

Designerly Approaches for Catalyzing Change in Social Systems: A Social Structures Approach

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Abstract

Given the growing interest in systemic design, there is a demand for designerly approaches that can aid practitioners in catalyzing social systems change. The purpose of this research is to develop an initial portfolio of designerly approaches that acknowledges social structures as a key leverage point for influencing social systems. This article presents learnings from experimentation with a host of designerly approaches for shaping social structures and identifies four design principles to guide systemic design practitioners in doing this work. This research contributes to the evolving and pluralistic methodology of systemic design by presenting formats for design activities that take social structures seriously and identifying ways that systemic designers, and other practitioners, can re-entangle themselves in the systems they seek to change.

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- 2 Peter Jones and Kyoichi Kijima, eds., *Systemic Design: Theory, Methods, and Practice* (Tokyo: Springer, 2018).
- 3 Peter Jones, "Systemic Design Principles for Complex Social Systems," in *Social Systems and Design*, ed. Gary S. Metcalf (Tokyo: Springer, 2014), 91–128; Alex Ryan, "A Theory of Systemic Design," in *Relating Systems Thinking and Design RSD2 2013 Symposium Proceedings*, ed. Birger Sevaldson and Peter Jones (Oslo: The Oslo School of Architecture and Design, 2013), 1–8, available at <https://systemic-design.net/wp-content/uploads/2013/12/Ryan.pdf>.
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- 9 W. Richard Scott, *Institutions and Organizations: Ideas, Interests, and Identities*, 4th ed. (Thousand Oaks, CA: SAGE, 2014).
- 10 Donella H. Meadows, *Thinking in Systems: A Primer*, ed. Diana Wright (London: Earthscan Publications, 2008).
- 11 Vanessa Rodrigues and Josina Vink, "Shaking Up the Status Quo in Healthcare: Designing amid Conflicting Enacted Social Structures," in *Relating Systems Thinking and Design RSD5 2016 Symposium Proceedings*, ed. Peter Jones (Toronto: Systemic Design Research Network, 2016), 1–10, available at http://openresearch.ocadu.ca/id/eprint/1928/1/Vink_Design_2016.pdf.

Introduction

Many of our social systems around the world are showing strain, from governments to healthcare to religious organizations. While design theory and practice have always been concerned with social systems, whether implicitly or explicitly,¹ there has been a resurgence in the popularity of systems thinking in recent years, particularly under the banner of systemic design.² Systemic design brings an action-oriented approach to change in complex social systems.³ Within the systemic design community, there is no consensus around the best approach for catalyzing systems change through design; instead, a plurality of methods and approaches are being encouraged.⁴

While there have been decades of discussion on purposefully influencing social systems,⁵ many of the designerly approaches for working with systems emphasize the technical aspects of such systems and neglect their social dimensions.⁶ One common approach to doing systemic design is to create maps that visualize the complexity of systems, such as giga-maps⁷ or synthesis maps.⁸ These maps typically focus on identifying various elements—such as the actors, materials, information, roles, and relationships among all these things—within a focal system. However, existing system mapping methods can easily overlook the invisible structures that drive human behaviors and relationships within these systems. These structures—often referred to as social structures—are the shared and entrenched norms, rules, and beliefs that guide actors' thoughts and actions.⁹ Social structures have been recognized as a key leverage point for intervening in a social system and changing its behavior.¹⁰

Present-day systemic design literature has limited integration with evolving theories from social sciences that explicitly detail the nature and characteristics of social structures. This may contribute to why today's systemic design approaches tend to ignore questions about the critical role of social structures in influencing social systems. Such questions include, for example, how can actors become aware of highly taken-for-granted social structures in social systems in order to map them? And how can the constraining effects of the very social structures that actors aim to shape be thoughtfully addressed in design practice? There is also a risk that the creation and use of system maps can inadvertently lead to a problematic separation between those who are doing the mapping and the social system that is being mapped. For example, the practice of looking at and working with a flat representation of the system carries with it the danger that practitioners can point to the system and begin to understand it as "out there" or "over there." This is problematic, given the growing recognition that design practitioners themselves are embedded in the social structures and social systems they wish to change.¹¹

To overcome some of these issues, the purpose of this research is to develop an initial portfolio of designerly approaches that acknowledges the crucial role of social structures as a key leverage point for influencing social systems. To do so, we combine empirical "research through design" (RtD) experiments with literature detailing the nature and characteristics of social structures from structuration theory¹² and institutional theory.¹³ Through this process, we develop both a set of designerly approaches and design

- 12 Anthony Giddens, *The Constitution of Society: Outline of the Theory of Society* (Cambridge: Polity Press, 1984).
- 13 Royston Greenwood et al., *The SAGE Handbook of Organizational Institutionalism* (London: Sage, 2008); Scott, *Institutions and Organizations*. –
- 14 Nigan Bayazit, "Investigating Design: A Review of Forty Years of Design Research," *Design Issues* 20, no. 1 (2004): 16–29, DOI: <https://doi.org/10.1162/074793604772933739>.
- 15 Rabah Bousbaci, "'Models of Man' in Design Thinking: The 'Bounded Rationality' Episode," *Design Issues* 24, no. 4 (2008): 38–52, DOI: <https://doi.org/10.1162/desi.2008.24.4.38>.
- 16 Jones, "Systemic Design Principles," 91–128.
- 17 Sevaldson, "GIGA-Mapping," 1.
- 18 Bowes and Jones, "Synthesis Maps."
- 19 Manuela Aguirre-Ulloa and Adrian Paulsen, "Co-designing with Relationships in Mind: Introducing Relational Material Mapping," *FORMakademisk* 10, no. 1 (2017): 1–14, DOI: <https://doi.org/10.7577/formakademisk.1608>.
- 20 Remko van der Lugt, "Open Mind and Open Heart: Exploring the Dynamics in Stakeholder Networks in Complex Co-design Projects," in *Proceedings of Relating Systems Thinking and Design RSD6 2017 Symposium*, ed. Birger Sevaldson (Oslo: Systemic Design Research Network, 2017), online, available at <https://systemic-design.net/rsd6/systemic-design-theory-and-methods/#lugt>.
- 21 Delanie Ricketts and Dan Lockton, "Mental Landscapes: Externalizing Mental Models through Metaphors," *Interactions* 26, no. 2 (2019): 86–90, DOI: <https://doi.org/10.1145/3301653>.
- 22 Josina Vink, Katarina Wetter-Edman, and Manuela Aguirre, "Designing for Aesthetic Disruption: Altering Mental Models in Social Systems through Designerly Practices," *The Design Journal* 20, no. sup1 (2017): S2168–77, DOI: <https://doi.org/10.1080/14606925.2017.1352733>.
- 23 Meadows, *Thinking in Systems*.

principles for shaping social structures. This research strengthens the domain of systemic design by building practical insights about how to tap into social structures as 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 acknowledging social structures. We then draw from structuration theory and institutional theory to better understand the nature and characteristics of social structures. After this, we provide an overview of our methodology for conducting this research and summarize the different designerly approaches for understanding and influencing social structures that we experimented with, explaining key examples. Finally, we highlight design principles for intentionally influencing social structures to catalyze systems change through designerly approaches.

Systemic Design Approaches

Design methods have a long history, beginning around the 1960s with the development of simplistic, rational methods to systematize design practice.¹⁴ Later generations of design methods integrated an understanding of social systems to better account for complexity and support the activities of reflective practitioners.¹⁵ Within the maturing domain of systemic design, the scope and complexity that design practitioners are dealing with when using design methods continue to expand.¹⁶

This broadening scope has been met with the development of a new set of methods that attempt to embrace super-complexity. One emerging technique 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."¹⁷ 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—integrating causal loop diagrams, for example—which offer a clearer narrative structure than that of giga-maps.¹⁸

More recent systemic design methods take mapping relations a step further, for example by building three-dimensional models that use material properties to create a more nuanced relational vocabulary.¹⁹ Another similar designerly approach uses human bodies and material objects to map out the constellation of actors and dynamics at play in a system.²⁰ Researchers have also been exploring the use of metaphors to elicit participants' unexamined mental models about a particular social system.²¹ Within this evolving landscape of systemic design methods, scholars have come to recognize the important role that aesthetics play in designerly approaches to catalyze systems understanding and change, including the value tapping into the bodily senses.²²

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.²³ However, emerging systemic design approaches are not explicit about how practitioners

- 24 Josina Vink et al., "Service Ecosystem Design: Propositions, Process Model, and Future Research Agenda," *Journal of Service Research* 24, no. 2 (2021): 168–86, DOI:<https://doi.org/10.1177%2F1094670520952537>.
- 25 Giddens, *Constitution of Society*.
- 26 Greenwood et al., *SAGE Handbook*; Scott, *Institutions and Organizations*.
- 27 Giddens, *Constitution of Society*, 16–37.
- 28 Ibid., 16–37.
- 29 Ibid., 17.
- 30 W. Richard Scott, "Institutional Theory: Contributing to a Theoretical Research Program," in *Great Minds in Management: The Process of Theory Development*, ed. Ken G. Smith and Michael A. Hitt (Oxford, UK: Oxford University Press, 2005), 408, available at <https://www.researchgate.net/publication/265348080>.
- 31 Stephen R. Barley and Pamela S. Tolbert, "Institutionalization and Structuration: Studying the Links between Action and Institution," *Organization Studies* 18, no. 1 (1997): 93–117, DOI: <https://doi.org/10.1177%2F017084069701800106>.
- 32 John W. Meyer and Brian Rowan, "Institutionalized Organizations: Formal Structure as Myth and Ceremony," *American Journal of Sociology* 83, no. 2 (1977): 341, available at <https://www.jstor.org/stable/2778293>.
- 33 Peter L. Berger and Thomas Luckmann, *The Social Construction of Reality: A Treatise in the Sociology of Knowledge* (New York: Anchor Books, 1967).
- 34 Greenwood et al., *The SAGE Handbook*.
- 35 Scott, *Institutions and Organizations*.
- 36 Scott, "Institutional Theory," 408.

can move beyond understanding relationships and come to appreciate the social structures formed by patterns of relations.

Deepening the Understanding of Social Structures

Insights from the social sciences about the nature and characteristics of social structures within social systems are useful resources for strengthening systemic design approaches. We build on our recent work highlighting the crucial role of intentionally shaping social structures to influence, but not fully control, the emergent adaptation of social systems.²⁴ In this article, we particularly draw from structuration theory²⁵ and institutional theory²⁶ to better understand the "duality" of structure in social systems and the institutionalized nature of much of that structure.

In structuration theory, the structure of social systems is understood as both the structural properties, which reside in the memory traces of "knowledgeable" actors, and the patterns of similar social practices that exist across varying spans of time and space.²⁷ This duality means that in social systems, structure is both virtual—that is, invisible and out of time-space—and manifested in time-space as actors' material practices that give the system its visible form. As such, structure in social systems is not external to actors—it exists in the actors' memory traces and gains presence in time-space through the enactment of practices.²⁸ The term structuration further highlights this dual nature of structure by implying that social systems' structure is both the medium and outcome of the process of reproduction of social systems. Antony Giddens's insight about the duality of structure within social systems implies that individuals are not separate entities, they are entangled in and made up of the social structures in the systems they are a part of and reproduce these systems through their every action.

According to Giddens, the most deeply embedded structural properties and the resulting practices that have the greatest time-space extension can be called institutions.²⁹ Giddens, however, does not explicitly address or explain the varying level of endurance of structure in social systems. Institutional theory, on the other hand, explicitly studies "the processes and mechanisms by which structures, schemas, rules, and routines become established as authoritative guidelines for social behavior."³⁰ Understanding the endurance and change of social structures is critical to the goals of systemic design as it works in and on social systems.

A core concept of institutional theory is institutionalization. Institutionalization is a dynamic, ongoing process³¹ by which "social processes, obligations, or actualities come to take on a rule-like status in social thought and action."³² Hence, in their most basic form, social structures are shared typifications that identify categories of actors and their appropriate activities and relationships.³³ However, as they institutionalize, social structures gain objectivity and become taken for granted.³⁴ These interrelated institutionalized social structures have then evolved into complex rule systems, norm sets defining accepted behavior, and deeply held common knowledge that enables interactions within collectives³⁵ and has a tendency to resist change.³⁶

- 37 Thomas B. Lawrence, Bernard Leca, and Tammar B. Zilber, "Institutional Work: Current Research, New Directions and Overlooked Issues," *Organization Studies* 34, no. 8 (2013): 1023–33, DOI: <https://doi.org/10.1177%2F0170840613495305>.
- 38 Christopher Frayling, "Research in Art and Design," *Royal College of Art Research Papers* 1, no. 1 (London: Royal College of Art, 1993), 1–9, available at https://researchonline.rca.ac.uk/384/3/frayling_research_in_art_and_design_1993.pdf.
- 39 Nigel Cross, "Design Research: A Disciplined Conversation," *Design Issues* 15, no. 2 (1999): 5–10, DOI: <https://doi.org/10.2307/1511837>.
- 40 Johan Redström, *Making Design Theory* (Cambridge, MA: MIT Press, 2017).
- 41 Ibid.
- 42 Marc Stickdorn et al., *This is Service Design Thinking: Basics, Tools, Cases* (Amsterdam: BIS Publishers, 2011).

These qualities of social structures make it challenging for actors to become aware of social structures, a critical prerequisite to intentionally changing them.³⁷ Given this background, there is a need for further exploration around how designerly approaches could be leveraged to build awareness of and intentionally shape social structures to influence social systems.

Methodology

This research adopted a research through design (RtD) approach, which involves action research that taps directly into the knowledge of designing through contextualized design experiments.³⁸ RtD approaches are grounded in a distinctly designerly way of knowing that is focused on the artificial world.³⁹ Our approach builds mainly on one of Johan Redström's RtD tactics⁴⁰ called "sequencing," which involves going back and forth between design work and theories from other knowledge areas. Using the tactic of sequencing, we combined insights from structuration and institutional theory with systemic design practice to support the development of practical approaches for shaping social structures.

We use this approach within a programmatic design research structure,⁴¹ which includes a basic set of beliefs and intentions (a program) and a set of design experiments that explore those intentions (experiments). The basic belief of our research program is, "Social systems can be influenced by intentionally shaping institutionalized social structures." By analyzing existing methods, and reading, reflecting, and experimenting in iterative cycles, we developed and tested new approaches to support ongoing questioning and inform provisional foundations for systemic design approaches. Since design work is situated and contextual, we developed these experiments within a diversity of contexts and in a variety of combinations depending on what we deemed relevant.

Each of these approaches was adapted from and inspired by other design methods and approaches to specifically focus on building people's awareness of and ability to reform social structures. For example, the "a day in my life" approach builds on the "day in the life" design method traditionally used to do a descriptive walk-through of a customer's daily activities.⁴² However, we revised the approach away from the daily life of a customer to helping all actors unpack their own daily experiences by using the approach on themselves. 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. The list of these approaches and more descriptive examples of these designerly approaches in context are described in more detail in the following section.

In this study, we involved over 900 participants in 19 design experiments that tested out the new approaches we developed with the explicit purpose of helping participants become aware of and reform social structures in various social systems. The table in Appendix A summarizes the main experiments that we 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 several years, whereas others have only been used once or twice. The experiments were 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 result of interlacing structuration and institutional theory with systemic design practice is a set of experiments summarized as an initial portfolio of designerly approaches for shaping social structures. The designerly approaches and their connecting theoretical influence are described briefly in Table 1. They are deliberately framed as approaches rather than methods since their character is fluid and open to adjustment for the given purpose and context, and most are still in the preliminary development phase. Furthermore, it is important to emphasize that this is not a complete portfolio to support such work—it is a starting place to inform the ongoing development of approaches for shaping social structures.

Table 1 Description of designerly approaches, their steps, and related insights from theory.

Designerly Approaches	Description	Typical Steps within the Approach	Related Theoretical Insight
Social Structure Archaeology	Doing ethnography with attention to social structures and then re-creating the artifacts that uphold existing social structures to support reflection.	<ol style="list-style-type: none"> 1. Develop field guide template with physical enactments, social structures and emerging inferences and questions. 2. Conduct ethnography in context while making notes and drawings in the field guide. 3. Create simple physical representations of artifacts that uphold social structures and reflect on their role. 	Artifacts are physical enactments, tangible manifestations, or carriers of social structures. ^a
Story Unwriting	Using collective story reading and unpacking to identify the physical enactments and underlying social structures within a particular situation.	<ol style="list-style-type: none"> 1. Develop a concrete story based on research or first-hand experience. 2. Gather related stakeholders to listen to the story. 3. Read the story out loud and write down the physical enactments in the story. 4. Read the story out a second time and identify the unwritten rules, roles, norms, and beliefs reflected within the story. 	Stories can help people become aware of hidden social structures. ^b
Aesthetic Disruption	Staging unsettling or disruptive experiences that prompt actors to reflect on social structures they are enacting.	<ol style="list-style-type: none"> 1. Identify a taken-for-granted social structure in a particular situation. 2. Plan a disruptive experience around the social structure (e.g., using a strange artifact, doing a role play). 3. Experience the situation and reflect together on the social structures enacted. 	Actors' aesthetic and bodily experiences are useful triggers for building awareness of social structures. ^c
Fishbowl Improv	Improvisation in front of a group where the audience dictates and unpacks changes to the "rules of the game" along the way.	<ol style="list-style-type: none"> 1. Have a few volunteers improvise a typical interaction within a particular social system in front of a group. 2. In the large group, work together to identify the unspoken "rules of the game" within the interaction. 3. Have them imagine an alternative future and identify the various "rules of the game" at play. 4. Have volunteers improvise the alternative future with the new rules and get the group to reflect on the implication. (Repeat.) 	The process of surfacing others' experiences is necessary to evaluate invisible social structures. ^d

(Continued on next page...)

Table 1 (Continued)

Designerly Approaches	Description	Typical Steps within the Approach	Related Theoretical Insight
Iceberg Framework	Using a framework to map out the physical enactments and invisible social structures of a situation.	<ol style="list-style-type: none"> 1. Draw an iceberg on a sheet of paper and identify a particular situation to examine. 2. Based on research, a story, or experience, identify the physical enactments at play. 3. Use the physical enactments to identify invisible social structures in a situation from a different perspective. 4. Reflect together on the implications of those social structures. 	To intentionally reshape social structures, you first need to be aware of them. ^e
Re-crafting Artifacts	Physically re-crafting a representative artifact to explore the relationships between that artifact and related social structures.	<ol style="list-style-type: none"> 1. Identify a particular artifact that plays a key role in enacting existing social structures. 2. Tweak, transform, or distort this artifact to change its enactment of social structures. 3. Use or work with the changed artifact in context. 4. Reflect on the influence of the artifact on related social structures. 	Working with artifacts can help actors better apprehend taken-for-granted social structures. ^f
Tiny Tests	Simple experiments carried out in an actor's everyday life to explore what diverging from existing social structures feels like and potential consequences.	<ol style="list-style-type: none"> 1. Identify a particular social structure to experiment with. 2. Think about a small way to challenge or diverge from that social structure in everyday life. 3. Conduct tiny experiments in everyday life, appreciate the response from the environment, and record learnings. 	Reshaping social structures often leads to unintended consequences that only become visible through action. ^g
Design Diaries	Using prompts to write down ongoing reflections related to shaping social structures and the implications.	<ol style="list-style-type: none"> 1. Develop writing or drawing prompts to reflect on the social structures in design practice. 2. Write down reflections in response to prompts based on experiences when designing. 3. Periodically review reflections and consider how the social structures that show up could be more consciously shaped. 	Examining how social structures play out in the past can build understanding about the malleability of the future. ^h
A Day in My Life	Participants draw a storyboard of a typical day in their life, and other people help to identify the invisible social structures playing out in their everyday life.	<ol style="list-style-type: none"> 1. Gather a diverse group together. 2. Have each group member draw a storyboard of a typical day in their life. 3. Have each group member explain their storyboard to the group. 4. Pass the storyboards around for the other group members to write down how they see social structures playing out in others' days below their storyboards. 	Practices are the time-space manifestation of invisible structural properties of social structure. ⁱ
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.	<ol style="list-style-type: none"> 1. Draw a two-by-two matrix with "system" on the top of the y-axis and "systemic-self" on the bottom, "present" on the left of the x-axis and "future" on the right. 2. Start by reflecting on the social structures within a particular system that participants are a part of — writing them in the top left quadrant. 3. Next, have participants write the ways they are themselves enacting these social structures in the bottom left quadrant. 4. Identify an alternative future and write the alternative social structures in the top right quadrant. 5. Have each participant reflect on the ways in which they would each enact these social structures if this future was reality. 	Shaping social structures involves people changing their own identities and enactments. ^j

a. W. Richard Scott, *Institutions and Organizations: Ideas, Interests, and Identities*, 4th ed. (Thousand Oaks, CA: SAGE, 2014).

b. Trish Ruebottom and Ellen R. Auster, "Reflexive Dis/embedding: Personal Narratives, Empowerment and the Emotional Dynamics of Interstitial Events," *Organization Studies* 39, no. 4 (2018): 467–90, DOI: <https://doi.org/10.1177%2F0170840617709308>.

c. W.E. Douglas Creed, Steven S. Taylor, and Bryant Ashley Hudson, "Institutional Aesthetics: Embodied Ways of Encountering, Evaluating, and Enacting Institutions," *Organization Studies* 41, no. 3 (2020): 415–35, DOI: <https://doi.org/10.1177%2F0170840619835254>.

d. Warren Nilsson, "Positive Institutional Work: Exploring Institutional Work through the Lens of Positive Organizational Scholarship," *Academy of Management Review* 40, no. 3 (2015): 370–98, DOI: <https://doi.org/10.5465/amr.2013.0188>.

e. Roy Suddaby, Thierry Viale, and Yves Gendron, "Reflexivity: The Role of Embedded Social Position and Entrepreneurial Social Skill in Processes of Field Level Change," *Research in Organizational Behavior* 36 (2016): 225–45, DOI: <https://doi.org/10.1016/j.riob.2016.02.001>.

f. Elena Raviola and Maria Norbäck, "Bringing Technology and Meaning into Institutional Work: Making News at an Italian Business Newspaper," *Organization Studies* 34, no. 8 (2013): 1171–94, DOI: <https://doi.org/10.1177%2F0170840613492077>.

g. Mikołaj Pawlak, "Unintended Consequences of Institutional Work," in *Sociology and the Unintended. Robert Merton Revisited*, ed. Adriana Mica, Arkadiusz Peisert, and Jan Winczorek (Frankfurt: Peter Lang, 2011), 355–70, available at <http://depot.ceon.pl/handle/123456789/1242>.

h. Roy Suddaby, and William M. Foster, "History and Organizational Change," *Journal of Management* 43, no. 1 (2017): 19–38, DOI: <https://doi.org/10.1177%2F0149206316675031>.

i. Anthony Giddens, *The Constitution of Society: Outline of the Theory of Society* (Cambridge: Polity Press, 1984).

j. Trish Reay et al., "Getting Leopards to Change Their Spots: Co-creating a New Professional Role Identity," *Academy of Management Journal* 60, no. 3 (2017): 1043–70, DOI: <https://doi.org/10.5465/amj.2014.0802>.

43 Giddens, *Constitution of Society*.

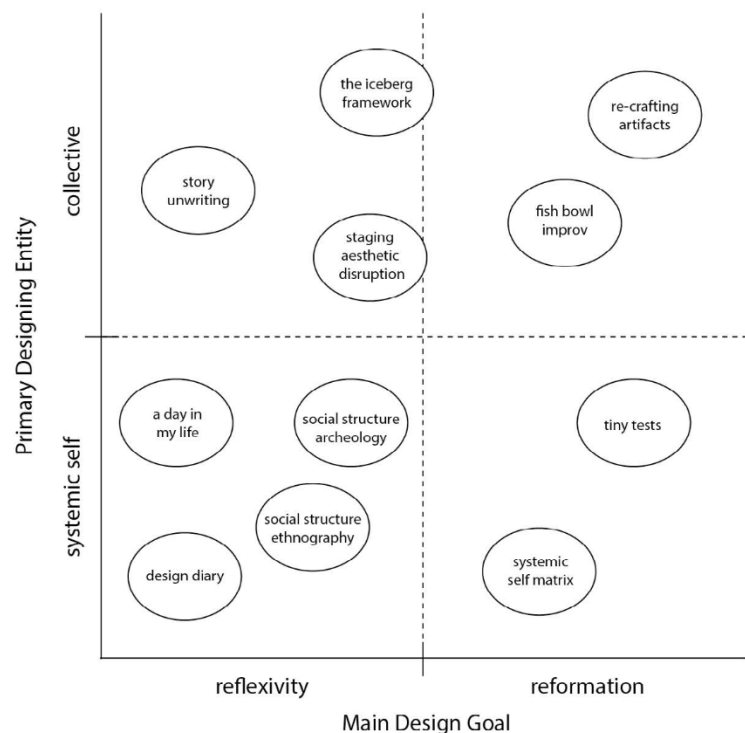
44 Suddaby et al., "Reflexivity."

45 Thomas B. Lawrence and Roy Suddaby, "Institutions and Institutional Work," in *The SAGE Handbook of Organization Studies*, ed. Stewart R. Clegg et al. (London: SAGE Publications, 2006), 215–54, DOI: <https://doi.org/10.4135/9781848608030.n7>.

The portfolio of designerly approaches for shaping social structures is shown in Figure 1. Within the portfolio, these approaches are positioned relatively using two axes—the primary designing entity (systemic self vs. collective) and the main design goal of the approach (reflexivity vs. reformation). Regarding the designing entity, we use the term “systemic self” to refer to the assemblages of social structures that make up individual actors. The concept of the systemic self is borrowed from work on critical reflective practice by Ekua Andria C. Walcott, Akua Benjamin and Jana Vinsky. We use this concept to stress the view that individuals are not separate entities but rather are entangled in and made up of the social systems they are a part of, as the duality of structure⁴³ implies. Here we use the term “collective” to reflect a constellation of actors that together constitute, at least partially, a particular social system.

On the other axis, we use the term “reflexivity” to refer to actors’ awareness of existing social structures.⁴⁴ This awareness is critical in order to intentionally shape institutionalized social structures, which are often invisible to actors. On the other hand, we refer to “reformation” to reflect actors’ intentional efforts to influence social structures, for example, through institutional work—the creating, disrupting, and maintaining of institutionalized social structures.⁴⁵ We defined the placement of each approach in this portfolio based on the relative emphasis of each, even though the categories are not mutually exclusive, often co-dependent, and overlapping. Below we provide an example of one of the approaches within each of the four quadrants—collective reflexivity, collective reformation, reflexivity of the systemic self, and reformation of the systemic self.

Figure 1
Portfolio of design approaches to intentionally shape social structures. © 2021 by the authors.



Designerly Approaches for Collective Reflexivity

Three approaches we employed related to collective reflexivity: the iceberg framework, staging aesthetic disruption, and story unwriting. The main reason we selected these approaches was to cultivate awareness of taken-for-granted social structures within a group of participants.

To exemplify this set of approaches, let us consider the story unwriting process. 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 are 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 three to discuss their perspectives 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 the 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 halfhearted smile before 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 Alzheimer’s.’ Richard continued staring, but with each word, Julie seemed to sit straighter and straighter in her chair.”

By reflecting on that story together, 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 Reformation

The designerly approaches that related to collective reformation included re-crafting artifacts 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 will explain the fishbowl improv technique. In this approach, a number of people are asked to improvise different scenarios with varying 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, we invited two participants to improvise their version of what a doctor’s visit looks like together

Figure 2
Fishbowl improv at Radboud UMC REshape,
the Netherlands. Photograph courtesy of
Radboud UMC Reshape.



in front of the group. After improvising 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 “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 three years. Inspired by participants’ future headlines, the group identified which of the rules of the game they would need to create, disrupt, 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.

Designerly Approaches for Reflexivity of the Systemic Self

The approaches related to building reflexivity of the systemic self, or individual awareness of social structures, include a day in my life, design diary, social structure ethnography, and social structure archeology.

As an example, let us consider the “a day in my life” approach, which aims to get actors to unpack their daily lives to better understand the ways they are enacting social structures. While the purpose is to support individual reflection, completing the activity does require other participants’ involvement.

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 storyboard and verbally describes their typical day using the storyboard. Once everyone has shared their typical day with 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

Figure 3
Day in my life activity with students at
Linköping University, Sweden. © 2018 by
Josina Vink.



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.

In one instance of employing the “a day in the life” approach within the context of design education, a student from Beijing pointed out on one of the teachers’ storyboards that they are enacting the social structure baked into the English language of always writing left to right. This brought the teacher’s attention to how this might be influencing the logic of their thinking for the first time, and a group discussion about the implications of such a social structure ensued. As such, the involvement of the collective supports the reflexivity of the systemic self by offering multiple perspectives to enhance an individual’s understanding of their own role in social structure enactment and help shed light on their blind spots.

Designingly Approaches for Reformation of the Systemic Self

The two approaches that relate to the reformation of the systemic self are tiny tests and the systemic self matrix. Here we offer further detail on the tiny test approach, which 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 also learning from the process. Tiny tests are intended to be simple experiments in an actor’s everyday life to test out what it might be like to act in ways that are divergent from existing social structures. Preceded by an introduction to 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 regular clothes to the clinic for a day or talking about something that is taboo during a lunchtime work conversation.

The intention is for actors to reflect on what happens during and after their experiment. Figure 4 is a photo from one tiny test where a trainer

Figure 4
Example of a tiny test by a healthcare practitioner in Eskilstuna, Sweden. Photograph courtesy of Karl Shultz.



46 Vink et al., "Service Ecosystem Design," online.

tried delegating the planning of a training session to other team members to explore alternative training norms. In this case, the tiny test was followed by a group session where the participants reflected upon their respective experiences of performing the tiny test. The tiny test format allows for small everyday experiments. Some might spark more continuous reformation, whereas others enhance reflexivity in relation to the agency of the systemic self.

Experimenting with all of these approaches built an understanding of how the theoretical insights from structuration theory and institutional theory play out in design practice. In addition, the learnings from what worked as intended and what did not from each experiment aided in the continued development and refinement of these approaches iteratively. For example, after experimenting with the tiny tests, it became clear that a structured reflection process with others was needed after individuals conducted tests to recognize the learnings and integrate them into future action.

Design Principles for Shaping Social Structures

A key difference in the designerly approaches we experimented with in this portfolio, in contrast to traditional design methods, is that they take social structures seriously, making working with these structures much more explicit in systemic design practice. Rather than ignoring the ongoing influence of social structures, which contributes to unconscious reproduction,⁴⁶ these designerly approaches help to enhance the intentionality of participants as they aim to catalyze change in social systems. These approaches

encourage practitioners to leverage their daily work for building greater awareness of institutionalized social structures and more consciously support both stability and transformation through their ongoing actions.

By learning from these experiments within the research program, we developed four design principles for shaping social structures to catalyze social systems change. These principles are drawn from insights experimenting within each of the quadrants of the portfolio shown in [Figure 2](#). The design principles include 1) make the invisible visible together (collective reflexivity); 2) collaboratively change the rules of the game (collective reformation); 3) see yourself as part of the system (reflexivity of the systemic self); 4) embrace design in your everyday life (reformation of the systemic self). Each of these design principles, the support they require, and their implications for practitioners of systemic design are briefly described below.

1 *Make the invisible visible—together (collective reflexivity)*

In order to attend to invisible 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. Recommendations for using approaches supporting this principle are 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. A short story of a typical experience in a system of relevance for the participants provides a fruitful starting place for building collective awareness of social structures. This also makes the process of reflection more effective and efficient than a general reflection on social structures as a group. However, doing this with the support of visual or tangible aids, for both the story and the documentation of related social structures, is important for enabling clear conversation.

2 *Collaboratively change the rules of the game (collective reformation)*

In order to support collectives to work at intentionally reforming social structures, groups need to practice how they might change the rules of the game. By doing this, they can experience with their own bodies what it feels like to enact different social structures together. Without embodying these changes, even for a short period of time, it is easy for the group to get caught in intellectualizing possible changes in a way that is disconnected from the concrete implications for their everyday lives. Engaging in the approaches supporting collective reformation allowed participants to tangibly compare variations of existing social systems with the group. This includes contrasting different rules of the game and understanding the consequences of potential reformation on a social system. This process is critical for assessing the consequences of changes in social structures at a small scale with different perspectives and inputs. By illuminating potential shifts in power

implied by a change to a social structure, the process can help the group understand and strategize around what it would take to foster and guide those shifts. Furthermore, to support actors' bodily engagement, discursive artifacts that challenge existing social structures are a key asset that helps groups open up new possibilities and alternatives for how social structures might diverge from the status quo.

3 *See yourself as part of the system (reflexivity of the systemic self)*

In order to build individual awareness of social structures, actors must see themselves as embedded and entangled in the systems they are trying to change. It is often acknowledged that 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. Some approaches that enable actors to see themselves in the system include having actors document their own actions and interactions and sharing them with others. Although reflexivity of the systemic self emphasizes individual awareness, people often need support from others with diverse perspectives to recognize their own role in reproducing and reshaping the social structures they usually take for granted. 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. When the individuals in a group had shared relatively similar experiences, it was much harder for the taken-for-granted structures to be recognized. To support the collective role in reflexivity of the systemic self, we recommend individual documentation, sharing within diverse groups, and reflecting on new insights that emerge from the discussion.

4 *Embrace design in your everyday life (reformation of the systemic self)*

New formats are needed to enable diverse individuals to explore their role in intentionally reforming social structures. Shaping social structures happens beyond the confines of a design project or workshop and is an ongoing process that every actor participates in. There is, therefore, a need to develop every actor's design capabilities so each may more consciously shape social structures in their everyday lives. This is not to say that systems reformation is the responsibility of individual actors, but rather that actors can better understand the roles they play in influencing social structures and leverage that knowledge within a collective. By experimenting with their own ability to live or work differently, even for a short period of time, actors can better understand strategies for reformation that might be continuously applied and which do not require huge amounts of time, money, or other resources. Conducting and documenting small personal experiments is a valuable means of catalyzing this process. However, it also became clear that the individuals found it more challenging to learn from their experiments and live out these learnings in their everyday lives without social accountability and shared reflections on their private acts of reformation.

To best support these four principles, the designery approaches described above may be used one-by-one or in combination according to the

circumstances, resources, context, and goals. We have found that these initial designerly approaches can be used as part of a traditional project in order to probe into underlying assumptions and potential barriers for systems transformation or as interventions in actors' everyday lives that enhance their intentionality as they influence social structures in their ongoing work. However, as mentioned earlier, this portfolio of designerly approaches is not in any way complete. Rather our hope is that the learnings from testing these approaches synthesized into design principles can help to inform the ongoing development of further approaches to catalyzing change in social systems.

Limitations and Future Research

It is important to note that the approaches presented here are not final, prescriptive methods but can be seen as propositions for different formats of design action that work to take social structures seriously. Hence, we have refrained from using the term "methods" to describe these activities, as these formats are not fully refined, universal recipes for influencing social structures, but rather evolving, messy approaches under ongoing exploration. Our intention in presenting these experiments, and the associated design principles, is to inspire and guide ongoing research and practical developments focused on influencing social systems through systemic design. We encourage other researchers to continue drawing on structuration and institutional theory to deepen their understanding of social structures and integrate theoretical insights on social structures, as well as their endurance and change, into systemic design practice. More research is needed to further develop, refine, and evaluate the usefulness of the approaches presented here and their applicability to other contexts, as well as support the development of a host of other approaches with similar aims. Future research with such approaches should work to better understand which conditions are conducive to design practice aimed at shaping social structures and examine the intended and unintended consequences of employing these designerly approaches over time.

Furthermore, all of the design experiments conducted in this study were done in relatively formal contexts, such as healthcare and education, and all took place in Western countries. There is a need to explore the use of these and similar approaches, or alternatives, in less formal social systems and more diverse cultures and contexts. In addition, it is critical to mention that these approaches are far from neutral and themselves enact particular social structures. Thus, attention in future research must be paid to how an approach might influence or bias the type of social structures that are identified during the design processes, or the ways these social structures are altered. To support the development of a pluralistic systemic design methodology, we see great possibility in continuing the development of designerly approaches by drawing from the processes of intentionally influencing social structures that are already employed by diverse actors around the globe outside the traditionally defined design discipline.

Conclusion

Through this research program, we have learned that social systems are already continually influenced by actors through their everyday activities. When the need for more intentional intervention in this ongoing systems evolution arises, social structures are a key leverage point for catalyzing systemic change. Through experimentation with designerly approaches for shaping social structures, we have learned that there is a need for reflexivity and reformation at both the level of the systemic self, or individual actor, as well as the collective, or a constellation of actors within the larger social system. By working to build actors' awareness and capability for intentional change across scales, systemic design can thoughtfully contribute to addressing pertinent issues in many of the social systems that are currently under significant strain or possibly fundamentally flawed. The design principles outlined in this article are a humble contribution to the ongoing advancement of systemic design knowledge and practice intended to help practitioners approach social structures more consciously. In doing so, we suggest that the role of the systemic designer is that of a catalyst for enhancing the intentionality of other actors within and affected by the targeted social system. In this process, there is also a need to re-entangle systemic designers and other practitioners in the social systems they are seeking to change, ensuring recognition of the inseparability of the self and the collective, as well as acknowledgment of the need for both reflexivity and reformation. In order to support significant and meaningful social system change, systemic design needs to continue to grapple with the implications of working with and within social structures in the years to come.

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Declaration of Interests

There are no conflicts of interest involved in this article.

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Appendix A Summary of key research through design (RtD) 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	Radboud 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 artifacts	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
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

(Continued on next page...)

Appendix A (continued)

Experimental Design Approaches(s) Employed	Participating Group	Location	Number of Participants	Date
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, tiny tests	Center for Connected Care (C3)	Oslo, Norway	12	February 2020