

Systems Thinking and Design for Social Change and in Policymaking (Part of PhD Program in Science and Policy)

Lecturers: Melanie Paschke, ETHZ, Tobias Luthe, ETHZ, Laura Ferrarello, EPFL, Anais Sagaesser, scaling4good & innosuisse, Swen Bos, Empa

Location: ETH Zurich, tbd

Dates: February 27, March 6, 12, 20, April 9, 2024 (9:00-13:00)

Credit Points: 1 ECTS

Course Description

Learn how systems thinking can inform, model and impact policymaking. Society, scientists, and policymakers have to deal with wicked problems that can be assessed and solved only if seen in a systems context. In several modules that combine theory and hands-on workshops, we will move from system analysis to guidance in transforming social practices and policymaking. Participants will get to know a toolbox of techniques used in system mapping and system design. The course is designed as a series of half-day workshops with different experts and different tools. Participants are asked to bring their own problems and cases.

Module Overview

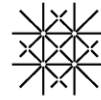
- Module 1: Introduction of System Thinking in policymaking (Feb 27, 2024), Tobias Luthe, ETH Zurich
- Module 2: From system mapping to system design (March 6, 2024), Laura Ferrarello, EPFL
- Module 3: Policies, leverage points and interaction design (March 12, 2024), Melanie Paschke, ETH Zurich
- Module 4: Changing Social Practices and policymaking (March 20, 2024), Anais Sagaesser, scaling4good & innosuisse
- Module 5: Simulation Games as tools in system design and policymaking (April 9, 2024), Andreas Gerber, Swen Bos, Empa

Prior Knowledge: We recommend participating in the ETHZ MOOCs “Worldviews – from Sustainability to Regeneration” and the MOOC 2 Beyond Systems Thinking (new iteration starts in spring 2024).

Number of Participants: 20

Target Audience: This course is open to PhD students, Post Docs, researchers or staff members of ETH Zurich, University of Zurich, or University of Basel. Priority is given to PhD students enrolled in the PhD Program Science and Policy.

Individual Performance and Assessment: To earn credit points, full attendance (5 of 5 modules) and active engagement in each module are compulsory requirements. A short presentation of the case study work must be given at the end of each module.



Module 1: Introduction of System Thinking and its relevance for policy making

Tobias Luthe, ETHZ

Abstract

To be filled

- Introduction to the ideas
- Introduction to key terminologies
- The conception and framing of a system in the policymaking context
- Iceberg Model / Problem statement
- Use Gigamapping as a visualization tool for system mapping

Learning Objectives

Homework

Templates or Methods for download: Please give here also the software packages or apps that you want participants to install before the module.

Literature:

Module 2: From system mapping to system design

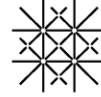
Laura Ferrarello, Collaborateur Scientifique Senior, EPFL

Abstract

Adopting holistic and systemic methods is key to understanding the complexity of policymaking and identifying strategies that are effective in achieving targets and objectives. With this workshop, you are introduced to the concept of system mapping. You will learn tools and methods that support the development of new policies across different contexts. Under the guidance of a design-driven approach to wicked problem mapping, you will engage in a case study to gain insight into the framing of a problem. By analysing the positive and negative feedback of a system that contributes to feeding or stopping a problem, you will gain a more comprehensive comprehension of its causes and effects. Using these relationships, you will generate principles and guidelines aimed at guiding new policy development.

Learning Objectives

1. Formulate problem statements using system thinking.
2. Generate policy strategies from system analysis.
3. Create wicked problem maps guided by a design-led approach.
4. Formulate principles of policies that harness stakeholders' relations.
5. Develop policies' guidelines by using a design-led approach.



Homework

Reflect on the role you play in generating effective policies and visualise it with an image. You will present this for a minute at the beginning of the workshop to introduce yourself. Please read the recommended readings before the session.

Templates or Methods for download: Please give here also the software packages or apps that you want participants to install before the module.

Literature:

- Meadows, D., (1999). Sustainable Systems, University of Michigan Ross School of Business. [Accessed in October 2023]
<https://youtu.be/vJ1STks8MUU?si=MAcEx7widAZgDOFY>.
- Alford, J., & Head, B. W. (2017). Wicked and less wicked problems: a typology and a contingency framework. *Policy and society*, 36(3), 397-413.
- Van der Bijl-Brouwer, M., & Malcolm, B. (2020). Systemic design principles in social innovation: A study of expert practices and design rationales. *She Ji: The Journal of Design, Economics, and Innovation*, 6(3), 386-407.

Module 3: Sustainability policies, leverage points and intervention design

Melanie Paschke, Zurich-Basel Plant Science Center, ETH Zurich, Universitäten Zurich und Basel

Abstract

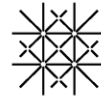
System design and exploring leverage points needs a close understanding of the interrelations of system actors and the negative and positive feedback loops that might arise from these interrelations. We will start the day with embodied system games that will make us to understand the role of interrelations in people and in policy systems reaching out for sufficient consumption and lifestyle changes. We will explore the possible leverage points in system thinking and understand Meadow's ideas of low and high-order leverage points.

How could we target sufficiency policies to high leverage points? In the new IPCC report sufficiency policy are defined "*as set of measures and daily practices that that avoid demand for energy, materials, land and water while delivering human wellbeing for all within planetary boundaries.*"

We will use the Theory of Change to describe change pathways to system-relevant sufficiency policies' outcomes. As part of the change pathways, we will think interventions that could support the outcomes.

Learning Objectives

- Explore embodied system games to understand how emergent group behaviour arising from participants following simple rules.
- Individuals following the actions of others in a way that creates a feedback loop that generates complex actions seemingly from nowhere.
- Understand Meadows' ideas of low and high-order leverage points.
- Introduction to the idea using of interventions for emergent behavior.
- Get to know real-world interventions from sufficiency policies.



- Use Theory of Change for describing change pathways to target system-relevant high-leverage outcomes.
- Create interventions to reach out for the outcomes.

LITERATURE

der Carteret, R. (2019). Systemic complexity games. In: Paschke, M. and A. Pfisterer. Collective inquiry. With contributions of: Backhaus, J., de Carteret, R., Damerius, L., Huang, Y.-Y., Huppenbauer, M., Pöll, C., Rahn, E., Reynolds, M., Wallimann-Helmer, I. In: Paschke, M. and Dahinden, M. (eds.). Engaging in the science-policy dialogue, Workbook 8. Zurich: Zurich-Basel Plant Science Center: 10.3929/ethz-b-000315545

Meadows D. Leverage Points: Places to Intervene in a System. In: The Sustainability Institute, 1999: https://1a0c26.p3cdn2.secureserver.net/wp-content/userfiles/Leverage_Points.pdf

United Nations Environment Programme (2022). Enabling Sustainable Lifestyles in a Climate Emergency [Policy Brief]: <https://www.unep.org/resources/policy-and-strategy/enabling-sustainable-lifestyles-climate-emergency>

Module 4: Changing Social Practices and Policymaking

Anais Sagaesser, scaling4good & innosuisse

Abstract

Social practices, the collective behaviors, habits, and customs within a society, play a fundamental role in shaping the fabric of communities. These practices are deeply interwoven with policy formulation, highlighting the reciprocal relationship between policies and societal behaviors. This session involves self-reflection and ontological positioning to explore the multifaceted aspects of changing social practices and to understand the central role of policy interventions. It delves into the complex connections between diverse social practices and the diverse levels at which policies influence them. The session underscores participatory approaches, utilizing methods that encourage deep listening and dialogue, essential tools for effectively transforming social practices.

Learning Objectives

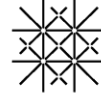
- Introduction to the idea of social practices & social practice change
- Understand different approaches to social practice change
- Gain insights to navigate policy- social practice dynamics
- Foster participatory approaches

No preparation is required.

Literature:

Module 5: Simulation Games as tools in system design and policymaking

Andreas Gerber, Swen Bos, Empa



Abstract

Games are not only entertaining, but can also be used for other purposes, such as knowledge transfer, scenario exploration, conflict resolution, or policy planning. In this module, we will explore together how systems can be simulated within games and what roles simulation games can play in policymaking processes. Therefore, we will first play and debrief the classic simulation game "Planet C". Based on this shared experience, we will then discuss the potential of games in terms of representing and experiencing systems, as well as their possible roles in policymaking processes. The module is rounded off with an input where we share from our experience as game developers and facilitators.

Learning Objectives

The participants get to know:

- the principal ideas of simulation games;
- the simulation game "Planet C";
- some important roles that games can play in policymaking processes;
- the potentials of games to represent and simulate systems.

Templates or Methods for download:

No preparation is required.

Literature:

- Duke, R. and Geurts, J. Policy Games for Strategic Management - Pathways into the Unknown. 2004. Dutch University Press, Amsterdam, The Netherlands.
- Mayer, I. S. 2008. Gaming for policy analysis. Learning about complex multi-actor systems. Why Do Games Work; In Search of the Active Substance; de Caluwé, L., Hofstede, GJ, Peters, V., Eds, 31-40.
- Garcia, C.A., Savilaakso, S., Verburg, R.W. et al. 2022. Strategy games to improve environmental policymaking. Nat Sustain 5, 464–471. <https://doi.org/10.1038/s41893-022-00881-0>