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Luthe, Tobias, Fitzpatrick, Haley, Swat, Justyna, Mühlethaler, Tiphaine and Crawford, Abel

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Enriching synergies in Systemic Design - hybridizing science, design and transformative action

Reframing Systemic Design methodology within a new MOOC on Designing Resilient Regenerative Systems

Tobias Luthe, Haley Fitzpatrick, Justyna Swat, Tiphaine Mühlethaler, Abel Crawford

The main goal of developing Systemic Design has been to seek synergies between design and systems in order to better deal with complexity. Since the need for local people action on designing regenerative systems and cultures has been gaining in urgency, and since neither design nor science nor practice alone can transform such systems fast enough, we intent to enrich Systemic Design methodologies. Adding to the latest discourse on values, direction and currency in Systemic Design, and when it is regenerative, we identify synergies between an extended array of practices: science, systems thinking, design, and transformative action. Motivated by the development of a Massive Open Online course on Designing Resilient Regenerative Systems with its specific module on Systemic Design, we propose some cornerstones of enriching SD and “playing with tensions” while offering this inclusive discourse to the RSD community.

Keywords: enriched methodology, extended synergies, sustainability science, transformative action, systemic design principles

Introduction

Climate change, biodiversity loss and pan-syndemics like Covid-19 are some of today’s most pressing complex challenges we as society have to address. Much of our economies and societies prove to be not resilient and regenerative, but exhaustive, vulnerable, and unfair. The goal is to actively restore, to regenerate ecosystems and their services, while transforming our economy to become more circular and more just. We need new knowledge systems and cultures leading to transformative action since “the human impact on earth needs to be fundamentally redesigned” (source).

Scientific knowledge and reasoning are the fundamental tools to base policy and management decisions on, especially in times of crises. But we experience the limits of science when it comes to dealing with highly complex systems that are self-emergent, unpredictable, span across nested scales, depend on societal behavioral transitions, and lack data.

For helping to deal with such complexity, Systemic Design (SD) as relating systems thinking with design has become its own kind of designerly way to deal with complex system, to understand and reconfigure them. But we experience limits of design as well when for example ego-centric angles are employed to direct entryways to deal with such systems whereas science could support relational leverage based on quantitative data, as one example.

Lastly, transformative action is what we need to foster more and faster than at current, since the pressing problems require more urgency in delivering positive impact for regeneration.

What seems to be promising and lacking is the better integration of science of, for and about sustainability (sustainability science), systems thinking, design, and transformative action.

In this paper we report from ongoing work to develop an educational resource entitles “Designing Resilient Regenerative Systems”, an innovative and timely Massive Open Online Course (MOOC) that builds capacity in transformative systemic innovation through a combination of holistic consciousness, systems thinking, and

cooperative design doing in illustrative real-world cases. One of the MOOC modules is on Systemic Design, i.e. on an enriched array of tools, frameworks and mindsets to hybridize science, design and transformative action. We relate this process of enriching process SD methodology to the discussion on when SD is regenerative from RSD8 (Swat et al. 2019).

The MOOC as motivator for enriching Systemic Design

This innovative MOOC provides participants with worldviews, systemic design tools, illustrations and translocal social co-design networks - for building their capacity to creatively tackle complex, real-world sustainability challenges. It provides nature-inspired creativity tools of design praxeology as complementary with science programs to actively take responsibility in designing systems that are resilient and regenerative. The governance and spatial scales of regenerative design span from the level of green chemistry via materials, products, architecture, communities, to cities, landscapes, bio-regional economies, to transnational cooperation (Luthe et al., in review).

The applied MOOC didactic concept fosters virtually nudged translocal people action through systemic design doing in illustrative real-world settings across cultural, political, climate and geographic transects, and on different governance scales, such as the MonViso Institute in the Italian Piedmont, Hemsedal community in Norway, the city of Annecy in France, and the Mediterranean Balearic Island region.

This MOOC builds on established teaching in engineering, planning, architecture and different science disciplines while introducing systemic design thinking and doing as topical, didactic and collaborative spearhead in inter- and transdisciplinary, real-world education on a Master level. Further educators in this MOOC are scientists, planners, designers and practitioners of leading European institutions in the field of systemic design, sustainability science, and transition studies, of local communities and large cities.

Scheduled to be offered via EdX for the first time from begin of 2022 on, the MOOC targets students who are eager to learn about the emerging transdisciplinary topic of regenerative systems design, and to develop their scope and skills in systemic design across governance and spatial scales. It equips participants with worldviews, motivation, tools, illustrations and translocal social co-design networks - for building their capacity to creatively tackle complex, real-world sustainability challenges - and foster systemic innovation.

One of the six MOOC modules deals specifically with the essence of how SD in an extended array of actionable methodologies can help to spur fast transformative action for regeneration.

Adding components to enrich Systemic Design methodology

Systemic Design (SD) is framed by the Systemic Design Association as “an integrated discipline of systems thinking and systems-oriented design” (<https://systemic-design.net/sda/>). So, basically SD is currently discussed as the array of systems thinking and design (disciplines), where its employed design methods distinguish from service or experience design i.e. through addressing greater social complexity and larger scales. The inherent concepts of systems thinking, such as brainstorming, causality, system mapping and synthesis, are integrated with design methods, such as visualizing, ideation, iteration and prototyping, to reconfigure complex (social) systems.

However, through experienced practice in teaching SD in various institutions, and through applying SD as consulting methodology, we identify untapped potential in the integration of current SD practices with more science tools, and with tools fostering transformative action. As part of the MOOC module on SD we intent to provide an enriched array of science and action tools in relation with existing methodologies and their discussed and practiced integration. In the following, we illustrate this approach with a brief overview on prominent SD methodologies and some avenues for further integration of science and of actionable tools.

Prominent methodologies in SD and some examples for new synergies

Prominent methodologies in SD are for example Systems Oriented Design (SOD, Sevaldson 2013), Holistic Diagnosis (Battistoni et al. 2019), Transition Design (Irwin 2015) and the Systemic Design Toolkit (<https://www.systemicdesigntoolkit.org/>).

SOD is a praxeology framed as the designerly way to work with systems. SOD is positioned between design thinking, design practice, systems thinking and systems practice, leaning towards design practice (Sevaldson 2017). Main components of the SOD toolbox are Gigamapping and the library of systemic relations, of which the author distinguishes social, ecological and material relations. These relations are purely qualitative and identified in a designerly way. One example for new synergies with science tools to add here is social network analysis (SNA), which provides new potential to identify leverage and read the structure within social relations, i.e. the larger and more complex a system is.

Holistic Diagnosis (Battistoni et al. 2019) is a framework within the SD field which could benefit from additional science tools, i.e. supply chain mapping as a first step prior to their assessment stage (Figure 1).

The Systemic Design Toolkit (<https://www.systemicdesigntoolkit.org/>) promises to co-create interventions to tackle complexity. The principles are high level and rather generic as broader guidelines, such as “Defining the desired future”. Further authors provide similarly high level and generic design principles (van der Bijl-Brouwer and Malcom 2020, Jones 2014). SD would benefit from more specific, concrete design principles that better inform transformative action, such as “Design with (the chemical element) carbon” (<https://monviso-institute.org/core-concepts/>).

In addition to specific science tools and frameworks dealing with complex systems and transformation while lacking in the SD discourse, such as the autopoietic cross-scalar governance spiral (Luthe et al. in review) or the adaptive waves resilience concept (Luthe and Wyss 2016), tools of transformative action are lacking as well. Real-world laboratories are just one example (Figure 1).

Systemic Design

An array of tools / frameworks / mindsets that combines science and design for real-world sustainability

WHEN TO DO WHAT?

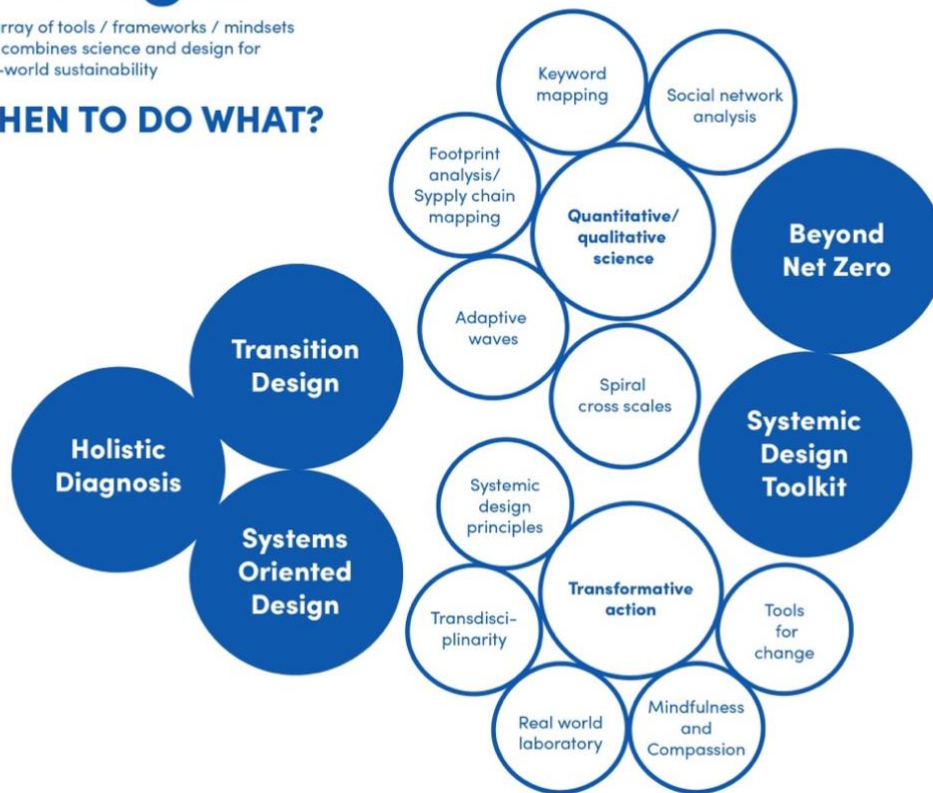


Figure 1. Systemic Design – when to do what? Conceptualizing the logic of the MOOC module on Systemic Design, and its enriching of the current SD discourse and praxis. Blue are examples of prominent SD methods or frameworks. We propose to enrich SD with further tools and frameworks of science, such as social network analysis, supply chain mapping or cross-scalar governance, and with tools of transformative action, such as specific systemic design principles and real-world laboratory experimentation.

Questions to jointly discuss with the SD community at RSD10

The MOOC's modular structure comprises sets of questions that guide the delivery of content and the activation of the participants' learning experience. Related with the module on SD, we currently work with a list of questions, such as:

What is Systemic Design?

What do we need Systemic Design for?

What do we do when we get crazy - when asking only questions - when there seems not "base" or "state" to start from? How to not get lost in complexity?

Where does science provide synergies in systemic design?

What does practice bring in, and what does it lack?

What are designers unknowingly trained to do?

What is different to scientific research?

What does a non-designer need to know and practice to benefit from design thinking and doing?

What does a non-scientist need to know and practice to benefit from scientific reasoning?

In the ongoing MOOC design and the upcoming production of the content, these questions will be answered, and new ones will evolve. At RSD10 we seek feedback on these questions, jointly discuss answers and phrase additional questions both to support the MOOC and advance the discourse in SD – when to do what?

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