seeking to change.

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Appendix

Summary of key 'research through design' experiments

| Experimental Design Approaches(s) Employed | Participating Group | Location | Number of Participants | Date |
|---|---|-------------------------|------------------------|-----------------------|
| Iceberg framework, design diaries | Relating Systems Thinking and Design Symposium | Toronto, Canada | 40 | October 2016 |
| Iceberg framework, fishbowl improv | Service Convention Sweden | Karlstad, Sweden | 200 | December 2016 |
| Iceberg framework | Karlstad University | Karlstad, Sweden | 15 | January 2017 |
| Iceberg framework | County Council of Sörmland | Eskilstuna, Sweden | 75 | January 2017 |
| Iceberg framework, fishbowl improv, tiny tests | Radbound Reshape Center | Nijmegen, Netherlands | 100 | March 2017 |
| Iceberg framework, fishbowl improv | Service Science Factory | Maastricht, Netherlands | 12 | April 2017 |
| Iceberg framework | County Council of Sörmland | Eskilstuna, Sweden | 40 | August 2017 |
| Staging aesthetic disruption, iceberg framework | Köln International School of Design (KISD) | Cologne, Germany | 10 | May 2017 |
| Iceberg framework | County Council of Värmland | Karlstad, Sweden | 8 | September 2017 |
| Iceberg framework, design diaries | Konstfack University of Arts, Crafts and Design | Stockholm, Sweden | 14 | October-November 2017 |
| Systemic-self matrix | County Council of Sörmland | Eskilstuna, Sweden | 50 | November 2017 |
| Iceberg framework, story unwriting, re-crafting artefacts | Service Design for Innovation Conference | Karlstad, Sweden | 70 | January 2018 |
| Iceberg framework, mental model mapping, fishbowl improve | Health Innovation School | Nijmegen, Netherlands | 50 | April 2018 |

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| Iceberg framework | International Initiative for Mental Health Leadership Conference | Stockholm, Sweden | 50 | May 2018 |
| Institutional ethnography, institutional archeology | Karlstad Hospital | Karlstad, Sweden | 3 | July 2018 |
| Iceberg framework, story unwriting | Swedish Association of Local Authorities and Regions | Stockholm, Sweden | 150 | October 2018 |
| Iceberg framework, day in my life, staging aesthetic disruption | Linköping University | Linköping, Sweden | 4 | November 2018 |
| Story unwriting, iceberg framework, ting tests | Vestfold County Council | Oslo, Norway | 10 | November 2019 |
| Day in my life, tiny tests | County Council of Sörmland | Eskilstuna, Sweden | 5 | December 2019 |
| Iceberg framework, day in my life | Oslo School of Architecture and Design (AHO) | Oslo, Norway | 12 | February 2020 |