Timetravel journal Responsible Futuring

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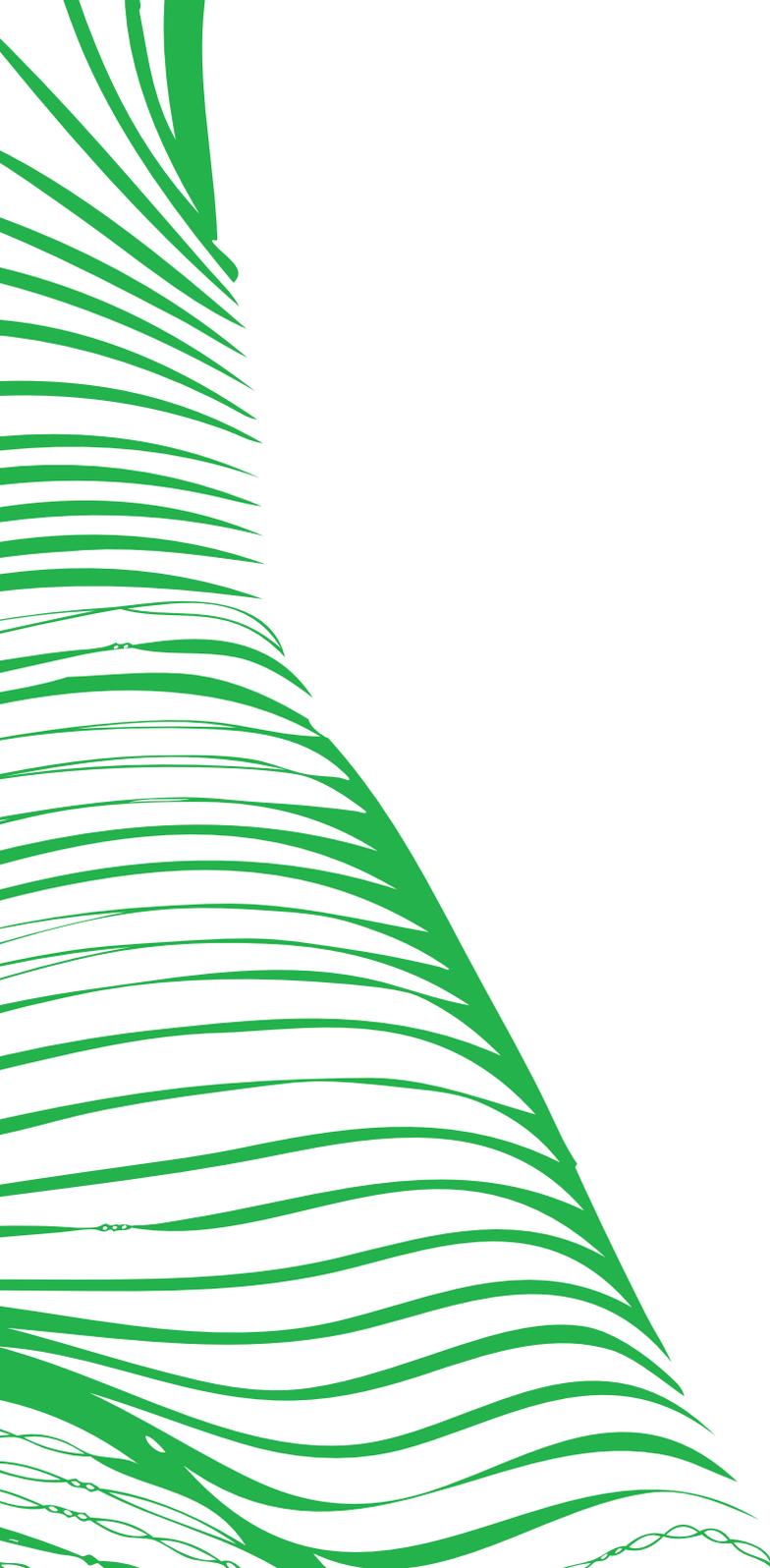
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RESPONSIBLE FUTURING
'CO-SHAPING THE FUTURES WE WANT TO LIVE IN'

1.
A RESPONSIBLE FUTURING APPROACH TO CREATE SPACES OF TRANSDISCIPLINARY CO-SPECULATION

ABSTRACT

This essay elaborates on how design research education can play a pivotal role in fostering futures-oriented competences through the provision of transdisciplinary spaces of co-speculation in learning trajectories. These spaces bring communities together around societal challenges, encouraging active engagement in the exploration of potential futures, aware of the controversial, ambiguous and complex nature of our pasts, presents and futures. In particular, we propose 'Responsible Futuring' as a methodological framework for communities of learners to scaffold their own spaces for transdisciplinary co-speculation. We describe how we put Responsible Futuring into practice in the learning trajectory 'Shaping Responsible Futures', at the University of Twente to develop key competences such as 'controversing', sensemaking, collective imagination, 'tangibilisation' and reflexivity.

INTRODUCTION

Eyebrow-raising visions like EctoLife's baby-growing facility (Zeitoun, 2022) or the pervasive use of facial recognition in the public space (Lohr, 2018) are wake-up calls to rethink how we shape our futures. It is time to realise that today's societal challenges are more tangled than ever, rooted in the interplay between society, technology, and the environment. Let's take the example of embodied AI, i.e., robots and smart products. Recently, we witnessed the development and deployment of AI systems to support sustainable agriculture, provide low-cost diagnostics in healthcare or improve traffic flows in the city. AI positively addresses some of the challenges that we encounter. However, the ramifications of the impacts of AI go beyond the solution-driven rationale that created them. In their book, Zaga and Lupetti (2022), enumerate the socio-technical and political challenges that arise from the development and use of embodied AI ranging from discrimination, i.e., the perpetuation of race and gender stereotypes, to the increase of power imbalances, i.e., gatekeeping the access to services and jobs (West et al., 2019).

The entanglements between socio-technical, environmental and political implications of research and technology developments highlight how traditional disciplinary silos fail to address and critically reflect on the networks of responsibilities and impacts of our actions. Top-down future visions developed by corporations or governmental organisations are often predominant, acting as self-fulfilling prophecies that influence the course of events in our world (Meyer, 2019). Techno-solutionism articulates a plethora of optimistic futures that fail to acknowledge power structures (Milan, 2020; Carr, 2013), and how solutions mediate our experiences influencing our norms and values in multiple and often unforeseen ways (Verbeek, 2011). On the other side of the spectrum, dystopian visions of the future fail to realise that other futures are possible, obviating society's collective capacity to imagine and act (Slaughter, 1998).

There is an urgent need to develop the competences that support the co-creation of alternative imaginaries and an active participation in shaping futures, rather than assuming that futures will unfold in a predetermined way, or that we are at the mercy of external forces (Mulgan, 2020). We must learn to adopt long-term thinking recognising that addressing societal challenges and seizing opportunities requires considering multiple perspectives and possibilities. Besides, we must be aware of the risks of long-termism: giving priority to improving the long-term future, which some (Torres, 2021) define as 'the most dangerous secular credo' since it might lead to techno-utopias that fail to acknowledge the urgent issues at hand. Collaboration among researchers, educators, practitioners, policymakers, and citizens is essential for creating alternative imaginaries in spaces that allow speculating, critiquing, and reflecting on the ethical and long-term implications of our collective actions, and for taking a more responsible approach to decision-making.

Design education can play a pivotal role in fostering futures-oriented competences to work across disciplines and worldviews to co-create alternative imaginaries and fuel collective action towards achieving them. We propose achieving this through transdisciplinary spaces of co-speculation in learning trajectories. These spaces bring communities together around societal challenges, encouraging active engagement in the exploration of potential futures, and providing insights to inform current practices. Through these spaces, learners develop key capacities such as 'controversing', sensemaking, collective imagination, 'tangibilisation' and reflexivity.

This essay discusses the significance of transdisciplinary co-speculation in futures-thinking, and its place within design education. Then, we introduce our approach -Responsible Futuring- to scaffold spaces for transdisciplinary co-speculation. We elaborate on how Responsible Futuring creates the conditions to develop alternative imaginaries, and we provide some examples of how we put it into practice in the Transdisciplinary Master Insert programme at the University of Twente.

Participants drafting 'What if?' scenarios during the Global University Innovation Fellows Summit, April 2024

TRANSDISCIPLINARY CO-SPECULATION AND FUTURES-THINKING

Navigating our complex and interconnected societal challenges requires tapping into the power of our collective imagination. We must explore new ways of living, working, and relating to one another that are not constrained by the status quo. Unfortunately, our current imagination falls short of addressing societal challenges. We are all too often confined by the narrow and limiting perspectives of our own experiences, or by the dominant ideologies and power structures that shape our society. To address the present deficit in our imagination, it is essential to foster a mindset of creative and critical thinking, question our assumptions, seek out diverse perspectives, and engage with individuals from different backgrounds and experiences.

To co-create "alternative imaginaries" that break free from existing frameworks and assumptions that limit our ability to imagine, we must turn to transdisciplinarity. Transdisciplinarity can be crucial in creating alternative imaginaries by bringing together diverse perspectives, values and experiences to challenge dominant narratives and power structures. Transdisciplinarity moves away from the traditional hierarchical role of experts to address societal challenges and focuses on expressing a diversity of values to gain a holistic and nuanced understanding of societal challenges. It encourages collaboration and dialogue across boundaries and fosters a culture of co-creation and co-learning.

A key feature of transdisciplinarity is its starting from societal challenges rather than from solutions. By forming communities of stakeholders from science, government, industry and civil society, transdisciplinarity combines different perspectives and knowledge to serve effective action in complex contexts (van der Bijl-Brouwer et al., 2021). In and through transdisciplinarity, communities engage in a reflexive dialogue that transcends the aggregation of various disciplines and supports undergoing a collective, generative, and reflective social learning process that challenges assumptions and highlights each other's responsibilities. Like van der Bijl-Brouwer (2022), we consider transdisciplinarity as an integration of knowledge generated by academic disciplines, real-world situated and experiential knowledge, and other non-academic ways of knowing (i.e. indigenous and spiritual).

In futures-thinking, transdisciplinarity connects diverse perspectives on pasts, presents, and futures. It brings together scientists, policymakers, industry experts, and community members to consider how our actions may impact our future. Rather than a linear progression from a single present, as assumed by a futures cone, transdisciplinarity offers "futures cylinders" that acknowledge the many different assumptions, perspectives and perceived future potentialities that coexist in the present. By bringing together diverse perspectives and stakeholders to address complex societal challenges, transdisciplinarity in futures-thinking relates to collaborative and participatory speculation (Light, 2021; Farias et al., 2022). These are processes in which communities engage in imagining, reflecting on, and co-shaping their preferable futures. The integration of multiple perspectives and forms of knowledge in co-speculation fosters critical thinking and creativity by broadening the range of ideas within a group and amplifying the voices of those who will be impacted by the initiatives under consideration (Raleigh and Heinonen, 2019).

Transdisciplinary co-speculation allows communities to co-create potential futures, rather than being passive observers in top-down assessment processes. Engaging in transdisciplinary co-speculation has a profound impact on behaviours, structures, and ways of thinking, enabling communities to critically address societal challenges and seize opportunities. However, practicing transdisciplinarity and organizing spaces to enable transdisciplinary collaboration is challenging due to the difficulty of finding common ground and language across worldviews along with (implicit and explicit) tangled relations between power and oppression. To address complex societal challenges, we must promote power-aware partnerships that are mindful of differences and capitalise on the knowledge that each community brings to the collaboration. To facilitate these partnerships, it is essential to provide competences for collaboration among disciplines and lived experiences.

Design research education plays a crucial role in scaffolding and experimenting with learning trajectories that facilitate the creation of spaces for transdisciplinary co-speculation, bringing diverse perspectives together and creating alternative imaginaries. In the last decades, design research education has evolved to recognise the systemic short- and long-term effects of our actions and has expanded to include critical, inclusive, and systemic tools (Jones et al., 2022). It has moved away from providing skills and knowledge to deliver products and services to meet specific market demands, and moved towards providing tools and methods for questioning, reflecting, and dialoguing. This has led to the emergence of relevant design paradigms, such as speculative design (Auger, 2013) and systemic design (Jones, 2014), which reflect and question existing practices.

Through project-based learning experiences, learners draw upon knowledge and skills from multiple disciplines and experiences, and think creatively and critically about solutions. The main opportunity and challenge lie in creating spaces of transdisciplinary co-speculation and moving them beyond the classroom so learners apply them with and within their communities.

The design research pedagogical tradition is a foundation for incorporating transdisciplinary methods that integrate academic, professional and lived experiences. These methods and approaches co-evolve with the societal challenge and the various expertise, perspectives and worldviews in learning processes. Hence, the resulting transdisciplinary pedagogies center on mutual learning and co-evolving relationships (van der Bijl-Brouwer et al., 2021), which support co-speculation of desirable futures.

ESTABLISHING SPACES OF TRANSDISCIPLINARY CO-SPECULATION THROUGH RESPONSIBLE FUTURING

We propose 'Responsible Futuring' as a methodological framework as a scaffolding to guide communities in creating their spaces for transdisciplinary co-speculation. The creation of the approach was a generative process drawing from theory and practice. We built from (1) design thinking as an exploratory frame creation process, (2) transdisciplinarity as a social learning practice, and (3) moral mediation to bring values into play.

We drew from Kees Dorst's (2015) design thinking methodology, which places emphasis on unfolding the diverse perspectives and worldviews involved in addressing societal challenges, rather than solely focusing on solutions. In line with the ontological premises of transdisciplinarity, which recognise the absence of a single, absolute, and irrefutable truth (McGregor, 2018), our primary goal was to support transdisciplinary communities in creating a shared frame that enables shared reflection and action. To achieve this, we embraced transdisciplinarity as a continuous practice of social learning that acknowledges the systemic nature of societal challenges, transcending various disciplines and experienced knowledge (van der Bijl-Bouwer et al., 2021).

To promote awareness of the long-term and societal consequences of actions, we drew on Verbeek's (2011) mediation theory to explore how interventions (i.e., technology) act as moral mediators, shaping not only our perceptions and experiences but also influencing our actions and practices.

We also built from the empirical experiences of the authors in research projects related to smart city developments and embodied AI. To create a practical framework that incorporates the elements we identified from empirical involvement and theory, we have devised Responsible Futuring as a five-phase approach that emphasises co-speculation. By exploring and experimenting with multiple futures, we aim to provide the scaffolding for communities to develop alternative perspectives that shape new imaginaries and inform current practices.

KEY COMPETENCES OF RESPONSIBLE FUTURING

Responsible Futuring is not as a set of instructions, but a flexible scaffolding that fosters key competences such as (1) 'controversing', (2) collective sensemaking, (3) imagination, (4) 'tangibilisation', and (5) reflexivity to support communities in exploring ways to co-shape desirable futures.

First, 'controversing' (inspired by Baibarac -Duignan and de Lange, 2021) enables productive dialogue through the articulation of controversial issues in transdisciplinary groups, promoting critical thinking and the exploration of diverse perspectives for inclusive co-speculation.

Second, collective sensemaking enables the construction of shared meaning within a group (Weick et al., 2005), allowing transdisciplinary groups to move beyond siloed thinking and comprehend systemic issues for a more comprehensive understanding of societal challenges.

Third, imagination is the ability to form new ideas and concepts (New Oxford American Dictionary), essential for envisioning alternative futures and inspiring positive change, as imagined futures become socially performative (Oomen et al., 2021) and self-fulfilling prophecies (Meyer, 2017). Harnessing the power of imagination, communities generate new ideas for shaping their desired futures (Bendor, 2018).

Fourth, "tangibilisation" makes abstract notions concrete, promoting dialogue on relevant issues by 'making things public' (Latour, 2005; Schoffelen et al., 2015). It facilitates structured social interactions and reflection on desired outcomes by making futures or values tangible.

Fifth, reflexivity, as described by Popa et al. (2015), supports upgrading practices through collaboration, critical evaluation and mutual learning. This process leads to the creation of new meanings, heuristics, and stakeholder identities, and promotes a comprehensive understanding of past experiences, present value systems, and future perspectives to achieve desirable outcomes.

PHASES OF RESPONSIBLE FUTURING

Responsible Futuring brings along learners through 5 phases: (0) Articulate the Challenge, (1) Connect and Relate, (2) Understand and Frame, (3) Imagine and Ideate, and (4) Reflect and Reframe.

In the last years, we have been putting Responsible Futuring into practice in learning trajectories at the University of Twente. An example of applying Responsible Futuring is the transdisciplinary programme 'Shaping Responsible Futures'. Since 2019, this programme has been a space of transdisciplinarity co-speculation, providing a learning ecosystem for students, societal stakeholders, experts and communities to address societal challenges. This learning trajectory provides experimental and collaborative spaces to develop the aforementioned competences.

Articulate the challenge

Articulate the societal challenge focuses on forming communities around societal challenges. The foundation of transdisciplinary co-speculation is to collaboratively decide not only on the challenge at hand, but also on identifying phenomena that have societal impact and jointly articulating what it is about. Often, established stakeholder groups take for granted what societal challenges mean and entail, obviating a collective sensemaking process that is a basis to explore relevant knowledge flows, power relations, and values at stake. Besides, articulating the challenge entails giving a voice to communities that might not be usually involved in defining and prioritising societal challenges.
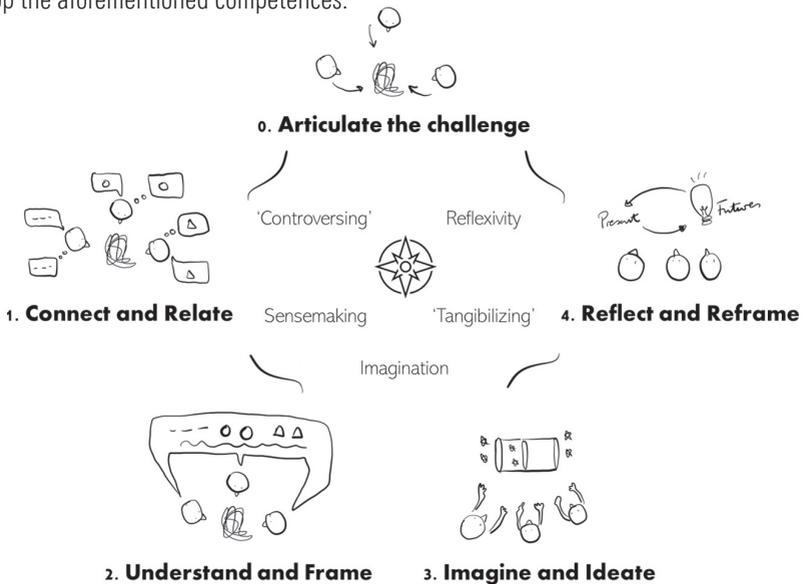

Fig. 1: Illustrated phases of Responsible Futuring

This is relevant since how groups frame challenges steers responses and socio-technical developments. In our approach, we actively engage diverse groups to collectively explore challenges that communities want to proactively address. This enables them to articulate their matters of concern in relation to societal developments, identify challenges, and form communities around them. The emphasis is on the active formation of 'publics' around challenges (DiSalvo, 2009), and, as Dewey (1954) puts it: bringing together a plurality of perspectives, knowledge-flows, and positions bound by confronting a shared issue.

The 'Parliament of Challenges' is an example of a pedagogical activity in the Societal Leadership module of the Transdisciplinary Master Insert programme to engage diverse stakeholders in articulating societal challenges. Inspired by Latour's 'Parliament of Things' and in a workshop setting, participants engage in pretense and role-play to enter a fictional parliament space and take the role of a human or non-human parliament representative. In this process, students and societal stakeholders 1) examine positionality, values and power dynamics and 2) jointly articulate a societal challenge by jointly framing and reframing it.

In 2022, students and stakeholders from the public and private sectors explored challenges in social justice and healthcare. As fictional representatives, they discerned how their positions in society (and intersections thereof) influence how they articulate frames, mindful of the interdependencies of values and responsibilities co-existing in

and co-evolving with the challenges. The participants used metaphors to describe and understand a challenge they had agreed upon collectively. They then made this understanding tangible by using low-tech materials like LEGOs, paper, and cardboard. The resulting tangible representation reflected the evolving understanding of the challenge as expressed through shared metaphors. In the final stage, they developed proposals to address the challenge and the potential assumptions embedded in the metaphors.
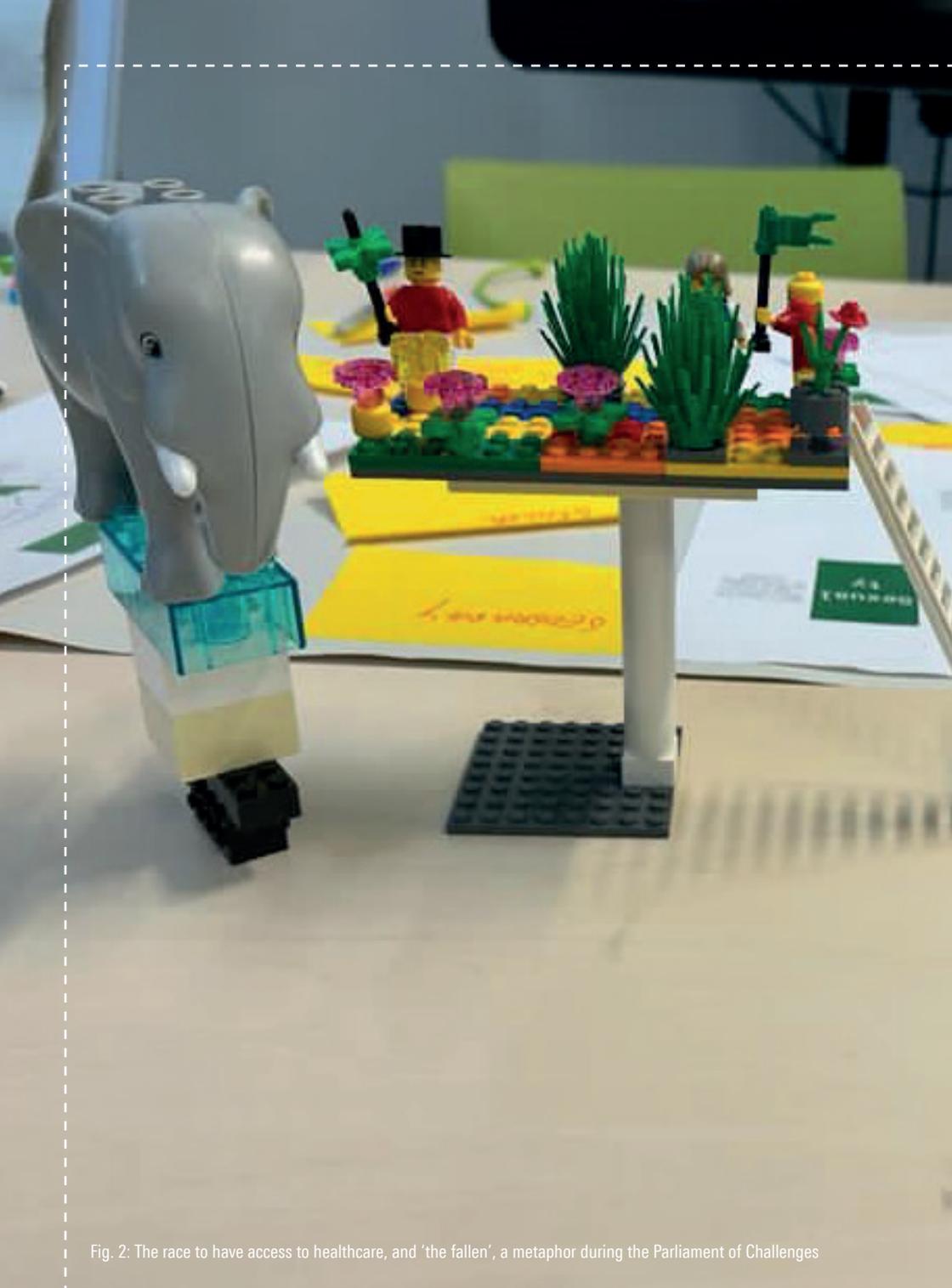
Fig. 2: The race to have access to healthcare, and 'the fallen', a metaphor during the Parliament of Challenges

Connect and Relate

Connect and Relate deepens an understanding of societal challenges by fostering self-awareness and mutual understanding among all actors involved, including humans and non-humans. Students experiment with techniques to understand and to create awareness of power relations, diverse worldviews, and motivations. In this phase, students explore who the involved actors are, what matters to them, and why they collaborate. As a result, these activities support understanding how values and norms shape understanding and responsibilities.

The Societal Leadership module of the programme incorporates Theatrical Technological Assessment (TTA) techniques (Visscher, 2020), which blend Constructive Technology Assessment and improvisational theater. Participants in TTA engage in role-play simulations on healthcare technologies and gain unique and impactful insights into how to anticipate and transcend complex socio-technical dynamics (Visscher, 2020). These insights not only benefit the educational curriculum projects but also contribute to the professional development of students in addressing technological and societal challenges.

Understand and Frame

Understand and Frame investigates the interdependencies among actors in relation to societal challenges. Using techniques from systemic design and frame creation, this phase encourages to examine any conflicts or complementarities, and to gain a holistic understanding of the system they generate.

This process of collective sensemaking allows for an exploration of how to upgrade an understanding of the system and create a new frame.

We use tools like the Identity Wheel and Matrix of Domination to help students reflect on their identities and understand the power dynamics at play while addressing societal challenges. Value mapping activities also allow for a deeper exploration of conflicting values and perspectives. During the Futurism module in 2020, we provided students with future scenarios for smart cities to examine the complexities and controversies of using technology in cities.

By assuming different stakeholder roles and participating in value-mapping exercises, the students created a network of conflicts that encouraged dialogue and aimed to find common ground (Geenen et al., 2021; Geenen et al., 2022). This activity helped the students to understand the conflicts and dilemmas that emerge from the use of technology, enabling them to separate controversies into their individual components. The activity showcased the nuanced and multifaceted nature of the issue, and the unique values and perspectives of stakeholders, which informed the creation of a new frame.
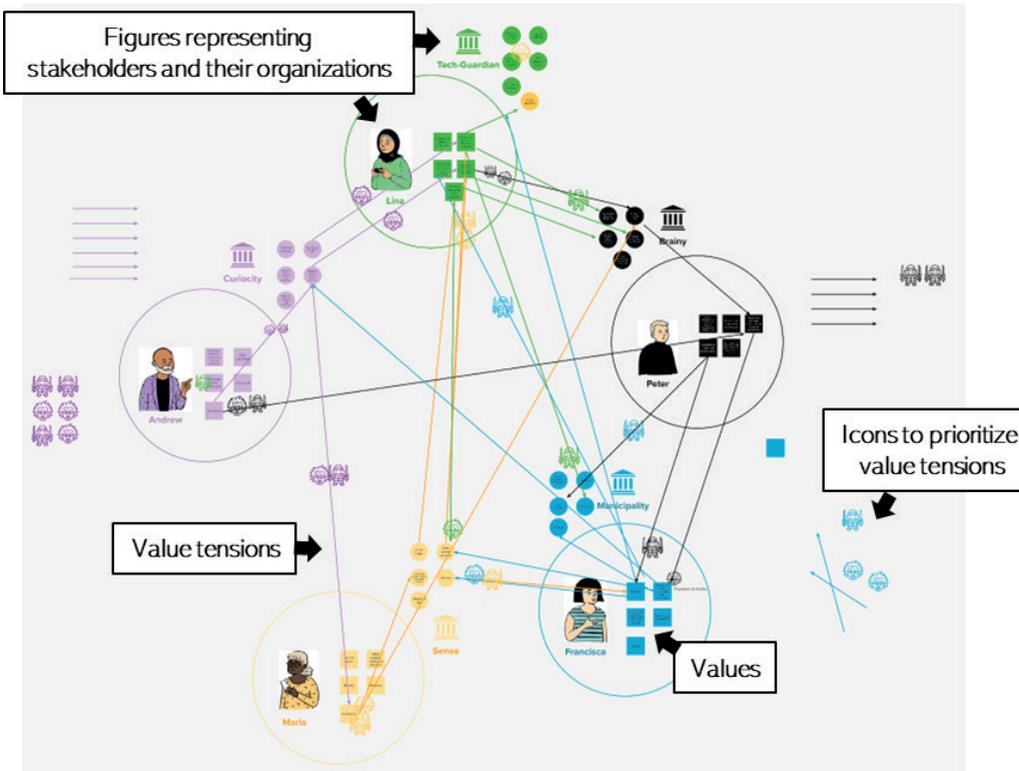

Fig. 3: Network of conflicts created by students in the context of a smart city scenario

We are in the Netherlands, the year is 2050.

Fossil fuel-based cars are required to display labels reflecting their environmental impact.

The Enschede Times

Enschede, the Netherlands

21 April, 2050

Car labels to continue in lease cars as private cars reduce.

10 years into the programme, car ownership continue to decrease.

The latest stage of 'Moving Enschede' programme has been completed. Starting in 2040, the programme has been advocating for an active mobility in all residents.

With the new lanes, bicycles and e-bikes have more available space whenever cyclists outnumber car drivers on a given street.

This change is an addition to all previous regulations the programme has changed already:

- Tax regulations for private-transport owners and manufacturers

- Subsidies for transition towards non-fossil fuel cars

- Car owner's payment for carbon emissions offset per km traveled

- Car labelling based on fossil fuel consumption

COMING SOON TO YOUR OV-CHIPKAART

Cargo E-bike

Energy level: A
Eco-label free vehicle.

" I do not want these in my brand new car, I might as well just cycle! "

How did we get this far?
A project from the University of Twente

Fig. 4a: speculative future magazine tangibilising future mobility choices and consequences thereof

Imagine and Ideate

Imagine and Ideate engages students in creative and generative activities to bring their visions of the future to life. Through exposure to speculative design and design fiction, students learn to create relatable and impactful narratives, artifacts, and experiences that foster constructive and productive reflection and dialogue on values that could and should govern our futures, the types of futures we should strive for, and those that we should avoid. This phase emphasises the creation of provotypes, or provocative prototypes, in a transdisciplinary manner, highlighting the diverse perspectives and values that were identified in previous phases. This phase is both playful and reflective, encouraging students to engage with materials in a meaningful way.

During spring 2022, the Futurism module of the programme brought together students, mobility and sustainability experts, and practitioners from the municipality of Enschede to explore ways to decrease car usage in the city. The students engaged citizens through a simulated morning commute, showcasing their CO2 emissions, and asking them to consider compensation options like exchanging emissions for showers or vegetarian meals. The team employed design fiction, creating communication prototypes such as a future newspaper and an app, to deliver an interactive experience that highlighted individuals' impact on the environment and society. The project aimed to not only raise awareness of the resources consumed by daily car usage but also to reflect on the potential consequences of a climate emergency on daily life and legislation.[1]

We are in the Netherlands, the year is 2050.

How are you choosing to pay for car fuel today?
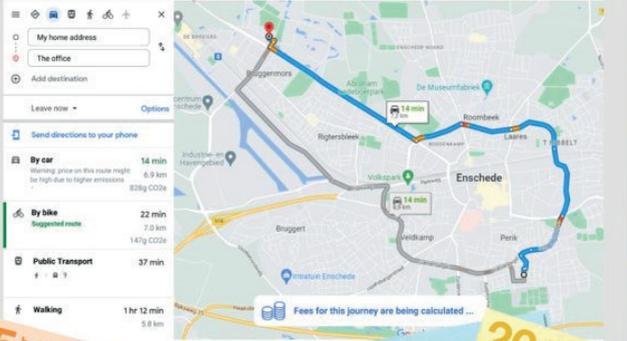
How did we get this far?
A project from the University of Twente

Reflect and Reframe

Reflect and Reframe revolves around making alternative imaginaries actionable. It consists of identifying desirable futures and coming up with roadmaps of actions to achieve them. Backcasting and generative ethics focus on what is both achievable and desirable, resulting in collaboratively developed guiding principles and actions. An example of the activities we use to stimulate reflexivity in Reflect and Reframe is the 'Letter to the Future Cities'. In this activity, students write a personal letter outlining their desires and expectations related to a societal challenge.

They think about the potential consequences of resolving the challenge, and share their texts with the group. Throughout the process, students are reminded to keep their letters and reread them at the end, to see how their perspectives have changed based on the transdisciplinary collaboration. This helps them learn and incorporate new insights into their future practices.

MOVING FORWARD

Creating spaces of transdisciplinary co-speculation and embedding them in educational programmes is not exempt from challenges. Ensuring equal participation and representation of stakeholders, including marginalised communities is difficult. Fair involvement requires a commitment to creating inclusive spaces that value diversity and take power imbalances into account. A second point of attention is ensuring that co-speculation activities are not a one-time event, but are integrated into educational curricula and continue to be part of learning trajectories. We have experienced that this requires a shift in current traditional educational paradigms, and a commitment to transdisciplinary ways of working. Besides, those used to a more hierarchical approach to problem-solving might experience resistance to the idea of co-speculation. Overcoming this resistance calls for clear communication of the benefits and outcomes of co-speculation, and a willingness to engage in continuous dialogue and collaboration with others.
Despite these challenges, spaces of transdisciplinary co-speculation are promising avenues to provide much-needed alternative imaginaries to tackle our entangled societal challenges.

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