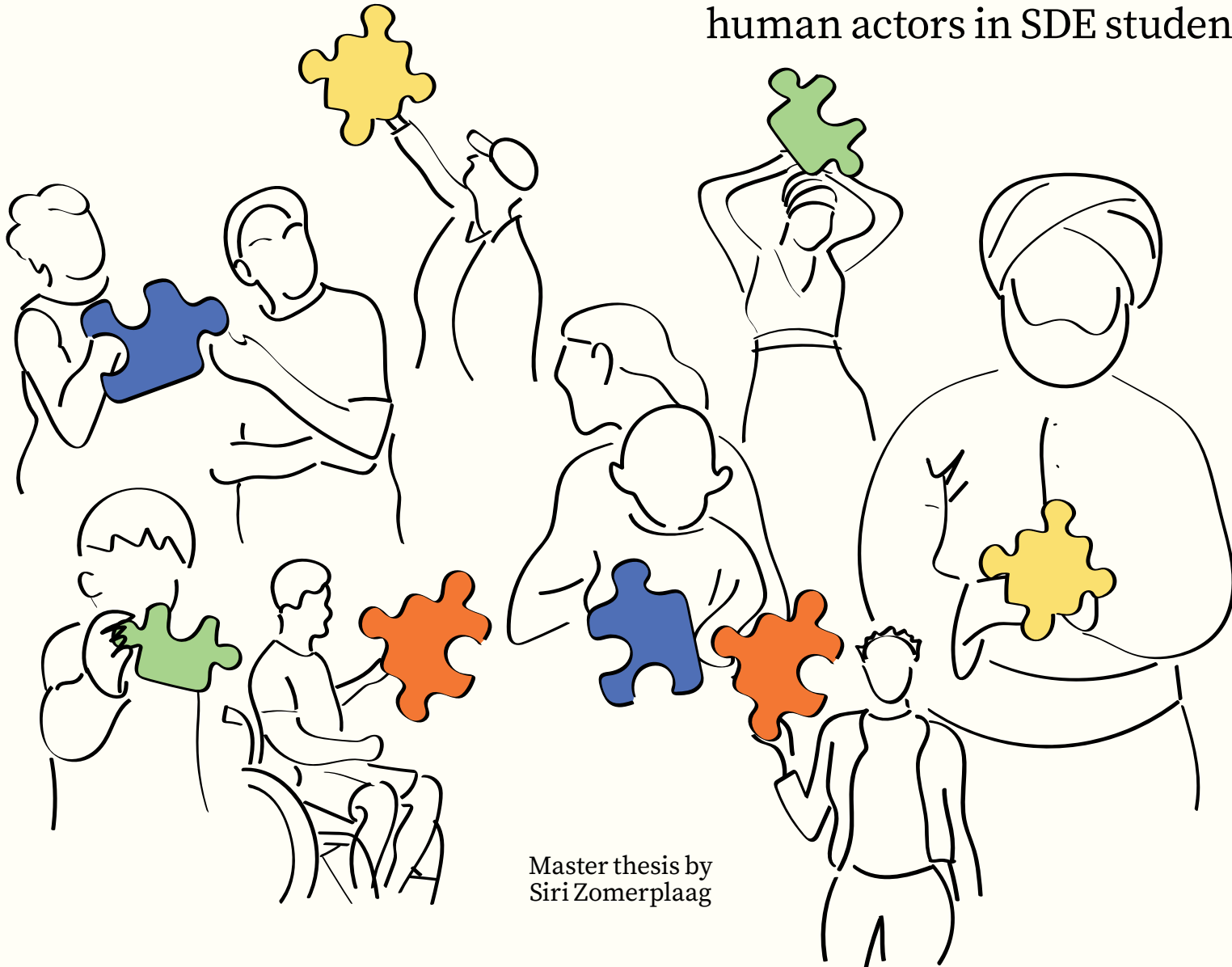# You are (not) invited!

The inclusive participation of
human actors in SDE student projects

Master thesis by
Siri Zomerplaag

Formalities

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Abstract

In this master's thesis the focus is on improving the inclusive participation of human actors in Sustainable Design Engineering (SDE) student projects at Aalborg University, Denmark. The thesis explores the ways SDE students engage with participation, examines how other professions include diverse human actors in their work, and proposes a tool to encourage SDE students to reflect on their participatory approaches. To investigate the topic, a comparative study of 16 SDE theses submitted in June 2022, three workshops with SDE graduates, and an interview round with five professionals working with participation were conducted. Drawing on theories of sustainability transitions and participatory design, this thesis aims to discuss the rationale of inclusive participation in SDE student projects and encourages SDEs to critically reflect on their decisions in staging inclusive participation. Ultimately, the study aims to contribute to the development of tools and methodologies that enhance inclusive approaches in participatory design for sustainability transitions.

INCLUSIVE PARTICIPATION   SUSTAINABILITY TRANSITIONS   TOOLS AND METHODOLOGIES

Acknowledgments

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I am also thankful to the many SDE graduates that were open to reflecting on their thesis projects and helped me build a deeper understanding of the participation goal of different SDE projects. Thank you to all of those who reflected on inclusive participation during the workshops (some of them after busy workdays): Tekla, Reyes, Vincent, Siri S., Patrick, Natalia, Lukas, Camilla, Amanda, Sliwa & Matilde.

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Contents

1. Introduction

"One can see from space how the human race has changed the Earth. Nearly all of the available land has been cleared of forest and is now used for agriculture or urban development. The polar icecaps are shrinking and the desert areas are increasing. All of this is evidence that human exploitation of the planet is reaching a critical limit. But human demands and expectations are ever-increasing. We cannot continue to pollute the atmosphere, poison the ocean and exhaust the land. There isn't any more available." (Conners & Conners, 2007)
Stephen Hawking, Physicist & Author

1.1 Background

The earth is facing a climate emergency (Ripple et al., 2020). The first edition of the Planetary Boundaries concept was published in 2009 and presents boundaries within which humanity on earth can safely thrive for future generations. With the latest research being published in 2022, scientists now conclude that humanity has exceeded the safe operating space regarding five out of nine boundaries (Persson et al., 2022). This means we have fully entered the Anthropocene – the epoch of significant human-caused climate change (Steffen et al, 2011). This already leads to effects such as sea level rise, more intense heat waves, and severe weather damage. Issues that will only worsen, the longer we wait to address them. For all earth's inhabitants; humans, flora, and fauna, to survive change is needed urgently. The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States, translated the need for urgent action into 17 Sustainable Development Goals (SDGs). These targets acknowledge the necessity to tackle climate change, while also addressing related societal problems – such as inequalities, education, and health (UN General Assembly, 2015).

For us to truly try in reaching the SDGs, we need to recognize that the socio-technical systems currently constituting our society require radical and transformative restructuring in the form of sustainability transitions (Gaziulusoy & Öztekin, 2019). This demands us to position the term sustainability not as merely a quantitative problem, but as a qualitative understanding where it is seen in the context of the many global systems and communities (Kossoff, 2011). This understanding brings to light the need for wide societal engagement in sustainability transitions (Sampsa et al., 2019). The transitions that are needed will only succeed when their systemic, multi-disciplinary, and cross-cultural essence is acknowledged. And by recognizing that sustainability transitions include broader societal transitions.

1.2 Problem Statement

Design is at its core a means to look systemically at a problem, which makes it an interesting way of approaching transition management (Sampsa et al., 2019). And while designers might face difficulty to shift public attention away from immediate political concerns towards longer-term issues, it has always been a part of the profession to reframe challenges in constructive ways (Tromp, 2023; Hendriks, 2009). However, this requires a vision that goes beyond traditional design approaches. We need a radical reconsideration of our understanding of design (Fabrizio & Gaziulusoy, 2016) with the level-headedness to recognize that our problems are too big to be solved by one solution or one actor alone. Instead, we

should adapt a strong socio-technical approach with the goal to intervene in the systems that society is embedded in (Gaziulusoy & Öztekin, 2019).

According to Sampsa et al. (2019), participatory design is one of the fields with the potential to contribute to transition management. Since it allows connecting multiple actors to the transition, by including them in the process (Voß et al., 2009). Participatory Design, which will be clarified later in this thesis, is closely related to Co-Design. Both are based on the notion of including actors actively in design processes that will impact them. And open public deliberation is crucial in transitioning a society (Hendriks, 2009). When it comes to sustainability transitions the participatory way of thinking is almost infinite since all actors on earth are impacted and all issues are interrelated. This gives room for interesting thoughts in this intersection of Participatory Design and Sustainable Transitions. Who should be included in sustainability transitions and in what ways?

When a designer mingles in sustainability transitions in a participatory way, their role becomes highly political. At its core is the whole issue of who to involve and how. And while Hekkert (2023) views designers as the politicians of tomorrow, a certain modesty is necessary: who are we to decide? One thing is for sure: designers will never be objective. In deciding who we make stakeholders in our projects, designers already put a limit on what futures can be explored (Metzger, 2013). When looking at human actors specifically, too often only the 'usual suspects' are

included in participatory approaches (Metzger, 2013). These are the people who volunteer themselves, or the ones designers pinpoint as the 'end users'. On the one hand, this signals the need for designers to try harder to reach a more diverse group of actors. And on the other hand, it also calls out the selective empathy of designers that often leads to a narrow focus on a few different perspectives (Bouwknecht, 2023). When focusing on environmental sustainability, something that for many people still feels like an abstract if not remote concept, the segments generally reached stay limited to those already interested in environmental issues. It is also inherent to human psychology to always wonder "what is in it for me" when asked to participate in a process, especially when the barriers to participation get higher (Agger, 2010). As Sustainable Designer Engineers (SDEs) practicing participatory approaches in our efforts to support sustainability transitions, we need to reflect on our competencies to include diverse human actors in our projects.

1.3 Research question
This study aims to address the lack of diversity in human actors involved and the lack of focus on inclusive approaches in participatory design for sustainability transitions. This study focusses on the context of Sustainable Design Engineering (SDE) student projects at Aalborg University in Denmark. The following research questions have been guiding the research process.

How to improve the inclusive participation of human actors in SDE student projects?

Sub-questions:
- In what ways and why are SDE students working with participation?
- In what ways do other professions include diverse human actors in their work? Is there anything we as SDEs can learn from their approaches?
- How can a tool encourage SDE students to reflect on their approaches in setting up participatory projects with human actors?

2. Project Design

In the following section, the project design will be introduced, including a first glimpse of the theories and methods used. There will also be a short introduction to the case of this study: the master's education in Sustainable Design Engineering at Aalborg University, Denmark.

2.1 The MSc Sustainable Design Engineering

Since this project is partially a case study of projects of students within the MSc Sustainable Design Engineering (SDE) at Aalborg University, a short description will follow for those unfamiliar with the education. SDE is a two-year program situated in Copenhagen, Denmark. The curriculum is focusing on the design and development of sustainable solutions, with a focus on overcoming system dependencies and encouraging system change in societal sectors. Students are educated on the need for sustainability transitions and how a design perspective can contribute to those. The courses are a combination of organizational change management, technical knowledge, and theories on transition management. Every semester, students are also engaged with 'real' actors in a Problem-Based Learning-guided project. This often means that students either start a collaboration with a specific organization or public institute, or that they study a sector and try to connect with the relevant network of actors within it. Every semester has a theme, for example, 'Design for Sustainable Transitions'. Students are encouraged to use the semester's theme and the accompanying courses in their projects. The master thesis, a full-time project traditionally from February until June, is often arranged in the same way as the semester projects. The only difference is that the students get the opportunity to work alone and that there are no accompanying courses.

2.2 A case of a case

This master thesis is as much a case study of student projects within the SDE education at Aalborg University, as it is a student project within the SDE education. In other words: a case of the case itself. Since I, the writer of this thesis, am while writing still an active student in the SDE education, I am not simply asking: How can they do better? Engaged in an active reflective process, I am also asking: How can I do better? All while hoping that the result will be enlightening for both the rest of my personal and professional life, as well as all those wishing to practice inclusive participatory design in supporting sustainability transitions. However, this means that the project is also just an example of how a student project cannot save the world in four months. Meaning that decisions had to be made based on the strict limitations that a graduate student is under. My wish is to make a clear description of what I did, but also what I did not manage to do (yet).

2.3 Reading Guide

In this reading guide, I hope to clarify the journey that led me to the structure of this report. Throughout I have used several theories, methods, and tools, all intending to broaden my knowledge by showing me different perspectives on the research question. Or in other words: they helped me listen to different perspectives. A skill essential in Participatory Design, albeit that it does not mean that I took all information I gathered as an absolute. Since I do not believe in absolute truths when it comes to people's narratives. But I also do not believe I can be viewed as a modest witness; my prejudices make that even when listening I am still biased (Hendriksen, 2019). Therefore, I rather use the word dialogue than pretend that all I did was listen. Sequentially I have been in dialogue with literature, students, and 'experts on participation'.

For structure, this report is divided into nine chapters. (see figure 1). The first and second chapter cover the background and justification of the research questions. It also gives an outline of the theories used, as well as how they relate to each other. All necessary to lead us into chapter three, where relevant theories are discussed. In chapter four, SDE student projects will be analyzed in both a literary review of master theses and a workshop with those students. Overall, this chapter will focus on finding the methods and rationales of SDE students when practicing participatory design.

INTRODUCTION		LITERATURE	STUDENTS	'EXPERTS ON PARTICIPATION'	CONCEPTUALIZATION/ CONCLUSION	
1	2	3	4	5	6	7
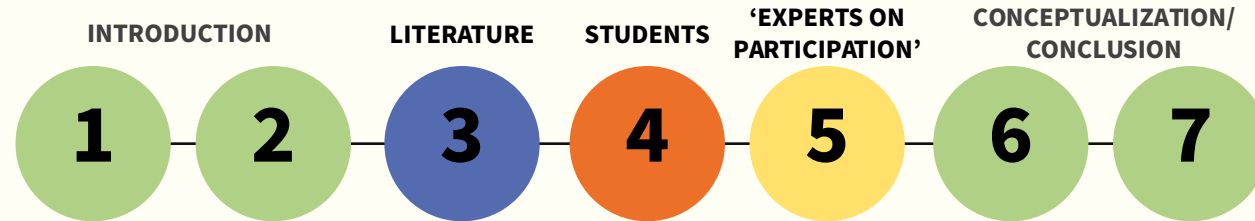
Figure 1: Project design

In chapter five, I set out to talk to different 'experts on participation' to answer the sub-questions: 'In what ways do other professions include diverse human actors in their work? Is there anything we as SDEs can learn from their approaches?'. Chapter six is the configuration of my wish to translate the theories and analysis into relevant discussions for the SDE field. These consolidate in the development of 'human participation' tool. The final chapter, 'Conclusion' rounds up the report by summarizing, reflecting, and providing ideas for future research.
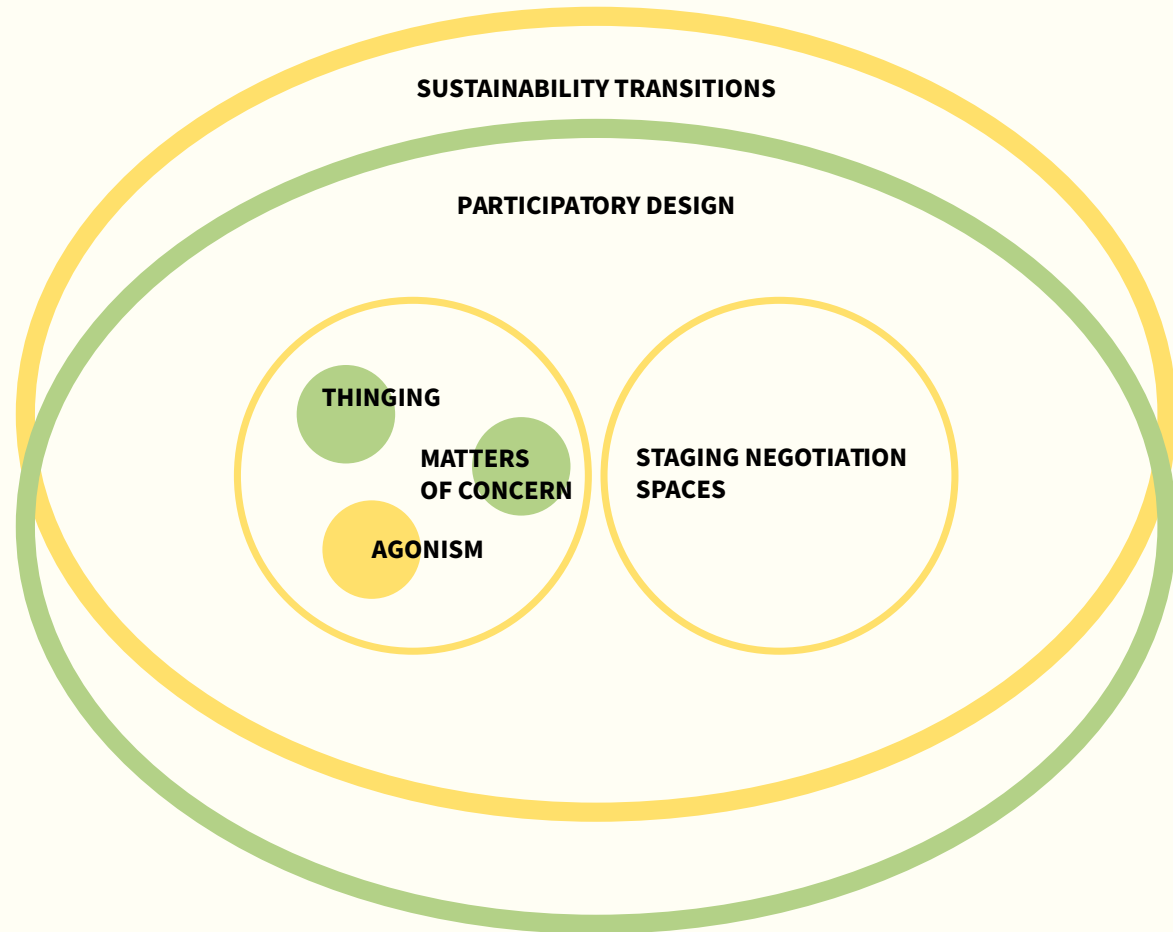
Figure 2: Theories, and how they relate

2.4 Intro to the theories

Throughout my project, specific theories and methods have been guiding me (see figure 2). Sustainability Transitions (specifically the Multi-level Perspective) and Participatory Design (PD) establish the scope of this project, in building the argument that PD can successfully contribute to sustainability transitions. All other theories and concepts are brought in to give a more detailed look at the why and how of this. Firstly presenting the concepts of matters of concern and thinging. Secondly, agonism is introduced to present a more radical view on thinging and the potential conflicts when bringing different matters of concern

together. Thirdly, the Staging Negotiation Spaces framework will allow the proper vocabulary to discuss different design phases and the role of the designer as a facilitator. Lastly, we bring all these concepts once again together in the conclusion of the literature section. Throughout the rest of the thesis, references will be made to relevant literature.

3. In Dialogue with Literature

3.1 Sustainability Transitions

Sustainability transitions are our hope at changing society's current socio-technical systems that are causing environmental and interrelated social problems. Incremental change and business as usual have proven to not be enough, therefore sustainability transitions theory focuses on shifts into new socio-technical systems (Gaziulusoy & Öztekin, 2019). Where socio-technical systems refer to the combination of different dimensions and actors. These systems are embedded in our society, which makes it not easy to reconfigure them. Contrarily, systems tend to be locked-in and path-dependent (Simoens et al., 2022).

One of the most well-known theories in transition theory, the Multi-Level Perspective, conceptualizes transitions in three levels: Niches, System/Regime, and Landscape (Geels, 2016). Where niches are mainly seen as radical innovations with the will to be seeded for change in the established regime. Sometimes also described as 'hopeful monstrosities' as inspired by Mokyr (1990); the niches are best of when developed first in a somewhat protected area where they are protected from the mainstream market selection. Niches need time to grow over time and gain momentum to overthrow existing regimes. Niches do not only refer to business endeavors but can for instance also refer to social movements (Geels, 2020).

A landscape refers to the exogenous socio-technical trends that influence both the regime and niches. One of those factors for example is climate change. The landscape can change the whole selection environment within which niches and trends interact with each other. However, this level also tends to evolve slowest when compared to the regime and niches-level. Except for rare shocks at the landscape level, of which we have seen a recent example in the form of the COVID19-pandemic.

A hopeful perspective on sustainability transitions is that the right external influences and landscape developments can put pressure on the existing socio-technical regime, thereby creating windows of opportunities for more sustainable niches to infiltrate into the regime level. Geels (2016) describes the opportunities for this as different transition pathways: technological substitution, endogenous regime transformation, regime reconfiguration, and de-alignment and re-alignment. Where on the one hand there is technological substitution that counts mostly on new niches making improvements that will get adapted by the regime once they are strong enough. On the other hand, there is endogenous regime transformation counting on the established actors changing their direction by gradual endogenous changes over time. The third pathway is more focused on collaborative efforts at both the niche- and regime levels; the reconfiguration pathway counts on a niche being adopted at the regime level which then leads to an internal reconfiguration of the established actors and elements. Lastly, de-alignment and re-alignment are caused by major landscape shocks disrupting the current regime. It is leading to a disruption that asks for a new alignment, which opens opportunities to re-align differently.

In literature, little instances are found where MLP is connected to Participatory Design. However, it can provide an interesting perspective. When working with sustainability transitions, it is relevant to reflect on which level you are acting, and whether it might be beneficial to make connections between different levels. Such as connecting regime-level actors with interesting niches in a similar field, hopefully leading to the reconfiguration pathway as described above. The niches are normally those with less power and resources, where the regime-level actors and elements are far more stable (and because of that also locked in). Hillgren et al. (2011) use the following metaphor: the niches are bees buzzing with ideas, and the regime actors are bigger institutions with power but less creativity. On their own, the 'bees' (the niches) cannot achieve impact. But without bees, the 'trees' (the regime) find it hard to adapt.

3.2 Participatory Design and/or Co-design

Without wanting to get ahead on things that will further be discussed in chapter four, in SDE student projects Participatory Design (PD) and Co-Design are frequently used as synonyms. The literature most often referenced by SDE students when writing about participatory design and/or co-design are Sanders & Stappers (2008) and Pedersen (2016). Both concepts are built on the notion that using a user-centered approach is not enough. Designers should be more empathic than only 'becoming an expert on the user', they should try to involve different relevant actors throughout the whole process. Key elements within both PD and co-design are a democratic collective creative process, and the involvement of a wide range of relevant actors, going further than only involving the 'end user'.

While co-design is the newer term of the two, its principles are already discussed within participatory design since at least 1972 (Pedersen, 2016). Co-design describes a design method, or maybe even more than a method: a design philosophy, that has collective creativity between designers and non-designers applied across the whole span of a design process at its core. It is these similar notions that PD is based on. While co-design seems to be a bit more radical in its description, all participants in the process are described as completely equal and the designer(s) as team members equal to the others. However, it seems to be inevitable that in practice the designer takes more of a facilitator role, even if it is not during the co-creation itself but in the preparation of the co-design workshops. Sanders and Stappers (2008) seem to view co-design as a rebranding of participatory design, giving it credit for trying to balance research and design. And in fact, Pedersen who is more research-led prefers the use of PD "to emphasize the ideas of democracy and involvement of numerous actors" (Pedersen, 2016, p.42).

In my interpretation, while both PD and co-design discuss the level of co-ownership more explicitly than the diversity of the actors involved, co-design seems to have a less strong emphasis on the multiplicity of actors. IDEO for example, describes a process where the design team works with one other actor already as a co-design project (IDEO.org, 2015). Whereas PD literature seems to have more thoughts on the necessity to involve not only end users but a whole range of actors (Pedersen, 2016). That is why I have decided to choose PD in the discussion of this project, but considering the similarities I will also build upon co-design tools and literature.

3.3 Matters of Concern & Thinging

The theories on ANT were first developed in the early 1980s, most known in the literature by Bruno Latour. Latour describes the world in the context of constantly shifting networks of relationships between human and non-human actors. One of the core beliefs of ANT is that other factors like objects, habits, and processes are placed at the same importance as human actors. ANT is also known for its constructivist tactic. Considering the scope of this thesis, it will focus on certain aspects of ANT: the concepts of 'matters of concern' and 'Thinging' primarily discussed through the role of human actors.

Latour (2004) discussed a shift from only thinking in 'matters of fact' towards more thinking in 'matters of concern'. Arguing along the constructivist lines that ANT is known for, Latour argues to embrace the ambiguity of criticizing. He argues for the making of 'Things', which represent arenas where 'matters of concern' can be discussed, where topics can become an issue on our agendas, and where some 'matters of fact' are allowed to become 'matters of concern'. He argues for a critic which does not "lifts the rug from under the feet of the naïve believers" but "who offers the participants arenas in which to gather". This corresponds with his earlier literature that suggests 'following the actors' first without any assumptions; to explore their relations and actions in terms of network-building efforts (Latour, 1987).

In a 2008 keynote, Latour went on to translate these thoughts into specific notes for the design field. Asking "Here is the question I wish to raise to designers: where are the visualization tools that allow the contradictory and controversial nature of matters of concern to be represented?" (Latour, 2008, p.13). He notes that the design discipline has focused on 'matters of fact' over the years using methods such as blueprint drawings and CAD visualizations. Instead, he now challenges the field to start designing for 'matters of concern' by using design for socio-technical systems and the controversial positions of stakeholders (transformation design). This way of thinking can allow for a more empathic point of view, where there is more emphasis on understanding an actor than there is on deciding which actor is 'right'. On top of that, openness, and visualization of 'matters of concern' can help to see how different actors might connect (or can potentially be connected) to each other (Latour, 2008).

3.4 Agonism

Agonism might best be explained by looking at it etymologically first: derived from the Greek word 'agon' for "struggle", the theory encourages conflict in politics and political activities (like design). Mouffe (2014) is mostly concerned with democracy – wanting real opposing opinions to be represented. Although this might sound like a call for hostility, this is not the case. Mouffe argues mostly for a real and diverse representation of opinions leading to an empathic debate about differentiating matters of concern.

This way of thinking can inspire designers in setting their goals. According to agonism, there is no final state of the world without struggle where a lasting political solution for all conflicts is achieved. The theory argues for us to stop striving for it, instead accepting the value of the struggle itself. Connecting back to the concept of 'thinging', the designer's goal should be to organize an arena where agonism can be practiced, instead of one where we only invite those we know are going to agree (Munthe-Kaas, 2015). This also relates to ANT, accepting the situatedness and temporariness of people's opinions (Dalsgaard, 2010). Acknowledging the theory of agonism, a successful participatory design project might be one with a degree of respectful conflict. And since designing is a profession that cannot be practiced objectively, that might even mean trying to find the people you personally disagree with. Instead of arbitrarily short-circuiting which voices you think are 'interesting' enough to participate in the negotiation (Venturini, 2010).

Mouffe also openly argues against leaving decisions up to 'experts' to make, since this implies that an expert knows the 'truth'. Venturini (2010) even states the following: "Neglecting actors' observations and ideas just because they are not based on scientific theory or methodology is arrogant at best. [...] They should be humble enough to recognize that when it comes to religion, there are no greater experts than the believers themselves." Agonism is an interesting perspective since it counters one of the often named struggles with inclusive participation: if you invite too many people into your process, it will take years for them to agree. Agonism simply says: they will never agree, but it is also dangerous to pretend that they do agree by not inviting any disagreeing voices.

3.5 Staging negotiation spaces

The Staging Negotiation Spaces framework is based on ANT vocabulary combined with traditional Scandinavian PD research. Staging theory positions a designer more as a facilitator than a network manager. Built around the analogy of a theatre, the designer is described as a 'humble stage director' who stages a negotiation space between different actors and their matters of concern (Pedersen, 2020). The framework suggests an iterative design process with three stages: staging, negotiating, and reframing. Staging describes how a Participatory Designer can approach a design process by preparing different objects and a first framing of the project. In the negotiating phase, these objects are circulated among relevant actors. Objects can refer to scenarios, presentations, design games, conversation topics, etc. Anything that is an intermediary between different actors. In the reframing step, the designer is expected to take the findings of the negotiation and let them influence the reframing of a project. The iterative aspect of the framework makes the designer will then be able to use this new frame to stage a new negotiation

space with relevant actors.

Staging gives room to regard a design process as situated in a set of practices executed by both the designer(s) and the involved actors. It also allows for reflectivity on the influence Participatory Designers (unconsciously) have when setting up negotiation spaces. Even though attempting to be humble, the designer does take on the role of stage director and thus must make highly political decisions. Thereby deciding who gets to play a role, and what the environment and provided objects, the 'space', look like. Although not explicitly writing a script for the negotiation, the designer still has an influence on the encounter through the decisions made backstage, and thereby also on the outcomes of it (Andersen et al., 2015). These outcomes do not have to be consensuses, Bjorgvinsson et al (2012) argue for allowing the existence of differences and controversies. Rather the outcome could be an exploration of possibilities and different matters of concern, a description that matches Latour's concept of 'Thinging' and Mouffe's concept of agonism.

3.6 Stakeholderization

Within the presented literature, this thesis is specifically based on the question of who to invite to participate in the negotiation, Clausen et al. (2020) have been asking these same questions: 'Who gets to be on stage and who does not? What can be dealt with and what cannot?'. The authors zoom in on the invitation phase of staging, raising awareness for the notion that who is invited on the stage and how they are invited has an influence on which futures can be explored. This process is often overlooked, or even presented as something trivial. People tend to only invite those instantly interested in the framing presented, not trying hard enough to invite those who might not be volunteering (Agger, 2012). We should not forget to be explicit in asking the substantive question of stakeholderness; who we consider to be a legitimate stakeholder. Often the legitimate stakeholders might not even know about the problem or how to think about it (Clausen et al., 2020). And currently, there is a lack of studies examining cases of citizens that are interested in participating but do not have the capabilities, or those that have the capabilities but are disengaged (Agger, 2012).

These are all things of concern when staging negotiation spaces, but also later -during the negotiation itself, which can look like a 'thinging' process- the designer (or public planner, as in Clausen et al. (2020)) should be aware of the influences of their ontological choreography. Too often diversity is reduced to a simple issue of who participates (Søraa, et al., 2020). But it is not merely a matter of who you place in a negotiation, it is also a matter of 'how' you place them. Having a diverse group of actors present does not mean that all stakes are equally represented. Stakes are

situational, meaning that stakes do not pre-exist in a design process but are products of it (Storni, 2015). And for co-creation workshops specifically, 'collective stakeholderization' presents its dangers, where people might end up all adopting the same stakes based on the negotiation space they are put in. Which can be stakes that are 'accepted' in the situation, instead of real ones (Metzger, 2013). On the other hand, it is the role of the designer to create a negotiation space that encourages the participants to express themselves. Most knowledge is found on tacit or latent level, and it can be the goal of an interaction to bring this to expression. By being the stage director of the negotiation, you are always influencing the process and its outcomes, making all imagination and all rationality bounded and situational.

"Who gets to be on stage and who does not? What can be dealt with and what cannot?"

Quote from Clausen et al. (2020)

4. In Dialogue with Students

In this section, the focus will be on rationales for using participatory design approaches and how participation is implemented in projects executed by SDE students.

4.1 Literary Analysis of 2022 Master Theses

Within SDE education at Aalborg University, a broad consensus exists that design projects require participation from different actors or fields of expertise. Schooled in theories of both sustainability transitions and PD, every semester all SDE students set out to mingle in 'real world problems'. And luckily, students are required to document these projects in the form of either a report or an article, thereby leaving a description of their work from their perspective. This chapter will present a comparative study of 16 SDE theses that were submitted in June 2022. Those were the theses accessible since they were either publicly available in the university's repository, or (in the case of 3 theses) because after contacting the writers access was gained after agreeing to respect their Non-Disclosure Agreements. The 16 analyzed pieces of literature were either individually or collectively written by 28 writers. The analysis was done using an excel sheet (Appendix A - Analysis Theses 2022) and a document with assumptions supported by direct quotes (Appendix B - Literary Analysis Assumptions).

4.1.1 Co-Design and/or Participatory Design

The use of Co-Design and/or Participatory Design was first analyzed (see figure 3). Noticing that Co-design is slightly more used in describing a design process than Participatory Design (or Participation). But occasionally the two terms are used as synonyms in the same project. For example, in sentences like these: "Taking a participatory design approach, the design group facilitated a series of semi-structured interviews to collect the data and co-designing processes to transform the knowledge into a design solution." (Rune et al., 2022) or "Collaborative design,

also known as participatory design, is an approach based on the idea of creating 'with the people for the people'" (Komlóssy, 2022).

Taking another look at Pedersen (2016) and Sanders & Stappers (2008), I noted that Pedersen prefers PD since it has more emphasis on democracy and the involvement of numerous actors. While Sanders and Stappers prefer Co-Design since they believe it balances research and design and is providing more practical tools. Nonetheless, both concepts agree that there should be a focus on 'collective creativity applied across the whole span of a design process' (Sanders & Stappers, 2008), which goes further than a user-centered approach in terms of the level of co-ownership actors are given in the project.
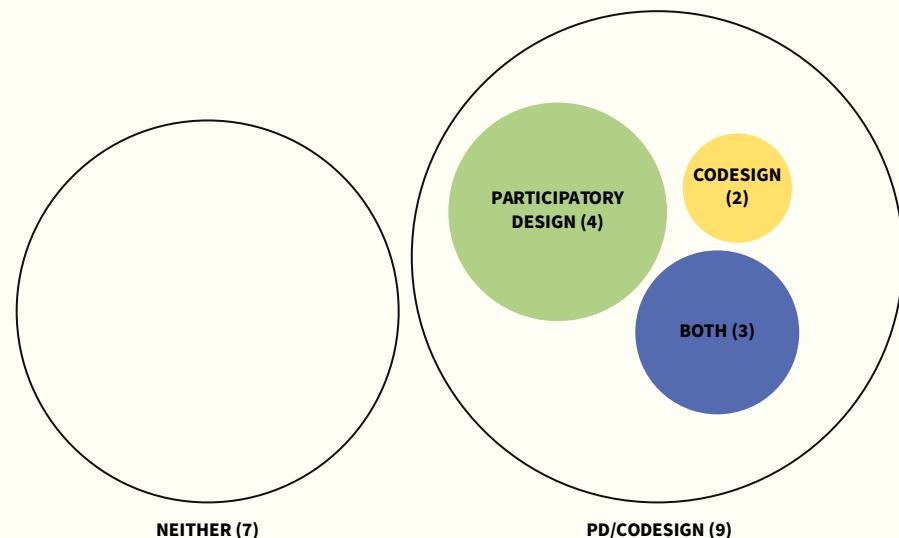

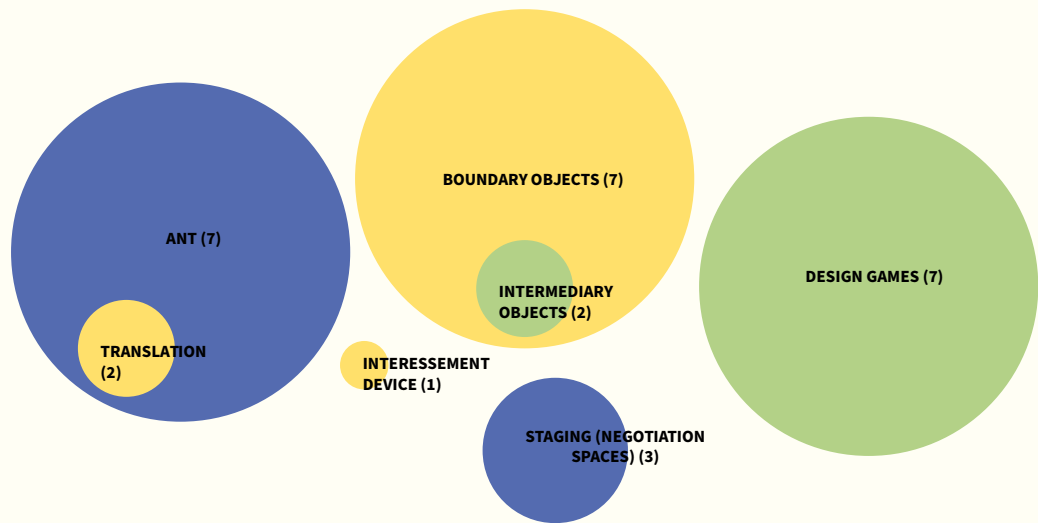*Figure 3: 2022 theses that mentioned Co-design or Participatory design*

Figure 4: theories/methods mentioned in 2022 theses (one count per thesis)

Figure 5: amount of times interaction type was in mentioned in 2022 theses

4.1.2 Design process

While there are also theses not refering to either Co-design or PD (see figure 3), they all do stage the involvement of actors. It was analyzed how the writers described their design process. First by making a count of which theories and concepts are commonly mentioned (see figure 4), and afterward by making a summary of all interaction moments mentioned (see figure 5). ANT is mentioned in seven projects. The use of ANT theories implies that multiple actors were considered in the project and that those were regarded as interconnected. Secondly, the concept of a boundary object or intermediary object was often mentioned, however most often as an object between the design team and one other human actor.

Next, it was attempted to map all the interactions mentioned in the theses. Specifically wondering who was interacted with and why (the rationales behind the interaction). This was sometimes difficult to decipher, especially without access to all appendices. Since sometimes it was unclear whether words were referring to the same moment, for example, 'meeting' and 'co-design workshop'. And there is a high chance that students left out certain interactions, for example, emails that gave them information but that they thought were irrelevant.

It did draw my interest that most interaction moments seemed to be with only one actor at the time, and when this was not the case (7 times) the actors were almost always described as from the same group (e.g. the same organization or members of the same community). There was one exception to this, where the writers facilitated multiple meetings between two separate companies. This project was also explicitly targeted at setting up a successful collaboration. Furthermore, most actors were only interacted with once. Out of approximately 200 actors, only 19 were mentioned in more than one interaction. This might signal that most actor involvement happens in short time frames, and there is little time to build up a relationship with an actor. It is common for SDE students to do an extra interaction moment between their written hand-in and presenting it in an oral exam. But as those are rarely described in the written hand-in those interactions are excluded from the count.

In general, this analysis made me realize how complex it is to decipher the intentions behind the interaction moment by only reading. This brought me to the idea of facilitating a workshop with the writers.

4.1.3 Future work

In the analyzed theses' Future work section, frequently the need for the future involvement of more diverse actors is described. If a reason is given for not achieving this during the current project, it is project duration or having a hard time finding actors willing to participate. Some conclusions also explicitly mention how they did not manage to interact with any actors outside of their own or an organization's network. For example, Torrubia (2022) describes the future work as: "More workshop rounds, mixing gender of participants; Even so, moving forward and if this workshop is to be held outside of an academic setting, bringing people with more diverse backgrounds will most likely enhance the cocreation of knowledge.". Indicating how the writer would ideally see the workshop executed including actors outside of the academic world. Or Komlossy (2022), who writes: "As a result of opportunistic sampling, most of the participants knew the designer, and have been aware that the interviews are part of a Sustainable design master thesis, which might have influenced their answers, and the memories, which they have shared. Furthermore, it is important to highlight that 3 of the participants have been working with sustainability, either in their studies and/or at their work." The trend continues, many projects end with the recommendation to involve more (and more diverse) actors.

4.1.4 Conclusion

Analyzing a set of SDE master theses, proved that the inclusion of a more diverse group of actors is something that students often describe as a struggle. It also functioned as a reminder that not all students prefer to explicitly mention either Participation or Co-design. But all do describe different interaction moments with at least one actor. This opens the debate about whether each SDE project should strive for the same amount of participation. And which amount of participation is realistic to strive for in a student project that has a limited time frame. One the other hand, something to be attentive to is inadequate use of PD, where the goal of the project does not align with the used methods.

The two German scholars Belz & Von Streit (2020) did a similar literary analysis of 31 participatory sustainability studies. This study shows that the struggle of lacking diversity, time constraints, and lack of ownership is not merely present in student projects but also frequently mentioned as shortcomings in published participatory sustainability studies (see figure 6). They also noticed divergences between planning and implementation when it came to participatory methods, which they describe as 'persistent normative ideals in the planning phase, echoing deliberative and emancipatory claims, contrast with an emphasis on effectiveness during implementation' (Belz & Von Streit, 2020, p55). Writers seem to lack vocabulary, and possibly also the reflective skills needed, to specify how and why they are using PD, and have problems translating these plans into execution.

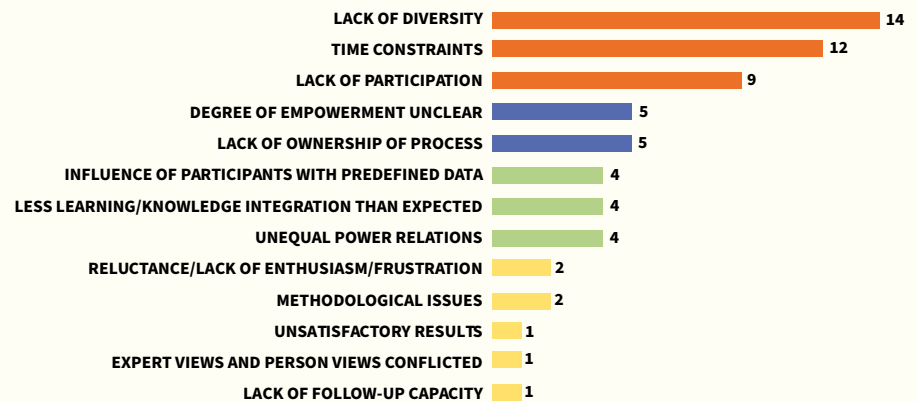| Shortcoming	Count
LACK OF DIVERSITY	14
TIME CONSTRAINTS	12
LACK OF PARTICIPATION	9
DEGREE OF EMPOWERMENT UNCLEAR	5
LACK OF OWNERSHIP OF PROCESS	5
INFLUENCE OF PARTICIPANTS WITH PREDEFINED DATA	4
LESS LEARNING/KNOWLEDGE INTEGRATION THAN EXPECTED	4
UNEQUAL POWER RELATIONS	4
RELUCTANCE/LACK OF ENTHUSIASM/FRUSTRATION	2
METHODOLOGICAL ISSUES	2
UNSATISFACTORY RESULTS	1
EXPERT VIEWS AND PERSON VIEWS CONFLICTED	1
LACK OF FOLLOW-UP CAPACITY	1

Figure 6: Mentions of shortcomings by authors of participatory sustainability studies, source: Belz & Von Streit (2020)

4.2 Staging: workshop design

To discuss the rationales behind actor involvement in different SDE projects further, the writers (2022 SDE graduates) of the 16 analyzed master theses were invited for a workshop. The workshop intended to co-create a vocabulary to discuss the rationales behind participation. First discussing why SDE projects are involving actors, before debating which actors and how actors should be involved. It was decided to use the participants' master theses as storytelling tools since that would allow for more tangible discussions about different SDE projects (Wason, 1966).

The three workshops took place over a week on different evenings. In total 11 SDE graduates participated, a mix of people with a Danish and an international background. Mostly, only one member per thesis group participated. Except for one thesis, where both writers participated but on separate evenings. The location of the workshops was at Aalborg University, Copenhagen. All participants were invited through a direct message on social media. While some of the participants had prior knowledge about my ideas for my thesis, most only knew that the workshop would be about their graduation thesis and the actors who were involved. The participants were asked to bring their master thesis, but apart from that not to prepare anything.

The workshop was inspired by Sanders & Stappers, and their model of mapping different uses of co-creation in different kinds of projects (see figure 7). They describe how the word 'co-creation' is currently being used to describe 'an incredibly wide array of activities with many different goals' (Sanders & Stappers, 2012, p.30). Arguing how co-creation can be all of those things, depending on how you use it. They differentiate between three different goals. The first one, 'co-creation as a mindset', is described as the broadest goal, with a societal focus and the potential to 'have a positive impact on the lives of people'. The second, 'co-creation as a method', sees co-creation mostly from its goal to achieve something for the 'user'. Sanders & Stappers are a bit unclear in their description, but it appears that this category describes co-creation as most commonly used in the traditional design world: in the 'design+make' phase. The third, 'co-creation as a collection of tools', describes co-creation as 'just another option in the toolbox'. Used as a fast and low-cost way to drive interest in new products. Sanders & Stappers have connected the different uses of co-creation to the moment in the design process where they are most often used.
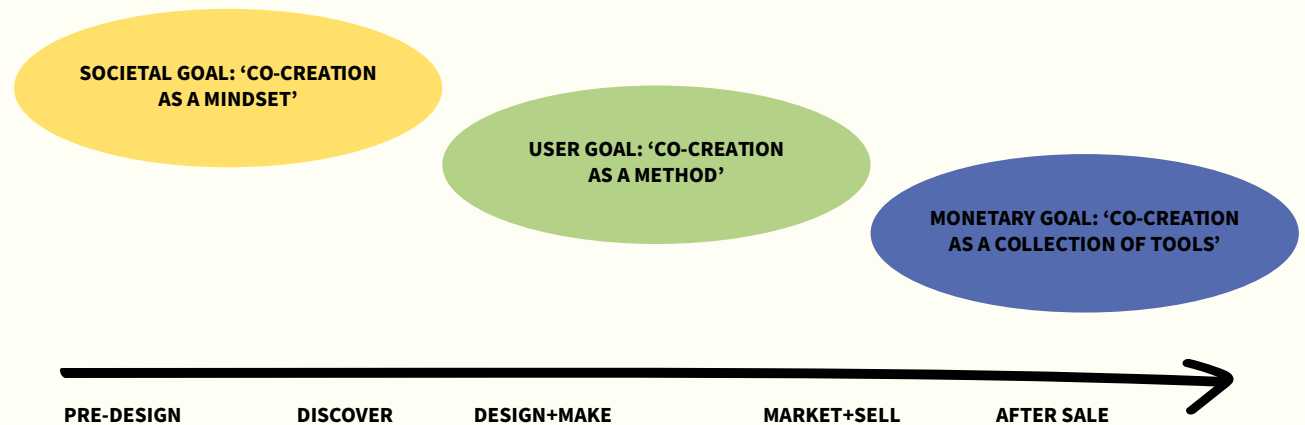

Figure 7: Different uses of 'co-creation', source: Sanders & Stappers (2012), simplified for clarity

Inspired by the differentiation between different uses of co-creation in different kinds of projects, I intended to see if it would be possible to make a similar division with SDE projects specifically. Sanders & Stappers' framework is too much focused on traditional design to make it applicable to the SDE field. But an important division that Sanders & Stappers seem to make is based on how holistic the co-creation process is, in other words: the level of 'co-ownership' the participants are given. Based on the analyzed SDE theses, similar groups of projects can be seen. And I tried to make a division of different SDE projects on a 'level of co-ownership' axis (increasing co-ownership from left to right). Leading to mapping in figure 8, the example projects are based on real SDE theses that were analyzed in the first part of this chapter.

Example: envisioning workshop to make sustainable futures discussable with children.
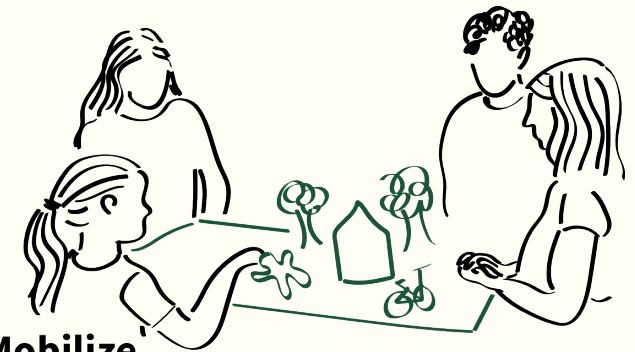
Example: designing a new type of catheter together with nurses and other experts, to allow them to recycle.

Mobilize,
when your participation goal goes beyond the current project, and you try to encourage actors to become spokespersons for the problem.

Example: designing reusable packaging for take-away food.

Figure 8: overview of different rationales for doing PD in a SDE project

Empower,
when you design together with actors to allow them to co-create the project with you.

Empathize,
when you design something and use participation to make sure people will want to use it.

The workshop envisioned to first call on the graduates' explicit knowledge about the process of their master thesis, before digging into their more tacit knowledge by starting a wider discussion about different mappings of participation projects. The script used storytelling tools to review their past projects, to finally arrive at a discussion about the present. In terms of co-ownership, it was advantageous that all participants had a good understanding of the SDE education as they were all recent graduates. This made it easy for them to understand what I was trying to do. And although some students were more interested in PD than others, I made sure to repeatedly express the need for having all kinds of SDE students represented, and how it was part of my goal to map a multiplicity of projects.

To guide the workshop, I made a session script (Appendix C - Workshop Script). This describes all the different actions in the workshops and notes on what I wanted to give as oral cues. In the introduction, I made sure to tell all participants that I wanted them to speak freely. Therefore I promised to not reference their thesis case-specific, or at least not without consulting with them first. I also reminded them that it was not my goal to criticize their thesis processes on a potential lack of participation, I merely want to learn from their experiences. After the introduction, the first focus was on the participants' thesis projects. The participants were presented with a blank canvas and cards, and assigned to draw all involved actors and place them on a timeline of when and how they involved them. There was a specific paper with a 'pre-timeline', asking them to reflect on who was involved in scoping the project. Next, they were presented with a new canvas, and asked to group the actors in different ways, followed by an exercise where they were asked to rank the groups of actors on the amount of co-ownership they were given in the project. The exercises were done on big A3 papers, and participants were encouraged to draw and write relevant information on the canvases. After each exercise, all participants presented their canvas to the other participants. This helped me by hearing them present their process, while also having an opportunity to ask follow-up questions. But it also laid the base for the next exercise, where participants were to discuss different types of projects. By becoming familiar with each other's theses, it became easier to refer to practical examples of different projects.

The second part was focused on discussing a potential way of differentiating SDE projects into different rationales of participation. Often the discussion had already partly started during the first storytelling part of the workshop, just because people started to reflect out loud. There were different tools to start a discussion.

Figure 9: picture from workshop material in use

As a facilitator, I tried to always pick the appropriate canvas to probe the discussion. Different colored pawns allowed the participants to place their project on the canvas when needed. After enabling the workshop participants to discuss the difference between SDE projects in their own words, they were presented with the project division as described in figure 8. For discussion purposes, there was also a canvas with a 'level of co-ownership' axis, and a 'diversity of actors' axis. The participants were not only asked to give their opinion, but also asked to come up with ways to improve the division of the projects. Figure 9 shows the workshop material in use.

4.3 Negotiating: workshop description

All workshops were recorded and later transcribed into a list with interesting quotes (Appendix D - Transcription Workshop). These quotes were color coded into different topics that were then made into the paragraphs of this section. Since the whole thought behind this workshop was to listen to the SDE graduates, this section will include a lot of direct quotes. Always found on the right of the corresponding description.

4.3.1 Different SDE Projects

In discussing SDE projects, the multiplicity of the projects immediately became clear. Some graduates actively argued for narrowing their problem statement before starting the project, while others had the collective narrowing of their scope as the goal for the entire project. And the starting points of the thesis ranged from specific projects in specific companies, to general topics or theories. In two out of three workshops, people commented on the diversity of SDE projects in a positive way. Although, it seemed that people identified with being interested in a specific type of SDE project. For example, those that had a broad project with a strong PD component seemed to view a lack of participation in other problems as problematic. While those with a specific (data-centered) project, argued against keeping scoping too broad and pointed out how a thesis focused on participation has a smaller chance of having an explicit outcome. This ambiguity in project topics and beliefs shows how it would not be realistic to expect all students to implement the same kind of participation in their projects.

Figure 10: picture from workshop

"Yeah, we were really trying to from the beginning narrow down on someone having a specific issue, because it is so difficult to scope if you don't know". - **Amanda**

"My idea was to find the problem together with people". - **Tekla**

*"The education is broad enough that you could do a very specific study […], for example when you are doing a data centred study, LCA studies and things like that. That could be a valid SDE project, completely".
-* **Vincent**

"I think since the SDE field is such a cross-disciplinary field it is difficult to put things in just one box." - **Reyes**
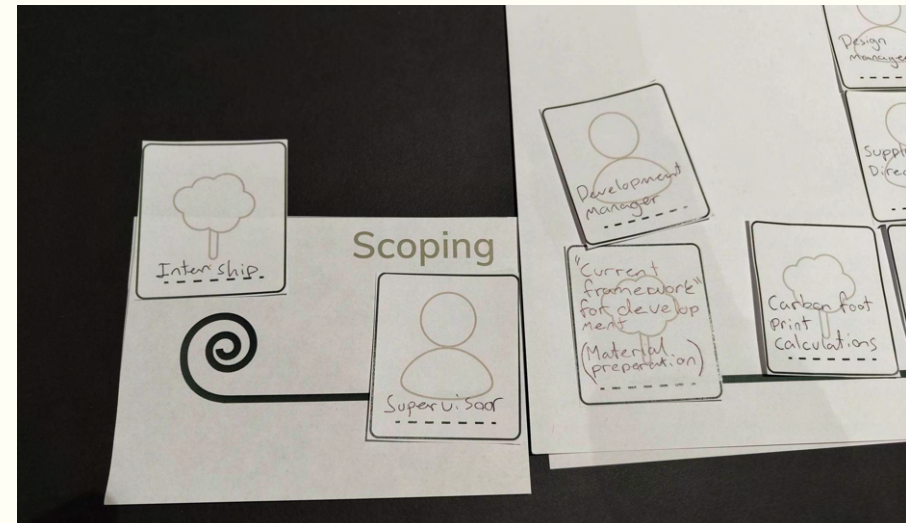
Figure 11: picture from workshop canvas - actors involved in scoping

4.3.2 Students' and Supervisors' Influence

To better understand what the starting points were and where those ideas came from, all participants were asked to reflect on which actors were involved in forming their idea before the thesis semester started (figure 11). It was a combination of students and supervisors their interests, and specific company collaborations. Those stemming from a personal interest were broader scoped in the start, with often more participation components in narrowing their scope. While those working with a company seemed to work on a specific project that was often scoped by the company itself. Of course, those working with companies did not leave their interest completely at the door. As Hendriksen (2019) describes, it is impossible to simply be a fly on the wall. In our work, we will always bring our matters of concern. And as long as the SDE education will be consisting of a wide range of individuals with different interests, this will lead to a wide range of different projects. However, it is therefore essential to recognize the need of students and supervisors with different backgrounds. The diversity of actors included in SDE projects starts with the diversity of the education itself. This can be fostered by making sure there is a diversity of backgrounds, cultures, and interests within the education of both students- and staff-level. However, there will still be the forming of a certain community, at the minimum being bonded by the fact that all are higher educated, and all are deciding to connect themselves to the study of SDE. This makes that we should be careful of only scoping projects from our perspective. Especially when they are not stemming from new expert developments, but more from our own daily experiences and struggles.

*"It was a combination between my supervisor's research, and my own interest. I went to him and said: what if I just connect the dots?" - **Reyes***

*"It was actually {a friend's} idea, she always wanted to work with the topic. And I really liked it, so then I asked if I could use it. And she said yes." - **Tekla***

*"It was mainly me, and most people were actually discouraging me to write about it." - **Vincent***

"We were having a student job in the same organisation, and we asked them if they knew any interesting projects for our thesis. And they directed us towards {the organisation we collaborated with}."
*- **Siri S.***

"So, I had already worked with the company on the first semester. And [my group member] was working for the [company]. In this first semester we already got in touch with parts of our project, and it was not defined. But we already knew some parts. So, we kind of started from there."
*- **Matilde***

4.3.3 Metaphors to Understand the Framework

The main part of the workshop was about reflecting together on how vocabulary could help differentiate between different rationales behind participation in SDE projects. The framework was deliberately left unfinished, with just three keywords: empathize, empower, and mobilize. And a first understanding of what they could mean. In the discussion, I tried to only intervene when explicitly asked to by the participants. My mindset overall was to mostly listen and see how the participants would start to make sense of the classification themselves. In two out of three workshops, this led to the participants starting to make metaphors to try and make collective sense of the framework. One of them is the example on the right of designing a toothbrush. This gives an interesting understanding of why it is difficult to map a product design example in this framework. This aligns with the ideas from the literary research, where a concept as thinging represents how designers are moving beyond a traditional product design focus more into the behavioral and systemic field.

Figure 12: picture from workshop

"So, imagine you are designing a toothbrush. Empathize would be looking at how people go about their day, talking to them, seeing what they like and don't like about their toothbrush. And then designing a toothbrush. Empowering would be someone can't use a toothbrush, so you want to understand and learn what their struggles are. And you together design a new device to help them. I am actually struggling with the last one… " - **Vincent**

"Hmmm, I think that is about the need to use the toothbrush. Like the mobilizing thing. So, like, starting to use a toothbrush. And maybe that is why we can't really get to this mobilizing thing. Because I feel like that, it is not always part of the design process. Sometimes it is not the design anymore, but more like about […] behaviour change." *-* **Tekla**

"I also feel that traditional product design stops here. User centred design stops at empathize. And then when you enter co-design or participatory design, you kind of unlock these new steps. So, I think it is difficult to talk about these, all of them, while using a product design example." - **Reyes**

Figure 13: picture from workshop

Figure 14: picture from workshop

4.3.4 Agency of the Actors

Another way of viewing the difference between 'empathize', 'empower' and 'mobilize' is how much agency you give the actors in the process. Something that I had called 'co-ownership' on the canvas. However, the participants seemed to prefer different words. Some found it confusing to decide what 'co-ownership' was referring to. As they might have designed a workshop in their thesis that was based on PD principles, but they did not co-design the workshop itself. Did they then have a low amount of co-ownership since they did not involve actors in their process? Or a high level of co-ownership since the workshop itself and its outcomes was participatory? It was proposed to talk about how active the actors are in the project instead. Potentially, the axis could also just refer to the intended level of participation. There the goal would be to reflect in the 'staging' phase of a project, rather than reflecting aftwards like is done in the workshop.

*"Maybe the difference could be that when you empathize, you are not giving the actors actual agency in the process, you are just involving them to gather information and their experiences and understanding them, but in the end you are the designer or designers. And you are in charge of changing the design. With empowering the involvement of the actor is more active and have an actual saying in the end design, if that makes sense. They are more active actors, where here they are more passive actors." - **Reyes***

*"So, it is almost like levels of how active the actors are." - **Siri S.***

4.3.5 Timeline or categories

Another frequently mentioned discussion about the framework was that it could also be represented as a chronological process, or a staircase (see figure 15). It could represent different phases of participation. However, the participants also already disputed these ideas. It would leave too much room for vagueness. Plus, it would imply that 'mobilizing' is better than 'empathizing'. Even though this is not the message that should be communicated. It is more important to be upfront and clear about the intention behind participation and to prevent scenarios where students forge participation. However, the initial tendency to see more co-ownership as always better before altering their thoughts after reflection is interesting.

*"I am not sure, but I think that I am maybe in the first one {empathize}. We didn't get that far." - **Camilla***

*"I guess that to mobilize someone, you should empower them first? But you could also make the case that in order to empower someone you first need to understand them, which is empathizing." - **Reyes***

*"But I think sometimes you should force people to [put their project in a specific box]." - **Vincent***

*"If I would have the option, I would just put myself in the middle." - **Tekla***

*"Because you do everything, because you are so cool." - **Reyes***

Figure 15: drawings from workshop participants with suggestions for organizing 'empathize, empower, mobilize'
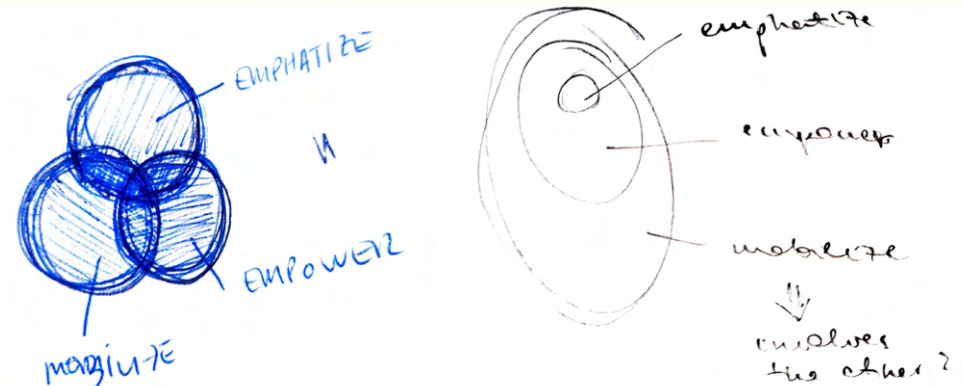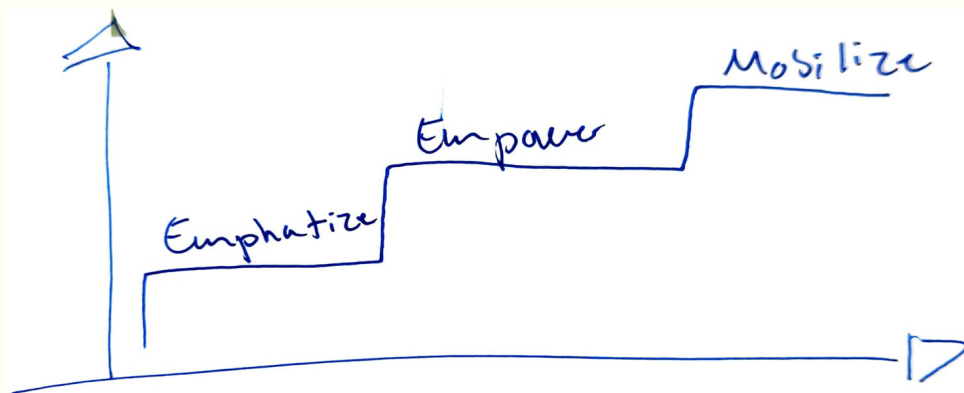
4.3.6 Relevance of all categories

Some projects might ask for a lower amount of participation. And this is also completely relevant. Participants discussed the need to only mobilize actors in a direction that they might get a chance at having an influence. And they described successful projects that consciously went with an empathize approach. For example, one of the participants worked on the redesign of a room's furniture that had to work for its users. Participants also pointed out how participation can sometimes overcomplicate projects. Although they all are educated in the need for participation in design, some also believe that this tendency sometimes goes too far. Participation, and specifically inclusive participation early in the process, makes things complicated. This can be good when viewed from an agonistic view of mobilizing but can be inefficient when making a specific design that requires a lot of expert knowledge. Therefore, all types of projects should be viewed as relevant SDE projects, a lack of participation does not mean the project is irrelevant. It just means that it is a different type of project.

"Yes, if we talk about urban planning, then the reason you do participatory design is specifically to give the community a feeling of agency. They are not qualified urban planners so obviously the final design will just be taking elements of that conversation. " - Vincent

"If you are just designing a solution for someone, you might not need to think so much further. Just: here is your solution, there you go." - Sliwa

"[…] you can end up doing a lot of talking and a lot of exercises but not really going anywhere. Because everyone has different opinions." - Amanda

4.3.7 Time limit

A time limitation is one of the common boundaries that is named as a cause for the lack of inclusive participation in SDE student projects. Participants expressed how the chosen rationale for participation has a big impact on how realistic it is for them to feel like they have made an impact during their project. Participants express this by discussing 'how far they can come' in their project, suggesting that they feel like they can reach an end in an empathize project but not in a mobilization project. Most mobilizing projects seem to end in the drafting of a workshop or other 'thinging' intervention. Moving past the physical outcomes of design, these projects move more into network building. But still, it might seem out of reach for students to feel like they are building an interesting new network. Especially, when they feel like those, that they manage to involve, are not necessarily who should be mobilized. More on that in the next paragraph.

"I feel like what we can do at most with the timeframe we have is to propose the mobilization and how to do it. But we cannot actually carry through with it. Whereas, as a professional, you would ideally be here in mobilize." - Reyes

"I do feel like all of us get all the tools to go out in our work life and mobilize. We have the backpack with all the tools for it, we just don't have the time for it." - Siri S.

4.3.8 Diversity of actors involved

The goal behind why SDEs are using participation leads to the question of who should be involved. It seemed that the participants were already agreeing that different SDE projects need different types of participation. I was also curious to see if they thought these also lead to different actors that should be involved. To trigger the discussion, a canvas was presented that had an axis with 'diversity of actors involved' and bubbles with the empathize, empower, and mobilize keywords on it that could be positioned. While in all three workshops, someone first suggested that empathize needs less diversity and mobilize needs more diversity due to its systemic view. Most participants came back from this view after a discussion. They felt like maybe the type of project does not necessarily say anything about the diversity of actors that should be involved. An empathizing project can be done for a whole neighborhood, and a mobilizing project can be done internally in a company. However, the systemic focus in mobilize projects means that these projects often have a stronger focus on involving those outside of the current regime. But the participants felt that in all SDE projects, the matter of who to involve is highly political, and they often found themselves placing their projects in opposition to the current regime. Or inside the current regime with the intention to push it in a certain direction, often supporting sustainability departments or movements inside big organizations.

In general, students seemed to agree that there is a limit to the diversity of actors involved. And that scoping to a specific group is beneficial to make a good project. It makes that the rationales behind participation might give guidelines to answer how to involve human actors in participatory design projects, but not necessarily to who should be involved. This stays a highly political question, that is situational and therefore difficult to give a parameter for. Something that participants were proud of was when they managed to involve human actors that normally would not have been heard. This could be something to strive for, especially when working with a regime actor. Referring to the literary analysis on sustainability transitions and Murray's analogy; 'trees' (the regime) need 'bees' (niches) to adapt.

*"I think it is just as important to include a diverse amount of people in every group: empathize, empower and mobilize." - **Tekla***

*"I think when you are designing certain projects you are placing yourself in opposition to another group very often. " - **Vincent***

*"And I had a 'big fish', this [organisation] and basically, I wanted to question them." - **Natalia***

*"Most projects might benefit from a higher diversity of actors, but if you look at disabled people's challenges, why do you have to involve abled people?" - **Reyes***

*"I basically only involved actors from [the company], but I don't think it should have been any different because I saw it as a case study. I think I could have involved designers from other design departments as well. Which would have made it maybe a little bit more diverse. But it was just a question of scope. I wasn't able to broaden to scope any further." - **Lukas***

*"This would basically be trying to design a solution for everybody, which is never going to work." - **Sliwa***

4.3.9 The struggle

The storytelling element with the participant's master theses allowed for reflection on how they experienced and tried to deal with the difficulties of finding a diverse group of human actors to participate. Some participants shared stories of how they widened their definition of the group of actors they wanted to involve, ensuring they could find enough participants. Someone who wanted to work with families ended up also including newly engaged couples. Which took away part of the relevance of their project about long-standing family practices. Another group decided to broaden their wish to involve citizens of Osterbro, to involve 'adults who literally had no connection to Osterbro'. Both did this so they could find participants easier since they could find the alternative groups in their own family- and friend networks. Lastly, participants also shared how knowing that it will be hard to reach people outside their network also influenced the way they scoped their projects. Instead of asking themselves who they should involve to be able to support the necessary transition, participants seemed to limit themselves to working with those they had easy access to.

*"And we did a workshop with adults who literally had any connection to Osterbro, because those were the people we could find. For example, {one of our friends} who never lived in Osterbro." - **Sliwa***

*"I used personas, because I felt like it was difficult to get actual representatives for those roles. Like a mother, a mayor, or a disabled person." - **Reyes***

*"I did know it was going to be hard to get people that were non-designers in the workshop, so that kind of did play a part in why I thought this is why I will do the workshop like this." - **Vincent***

4.4 Reframing: Conclusions

The three workshops with recent graduates provided a lot of new information and a first understanding of how the vocabulary to map rationales for participation could be used in SDE practices. A first observation was that students sometimes tried to use the framework as a timeline. The participant's reflections showed that although many had this as a first thought, on second thought most graduates believed that the SDE students could benefit from classifying their project along a specific participation goal. The framework should be clarified to express this better. In all workshops, it became clear that apart from needing project examples, the participants were also seeking metaphors to see the difference between the different rationales. The participants even started to create such metaphors during the workshops. This could be an interesting way to clarify the vocabulary. Metaphors have been used in the SDE field before to clarify methods and concepts, for example in the case of the theatre metaphor in the Staging negotiation spaces framework (Pedersen, 2020).

In a second observation, it also became clear that a project could include different kinds of actors in participatory ways with different intentions. In order to mobilize one actor, you might first need to empathize with another. But in a student context,

the project scope is narrow which leads to mostly having one kind of participation goal. Leaving the other participation moments to be sub-goals to the bigger rationale. For example, your goal is to empower two companies into doing a successful collaboration. But in convincing them to do so you steer them into empathizing with their end users.

As a last observation, a few words on what this vocabulary might bring us. The interesting element would be to reflect on the following question: why do we want to include these human actors? Reflecting on why we are asking for participation, can help SDE professionals to be more conscious in interactions with human actors. The workshops gave some insights into how SDEs wish to design for transitions by either pushing the regime or supporting the niches. But it also showed that whatever you want to do, there is still a struggle in trying to find and convince human actors to participate. In a way a very practical issue, but therefore not less relevant. Especially when the difficulty of reaching certain groups starts to impact the way we approach the scoping of our projects.

5. In Dialogue with 'Experts on Participation'

As identified in the previous chapters, there is literature on the importance of inclusive participation. And this is already a strong element in the current SDE curriculum. In the workshops, a vocabulary was co-created together with SDE graduates to differentiate between the different rationales for participation in projects. However, there remain practical challenges in practicing participatory methods in a student project. To address them, I decided to interview different 'experts on participation' on how they would deal with reaching a diverse group of actors and including them in participatory approaches. Invited were different professionals who are all working with participation in a different way. They are experts since they have all done many attempts at participatory projects. The goal was not only to learn from their approaches but also to map how these different professionals view participation.

5.1 Staging: interview design

The initial idea was to ask the interviewees for advice. I wanted to see how they would advise students to deal with the challenges they face when trying to include a diverse group of actors in their participation projects. To do so, I came up with an imaginary student project that was facing problems that were commonly mentioned in the theses and the workshops. However, I realized that it was more natural to discuss these problems more loosely throughout the interview, making it semi-structured (Adams, 2015). Especially, since the interviewees tended to share anecdotal knowledge in the form of stories about projects. Due to the interdisciplinary profiles of the interviewees, it also became prevalent that some had more to share on specific areas than others. I wanted to leave room for the interviewees to share the knowledge they had. But for clarity, I did make an interview guide to lead me throughout the conversations (Appendix E - Interview Guide). The analysis was done by transcribing and colourcoding the interviews (Appendix F - Transcription Interviews).

5.1.1 Introducing interviewees

My reasoning behind who to invite was to find different professions that are all working with participation in a practical way. Three out of five interviewees were from the Netherlands. I decided upon this to make some connections in the Dutch participation field for future career purposes. One of the Dutch interviewees I know personally, the other two I found by searching on LinkedIn, where I had some connections in common with both. The two Danish interviewees, I found after being advised by my supervisor.

For this interview round, I invited seven different participation experts. And with five of them, I managed to plan a meeting within the time frame I had. One of them said he did not have time for a conversation, part of the reason could have been also that he was a sociologist and might not identify as a 'participation expert' in the way I described in my email. The other one answered me after a few weeks when I had already finished my interview rounds. I had decided to already move on to analyzing due to time issues. With the other five interviewees, I had an hour-long conversation either through phone or video call. In the case of three interviewees, I had to follow up in a different way (email, LinkedIn, WhatsApp) before receiving a reply. One of them later told me she was a bit in doubt about participating since she did not know if she had the right expertise, and another was in doubt whether she was senior enough to answer my questions as a representative of her employer. The other simply said they had been busy and overlooked my email at first.

Maj-brit is the chair of the study board of Sustainable Design and Techno-anthropology. She also works as a researcher on the topic of sustainability transitions of cities, where she mostly works with strategic planning processes. She has been a teacher and supervisor in SDE courses, mostly in the bachelor's. Apart from having inside knowledge and a future vision for SDE education, she also has knowledge of the literature on participatory involvement, and practical participatory experiences in her research cases. One of the big external research projects she recently worked on 'the Coast to Coast' project had as its goal to develop a new idea of how to do stakeholder engagement.


Maj-Britt – The chair of the Study Board

Bob is a social worker employed by the welfare organization Alcander. His focus is community building in two areas in the south of the Netherlands, of which one of them is an urban neighborhood and the other one is a more rural community. He works together with the municipality and many other local actors to foster neighborhood initiatives. In this role, he is the main contact for people with ideas for improving their neighborhoods. But he also starts his own initiatives around certain themes, recently he has worked with the refugee crisis and the energy crisis. Bob believes in the synergy of bundling different neighborhood initiatives in strong networks. He describes his work as trying to find sparks in the community, that he can foster into small flames to collectively create fires.

Bob – The Social Worker

Mette is a project leader at the Danish Board of Technology, she also is a 2020 SDE graduate. The Danish Board of Technology, which once started as an advisory board to inform politicians about the threats regarding new technology, is now a private non-profit. They have broadened their scope towards engaging the wider public in societal topics, with a focus on technology and innovation. The Board is involved with local projects, for example organizing climate assemblies for Danish municipalities. But also works with large European projects, which is what Mette mostly works with. Currently, she has a big project 'Robotics for EU', focussing on the non-technical aspects of robot development. Where she has engaged with people from all over Europe, a little over a thousand in the first round and seven hundred in the second round. (Mette wanted me to emphasize that she answered my interview questions from her own experience and that she is not representing an official statement from the organization).

Mette – Danish Board of Technology
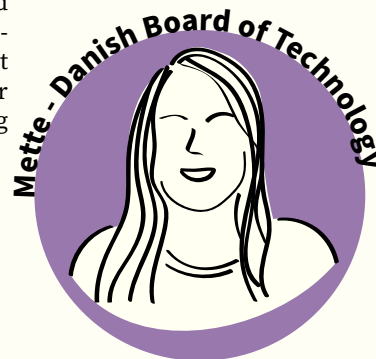
Veerle is a participation advisor for the Dutch municipality of Utrecht, which she has recently joined after fulfilling a similar role in the municipality of Capelle aan den IJsel. Her educational background is in Public Administration and Organization studies, where she has focussed on participation in internships and written her graduation thesis about the inclusivity of citizen assemblies. Her role in the municipality is mostly advisory, she has certain projects appointed to her and tries to organize their participatory processes. In this, she mostly works internally in trying to change the mindset of her colleagues at the municipality, but she also tries to participate in the execution. Many of the projects she works on are public planning projects since the Dutch Planning Act obliges a participatory element in public planning. She describes participation as a 'hot topic' in the Dutch government.

Veerle – The Municipal Advisor

Rosa is an intern at the design studio Zeewaardig, mostly working together with governmental organizations and municipalities who want to improve their participation techniques. The studio is a young company with a young team, they belong to a new field of design studios focussing on participatory design. Zeewaardig employees often work as design researchers in specific projects but always try to also foster a lasting change in the internal processes of their client to make new connections between the organization and relevant actors. Rosa has recently worked together with one of the founders of the studio on an internal project about how participation can contribute to societal transitions.

Rosa – The Service Designer

Figure 16: placement (based on own judgement) of interviewees on 'empathize, empower, mobilize' rationales

5.2 Negotiating: interview description

The interviews were all centering around discussions and difficult decisions to make regarding participation. That is why this description will be organized around those discussions, formulated as specific questions. The formulation of these questions became apparent by hearing the participation professionals talk about the decisions they need to make in a participatory project. The subchapters will describe the different perspectives and advice the interviewees shared regarding the discussions.

Maj-Brit, the Head of the Study Board, also gave extra context on the relevance of this section. She would like to -in her words- encourage students to 'run out and ask people' more frequently. She also observed that many students are struggling to manage participatory processes in practice. In general, she talks about a dilemma between academia and practice. Where students are on one side expected to do something profound enough or systemic enough, but on the other side are also working with real-life cases. And while she believes academia is essential to understand the relevance of a project, she also thinks that the university could do better at teaching 'craftmanship'; providing tools on how to engage with the real world. The intention behind SDE is to balance theory and practice, but currently, students seem to be lacking the right practical competencies to engage human actors in their projects.

5.2.1 Why are we using participation?

In the interviews, I did not present my interviewees with my suggested vocabulary for different rationales behind participation, as seen in chapter four. However, I did invite people with different perspectives on participation. In the way they talked about their projects, I would sort the different participants' projects in the framework as seen in figure 16.

Empathize

Veerle described how the current internal processes of municipalities are mostly focussed on participation in the end, in an empathize way. More focussed on receiving feedback from citizens at the end of a process, asking questions like 'Did we miss something? Should we make small changes?' She describes that a more active co-ownership with actors is still something that is seen as 'scary', mostly because it asks for a different role from the government. One where they let loose a bit, and do not frame the whole project before involving citizens.

Maj-Britt - The chair of the Study Board

Bob - The Social Worker

Mette - Danish Board of Technology

Veerle - The Municipal Advisor

Rosa - The Service Designer

Empower

Mette described how one of the Danish Board of Technology's biggest projects, The Fair Energy Transition for All (FETA) project had as its purpose to get people who are not usually engaged in the energy debate engaged. Climate assemblies seem to have a similar purpose, they want to start debates around sustainability themes, mostly ending with a list of recommendations for policymakers. Rosa describes the rationales behind Zeewaardig's use of participation as empowering people to engage in a conversation around a certain topic. Both empower the client (often governmental organizations) by showing them how to efficiently start conversations, and other human actors by providing them with the right tools to understand and contribute to the discussion.

Mobilize

Although Bob, as a social worker in community building, is engaged in the practice and not at all in theories, he describes a strong 'thinging' approach to participation. He says he likes to start his projects by first making a network of existing initiatives, where he then goes and mingles with them to get to know the actors. He says that in doing so, you will quickly start to see potential opportunities for new connections. He sees his role as going around and telling different actors about initiatives, he often experiences that these actors then start to make the connections themselves. Something he for example experienced in a 'food forest' project in Valkenburg is that he simply was having a coffee with a head of the local school, when he told her about the project, she immediately saw the potential of connecting it to an activity with her students. But in the same project, he also made more conscious connections. For example between the project and a local assisted-living facility for people with a mental disability. He invited them on one of the mornings that the initiative was gathered to work in the vegetable garden next to the food forest, this led to the people from the facility meeting the neighbors that were running the food forest over a cup of coffee. This then led to a weekly tradition, where people from the local caring facility meet up with neighbors to work in the vegetable garden. He describes how he experiences that linking different actors with each other makes stronger initiatives. Bob feels like his overall purpose is to create synergy, in his own words: '1+1=3'.

5.2.2 Who should be invited?

One thing that came back throughout multiple conversations is how the decision of who you want to participate should influence how you are designing the participatory process and the invitation. So, if question one is 'why?' question two might be 'who?'. Mette, reflecting on her time as an SDE student herself, remembers one of her supervisors who always said: 'Don't just choose who wants to help you, do research and you will find who is important to include. Choose specifically who you want to engage, and don't compromise.'

> "Don't just choose who wants to help you, do research and you will find who is important to include. Chose specifically who you want to engage and don't compromise."

quote from Mette

Maj-Britt - The chair of the Study Board | Bob - The Social Worker | Mette - Danish Board of Technology | Veerle - The Municipal Advisor | Rosa - The Service Designer

Bob talks about approaching the challenge also by seeing what a successful link would be. In the city he works, he has a neighborhood that he describes as a fragmented one. It roughly consists of three different groups: one with highly educated, typically with higher incomes, and living in big houses with gardens. This group lives down the hill, but up on the hill lives a second group, which is characterized by low economic status, lower education, and small social housing. Finally, there is an area with middle-class housing which Bob describes as 'a little bit in between'. When Bob first started in the neighborhood he thought: 'And now I want to connect all of those!'. But quickly he realized how small the steps had to be to build a lasting connection. When trying to truly connect different groups, he saw that although sometimes possible in small interactions (for example a walking club), people in general tend to stay in their own circle. He ended up making a connection between the middle class and the lower incomes, which was already challenging even though these people only lived two streets apart.

However, he on the other hand also describes the struggle of bringing a diversity of people together as 'worth the challenge', since he does reckon it brings good chemistry with many more ideas and perspectives. Maj-Brit, who has a more academic angle, talks about the balancing act between being an idealist and a realist. Just like how SDE graduates did in the workshops in chapter four, she questions: 'can we ever make something where everybody is happy? Of course not'. However, this only makes it more essential to be explicit about who you invite. If the space at the table is only limited; who should you make sure is represented?

The multiplicity of SDE projects also means that who to involve depends highly on the scope and the intentions of the project. And there is always a limit to the number of actors that can truly be involved in any participatory project. Something Venturini (2010) describes as the quest of who to invite, a struggle exemplified by Metzger (2013) in the following case; 'Should the citizens of the Maldives be considered legitimate stakeholders in Vancouver's planning process, and thus to

be given a right to voice in that process, seeing that they are 'affected' by the potential sea-level rise resulting from global warming which may be the result of a development of road traffic infrastructure in any urban area such as Vancouver?' (Metzger, 2013, p.783). Something that came back throughout the interviews was to focus on finding the key figures. Since they will (sometimes literally, sometimes figuratively) bring their adherents, which is something Mette has tried more explicitly by asking key figures to organize 'kitchen table conversations' within their own circle. Something also discussed by Kirccherr and Charles (2018), who argue for awareness on finding diverse 'sample seeds' when taking a snowball sampling approach. Anyhow, these key figures might have a clearer view of what the current network looks like and how to approach their social circle. In case the key figures are impossible to reach, many interviewees advise turning towards 'spokespersons', which could be those who know the group well. Also, Maj-Brit reminded of how academia can help give a clearer view of current networks. Especially, when reaching out to academics for a short conversation. This will give more implicit knowledge than only reading articles. Lastly, within the Danish Board of Technology they have a list of interesting contacts, Mette questions if this should be something universities provide as well. A pool of diverse participants and organizations that are willing to participate in student projects.

5.2.3 How to invite?

As described by Clausen et al. (2020), the invitation can be seen as the first component of the staging phase. Many interviewees describe how an invitation should be targeted at the group you would like to reach. The main themes of the invitation discussion are which method to use for the invitation, and what words to use while inviting. When engaging the wider public, Bob advises to not only let people come to you but to also go to people. In a design context, this might look like a street intervention, which is a method that Rosa is often using. In general, all interviewees, cross-disciplinary, agree that one method is mostly not enough to convince. Mette has used a whole list of methods in her last project, she describes

it as 'simply just hard work and outreach'. Maj-Brit has seen the topic reoccur in semester evaluations and says she has seen many students only reach out by email. This is often overlooked since the reality of working life is that people often get many emails. Overall, a personal invitation always works better than mass communication. Veerle says that in her experience it is worth the effort to try and convince someone to participate personally, rather than only sending out a general message. In one of Rosa's projects, they found an in-between by sending postcards to all inhabitants of an apartment building asking them to respond. People were still contacted directly, without personalizing.

The essence of finding actors' 'matters of concern' is also seen in practice by Bob. He describes how he has experienced that the power of people is very much in what gives them energy, and what interests them. He talks about how to offer some first ideas in the invitation, to an education coordinator he for example writes about the potential for possible internships. Just to get an invitation to show them the ongoing initiatives in the region and see where the school might connect. According to him, it is also important to use all your networking skills in drafting that invitation. Maj-Brit shares a similar story from the Coast to Coast project where the collaborating department first did not manage to successfully invite schools, being sent off with the message: 'We are a school, why should we be in a workshop about climate adaptation?'. They ended up designing cards with statistics and matters of concern that the department could bring to their conversations, almost like a sales pitch to convince the actors of the relevance of their participation. And in a project about the energy crisis, Bob experienced how his high-income citizens on the hill were talking about energy cooperations and sharing solar panels motivated by their wish to become more sustainable. While those topics did not attract anyone from the lower-income neighborhood down the hill. Many of them are living in social housing where it is not up to you to decide whether you get solar panels on your roof. With the help of an existing organization, a group in the lower-income community set out an invitation focussed on energy-saving tips targeted at the

wish to lower electricity bills. In this process of understanding language games (Hendriks, 2009), Bob likes to make use of 'multilingual key figures'. This could be a youth worker if you want to learn which street language to use, but that person can probably also help with finding the matters of concern. And realistically, different actors might not always be able to participate in the same interactions. Leading into the next question of 'how to interact?', it is also essential to reflect on whether your participation method is well-suited for the invited group. Going perhaps a bit further than 'matters of concern', Rosa also questions: 'What do we give people in return?'. If you approach an expert, someone who works in a field you want to know about, those people are likely to participate during work hours. But if you reach groups outside of their working hours, Rosa likes to offer them something else in return. Often no monetary compensation, but something else. Currently, her studio is working on a project for a museum where they offer participants a free entrance ticket in return. Similarly, Bob, Mette, and Veerle mention the importance of offering their participants a cup of coffee or tea, even when it is just about filling in a survey or having a short conversation.

5.2.4 How to interact?
All participants expressed the need to attune the method of participation with who you want to involve. Veerle shared a story of a project she did in the municipality of Capelle. The project aimed to ask young people about housing policy. She realized that it was a difficult topic to motivate young people for, so the municipality decided to alter the participation technique. They collaborated with a platform called 'Swipocrathie', where young people can take a survey by swiping through questions (Swipocratie, n.d.). Although the output was not very qualitative, she did see the potential to ask the participants for their contact. In that way, a focus group interview could potentially be added to the process. Veerle feels like it is unrealistic to expect young people to show up at a citizen meeting about housing policy. Within the municipality of Utrecht, it is also a standard requirement to always ask for participation in both a physical and digital form. Some people just won't find the

Maj-Britt - The chair of the Study Board
Bob - The Social Worker
Mette - Danish Board of Technology
Veerle - The Municipal Advisor
Rosa - The Service Designer

time or energy to show up in person, therefore the form of the participation interaction often defines who will participate. Of course, the question of how to interact also references back to the rationale behind participation. It is highly unlikely that you will mobilize through a digital survey. In those projects, it might be more relevant to go for a workshop-like format. However, here it is still important to be sensitive to the actor's world. Maybe some people don't like big groups and will turn down all workshops. Maybe your participants won't find the time to join in person. Here it is important to think creatively. Mette describes how she had to work on her latest project with the struggle of having difficulties coordinating the gathering of multiple actors at the same time and place. She ended up developing a method called 'Kitchen table deliberations', where they recruited 10 different people who could function as facilitators of a discussion while being led by an online platform. Those 10 people were asked to bring a small group together in a conversation about robotics, and afterwards report the findings. In this way, they ended up involving 700 different people in this round. The format might be more distanced than a conventional workshop, but it did allow them to reach many different actors that might not have shown up otherwise.

Many of the interviewees expressed the many competencies you need to master to facilitate a good participation interaction. A common struggle in inviting numerous actors to one interaction is that sometimes those with louder voices can drown out the others. Mette describes how one of her colleagues, a good facilitator, sometimes even resorts to giving participants set speaking time and interrupting them when necessary. Bob sometimes opts for hiring a professional speaker when he knows that an interaction could get intense, especially in municipality settings when people sometimes have strong emotions about a situation. Secondly, many express the need for a clear plan. In rare cases, you might want to let a conversation flow freely and see where it goes. But often it is better to have a clear understanding of what you want to get out of an interaction, and how you will arrange this. Mette, reflecting on her own time as an SDE student, remembers how students sometimes tend to set up interaction to only figure out afterward what they got out of it. Lastly,

Rosa emphasized the need for reflection after every interaction. She likes to ask: 'How did we think it went? What are the things we can do better?'.

5.2.5 How to follow up?
In general, having a long-term relationship with your actors will allow them to take a more active co-ownership. That is why Bob's approach is probably more build on the principles of mobilizing since he can work with the same actors for years. The reality of doing a student project however is that you are limited to four months. If you did not manage to encourage real co-ownership of the actors in a project, to ensure that you are leaving an impact on the engaged actors, it could be nice to view all of them as a receiver of your project. Maj-Brit and Mette both mention how every SDE project might need two deliverables: one for your supervisor and examiner. And another for the involved actors, 'the receivers' as Mette likes to call them. This is something that is also common practice within the Danish Board of Technology, where they have set up resources to determine who they should send the results of a project to. In Mette's words: 'People won't know that you are working on it magically, you have to show it!'. According to Rosa's experience, a report is not the preferred way to communicate, Zeewaardig likes to design the communication of their outcome deliberately. One of their recent projects ended with them hanging cards with quotes from local citizens throughout a company's building. And an installation with a phone, that when picked up by employees is playing audio clips of locals' matters of concern. Lastly, it should be recognized that when done right the outcome of a participation process can also be the learnings the actors have from the interaction itself. One of the success stories from Rosa's studio Zeewaardig is a municipality that recognized through the process that it is essential to include citizens in an inclusive participatory way in their processes. Now the municipal employees have started asking each other 'Is it Zeewaardig enough?' when they discuss new projects.

5.3 Reframing: interview conclusion

The interviews gave stories and advice on participation methods and their execution. Again, the multiplicity of participation projects became clear. Where Mette's stories show that it is possible to engage many people in a project, interviewees also emphasize the need to engage the right people instead of just a lot of people. And while Veerle speaks about asking for realistic participation in an easy and accessible way, Rosa criticizes municipalities for sometimes simply wanting to 'checkmark the participation box'. Bob's mobilizing attempts were inspiring, but perhaps impossible within a project timeframe. In conclusion, it is not direct advice that might be the most interesting learning, rather the reflection. Interesting questions came up that we should start asking each other. And an order of questioning became prevalent: 'Why are we using participation?', 'Who should be invited?', 'What participation methods are suited?', 'How to invite?', 'How to properly execute?', and 'How to follow up?'. Lastly, the interviews presented interesting stories that can be used as storytelling tools for discussions regarding participation.

Why are we using participation?

Who to invite?

How to invite?

6. Continuing the Dialogue: Conceptualization of a Student Tool

In this final chapter, the findings and discussion of this thesis will be translated into a tool suitable for SDE students. The multiplicity of participation projects was something that came up multiple times during both conversation with SDE students, literature, and professionals in the participation field. For that reason, a tool with specific advice would be only situational to some projects. More valuable is the incentive of a reflection on participatory approaches, and explicitly the interpretations, planning and decision-making in the staging phase (Andersen et al., 2015). While this discussion was already started in the conversations throughout this thesis, those are not likely to continue after I stop organizing them for my thesis. Therefor it was attempted to make a tool that would continue this dialogue.

Over the course of the conversations had in this thesis, other suggestions for interventions were made. Maj-Brit from the Study Board suggested how she would like to see a type of educational platform to teach students more practical skills that could supplement the theoretical skills that are currently in focus. And Mette mentioned how the Danish Board of Technology has a list with potential contacts, and that the university could attempt a similar tool. While both are relevant and interesting at least, I believe that implementation of the first (an educational platform) would have needed a completely different focus for this thesis. One on broader skills that SDE students seem to lack, and not merely participation. The second (a tool with potential contacts) might be interesting to some degree but can also be dangerous. It will encourage the same conflicts as were at the base of this thesis but on an even bigger scale: who can decide who is invited and who is not? A specific list might discourage creativity and critical analysis of who should be invited. However, it could be interesting to try and share contacts between SDE students and graduates. This something that is now already attempted at times through a call for interesting contacts in SDE communities on Facebook and LinkedIn.

6.1 Framing of a tool for SDE students
Where most design engineering educations are built on tools, the SDE education is more built on the usage of theories. While theories supporting participatory thinking are embedded in SDE education, graduates describe struggling with arranging the practicalities of participation. The divergence between the ideals in planning and the reality of implementation in participatory sustainability projects is a widely recognized struggle. Therefore, the tool should help build a bridge between the strong theoretical foundation and the practicalities. In terms of good practice, a little warning: apart from the two (SDE graduates) reviewing my thesis and this tool, the development of this tool was done individually. Of course, informed by the findings in this thesis. This decision was made due to time limitations.

When brainstorming the development of this tool, the following keywords came to mind. First: reflection, as described above there is no one-way path to participation. So practical advice is less relevant than the ability to reflect on the process. Second: openness, participatory design is a highly political activity. Open communication and questioning are attempts at making decisions more explicit by allowing them to be discussed. Leading to the third: explicitness, participatory design cannot be practiced without certain decisions made by the design team. By being not only open, but also explicit about the decisions, the project can be framed intentionally. Desk research with search words 'participation toolkit' and 'co-design toolkit', shows several card desks and guides collecting different methods. Some toolkits are developed for specific purposes and target participants, like citizen feedback in public planning or a kit made for people with a disability (Labattaglia, 2019). Most seem to be targeted at providing concrete methods without encouraging reflection. Seen from a Staging negotiation spaces perspective you could say these toolkits tend to move into the 'negotiation phase' without doing a proper 'staging phase'. The kits that can be found that do encourage more reflection on participatory approaches are often highly specific, for example the 'Reflecting on Water & Sanitation Infrastructure' booklet and card deck. Which provides a toolkit for water and sanitation practitioners on gender and socially inclusive participatory design approaches in urban informal settlements (Moschonas et al., 2022). Or the 'Youth Participation Toolkit' which focusses on youth participation in alignment with the EU youth goals, which is a list of socially engaged goals (Salto, 2023). Those toolkits will be relevant for staging specific projects, but a more general tool to stage participation in sustainability projects seems not available.

The overall goal of the development of this tool is to help SDE students stage participatory projects while encouraging them to reflect and be explicit. Based on the previous chapters, there are three elements that are relevant to implement. First, the theoretical background regarding staging participation. Second, the vocabulary that encourages discussion of the goal behind a participatory project. And third, the list of questions that should be answered while staging a participatory project. On top of that, there are the interesting stories and perspectives from both graduates and participation professionals that inspired this toolkit. Lastly, I was inspired by the explicitness of the 'Business Model Canvas' tool (see figure 17). A template often used in entrepreneurship and strategic management.

Figure 17: Business Model Canvas, source: Osterwalder et al. (2010)

Human Participation Canvas

Why are we using participation?

Who should be invited?

What participation method is suited?

How to invite?

How to properly execute?

How to follow up?

Use in combination with the Human Participation Cards, to download: siri-socialdesign.com/humanparticipationcanvas

Figure 18: Human Participation Canvas, designed for toolkit

6.2 The Concept: Human Participation Canvas

The concept is containing a 'Human Participation Canvas' with six different boxes with a main question when staging a participatory project (see figure 18). The questions can be reflected on with the use of the corresponding card decks (see figure 19). Each question has four corresponding cards. Making that the whole kit contains 24 reflection cards and one A4 'Human Participation Canvas', that can also be used as a folder for the cards (figure 20).

The cards are structured around the following questions: 'Why are we using participation?', 'Who should be invited?', 'What participation method?', 'How to invite?', 'How to proper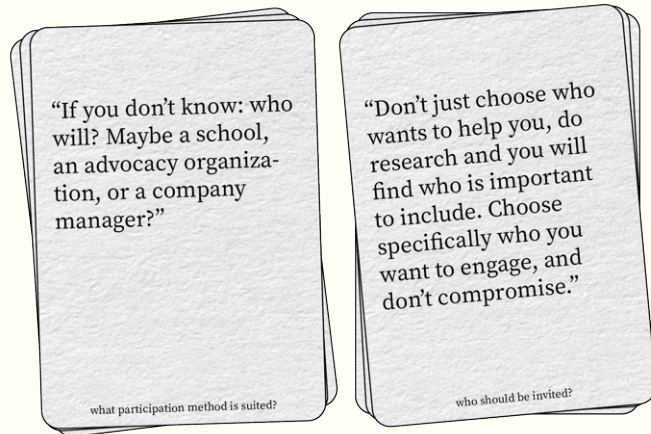ly execute?', and 'How to follow up?'. And the cards are designed along the following categories: reminder, reflection, theory, and design cards. The full toolkit can be viewed in both Appendix G, and at the end of this document (after references).

“If you don’t know: who will? Maybe a school, an advocacy organization, or a company manager?”

what participation method is suited?

“Don’t just choose who wants to help you, do research and you will find who is important to include. Choose specifically who you want to engage, and don’t compromise.”

who should be invited?

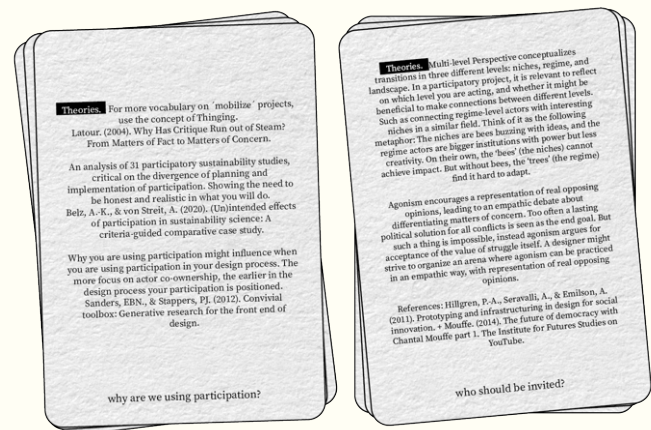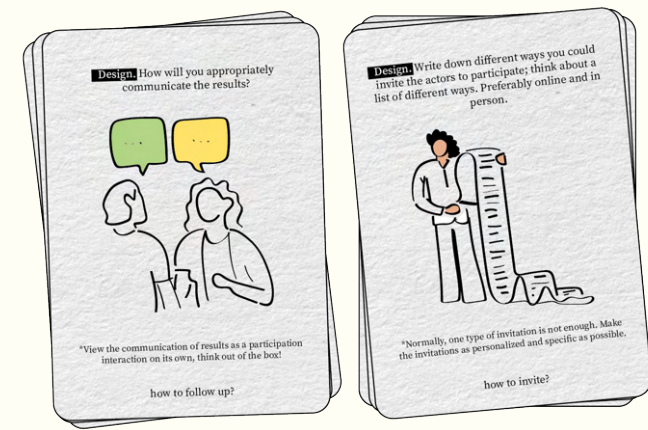The reminder cards are short quotes gathered from this thesis, all but one based on the practical advice the professionals in the participation field shared. Many are intended to remind the students to be pro-active in their invitation practices of human actors.

Reflection. Will you follow up with your participants?

What is your goal in following up? Perhaps to communicate information, to receive feedback, or to invite them to another interaction?

Is there another actor you want to communicate the results to? Reflect on who you did not invite but is still relevant to receive your results.

Will your participants and those you want to share your results with read an academic report?

how to follow up?

Reflection. Before designing your participation method, it is important to reflect on what your overall goal is. Start by asking yourself:

What kind of project are you doing? Are you planning to create something, build networks, or help an actor with something?

How much co-ownership of the project do you want to give the people you involve? Will it be your project or their project?

Describe in your own words why you are involving others. Try to phrase your participation goal in one sentence. Look at the framework on the next card, and then come back to rephrase. Remember to fill in the Human Participation Canvas.

why are we using participation?

The reflection cards are providing questions and prompts to think about the main questions. They are based on theoretical concepts (like matters of concern), and on questions from literature. But also, on practical questions and struggles from graduate and professional perspectives.

Theories. For more vocabulary on ‘mobilize’ projects, use the concept of Thinging. Latour. (2004). Why Has Critique Run out of Steam? From Matters of Fact to Matters of Concern.

An analysis of 31 participatory sustainability studies, critical on the divergence of planning and implementation of participation. Showing the need to be honest and realistic in what you will do. Belz, A.-K., & von Streit, A. (2020). (Un)intended effects of participation in sustainability science: A criteria-guided comparative case study.

Why you are using participation might influence when you are using participation in your design process. The more focus on actor co-ownership, the earlier in the design process your participation is positioned. Sanders, EBN., & Stappers, PJ. (2012). Convivial toolbox: Generative research for the front end of design.

why are we using participation?

Theories. Multi-level Perspective conceptualizes transitions in three different levels: niches, regime, and landscape. In a participatory project, it is relevant to reflect on which level you are acting, and whether it might be beneficial to make connections between different levels. Such as connecting regime-level actors with interesting niches in a similar field. Think of it as the following metaphor; The niches are bees buzzing with ideas, and the regime actors are bigger institutions with power but less creativity. On their own, the ‘bees’ (the niches) cannot achieve impact. But without bees, the ‘trees’ (the regime) find it hard to adapt.

Agonism encourages a representation of real opposing opinions, leading to an empathic debate about differentiating matters of concern. Too often a lasting, political solution for all conflicts is seen as the end goal. But such a thing is impossible, instead agonism argues for acceptance of the value of struggle itself. A designer might strive to organize an arena where agonism can be practiced in an empathic way, with representation of real opposing opinions.

References: Hillgren, P.-A., Seravalli, A., & Emilson, A. (2011). Prototyping and infrastructuring in design for social innovation. + Mouffe. (2014). The future of democracy with Chantal Mouffe part 1. The Institute for Futures Studies on YouTube.

who should be invited?

The theory cards give further readings regarding interesting theories, with short descriptions on why and in which cases they might be relevant. In the “Who should be invited?” section the theory card contains more context on Multi-level Perspective and Agonism – since those theories are highly relevant to encourage the students to invite a higher diversity of participants.

Design. How will you appropriately communicate the results?

*View the communication of results as a participation interaction on its own, think out of the box!

how to follow up?

Design. Write down different ways you could invite the actors to participate; think about a list of different ways. Preferably online and in person.

*Normally, one type of invitation is not enough. Make the invitations as personalized and specific as possible.

how to invite?

Lastly, the design cards give the incentive to decide on or design an answer to the pending question on the Human Participation Canvas.
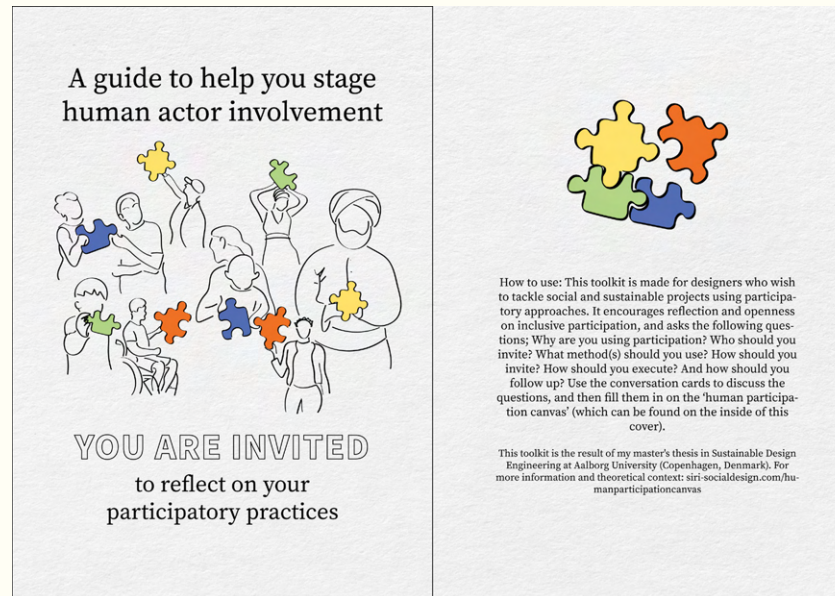
Figure 19: cards designed for toolkit

*Figure 20: Cover, designed for toolkit*

There are three odd cards that are included. The first one contains the framework developed in the workshop with SDE graduates. It gives the same proposed vocabulary (empathize, empower, mobilize) to try and deepen the conversation about the participation goal. For clarity, it also features a slightly edited version of the toothbrush metaphor proposed by the SDE graduates in the workshop. The second odd card contains a narrative from Bob (the social worker) his daily practice, it illustrates how distinguishing participatory approaches can be when following different matters of concern. The third odd card encourages the students to make a testing plan for their participation interaction. Which is based on the suggestions of Sanders & Stappers (2012) in their book the 'Convivial Toolbox'.

The cards are designed so that they can be reused when necessary (by using post-it's on the canvas). But they can also be downloaded as a pdf and easily printed, allowing for online distribution. The cover explicitly states that it is a first version of the tool, as future testing and feedback will hopefully lead to further discussion and development. To allow for future development, it is essential that the tool reaches SDE students in the staging phases of their participatory projects. For this to happen the tool should be distributed to SDE teachers and students. A poster version of the reminder cards can help by spreading the message and pointing people towards the tool. Collection of filled-in Human Participation Canvasses can provide an interesting pool of different participation projects.

6.3 Demonstration

To demonstrate the use of the Human Participation Canvas, I have filled in the canvas using a future project that is planned between September and December 2023 (figure 21). The project has as its scope to co-create a children's book with a marginalized street in Rotterdam (the Netherlands). The reflection questions were helpful to start thinking in different directions of this project before it has even started. One thing that came apparent was how there are still many gaps in the knowledge regarding the matters of concern of the residents in the street. That is why the canvas is now mostly focussed on a first interaction with key figures to help for better orientation. It shows how the human participation canvas can be used in different staging moments throughout a project, it helped identify which questions should still be answered before staging the co-creation. In the meantime, the specific boxes like 'how to follow up?' already gave incentive to think about the practicalities of a first interaction with key figures. One thing that I realised in this experience is that the questions are quite many and in depth. Therefore, the whole activity of filling in the canvas can take several hours or even days. Combined with it being likely that the tool will help identify new questions, the tool should be regarded as iterative.

Human Participation Canvas

Why are we using participation?

Empower, to help create a resident narrative of a normally negatively displayed street. The project aims to give a voice to the street, the narrative can either be positive or negative.

Who should be invited?

The residents of the street. Key figures that can help us: the representatives from the neighborhood council, leaders in the nearby mosque, and the owners of shops. Although the result will be for children, we are not specifically focussing on children for creating the narrative.

What participation method is suited?

A conversation with key figures to win their trust about the fact that we want to create a real story about their neighborhood and that we need their help to do so. And we think it is important to tell them that one of our team members also lives in the street, that is where our curiosity started.

How to invite?

Email + phone to make an appointment. If that doesn't work, we will go visit their open meeting, shops, or mosque.

How to properly execute?

We would like the outcome to be suggestions of other people to contact, and what their matters of concern are/how to best invite them. We won't prepare a session script since our interaction will be short.

How to follow up?

We will ask the key figures if they would be interested to help us further and ask them how they would like to be kept up to date (phone/email/a new visit). We will also share our contact details.

Use in combination with the Human Participation Cards, to download: siri-socialdesign.com/humanparticipationcanvas

Figure 21: Human Participation Canvas, filled in with example project

7. Conclusion

In conclusion, this thesis contributes to discussions about inclusive participation in sustainability projects. Thereby trying to address the lack of focus on reflective staging of participatory projects. The thesis focuses on the case of student projects within the SDE education at Aalborg University. The following research question has been guiding: How to improve the inclusive participation of human actors in SDE student projects? Supported by three sub-questions with emphasis on investigating the current methods and rationale for SDE students to practice participation, the visions of different professions working with participation, and the development of a tool to encourage SDE students to reflect on staging for participatory projects.

7.1 Reflection based on Literature

Drawing on literature from participatory design and sustainability transitions, it is argued that involving diverse perspectives is crucial for supporting complex sustainability transitions. Connecting Multi-level Perspective and PD theories can provide interesting insights leading to the inclusion of more non-regime voices in participatory projects. The concepts of 'matters of concern' and 'thinging' are brought in to discuss the role of a designer in embracing ambiguity. Agonism provides more vocabulary on this while arguing for a degree of respectful conflict. The 'staging negotiation spaces' framework allows for discussion of the role of the designer as a 'humble stage director'. However, accepting and encouraging the multiplicity of SDE student projects means that some projects might not make use of the agonistic theories presented. It is more important that students are reflective on the impact of their choices in staging participatory projects. That is why the developed toolkit encourages reflection and open communication regarding staging decisions while inspiring students with perspectives from the presented literature.

7.2 Reflection on Contribution to the SDE Field

As chapter four illustrates, the multiplicity of SDE projects make it difficult to decipher but there seems to be a discrepancy in student's intentions and execution regarding inclusive participation. This discrepancy is also noticed in non-student participatory sustainability studies by Belz and Von Streit (2020). Workshops with SDE graduates gave more insights into this, revealing that students also experience this as a struggle and sometimes even alter their project scope for easier execution instead of staging intentionally. Based on Sanders and Stappers (2012), the workshops present a discussion on the rationale of participation and its connection to staging choices. To bridge this academic discussion to include practical perspectives, chapter five includes a discussion of staging choices based on interviews with five professionals working with participation in different ways. This revealed both advice and a discussion of similar struggles, leading to a list of interesting questions to ask while staging a participatory project. Finally, this led to the development of a tool, which hopes to improve the inclusive participation of SDE student projects by encouraging reflection, open communication, and explicitness in student's staging decisions. This tool can contribute to the SDE field by becoming a part of the SDE methodologies.

7.3 Reflection on Future Possibilities

The presented 'Human Participation Toolkit' should be regarded as under development. As much as the tool wishes to encourage discussion of participation, the tool itself should also be allowed to be under discussion. As this will allow for the improvement of its theoretical background and practical questioning but will also provide self-reflection towards the SDE field in terms of which questions are important to ask. A first step in this will be a testing workshop with SDE students and/or staff.

The toolkit is currently developed for the SDE education at Aalborg University explicitly but has potential for other design settings. It would be interesting to test and develop the tool for the wider field of participatory projects for sustainability transitions. Including a reflection on how the tool could specifically target projects that go beyond a Danish or Dutch context, for example, also making it applicable to projects in the Global South. Thinking in other professional cultures, it would also be interesting to reflect on the potential usage of a similar staging tool in other professions and study programs. For example, in studies regarding medicine,

public policy, journalism, or development studies.
In terms of limitations, this thesis has explicitly focused on human actors. Thereby not focusing on non-human actors. There are already interesting projects regarding the inclusion of non-human actors in participation, of which I would recommend the Multispecies conversation cards by Metcalfe (2015). But there seems to be no discussion of the staging discussions (why? who/what? how? etc.) regarding non-human actors. This could help designers to also reflect on staging the perspectives of animals and nature.

Lastly, the accessibility of the toolkit could be improved. Currently, the toolkit is not suitable for people with visual impairments, reading difficulties, or those not familiar with lexicon like 'matters of concern'. Before making the tool applicable to a wider target group, this needs further development.

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A guide to help you stage human actor involvement
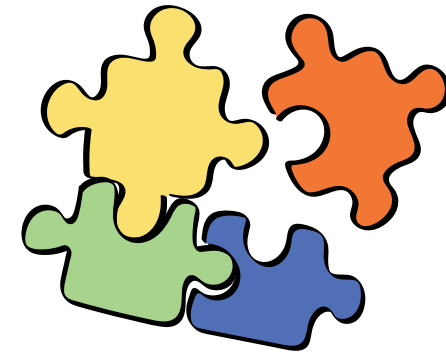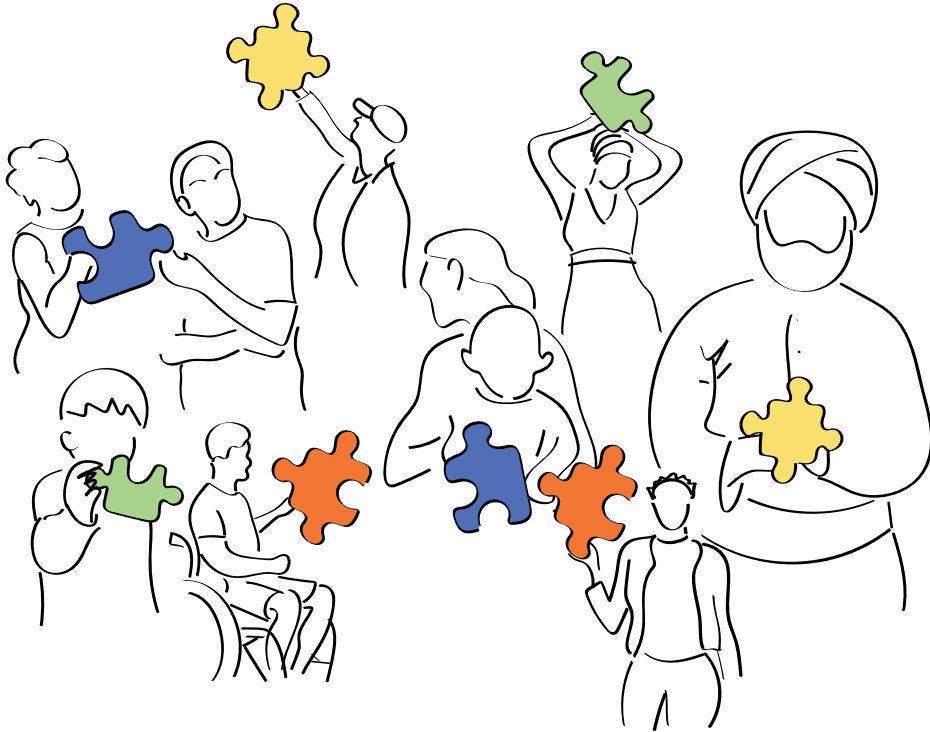
YOU ARE INVITED

to reflect on your participatory practices

How to use: This toolkit is made for designers who wish to tackle social and sustainable projects using participatory approaches. It encourages reflection and openness on inclusive participation, and asks the following questions; Why are you using participation? Who should you invite? What method(s) should you use? How should you invite? How should you execute? And how should you follow up? Use the conversation cards to discuss the questions, and then fill them in on the 'human participation canvas' (which can be found on the inside of this cover).

Human Participation Canvas

Why are we using participation? ♡

Who should be invited? 👤

What participation method is suited? ☆

How to invite? 📝

How to properly execute? ☑

How to follow up? 〜

"Less use of participation does not mean the project is irrelevant. It just means that it is a different type of project."

why are we using participation?

Reflection. Before designing your participation method, it is important to reflect on what your overall goal is. Start by asking yourself:

What kind of project are you doing? Are you planning to create something, build networks, or help an actor with something?

How much co-ownership of the project do you want to give the people you involve? Will it be your project or their project?

Describe in your own words why you are involving others. Try to phrase your participation goal in one sentence. Look at the framework on the next card, and then come back to rephrase. Remember to fill in the Human Participation Canvas.

why are we using participation?

Here is a classification of participation projects that might help you define your participation goal. It might be tempting to position yourself in all three, but in terms of transparency, it is wise to be as specific as possible about the main goal of your current project.

Empathize. when you design something and involve others to make sure people will want to use it.

Could be... researching what people like and don't like. And then designing a toothbrush.

Empower. when you design together with actors to allow them to co-create the project with you.

someone can't use a toothbrush, and you together design a new device to help them.

Mobilize. when your participation goal goes beyond the current project, and you try to encourage actors to become spokespersons for the problem.

gathering for a conversation about the need to use a toothbrush. You hope to lay connections that allow them to encourage others to brush their teeth.

why are we using participation?

Theories. For more vocabulary on ´mobilize´ projects, use the concept of Thinging.
Latour. (2004). Why Has Critique Run out of Steam? From Matters of Fact to Matters of Concern.

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Sanders, EBN., & Stappers, PJ. (2012). Convivial toolbox: Generative research for the front end of design.

why are we using participation?

"Don't just choose who wants to help you, do research and you will find who is important to include. Choose specifically who you want to engage, and don't compromise."

who should be invited?

Try to open your mind and think about who you should get involved in your project. Even if you cannot reach all the actors needed, you can come up with another representation of their matters of concern. Start by asking yourself:

Start by self-reflecting: Who are you (and who are you collaborating with)? What are your matters of concern in the project?

Did you use any theories or methods to identify who is important to include in your project?

Are there any key figure(s) that can help you identify who is important to include? Or perhaps any existing studies?

Did you wonder if there are any voices relevant to your project that normally do not get heard? Traditionally marginalized groups are BIPOC, women, LGBTQI+ people, people with disabilities, migrant communities, rural communities, people with a low socio-economic status, children, and the elderly.

Are there perhaps any actors that you choose to ignore since their opinions do not align with the other actors or your project goal? (see 'Agonism' on the back)

who should be invited?

Theories. Multi-level Perspective conceptualizes transitions in three different levels: niches, regime, and landscape. In a participatory project, it is relevant to reflect on which level you are acting, and whether it might be beneficial to make connections between different levels. Such as connecting regime-level actors with interesting niches in a similar field. Think of it as the following metaphor: The niches are bees buzzing with ideas, and the regime actors are bigger institutions with power but less creativity. On their own, the 'bees' (the niches) cannot achieve impact. But without bees, the 'trees' (the regime) find it hard to adapt.

Agonism encourages a representation of real opposing opinions, leading to an empathic debate about differentiating matters of concern. Too often a lasting political solution for all conflicts is seen as the end goal. But such a thing is impossible, instead agonism argues for acceptance of the value of struggle itself. A designer might strive to organize an arena where agonism can be practiced in an empathic way, with representation of real opposing opinions.

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who should be invited?

your project is probably under a lot of constraints. You might be limited by project duration, location, or resources. Reflect on the following; if the number of people you can include is only limited, who should be given a precious seat at the table?

*This does not mean that you will always place all of them at the same table, you might involve them in separate interactions.

who should be invited?

"If you don't know: who will? Maybe a school, an advocacy organization, or a company manager?"

what participation method is suited?

It is time to find a participation method that suits your participation goal and your desired participants. Try to make your plan as personalized to the desired participants as possible.

Look at the list of who you plan to involve, what do you know or what can you find out about their matters of concern regarding the project?

What do you know or what can you find out about their daily lives/schedules/struggles? Are there any power imbalances or big differences between the actors? Would you rather involve them at the same time or in different interactions?

Do you need to provide any extra information or attention to some actors to allow for equal participation?

what participation method is suited?

A story about matters of concern. Bob is a social worker with a focus on community building. He works in a neighborhood that he describes as a fragmented one. It roughly consists of these different groups: one with highly educated, typically with higher incomes, and living in big houses with gardens. This group lives down the hill, but up on the hill lives a second group, which is characterized by low economic status, lower education, and small social housing. In a project about the energy crisis, Bob experienced how his high-income citizens on the hill were talking about energy cooperations and sharing solar panels motivated by their wish to become more sustainable. While those topics did not attract anyone from the lower-income neighborhood down the hill. Many of them are living in social housing where it is not up to you to decide whether you get solar panels on your roof. With the help of an existing organization, a group in the lower-income community started an initiative around energy-saving tips targeted at the wish to lower electricity bills. The story shows how the same project can ask for two completely different approaches, following the matters of concern of the actors.

what participation method is suited?

Design. What method is appropriate to reach your participation goal, but also specialized to the actors' interest? If you cannot convince them of your preferred method, what are other ways you can still include them?
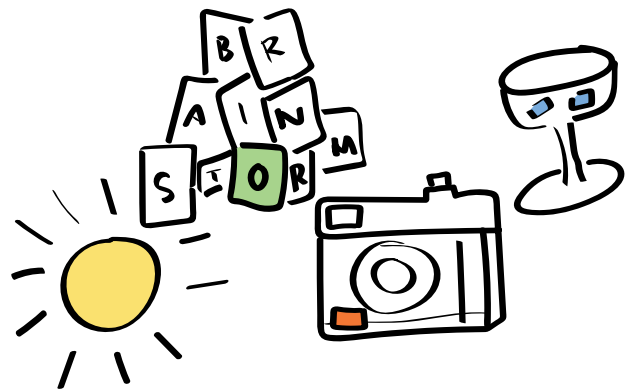
*For inspiration on methods, check for example: servicedesigntools.org, participedia.net

what participation method is suited?

"Not only let people come to you, but also go to the people."

how to invite?

Reflection. What matters of concern will you use to interest the actors?

What language does your actor speak? Not (only) the actual language, but rather the manner of speaking. For example, street language or business language. Are there multi-lingual key figures that can help you?

How big is the effort that you are asking for?

Can you promise anything in return? Even if it is just a cup of coffee.

how to invite?

Theories. More on how to play 'language games' to find the manner of speaking of actors. Hendriksen, L. (2019). Language Games, Dialogue and the Other.

When you want to include a community, it can be smart to reach out to specific people within it. They can function as key figures to convince others, some sort of snowball effect.

how to invite?

Design. Write down different ways you could invite the actors to participate; think about a list of different ways. Preferably online and in person.
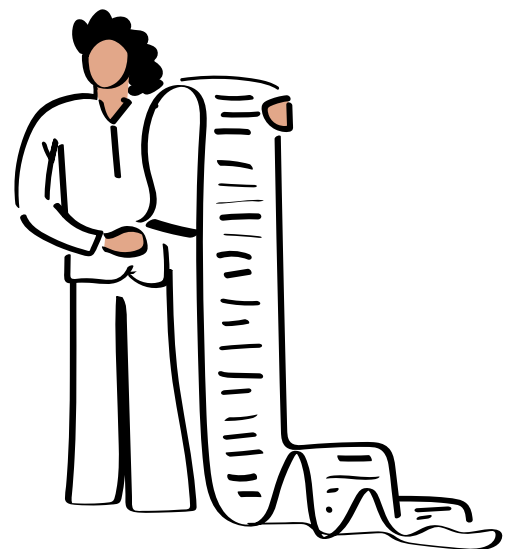
*Normally, one type of invitation is not enough. Make the invitations as personalized and specific as possible.

how to invite?

"Being a good facilitator is real craftmanship."

how to properly execute?

Reflection. What do you want your outcome to look like? Some ideas, decisions, narratives?

Do you want to facilitate strictly, or do you just want to see what happens?

What skills will you need to execute? Strict timekeeping, creativity, or networking skills?

If there is a power imbalance, how will you make sure all actors have an equal opportunity to participate?

Do you need to restrict certain actors and encourage others?

How will you deal with potential disagreements? Are you always striving for consensus?
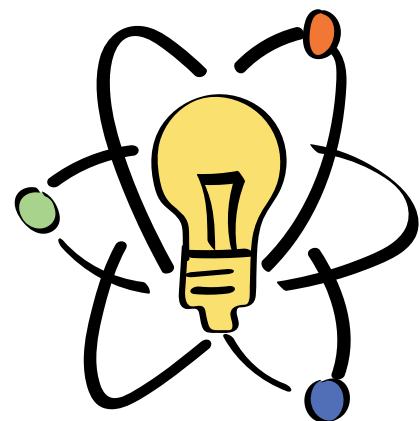
how to properly execute?

Design. What will you need to prepare before execution? A session script? Dividing roles?
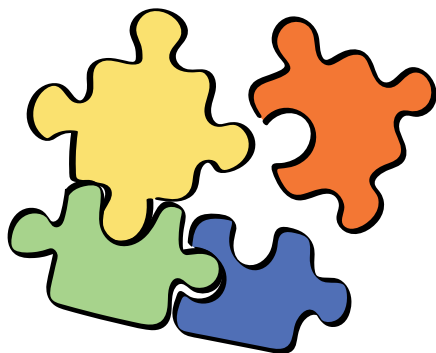
*View every interaction as a learning opportunity, make sure you challenge yourself and reflect!

how to properly execute?

Test! How can you test your interaction? Maybe with someone that understands the world of the participants?

how to properly execute?

"People won't know that you are working on it magically, you have to show it!"

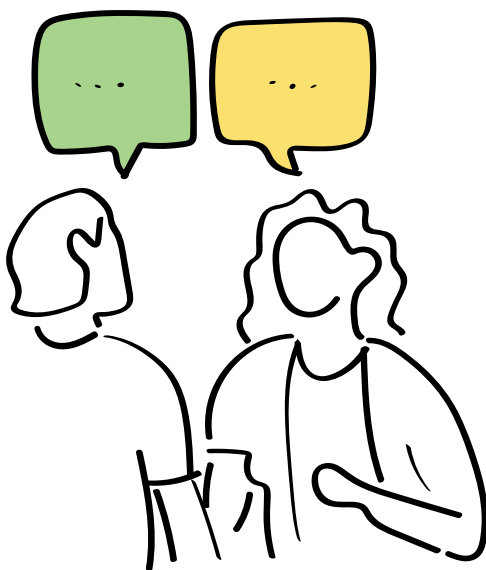**Reflection.** Will you follow up with your participants?

What is your goal in following up? Perhaps to communicate information, to receive feedback, or to invite them to another interaction?

Is there another actor you want to communicate the results to? Reflect on who you did not invite but is still relevant to receive your results.

Will your participants and those you want to share your results with read an academic report?

Design. How will you appropriately communicate the results?

*View the communication of results as a participation interaction on its own, think out of the box!

Thank you! for using this toolkit, make sure you fill in your main findings on the human participation canvas! Feel free to leave gaps and iterate when needed. But being explicit and open will help your project.

This kit was based on my master's thesis, where I got help from my supervisor Birgitte Hoffmann, the following SDE graduates: Tekla, Reyes, Vincent, Siri S., Patrick, Natalia, Lukas, Camilla, Amanda, Sliwa, Matilde, Majj-Britt from the SDE study board, Bob from the welfare organization Elcander, Rosa from the design studio Zeewaardig, Mette from the Danish Board of Technology, and Veerle from the municipality of Utrecht.

As this tool is still in development, I would love to receive any feedback and additions.
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