Faculty of Design

2022

A Systemic Co-Design Iceberg: A systemic perspective in the ever-evolving practice of empathic co-design

Smeenk, Wina

Relating Systems Thinking and Design
2022 Symposium
University of Brighton, Brighton, UK,
October 13-16, 2022

A Co-design Iceberg

A systemic perspective in the ever-evolving practice of empathic co-design

Wina Smeenk

Inholland University of Applied Sciences[1]

Societal challenges have become increasingly pressing. They affect us all: citizens, designers and researchers. Truly understanding and tackling them is difficult because no single stakeholder nor organisation is responsible for them, and everything is connected, interwoven and in a current state of change. Moreover, there is mutual interaction and entanglements between people, non-humans and technology. Next, systemic challenges based on the relationships, interactions and experiences between stakeholders and their environments are dynamic. They evolve. Subsequently, it is hard to see the playing field. This makes challenges orphaned and stakeholders unable or unwilling to make all kinds of important decisions. This ambiguity leads to a lot of uncertainty. Combined with blind spots, implicit world views, tacit mechanisms and latent values, this hinders change and limits social innovation capacity. Which raises the question: how to gain agency to individually act as a stakeholder in these complex challenges in a way that adds up to the collective?

[1] https://www.inholland.nl/onderzoek/lectoraten/societal-impact-design/

Nowadays, design and, more specifically, systemic co-design are increasingly seen as possible approaches. Since design can deal with uncertainty, it is optimistic and inquisitive in nature. Moreover, supported by abduction logic, design makes creative leaps which can lead to radical change. Even more, a co-design and empathic approach allow for inclusivity by identifying and sharing stakeholders' differences and interests, as well as shared perspectives and ambitions. This enables the creation of new bonds—potential new value networks—and co-imagining alternative futures. Yet, to make this empathic co-design potential work, the design profession must shift along with our transforming world. Design, therefore, needs to adopt new methodological and flexible strategies that support stakeholders in adaptively and empathically responding to dynamic contexts and collaborations. The main question arises: how to create a systemic co-design culture, approach and structure that opens up stakeholders to reveal implicit world views, values and mechanisms which will support their agency and provides for more inclusive, radical and shared opportunities for change.

In this paper, I hypothesise that this requires working beyond methods that connect empathic co-design with a systemic perspective. I, therefore, contribute two new concepts. First, I introduce using explicit 'sphere of life' mechanisms as an ingredient in design abduction. Second, I argue that an 'iceberg' consisting of systemic co-design elements might give guidance to multi-stakeholder coalitions in identifying individual and collective latent values. Together they can lead to multi-value creation and systemic change in inclusive value networks.

KEYWORDS: societal impact design, abduction, multi-value creation, systemic change, value networks, iceberg, spheres of life, (implicit) values, mechanisms

RSD TOPIC: Methods and the worlds they make, Methods & Methodology

Introduction—design in a state of flux

Our society is going through major changes. Transitions in areas such as energy, circularity, care, agriculture, water, food and safety determine our future. The increasingly visible climate crisis forces us to reduce our CO2 emissions worldwide as quickly as possible and to mitigate the consequences of climate change. The influence of digitisation, algorithms and AI as a system technology puts pressure on political, private and public institutions, organisational forms and ways of doing things, bringing uncertainty and insecurity to citizens, and demanding new forms of organising and living together. Income differences have increased considerably over the past years, reflected in social tensions, polarisation and reduced support for measures and changes. In short, the Western world has reached a tipping point. Societal challenges have become increasingly pressing. They affect us all: citizens, designers and researchers. Truly understanding and tackling these challenges is difficult because no single stakeholder is responsible for them, and everything is connected, interwoven and in a current state of change.

After the industrial-, experience- and knowledge economy periods, we are moving more and more towards a transformation-, doughnut-, or purpose economy (Brand & Rocchi, 2011; Raworth, 2017; Klomp, 2021). The focus is on emotional, meaningful, ethical and sustainably produced and traded products, services and systems for a better world. One stakeholder cannot solve the major and systemic challenges of our time. A wide variety of stakeholders from knowledge institutions, the business community, governments and society should join forces here as partners in networks to achieve meaningful ways of thinking and positive change at a societal level (den Ouden, 2012). As a result, the challenges we face do not only change in content but also in character.

These developments impact our society in a cultural, economic, industrial, ecological and social sense. Challenges are, therefore, increasingly multiple in nature; they require a multi-value creation approach in which it is no longer possible to look at them from one perspective (Smeenk, 2021). This applies to the content of challenges that require greater integration but certainly also to the way in which those challenges are tackled.

Design shifts right along with our transforming world and is, therefore, in a state of flux itself (Jones & Sevaldson, 2019; Smeenk, 2021). Efforts to tackle urgent societal challenges from an economic and technological perspective (culture, approach and structure)—as if we still live in an industrial, experience or knowledge economy—are ill-advised (Brand & Rocchi, 2011; Gardien et al., 2014).

Therefore, all stakeholders, tutors, students, designers, and researchers need to let go of things, ideas, techniques, methods, procedures and conventions that do not work and instead go in search of new promising avenues of thought (Gardien et al., 2014). With all the wicked challenges around us, stakeholders must be able to play their part, responsibilities and benefits must be shared, and we must navigate both the ecosystem and social complexity (Light & Akama, 2012; Drew et al., 2020).

This approach requires situated strategies as stakeholders may change as the process develops due to the dynamic context and new insights. Even more, it requires a transition approach, culture and structure (Rotmans & Loorbach, 2009) that goes beyond methods (Woolrych, 2011). I then think of a systemic co-design strategy with a flexible set of starting points regardless of the specific methods chosen. Whereas the approach ideally brings a culture of receptiveness, inclusiveness and committedness (Cockton, 2009) by mixing perspectives and being empathic (Smeenk, 2019), the approach and structure bring energy and excitement, connect people and organisations, foster cross-pollination and lead to social, cultural, technological, ecological and economic change. In short, multi-value exchange and creation in inclusive value networks (Brand & Rocchi, 2011; Smeenk, 2021).

How to arrive at this systemic co-design culture, approach and structure that opens up stakeholders to reveal implicit world views, values and mechanisms, supports their agency, and provides inclusive, radical and shared opportunities for change? I think it is vital that designers, researchers and stakeholders become aware of the multi-value (social-cultural-technological-ecological-economical) design decisions that lie ahead. If we are to redefine ‘growth’ in terms of quality of life and societal earning capacity (e.g., Mazzucato, 2021) and optimise multi-value creation in inclusive value networks, we must drastically change the way we live and work in Western society. How can we support, add to and co-realise that metamorphosis with our design profession and

design research community? I feel abduction, as the core logic and creative approach of design (Dorst, 2011), is a meaningful starting point to rethink and reimagine societal challenges and imagine all stakeholders responsible for this creative act.

Abduction

Abduction distinguishes between induction and deduction; while all three pertain to the logic of scientific thinking, deductive research is the logic used in comparative research. A research team uses a literature search to form a picture of a given challenge, on the basis of which they formulate and test hypotheses. Inductive research is bottom-up research. By observing, exploring and asking questions, a research team formulates a theory. With abduction, a research team alternates between theorising about what is going on and testing whether their assumptions are correct. This thinking resembles design; Dorst (2011) formulates the concept of abduction for design in connection with open-ended wicked challenges as follows: the sum of “what” and “how” is “value.”

Abduction is then an iterative and creative process of exploring, creating, testing and adjusting “how” and “value” combination possibilities, which he calls frames. The idea is that, provided a sufficient number of frames (combining different values with different mechanisms) are considered, identified and weighed against one another, the most desirable and realistic alternative futures will inevitably emerge in the “what.” Cockton (2009) says, “the context of choice makes it credible.” Yet, the question emerges how to find these multiple frames consisting of latent individual and collective values and accompanying mechanisms then?

In the following section, I will explain how I think that the two concepts of *sphere of life* and *icebergs* can help in showing stakeholders, including designers, tutors, students, and researchers, the way in our search for a systemic co-design methodology beyond methods. I will first elaborate on the concepts themselves. Then, I sketch and discuss a novel systemic co-design iceberg for societal impact design. Finally, I conclude with insights and discuss future work.

Theoretical inspiration and background

This paper is grounded in design theory and, more specifically, in co-design and empathic design. Design transforms current situations into preferred ones (Simon, 1996), whereas co-design is defined as making use of collective creativity throughout the entire collaborative design process (Sanders & Stappers, 2008). It is a process in which stakeholders from various disciplines share their knowledge of both the design process and the design content (Kleinsmann & Valkenburg, 2008). In co-design, stakeholders work together on a shared purpose and decide together what their journey will be. Stakeholders' individual and collective interests, values, desires, experiences, and knowledge are the basis and must first be identified (Lee et al., 2018). After all, when focusing on areas that involve major societal challenges, there are no clear tasks nor clients – or to the extent that there are, we are all "the client," including designers, tutors, students, and researchers.

Empathic design then focuses on everyday life experiences and on individual values, desires, moods and emotions in human activities, human relations and interactions, turning such affective experiences into understanding, inspiration and designs (Mattelmäki et al., 2014). Empathy enables stakeholders to gain relevant and intimate insights, compassion and a deep understanding of each other. Co-design and empathic design are often seen as a methodology for societal change, transformation design and societal impact design (Brand & Rocchi, 2011; Chen et al., 2016; Irwin, 2015; Manzini, 2015; Papanek,1972; Sangiorgi, 2011; The British Design Council, 2021).

Developing empathy is an individual process, and it grows in the course of a collaborative process (Kouprie & Sleeswijk Visser, 2009; Smeenk et al., 2019). Empathy is the ability to understand and feel compassion for the thoughts, experiences and emotions of other stakeholders. Empathy enhances stakeholders' ability to receive and process information (Battarbee, 2014). While psychologists hold different opinions as to an exact definition, they agree that empathy increases when people consciously alternate between directing their attention to themselves and to others, thereby consciously alternating between affective experiences and cognitive processes as well (Hess & Fila, 2016; Smeenk 2019). See also Figure 3. In earlier research work, I learned that empathy is a crucial precondition for societal impact design because empathy

elicits genuine emotional interest (EI), sensitivity (S) and self-awareness (SA) with regard to others (Smeenk et al., 2018). In such cases, empathy informs and inspires us to collaborate with crucial other stakeholders to realise positive societal change.

Empathic co-working means cultivating a mental habit of being aware of and reflecting on how you and other stakeholders are behaving and being affected in order to work out what is going on below the surface (Brown, 2009). Whether that is in connection with a problematic situation or the collaboration between partners in a coalition or value network. Without empathic ability, it is impossible to understand what inspires stakeholders to change or prevents them from doing so or to grasp why and how they are attached to ways of acting, conventions and to choices that demonstrably contribute to the destruction of the world. Empathy gives us the ability to come to terms with the perspectives, values, needs and actions of other stakeholders and includes non-humans as stakeholders, such as nature (who, without empathy, we will view as opponents) and to understand and respect them.

Personal experiences and emotions influence stakeholders' interactions and relations with each other and their intrinsic motivation for taking action or not (Akama & Light, 2018; Hakio & Mattelmäki, 2019; Scharmer, 2016; Takanen, 2013; Xue & Desmet, 2019). There is a wealth of literature on this subject. The conclusion I draw from this is that a coalition of stakeholders will benefit from sharing their interests, values, aspirations, experiences and expertise in a timely manner. No matter how intimidating they might find that exchange at first (Lee et al., 2018). We also know it is important to share feelings of vulnerability. Sharing vulnerability establishes a foundation for trust. When stakeholders dare to truly trust one another and be themselves within the collaboration, they can learn together what is going on and what is needed in a given problematic situation. This leads to an awareness of relevant intentions, values and emotions. That awareness, in turn, offers insight into how stakeholders respond as individuals and as a collective value network—and how they might respond differently in the future.

Since we, as stakeholders, did not design our own habits—we rather have grown up with them and accept them as reality—we can break these habits and conventions and imagine alternative futures. To do so, however, we will need an appropriate approach.

In our search for a systemic co-design methodology beyond methods—which in culture and approach reveals blind spots and implicit values and rethinks current conventions and structures, leading ultimately to radical societal change and positive impact—we need to better understand the entanglements in a societal challenge, the (implicit) values stakeholders aspire to, and the mechanisms within.

In the next paragraphs, I discuss and explain two concepts: sphere of life and icebergs. Both concepts can be seen as possible systemic co-design elements that serve as ingredients for systemic co-design abduction practices.

Sphere of life—mechanisms for change

Stakeholders cannot resolve grand societal challenges as individual people or organisations or on the basis of separate roles. Nor can designers or researchers. It is not a matter for the personal or private sphere alone to tackle our nitrogen and energy crisis. Neither is it enough to realise that political action is needed to take on the major polluters or to make the transition to other types of energy. As is shown in the current nitrogen crisis in the Netherlands, the rather strict top-down authoritarian laws of the government led to a lot of commotion, distrust and radical demonstrations by Dutch farmers.

The goal of systemic co-design is to help individual people, volunteers, NGOs, politicians and entrepreneurs—in short, all spheres of life—to see the bigger picture and be able to act and change habits not only in moral terms but in terms of habits and the conventions that ensure we, as stakeholders, are unwilling or unable to make all kinds of choices. We simply cannot see the playing field. Moreover, we all need to act and change habits, not just one group, as in the case of the Dutch farmers.

Many scholars (e.g. den Ouden, 2012; Brand and Rocchi, 2011) think there should be more collaboration in so-called quadruple helix value networks for the purpose of addressing collective challenges. I prefer to think of this quadruple helix collaboration between citizens, commercial and non-profit organisations, knowledge institutions and government as a collaboration between four spheres of life: the personal, public, private and political spheres (Gudde, 2016). Since these spheres of life emphasise the influence of the various roles stakeholders (including designers, researchers, scholars and

students) can play in social life and in transforming society. For example, by day, I work in a private setting to earn money; in the late afternoon, I do voluntary work in a public setting to support the local soccer team; in the evening, I return home to my personal environment to relax with my loved ones. Multi-spheres and multi-values run by.

In each of those contexts, a stakeholder can act differently in a responsible, social and environmentally friendly way (or not). Even more, every sphere has its own habits, conventions and patterns of behaviour: mechanisms, so to say. For example, in a personal sphere, 'love' can be seen as a mechanism, while in a private sphere, it might be about 'contract'. As stakeholders change spheres, their roles, perspectives and agency changes with them (Table 1). Core values, on the other hand, remain in place across all four spheres. Even so, it is in between the spheres of life where we find systemic societal challenges. Each stakeholder thus has a role (interest, expertise, experience), responsibility and influence in the spheres of life. Moreover, stakeholders can deploy the corresponding mechanisms for changing a problematic situation around.

Exactly this is important as it enables us to act (and to re-imagine and rethink current habits) individually from more than one specific sphere. For example, if the Dutch government had decided upon laws for a wider range of stakeholders than the farmers alone—and it would also have affected them as individual people—the farmers might have differently experienced and accepted the top-down edicts.

Table 1. Spheres of life. Based on Gudde (2016).

Spheres of life **Spheres of social interaction** (Gudde, 2016)		**Mechanisms** **Habits** **Patterns**
Individual Personal	Personal	Selfless Love Friendship
	Private	Contract Achievement Reward
Collective Society	Political	Regulations Language Public interest
	Public	Freedom Spontaneous Shared

If all stakeholders are committed to acting from more than one sphere, it is possible to cause a shift. If stakeholders work together based on the four spheres of life that are, in a systemic, meaningful, ethical, empathic and inclusive way, and if they use abduction, then they will have a concrete set of guiding systemic co-design elements which can help to take action and get things in motion towards societal change. It brings overview and gives stakeholders individual agency to change collectively. See Table 2 (read from right to left) for examples of abduction, including the spheres of life mechanisms. Here we can see how the different spheres of life with accompanying mechanisms lead to different ways to deal with a systemic societal challenge like energy. Together these actions add up. Now, we only need to know how to identify and reveal our implicit individual and shared/collective values. This is where the concept of 'icebergs' come in.

Table 2. The meaning of spheres of life in abduction with help of an example of energy. Read the table from right to left.

Abduction formula: What + How = Value | Frames:			
What?	**How?**		**Value?**
What will we develop: thing, technology, process, experience?	in which sphere of life?	using which sphere of life mechanism?	which aspirations – multi-values were found?
Parents help and pay for home insulation	Personal	Love	A warm house this winter without spending too much energy and paying more
Offer a rental heat pump that is more sustainable and economical	Private	Contracts	
Retiree experts come to give advice on energy savings	Public	Spontaneity	
Tax reduction	Political	Laws, rules	

Icebergs—multi-values for change

Humans, and thus stakeholders, are limited in terms of their worldview and values. If stakeholders want to understand and effectively tackle grand societal challenges, they will need to expand this worldview. This is difficult because our limited worldview is not an individual shortcoming but a social-cultural characteristic—one we all have. For each of us, it is shaped by our specific backgrounds and mental models. In the literature, an iceberg is often used to visualise these hidden layers. It is ironic that scientists use icebergs (which are melting away at the moment) to demonstrate that we ourselves, individually and collectively, are only aware of a small fraction of our assumptions, beliefs and views.

More than 90% of what people do, they do without thinking. This makes it difficult when we need to change, as those habits present all kinds of obstacles. Stakeholders can be

unaware of the extent to which they are influenced by how they view, define and approach the world (and a problematic situation) and which opportunities they are willing and able to see (Smeenk et al., 2016). Moreover, our personal experiences as designers and researchers are also subjective. We, too, interpret the world and make judgements; we also have our own agendas. It is important to recognise, through self-reflection and self-awareness, what our implicit assumptions, habits and values are, what forms of privilege we have in the world, and which expectations are informing our interpretations.

According to the sociology of knowledge researchers Berger and Luckmann (1966), the 'social construction of reality' is determined by habits. Systems thinking describes our notions of reality, which are shaped by habit, as underlying structures that are hidden in day-to-day life. This is precisely what has enabled major societal challenges to become so enormous: we have virtually no idea or oversight of how our individual and collective habits and mechanisms result in exclusion or environmental damage.

Social sciences

According to various social scholars (McLelland, 1987; Weissfeld, 2006; Bateson, 1973; Dilts, 1980 &1990), what we consider to be individual characteristics are, in fact, part of a greater whole. An iceberg is a powerful metaphor (Drew et al., 2020) for this; the part we see is only ten per cent of the whole (Figure 1). All the iceberg models emphasise that the phenomena "above water" are those we can perceive: actual behaviour, symptoms and structures. The elements "below the surface" are the invisible worldviews, conventions and blind spots that determine social life and social systems: mechanisms, habits, patterns of behaviour, power relationships and institutional structures. In the deepest depths, we look for the values that shape our perspectives. Weissfeld (2006) refers to this as the "systemic perspective."

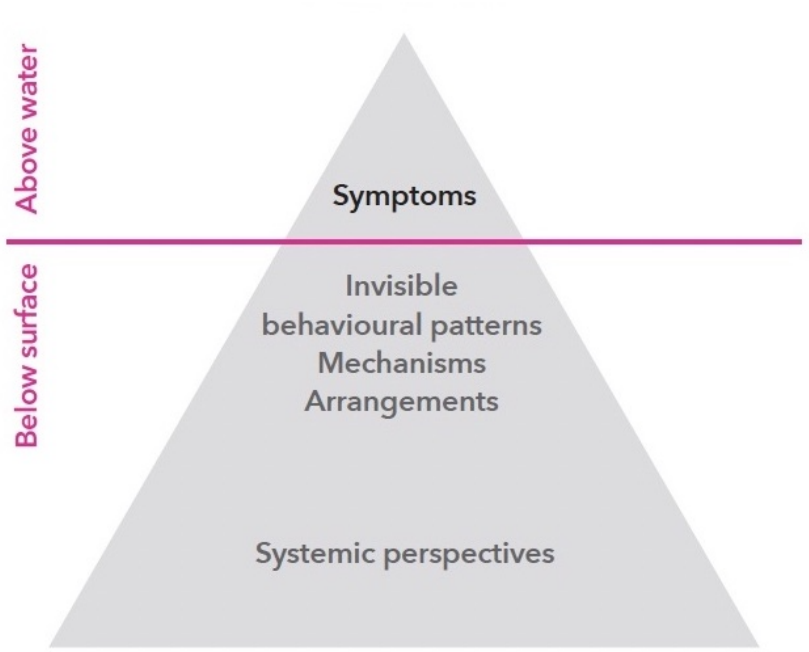

Figure 1. The social system iceberg of Weissfeld (2006).

Taking a systemic perspective generally means that we strive to understand how people think, feel, and react as part of systems, not as isolated phenomena. That system might be the family in which a person grew up, or it could be their relationships with friends, neighbours, teammates, colleagues or even the world at large. Systems thinking involves analysing, understanding and describing the functioning (or disfunction) of these social systems (Parsons, 2013). Often, technology and things are not viewed as active players in social systems. While the systemic perspective does see them as active players (Latour, 1996), it also assumes there is no point in considering social living systems as a whole or thinking they can be manipulated as desired. What we can do, however, is experience, visualise and begin to work and experiment with pieces of them. That is where design (abduction) comes in.

In reality, there is no such thing as *the system.* That which we call the system depends entirely on time, context and perspective. The point of taking a systemic perspective is to gain a temporary picture of how the individual elements relate to one another in patterns and how those patterns change over time, resulting in changes to the roles of

individual elements and peoples' experiences, and to identify the broader context in which that occurs. The systemic perspective aims to consider these questions in context. Moreover, a systemic perspective invites stakeholders to continually alternate between various iceberg layers and contexts and to recognise where values and mechanisms overlap and differ from one stakeholder to another. In this way, it explains social life and can be used to effect change in a problematic situation (Senge, 1990).

Design studies

In contrary to social scholars, who search for values and mechanisms below the surface for explanations of phenomena, designers and researchers use these (implicit blindspots, values and mechanisms) in abduction as an inspiration to rethink and reimagine systems and structures (including relationships and behaviour) and create alternative futures.

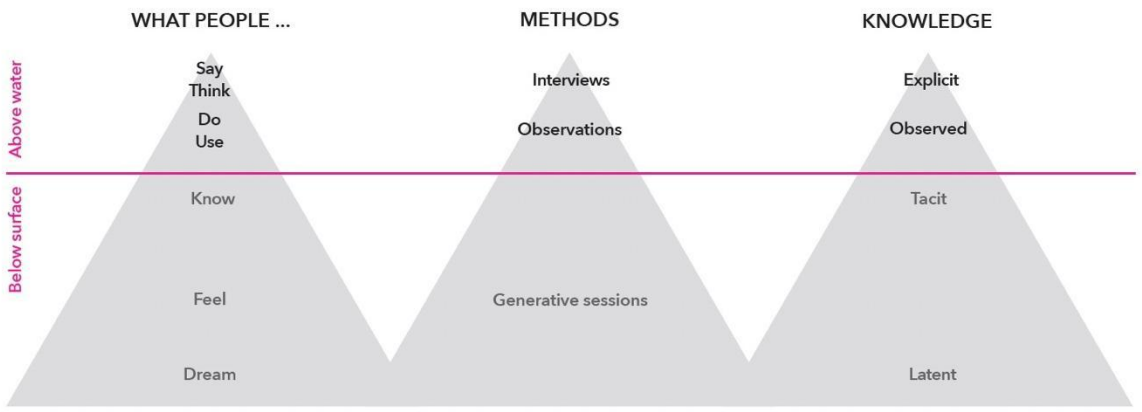

Figure 2. The make-do-say iceberg of Sanders & Stappers (2012).

A close look at the say-do-make icebergs (Sanders & Stappers, 2012) demonstrates that factual and explicit knowledge: what stakeholders say, think, do, and use are "above water." Accompanying design activities such as interviews and observations are cognitive processes. In doing so, stakeholders become emotionally interested (EI) (Smeenk et al., 2018). "Below the surface," then, we see what stakeholders know, feel

and dream. Here, accompanying design activities include generative co-design sessions, which are more affective driven and experiential. It is here that stakeholders learn about implicit (tacit and latent) values (Figure 2).

“What stakeholders know” pertains to revealing habits, relationships, conventions and patterns of behaviour (working mechanisms). And “what stakeholders feel and what they dream about” relates to their latent values, emotions and aspirations. More effort is needed to reveal the latter. To extend the metaphor, it requires a “deep dive into the iceberg.” Here it is crucial that stakeholders adhere to their own personal experiences (PE) and show a genuine willingness to hear, see and understand the perspectives, experiences and feelings of other stakeholders. Empathy, self-awareness (SA) and sensitivity (S) are important here (Smeenk et al., 2018).

Having said this, using the relevant experiential expertise of stakeholders, researchers, designers, tutors, and students is a powerful tool for envisioning alternative futures (Smeenk, 2019; Xue & Desmet, 2019). It is the value of what I call the “first-person perspective.” It involves individual experiences, feelings and emotions, in addition to assumptions and prejudices. If stakeholders together can gain a clear picture of how their habits, behaviours and values are organised into structures, systems, silos, institutionalised roles and other relational contexts below the surface, they will be able to more effectively intervene with abduction practices. But without self-reflection, this first-person perspective can also become a pitfall.

Understanding how the layers of an iceberg interact are vital in order to gain oversight of and insight into a given societal challenge (Senge, 1990). Moreover, to prevent bias and prejudices, mixing the iceberg layers and, thus, stakeholders’ first-person perspectives with the second and third ones in each process stage will help (Smeenk et al., 2016). We should, therefore, not view the ‘upper and undercurrents’ as separate phenomena. Continuously comparing and identifying relationships between stakeholders’ own relevant experiences and ideas and the experiences and work of other stakeholders, so-called mixing perspectives (MP), brings deep insights (Smeenk et al., 2016). Even more, this alternation of orientation on cognition (above water) and affection (under surface) combined with the alternation of orientation on self and

other(s) resembles empathic formation (Smeenk et al., 2019), which means the formation of empathy moves also through the various layers of the iceberg (Figure 3).

In societal impact design, it is important that we – as stakeholders, researchers, designers, tutors and students alike – reflect on who we are and what we do, feel and think (Irwin, 2015; Scharmer, 2016; Schön, 1987). This process of "becoming self-reflective and self-aware" is part of the first step in the individual and collective behavioural change needed in systemic change.

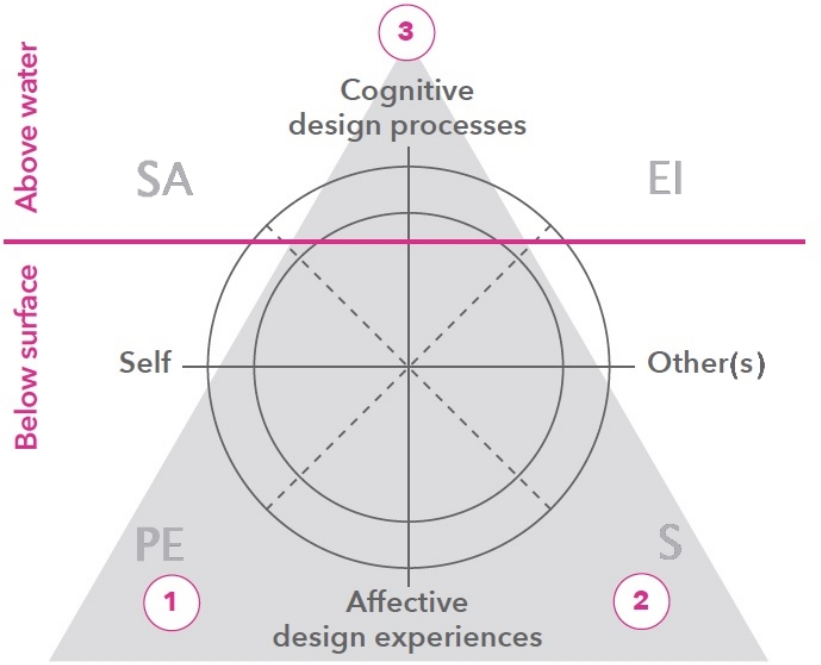

Figure 3. The empathic formation iceberg. Based on Smeenk (2019).

A systemic co-design iceberg

I used the above theory from the social sciences and design studies as a basis for creating an initial sketch of a systemic co-design iceberg (Figure 4). Below the surface, we see the systemic perspective and the frame (value-mechanism combinations) derived from the abduction logic of Dorst (2011). Moreover, on the bottom left, we see stakeholders' own (individual) experiences, feelings and dreams (the first-person perspective), and on the bottom right, what other stakeholders collectively experience, feel and dream (the second-person perspective). Above water, we see the joint/shared desired alternative future(s) (the third-person perspective).

By approaching societal impact design as identifying multiple abduction frames (of multi-values and sphere of life mechanisms) by mapping out the bottommost layers of the iceberg, including the systemic perspective, we can better grasp the problematic situation of a societal challenge and the multi-value creation necessary: "what" alternative future(s) to design.

With help of this systemic co-design iceberg, stakeholders in a value network can co-explore and co-discover blind spots, flaws, weaknesses, implicit values and undesirable behaviour, habits, conventions, etc. They can then seek out multiple spheres of life mechanisms as tipping points to change individual or collective behaviour towards the desired multi-value creation. Subsequently, they can create multiple frames and reframes and evaluate and test which of these will bring about the most realistic and substantively desirable alternative future(s) for all stakeholders involved.

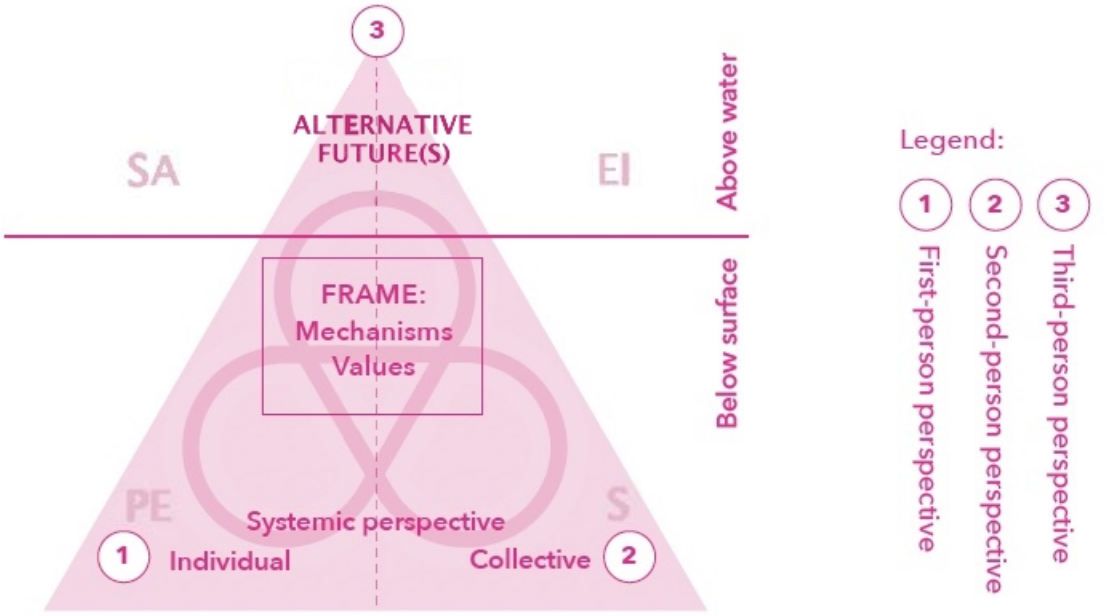

Figure 4. A systemic co-design iceberg model based on social sciences and design sciences. (Smeenk, 2022).

Discussion and future work

This paper set out to explore and create new intermediate knowledge (Höök & Löwgren, 2012) for (novice) designers, researchers, tutors and stakeholders in order to better understand systemic co-design and its possible elements. The main research question was how to create a systemic co-design culture, approach and structure that opens up stakeholders to reveal implicit world views, values and mechanisms which will bring each stakeholder (in the value network) individual agency and provides for inclusive, radical and shared opportunities for change.

I argue that abduction logic could help and concretise that idea in a systemic co-design iceberg based on social and design scholars (Weissfeld, 2006; Sanders & Stappers, 2012), including the four spheres of life – being personal, private, public and political (Gudde, 2016). The latter can be seen as a set of mechanisms for change and the how ingredient for the design abduction formula of Dorst (2011). Subsequently, the systemic

co-design iceberg can guide stakeholders to search and identify tacit and latent values. These implicit values form the value ingredient for the design abduction formula of Dorst (2011). Together they provide for multiple innovative abductions (re)frames that might provoke current problematic situations and conventions, i.e., what alternative future(s) to design. Moreover, it informs stakeholders which role and part to play and how to share responsibilities and benefits. This ideally leads to multi-value creation and systemic change in value networks (Brand Rocchi, 2011).

Adopting a systemic perspective in empathic co-design processes with help of a specific systemic co-design iceberg can offer stakeholders (including designers, students, tutors and researchers) a starting point. The iceberg with its elements can be seen as a flexible systemic co-design strategy beyond methods (Woolrych, 2011). The elements support stakeholders in their empathic understanding and make them respond adaptively to dynamic societal impact design contexts and collaborations (Akama & Light, 2018; Lee et al., 2018). Furthermore, using an iceberg as a metaphor for systemic co-design helps to explore the playing field (Drew et al., 2020). Through a deep dive, the iceberg can encourage inclusivity and can make stakeholders receptive and committed (Cockton, 2009) to each other and to the context and the challenge at stake (culture). Moreover, it enables stakeholders to employ relevant personal experiences credibly and intentionally (Smeenk, 2016).

A methodology beyond methods and an iceberg metaphor might be an abstract way of looking at systemic co-design. Moreover, in this paper, I did not present a case study to demonstrate the icebergs' functioning in practice. Future work should therefore illustrate how this iceberg can (or cannot) be used in education and practice and explore what more we need to provide stakeholders, designers, tutors, students and researchers with.

I observed the possible relevance of a systemic co-design iceberg model in a living lab collaboration with our students and the Dutch public prosecution office. In a challenge about the consequences of using XTC[2]—not only with regard to health but also with

[2] 3,4-Methylenedioxymethamphetamine (MDMA), aka ecstasy/XTC and molly or mandy, is an empathogen–entactogen stimulant.

regard to other societal issues such as safety and environmental damage—students became emotionally interested, sensitive and self-aware by discussing their personal experiences, worldviews and values and while professionally searching for personal, political, public and private mechanisms to find opportunities for collective change. Therefore, I plan to research how this iceberg might give explicit guidance to design teams' approaches, culture and structure by studying this XTC challenge in different educational design programs and applied universities.

Although design studies and social sciences already offer elements towards a systemic co-design approach, there is still a need for new ways of working developed by social and design scholars together. That is why I co-founded the Expertisenetwork Systemic Co-design (ESC)[3] in 2022. A network existing of design research and social science professors at four applied universities in the Netherlands working with students, creative industries, government, non-profit organisations and businesses towards more knowledge and experience in systemic co-design. Ultimately leading to a validated systemic co-design framework and toolkit in the coming years.

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