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Designing Systemic Mirrors

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In this presentation, we introduce the concept of a systemic mirror: an object or experience that reflects a perspective on stakeholders within systems, the role they play in that system, and the relationship they hold with other stakeholders. Systemic mirrors can be used to help people reflect on mental models of how they view the system they are part of and the role that they play in that system. Donella Meadows suggested that mental models and associated paradigms are a strong leverage point from which system structures emerge. As such, a possible way to achieve the desired system change is to confront people with their mental models so they can start changing systems from within. An often-used format to make people aware of those systems is system visualisation. However, system visualisations present limitations when it comes to communication with system stakeholders. We argue that empathetic and experiential qualities are essential for effective systemic mirroring and that the format of systemic mirrors needs to be aligned with their context of use. We will illustrate this concept by means of a case in which change was desired within a healthcare system around children with special needs and their parents. The systemic mirror designed for this case is a children's book which presents a unique systemic perspective to stakeholders and proved effective in its empathetic qualities. We would like to conclude the presentation with a dialogue about the characteristics of effective systemic mirrors.

KEYWORDS: systemic design, mental models, storytelling, design for experience

RSD TOPICS: Cases & Practice, Health & Well-Being, Methods & Methodology

Presentation summary

Systemic design is a broad field concerned with the integration of systems thinking and design towards addressing complex societal challenges. Within this field we distinguish three dominant types of approaches: 1) systemic approaches that use systems and network analysis to inform designing for systems, often by means of systems maps (Sevaldson, 2011; Jones & van Ael, 2022); 2) combining expert design reasoning with systems theory to design interventions aimed at shifting systems at 'leverage points' (van der Bijl-Brouwer, 2022), and 3) "insider" approaches aimed at ongoing and collective designing from within (service) systems (Carvalho & Goodyear, 2017; Vink et al., 2021).

The latter approach is based on the belief that systems—including networks and organisations, are continuously designed and redesigned by people who are part of that system. It sees those systems as inherently creative and, rather than designing *for* a system, it is aimed at design from *within*. On a meta-level, this collective design process can be supported by designing various types of interventions. For example, the term 'infrastructuring' has been introduced to show how infrastructure—boundary objects that shape future design - is shaped over time by both professional designers and users (Björgvinsson, Ehn and Hillgren, 2012); conditions may be designed that shape human relationships and which can enable the creative and adaptive capacity of organisations and networks (van der Bijl-Brouwer, 2022); and 'aesthetic disruptions' - a sensory experience that challenges actors' existing assumptions - may be designed to spark a process of inquiry which is necessary for service innovation (Wetter-Edman, Vink, and Blomkvist, 2017).

In this paper, we discuss a particular type of intervention to support 'designing from within' which we refer to as 'systemic mirrors'. A systemic mirror is an object or experience that reflects a perspective on stakeholders within systems, the role they play in that system, and the relationship they hold with other stakeholders. A systemic mirror is based on the leverage point of mental models. Donella Meadows (1999) suggested that mental models and associated paradigms are a strong leverage point from which system structures emerge. One type of mental model is how people view the system they are part of and the role that they play in that system. Systemic mirrors

reflect the system that people are part of in a way that presents them with a new perspective from which they can start to redesign their own roles, relationships and other system elements they have influence on.

An often-used format to make system stakeholders aware of the systems they are part of is system visualisation. While systemic design visualisations have proven to be an effective tool to support design practice, they present limitations when it comes to communication with stakeholders who were not involved in the design process (Sevaldson, 2022). Alternative communication tools have been presented such as 'systemic storytelling', which combines logical analysis with an intuitive and empathetic comprehension of systems (Talgorn and Hendriks, 2021). We believe that this empathetic element of systemic storytelling is essential to engage relevant stakeholders with novel systemic perspectives. We are interested in exploring how such emotional or experiential qualities can be designed into systemic mirrors. As a first exploration we present a recent case in which we applied this idea below.

Case about parents of a special needs child

For her graduation project for the Master of Strategic Product Design at TU Delft, Carine van Loon explored the complex challenge around parents of a special needs child for the Dutch foundation Ontzorghuis (van Loon, 2022). Ontzorghuis is aimed at helping relieve the burdens of parents taking care of special needs children. These families have a broad and complex formal and informal network of care professionals and stakeholders around them, including health experts, schools, financial support, neighbours etc. In this care system, the parent is often 'forgotten' as the prime attention goes to the child, even though over 60% of parents experience burnout at some stage in their lives. Carine explored this stakeholder network systemically by investigating the role and challenges of each stakeholder in addition to investigating the relationships between the stakeholders. Carine decided to design for the leverage point of mental models of stakeholders of the care system. What if stakeholders were more aware of their role in this system and the consequences this system has on parents of special needs children? To achieve this, Carine first developed a complex visualisation of the stakeholder network (figure 1), and then translated this into something that would be more accessible and carried more experiential meaning to allow people to reflect on

their role. She chose the format of a children's book (Figure 2) in which each stakeholder is represented by an animal, and in which the narrative clearly outlines how the interactions between these animals can lead to adverse outcomes for families. The book also includes questions that prompt stakeholders to reflect and take action.

In the first test, different stakeholders read the book and used it to reflect on their role. The majority of stakeholders responded emotionally to the story, while others actively questioned what they could do to start shifting this system and its effects on the parents. While a further evaluation would be required to test the broader systemic impact of the book, it illustrates how empathetic and experiential interventions might be well-positioned to serve as a systemic mirror that confronts people with a new perspective on the system that they co-create with other system stakeholders.

Discussion

The case shows that systemic mirrors need to be designed for their intended use context specifically. While the children's book format works for a case that is about children, it might not be for other cases. The case is a first step in the development of guidelines to design systemic mirrors. Such guidelines include—but are not limited to—the relatability of the presented object or experience: do people recognize themselves and the system they are part of?; The experiential qualities: does the systemic mirror provide an experience that evokes empathy and emotional responses?; And the systemic qualities: does the mirror represent systemic elements such as dynamics and feedback loops? While the children's book meets the first two characteristics, we are also aware it presents a more linear perspective due to the nature of the book format that does not show explicitly which feedback loops or other system dynamics are involved.
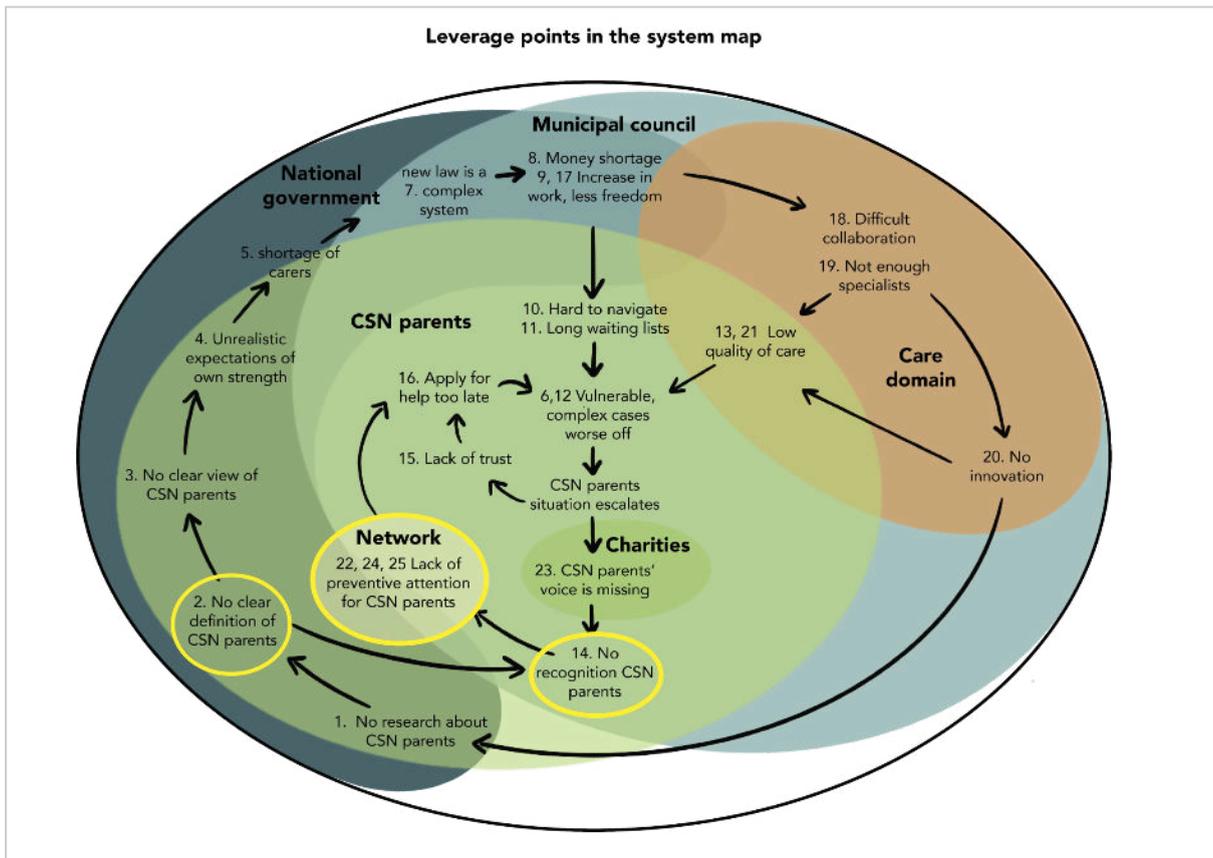
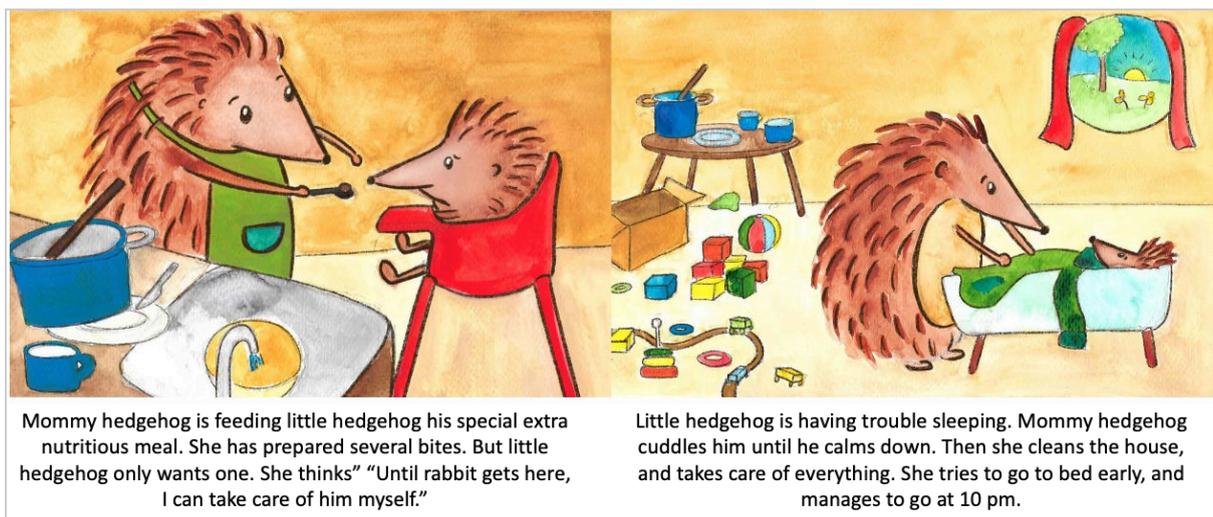Figure 1: Visualisation of systemic stakeholder map around parents of a special needs child (CSN parents).

Mommy hedgehog is feeding little hedgehog his special extra nutritious meal. She has prepared several bites. But little hedgehog only wants one. She thinks" "Until rabbit gets here, I can take care of him myself."

Little hedgehog is having trouble sleeping. Mommy hedgehog cuddles him until he calms down. Then she cleans the house, and takes care of everything. She tries to go to bed early, and manages to go at 10 pm.

Figure 2: Two pages in the children's book *Mama egel de mantelouder* (Mommy Hedgehog, the caretaking parent) by Carine van Loon.

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