

CO- CREATING SYSTEMS

to create better circumstances for well-being of young people in Denmark

ROCKWOOL
FONDEN

Intervention



ROCKWOOL FONDEN

Intervention

At **Aalborg University Copenhagen**, students of the master **Service Systems Design** are asked to write a **master thesis** as a final part of their education, which is worth **30 ECTS**. This thesis was written in the period between **February and May 2021** and **supervised by Amalia de Götzen**. The thesis was handed in on the **28th of May**.

This thesis with the title '**Co-creating system innovation**' was written in collaboration with **Rockwool Foundation Interventions**. The authors are **Julie Bregenov Jönsson** and **Lucy Johanna Stuyfzand**.

CO-CREATING SYSTEM INNOVATION

to create better circumstances for well-being

by Julie Bregenov Jönsson
and Lucy Johanna Stuyfzand

Spring 2021

**WITH A
SPECIAL
THANKS
TO...**

ACKNOWLEDGEMENTS

Before going into the content of the thesis, we would like to thank the people who added significant value to our project. First of all, we would like to thank the mental health team for their endless support and expert advice throughout the project. Despite COVID-19, they made an extensive effort to engage with us continuously. So, thank you Anders Erlendsson, Lizette Kristiansen Taguchi, and Anne Reinholdt-Hanssen in particular, for the great discussions and engagement in our project.

Then, we owe a big thank you to Henrik Dahl for always being there for us and to help us find the tools we needed. No matter when we would reach out to Henrik, he would make time to help us find scissors, glue, cutting machines, printers, and what more to realise our co-creations. It is lovely to have a colleague like Henrik, and he has been excellent support for our co-creation sessions.

Another thanks to the Rockwool Foundation for the office space and the beautiful project brief. We particularly want to thank Jennie Winhall and Charlie Leadbeater for writing the paper 'Building Better Systems', which was a fantastic framework for our thesis and a great inspiration together with Hillary Cottam's book 'Radical Help'. Thank you for being a true inspiration for us as young designers.

Furthermore, we are so grateful for all participants in our co-creations. Each of them selflessly participated in our sessions, and we could not have written this thesis without them. Thank you for sharing your views on the world with us and being an inspiration to design for better quality of life.

Last but definitely not least, we would like to thank Amalia de Götzen for supervising us and encouraging us in every supervision. She has been a great professor and a good coach in our journey to become a service designer.

ABSTRACT

This thesis is a part of the final semester service systems design in close collaboration with the Rockwool Foundation. The foundation conducts independent research about the challenges facing the Danish welfare society. By doing so, they generate knowledge about possible new solutions. The foundation consists of two units: one focusing on research (Rockwool Foundation Research) and one focusing on interventions to explore possible new initiatives (Rockwool Foundation Interventions). Throughout this thesis, we have been looking for possible new interventions for the well-being of young people in collaboration with the Rockwool Foundation Interventions (RFI).

RFI focuses on creating new initiatives for mental health issues among young people. They do so because more and more young people get in touch and are diagnosed in psychiatry with stress, anxiety, depression, ADHD, or autism. The Danish welfare state's current solutions are neither socially nor economically sustainable; therefore, RFI focuses on radically different solutions that focus on creating better circumstances for well-being in the first place. This project is to solve the mental health issue, but it is also a means to create steppingstones for system innovation. In this thesis, the vision for Danish society is to shift from the welfare state to a relational state was adopted. A relational state suggests moving away from a hierarchical model of policymaking to a model where social systems transform themselves in distributed networks. The relational state has a particular focus on strong relationships and building capabilities.

This master thesis focuses specifically on exploring how to achieve better circumstances for well-being in and around the Danish primary school. The research aims to answer whether co-design is the appropriate approach for the exploration phase of such systemic challenges. Moreover, this thesis aims to provide insights on how service design tools can play a role in co-creation sessions. In the spring of 2021, two service design students explored the danish primary school system through a series of co-creation sessions with multiple actors who take part in this system. The thesis concludes with six specific design briefs to be explored by RFI in the remainder of 2021. The recommended approach to explore the design briefs is to continue with future scenarios as a tool and to involve actors with various roles in and outside the school system.

keywords: service design, co-design, co-creation, tools, system innovation

**WHAT
EXACTLY
IS THIS
ABOUT?**

TABLE OF CONTENTS

00

first of all

acknowledgements	05
abstract	06
list of figures	10
list of images	12
glossary	14
introduction	17
learning goals	18
reading guide	20

01

making the case for system innovation

the welfare state	24
system innovation	28
case: mental health in Denmark	33

02

literature review

evolution of design	40
why we need co-design for system innovation?	42
the added value of a service designer	44
service design tools in co-design processes	44

03

method

method	49
process overview	50

04

co-design process

actor network map	54
preparation	56
analysis	62

05

synthesis

personas	70
preparation	72
analysis	78
future scenarios	90
preparation	92
analysis	99
future scenarios II	106
preparation	108
analysis	114

06

final notes and conclusion

opportunities	127
valuable approach?	132
implementation at RFI	136

07

and finally

final notes	140
conclusion	142
references	146
appendix	151
appendix a: video	152
appendix b: actor network files	153
appendix c: personas files	154
appendix d: scenario building files online	155
appendix e: scenario building files physical	156
appendix f: product report	157

LIST OF FIGURES

01	the six core principles of the relational state (which Hillary Cottam considers radical help) compared to the 20th century welfare state's principles (Cottam, 2018 p. 196)	page 27
02	the three levels in a system, visually re-designed (Geels, 2002).	page 29
03	how system innovation happens on three levels, visually re-designed (Geels, 2002)	page 30
04	the mental health issue is a rising problem in Denmark	page 33
05	Miro board with notes from our session with Søren Christian Krogh	page 34
06	the three tracks to be explored	page 35
07	the focus of our thesis	page 37
08	the four types of design processes	page 41
09	the research question connected to the focus of our thesis	page 45
10	the method to evaluate tools in a co-creative setting	page 48
11	an overview of the co-creation sessions and the process we went through to organise the sessions	page 50
12	the final actor network map as an outcome of the co-creation	page 55
13	three examples of an actor network map (ibm, n.d.; Morelli & Tollestrup, 2006; Giordano, de Götzen, Morelli, & Hunziker, 2018)	page 59
14	three examples of an actor network map (ibm, n.d.; Morelli & Tollestrup, 2006; Giordano, de Götzen, Morelli, & Hunziker, 2018)	page 59
15	three examples of an actor network map (ibm, n.d.; Morelli & Tollestrup, 2006; Giordano, de Götzen, Morelli, & Hunziker, 2018)	page 59

16	the first iteration of the actor network map after the first co-creation session	page 63
17	the second iteration on the actor network map in between co-creation sessions	page 63
18	the third iteration of the actor network map between co-creation sessions	page 63
19	the fourth iteration of the actor network map, this was right after co-creation session two	page 63
20	the fifth iteration of the actor network map, after the two co-creation sessions	page 63
21	the sixth iteration of the actor network map, a visual re-designed version of the fifth iteration	page 63
22	a visual representation of the final personas with a summary of characteristics	page 71
23	goal-based persona (Bradley, 2019a)	page 75
24	role-based persona (Bradley, 2019b)	page 75
25	non-binary representation of a thriving and a non-thriving student	page 77
26	the process of merging the two co-creations and clustering the information	page 80
27	the outcome of the co-creation session with an afdelingsleder	page 81
28	the outcome of the co-creation session with an AKT teacher	page 81
29	a visualisation of the future scenario built in this co-creation	page 91
30	a visualisation of the school 2045 built in this co-creation	page 107

LIST OF IMAGES

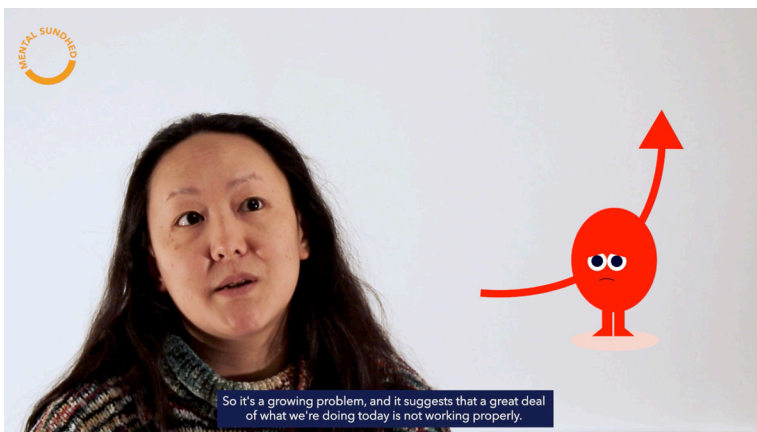
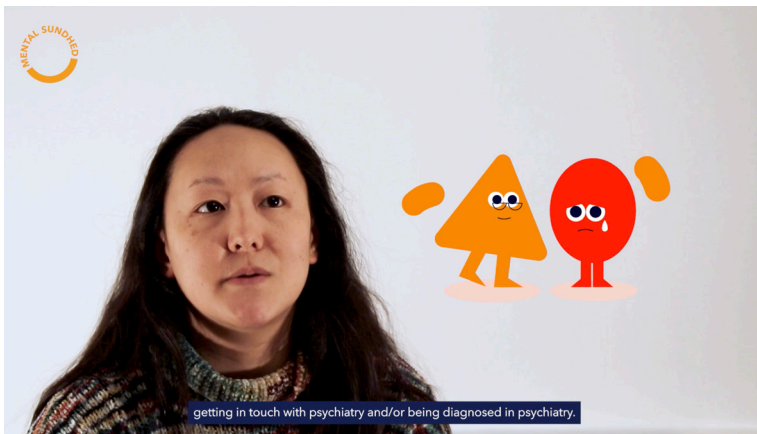
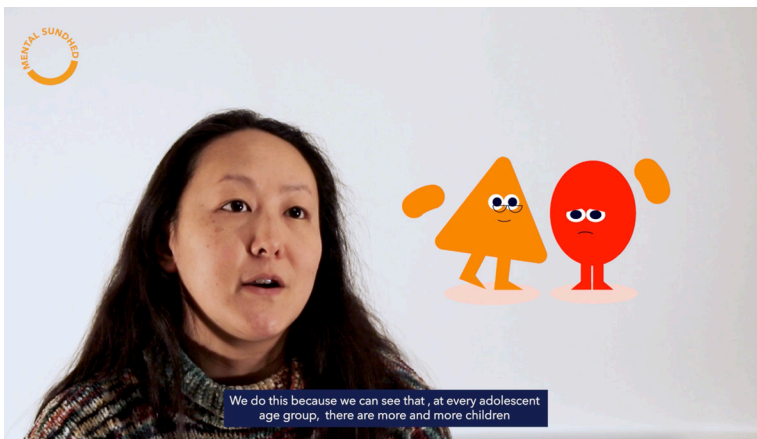
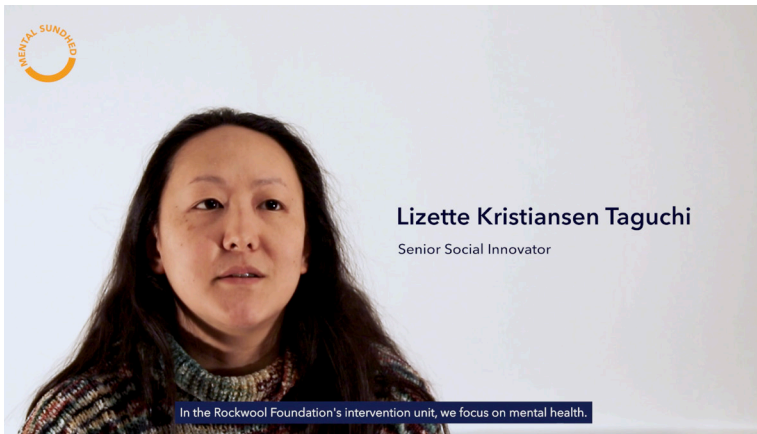
01	screenshot of a video made to illustrate the project, video can be found in appendix A	page 16
02	screenshot of a video made to illustrate the project, video can be found in appendix A	page 16
03	screenshot of a video made to illustrate the project, video can be found in appendix A	page 16
04	screenshot of a video made to illustrate the project, video can be found in appendix A	page 16
05	julie	page 18
06	lucy	page 19
07	two books we have read at the start of our thesis: Radical Help and Design, When Everybody Designs	page 25
08	Danish Design Centre's matrix to think about the future (livingfutures.org, n.d.)	page 95
09	example of a storyboard that showcases how a user interacts with a product	page 95
10	school's site	page 96
11	second photo where the building and its surroundings have been removed.	page 96
12	the table right before the co-creation	page 111
13	each participant got their own toolkit to express themselves.	page 111
14	the teachers each got time to think about what they would like their education to be on these sheets	page 115

15	after the individual thinking time, we synthesized their wishes into a manifesto.	page 115
16	the co-created teacher manifesto (a summary)	page 119
17	the workshop table right after the participants left	page 122
18	the clay puppets we used in the co-creation session	page 122
19	the workshop participants had ten minutes to answer questions by writing Post-its	page 133
20	the set-up for the internal workshop. The walls were covered with the outcomes of our co-creations and we would kick-off with a small presentation on the screen	page 134
21	one of our colleagues was exploring the information about individual actors we had put in small booklets alongside the actor network map	page 134
22	we asked our colleagues to rotate in pairs, to make sure they had room to discuss the outcomes of co-creations and everybody would have enough space to explore	page 134
23	some pairs listened to the audio-recording of the teachers together so they could discuss the future scenario in the meantime	page 134
24	after exploring the exhibition, we listed three general questions for all our colleagues to answer and a fourth question custom-made for each colleague based on their expertise	page 135
25	the personas were pictured on a poster and each of them had a card with characteristics.	page 135
26	it was not our intention, but the exhibition was inviting to leave thoughts on. We collected many insights on Post-its through the workshop.	page 135
27	we attached the future school stories as an audio file. There was a QR-code next to the poster that led to a recorded story about each future scenario	page 35

GLOSSARY

co-creation	The happening of a group of people who jointly apply their professional knowledge and creativity to produce new insights, ideas, and concepts (Nielsen, 2011).
co-design	The ‘co’ in co-design stands for collaborative and the term co-design is used to characterize a process where both designers and people, who are not educated in the field of design, act as equal partners in the process of developing new solutions (Jørgensen, Lindegaard and Rosenqvist, 2011).
methods	In service design, methods are particular procedures to accomplish or approach something, such as conducting contextual interviews as a research method or doing desktop walkthroughs as a prototyping method. A method represents “how” we create and work with specific tools (Stickdorn & Schneider, 2018).
performance culture	Performance and expectations are a natural and indispensable part of the school and educational life. The challenge arises when there is too much focus on performance. When this happens, we speak of a performance culture throughout the thesis. In Denmark, students have expressed that they experience having to perform on a wide range of parameters. They must perform in the education system, on the labor market, in the family, in leisure, on social media, and in relationships with friends. Simultaneously, the boundaries of what is ‘normal’ shifted. This is partly due to social media, where the illusion of the perfect life is created, and the pursuit of this has become the norm. In that situation, it does not take much before students experience not being able to live up to their own expectations (Dansk Centre for Undervisningsmiljø, 2017).
opportunities for intervention	In the Danish dictionary, an intervention means intervening in a situation to prevent a particular outcome or to change a development (Translated from Ordnet.dk, n.d.). So when discussing an opportunity for intervention, we refer to a clear indication where it seems fruitful to intervene.
service design	Service design choreographs processes, technologies, and interactions within complex systems in order to co-create value for relevant stakeholders (Birgit Mager in This is Service Design Doing, 2018 (p.19)).

social innovation	New ideas (products, services, and models) that simultaneously meet social needs and create new social relationships or collaborations. In other words, they are innovations that are both good for society and enhance society's capacity to act (Manzini, 2015 - p.11).
system	Throughout the thesis, the welfare state will be considered 'the system', which consists of many subsystems (e.g., public transport, health care, tax system, unemployment system).
system innovation	System innovations are defined as large-scale transformations in how societal functions such as transportation, communication, housing, and feeding are fulfilled (Elzen et al., 2004).
tools	In service design, tools are concrete models, such as journey maps, spreadsheets, and storyboard templates. They usually follow a specific structure or are built on given templates. Tools represent "what" we use in service design (Stickdorn & Schneider, 2018).
well-being	Well-being can be understood as how people feel and how they function, both on a personal and a social level, and how they evaluate their lives as a whole. (New Economics Foundation, 2012)
young people / kids / children	While referring to young people, children, or kids throughout this thesis, we address people in the age category of primary school students: between 6 and 18 years old.



images 01, 02, 03 and 04: screenshots of a video made to illustrate the project, video can be found in appendix A

INTRODUCTION

Mental health problems are on the rise among young people in Denmark. The number of young people diagnosed with either anxiousness, depression, stress, ADHD, or autism has increased within the last 20-30 years. It is a rising problem, and the challenge is to find out how to pivot the increasing mental health issues. Today, we see a strong focus on tracing and identifying young people who do not seem to thrive, so the health care system can provide them with treatment (e.g., to see a psychologist or teach them how to meditate). Many young people benefit from this treatment, but when the mental health issues are still rising, this solution is neither socially nor economically sustainable.

At the Rockwool Foundation Interventions (RFI), they are therefore looking at radically different solutions that start from what circumstances in the Danish society cause the issues in the first place. Based on this, RFI aims to shift the Danish welfare state into a system that has better circumstances for well-being. By combining a social innovation approach with research and practise, the foundation hopes to create scalable, relevant, and cost-effective solutions. As two service designers, we were invited into the project to explore the challenge from a social innovative perspective. Alongside other colleagues (economists, psychologists, and strategic designers), we were asked to generate knowledge about how we could potentially design a new school system with better circumstances for well-being. The problem at hand is rather complex. Therefore, close collaboration with practise and research was essential. Moreover, we realised it was not a design challenge to solve between four walls: there are many actors and perspectives. We therefore decided to approach the project with co-design, where we would invite people who take part in the school system to co-create knowledge and potential solutions with us.

Throughout our master's service systems design, we have learned about service design tools and adopted a service design mindset (holistic, iterative, realistic, able to address the needs of society). With the acquired skills and knowledge, we hoped to add value to the co-design process. Moreover, service designers play an essential role in innovation processes where we need to change the mentality. The mental health challenge that Denmark faces will require radically different solutions. Thus we hoped to add value by creating new mental models and facilitate the design of new solutions. We have used many design tools such as scenario building, customer journey mapping, and service blueprinting in previous design projects. We wanted to use these tools in our co-design process but realised there is not much guidance about using the tools in a co-creative setting. Moreover, there is little research on what value it adds specifically to the outcome of using a tool if it is used in a co-creative setting. Therefore, we will investigate how design tools can be used in a co-creative setting to generate knowledge about a potential new solution for the well-being of young people in primary schools. We started the project with a deep desire to take a humble position and provide the right circumstances and tools to the people who take part in the system. By doing so, we hoped to generate a widely held potential solution for the rising mental health issue in Denmark.

LEARNING GOALS

This thesis is a part of the final semester of the master Service Systems Design at Aalborg University Copenhagen (AAU). The university has pre-defined learning goals and objectives, which we will cite below. Alongside AAU's expectations for our thesis, we both have personal learning goals and ambitions for the outcomes. We will follow up on these learning goals in this chapter and reflect upon them at the end of our thesis.

pre-defined learning goals by AAU

Students who complete the module will gain knowledge, skills, and competencies as described next. They must have knowledge and understanding in one or more subject areas that are representative of the state of the art in the research community of Service Systems Design. They must be able to evaluate and select among scientific theories, methods, tools and general skills and, on a scientific basis, advance new analyzes and solutions in service systems design. They must demonstrate that they can synthesize research-based knowledge and discuss professional and scientific problems with both peers and non-specialists. They must be able to synthesize work and development situations that are complex, unpredictable and require new solutions. They must apply acquired knowledge to independently initiate and implement discipline-specific and interdisciplinary cooperation and assume professional responsibility. Finally, they must demonstrate that they can independently synthesize and take responsibility for own professional development and specialization.

julie



image 05: julie

learning goals

- I would like to learn how to interact with multiple (external) partners on a professional level.
- I would like to have in-depth knowledge about system innovation and how to go about it.
- I would like to experiment how to keep a project with this level of complexity fun and playful

ambitions

- I would like to leave RFI with a tool they can keep on using in the future.

lucy



image 06: lucy

learning goals

- I would like to go back and forth between abstract material and concrete material.
- I would like to obtain knowledge how to approach system innovation
- I would like to co-create with kids
- I would like to continuously get external input instead of building upon empathising activities at the beginning of the project.

ambitions

- My hope is to work closely to colleagues at RFI as such our thesis suits the overall project

READING GUIDE

01

making the case for system innovation

This thesis is about system innovation, so the first chapter will introduce what a system is, what system innovation is, and why there is a need for system innovation in Denmark. We introduce this as a first thing because we would like the reader to read the remainder of the thesis with a system innovation lens. We will introduce the Danish welfare state as a system, after which we will outline Rockwool Foundation Intervention's approach to system innovation. Finally, we will introduce the systemic challenge that led to the design brief.

02

literature review

In chapter two, we present the theoretical foundation that leads to our design approach: co-design. The chapter starts by outlining the evolution of the design discipline, after which we illustrate the need for co-design in a system innovation process. Then, we will address the role of designers in a co-design process. This role will be followed by the specific value of service designers in a co-design process for system innovation. Finally, the chapter will introduce the tools available for designers and a need for more guidance on using them in co-creation sessions for system innovation.

03

method

Chapter three outlines the method deployed to answer the research question. The chapter clarifies what framework we have used to determine whom to co-create with. Moreover, the chapter represents the steps we took while selecting tools for co-creation sessions and how we evaluate their delivered value in a co-creative setting afterwards.

04

co-design process

The fourth chapter documents the co-design process and contains a detailed description of each co-creation session. The chapter consists of four co-creation sessions. We used the following tools: actor network map, personas, future scenarios in an online setting, and future scenarios in an offline setting. Each co-creation session has a subchapter where we discuss our motivation for using a specific tool, after which we explain what the tool is. Then, we present our expectations of using this tool, after which we share how we prepared the co-creation session. Next, we discuss the results and how they aligned with our expectations. We finally argue what the benefits are of using this tool in a co-creative setting and present our key insights. We do so for each co-creation session, and we explain how one co-creation led to another in between chapters.

05

synthesis

Chapter five pinpoints what we identified as opportunities for better circumstances of the well-being of young people. These opportunities will consist of specific design challenges of which the 'how' can be explored further through co-creation with specific actors. After the opportunities, we will reflect upon our approach to finding the opportunities: relatively short (up to two hours) co-creation sessions with multiple actors using service design tools. The reflection on the values of the approach is based on an internal workshop we did with the designers at RFI.

06

reflection and conclusion

Chapter six will reflect upon our work at the foundation and the challenges we faced by taking a co-design approach within the foundation. The reflection will revolve around the company culture and the fit for designers to take a quick-and-dirty co-design approach in the early stages of a project. Then, we will provide a conclusion where we sum up the values of using tools in a co-creative setting to explore opportunities for system innovation.

07

and finally

Chapter seven consists of references and appendices. The appendices will be partly digital and attached to this thesis. However, one can find an overview of what the appendix consists of in chapter seven.

The image features a dark blue background with two prominent orange shapes. The top shape is a rounded, horizontal bar containing the white text '01'. The bottom shape is a long, curved, horizontal bar that tapers at both ends. Both shapes have a soft, organic feel.

01

**MAKING
THE CASE
FOR
SYSTEM
INNO-
VATION**

THE WELFARE STATE

A system can be many things; therefore we will clarify what system we are addressing before going into how to innovate it. The Danish welfare state as a system will be the focus of our thesis. In this chapter, one can find an explanation of the welfare state, its critique, and a vision for a new system. Throughout the thesis, the welfare state will be considered 'the system', which consists of many subsystems (e.g., public transport, health care, tax system, unemployment system).

the welfare state

In 1942, William Beveridge published a report that would provide the blueprint for social policy in post-war Britain and was adopted as the idea of welfare across the globe later on (Beveridge, 1942). In the report, the welfare state is introduced, which can be defined as:

"A welfare state is a state that is committed to providing basic economic security for its citizens by protecting them from market risks associated with old age, unemployment, accidents, and sickness." - Weir, 2001

The welfare state term is used to describe social welfare systems that have developed after World War II (Weir, 2001). In most welfare states, citizens and companies pay tax to the state, and the state makes sure social systems such as health care and education are provided for all. This model has provided Denmark (among other countries) with good education, decent homes, support when out of work, better health care, etcetera. In short, it enabled us to live longer (Cottam, 2021).

critique on the welfare state

Today, society faces a plurality of challenges that seem not to be solved by the welfare state as a social system (Cottam, 2018). Cottam proposes that the welfare state was designed in, but also for the industrial era. We face entirely different challenges now than we used to. If we take health care as an example, we can see that diseases have changed to become more chronic whereas they used to be cured (or you would pass away). The health care system is not designed to deal with chronic diseases that are not to be cured. The nature of chronic diseases is radically different from the nature of other diseases. Naturally, these diseases call for a different system. The welfare state is good at intensifying their current methods, e.g., diabetic patients can get medication on a continuous basis, but they lack methods and tools to re-think the issue (e.g., changing the lifestyle of diabetic patients). This is not only an issue with chronic diseases but also with ageing societies. We can simply no longer afford to keep intensifying the methods of the welfare state (Cottam, 2018). And again, this is just one example of a 21st-century challenge. There are many more: climate change, pandemics, ageing societies, escalating inequality, and so forth. The welfare system is in crisis: it cannot deal with these issues and is trying to empty an ocean with a thimble by, for example, tightening the rules to enter a care home because there are more and more elderly. The welfare state has provided us with longer lives, but not with better lives (ibid).

There is, of course, a certain wisdom in continuing to (try to) solve our challenges in the welfare state. We have accumulated many experiences and learnings through trial and error in the welfare state (Manzini, 2015 p.30). Notwithstanding, more and more initiatives on a micro-level demonstrate how we could potentially do things differently.



image 07: two books we have read at the start of our thesis: Radical Help and Design When Everybody Designs

a vision: relational welfare

Most of us will not have experienced a life without the welfare state, so it can be difficult to imagine an alternative society. Nonetheless, there are proposals for alternatives, such as the partner state (Bauwens & Lievens, 2013). The partner state suggests moving away from a hierarchical model of policymaking to a model where social systems transform themselves in distributed networks (Tassinari et al., 2013). Cottam advocates for a similar system, which she calls relational welfare (Cottam, 2021). Over the last ten years, she has been working on a set of experiments together with her team that follow a different logic than the welfare state does:

“[We should] foster a core set of capabilities so that each and every one of us can thrive. Ensure, where necessary, that we are supported in the face of adversity. Include as many people as possible. Measure change and the quality of our lives: our sense of freedom, purpose, of having something to give and our connections to one another” - (Cottam, 2018 p. 197).

The relational state has six core principles that are entirely different from the welfare state (fig 1). Moreover, the relational state, or the partner state, consists of people-powered public services, in which the citizens, and not only policymakers, are involved in the decision-making (Tassinari et al., 2013). In the relational state, challenges are not only to be tackled by the public authorities but also by design schools, service/ social design companies, or NGOs (ibid.). At Participle (the organisation with whom Cottam has conducted experiments revolving around the relational state), each of the experiments was not only a success for the quality of life of its participants. In fact, each experiment has proven to be remarkably cheaper than the methods the welfare state currently has in place to solve the given issue.

As previously mentioned, many small initiatives today point towards this paradigm shift from a welfare state to a relational state. However, one does not achieve system innovation through solely small initiatives. To move from a welfare state to a relational state, we need system innovation. In the following chapter, we will discuss what system innovation is, how it is initiated and how system innovation happens. We will do so by explaining The Rockwool Foundation's approach to system innovation.

PRINCIPLES OF WELFARE

20TH CENTURY WELFARE



fix the problem



manage need



transactional culture



audit money



contain risk



closed / targeted

21ST RADICAL HELP



grow the good life



develop capability



above all relationships



connect multiple forms of resource



create possibility



open: take care of everyone

figure 1: the six core principles of the relational state (which Hillary Cottam considers radical help) compared to the 20th century welfare state's principles (Cottam, 2018 p. 196)

SYSTEM INNOVATION

The Rockwool Foundation consists of two units: a research unit and an intervention unit. The research unit generates new knowledge about the Danish welfare society by carrying out impartial and scientific research. The intervention unit focuses on developing new solutions addressing the critical challenges in the welfare state. In the Rockwool Foundation Interventions (RFI), there is a shift from developing solutions for the current welfare system to developing solutions to change the system. Recently, the foundation published a framework on how to go about system innovation, which they work with now (The Rockwool Foundation Interventions, 2020). The paper addresses how system innovation is initiated, how it happens on three levels in the system, and the keys to unlock existing systems. We will summarize the framework in this chapter because we will adopt the approach in our thesis.

initiators for system innovation

After World War II, there was a need for system innovation, which allowed the welfare state to emerge. Perhaps we can consider a world war a clear initiator for new systems, but how do we know when we need system innovation when we have (fortunately) not just been through a war? The green paper mentions two conditions that could initiate a need for system innovation:

- Society has to face a **systemic challenge** in need of a systemic response, which pushes for innovation.
- When society has a **systemic opportunity** to create a new kind of system, which would pull for innovation.

The conditions can start system change separately or together. Not all challenges are systemic, neither are all opportunities. The characteristics of system challenges and systemic opportunities can be found in tables 1 and 2.

systemic challenges

characteristic	description
deep-rooted	the problem produced by the challenge keeps coming back despite attempts to fix it from within the system
persistent	the challenge produces a persistent pattern of failure when it is tried to be fixed
connected	a systemic challenge does not affect a single component nor a single sub-system. The response requires coordination across many government departments.
structural	a systemic challenge reveals structural issues about the purpose of institutions and how it is organised to meet the needs of society.

table 1: characteristics of systemic challenges (The Rockwool Foundation Interventions, 2020)

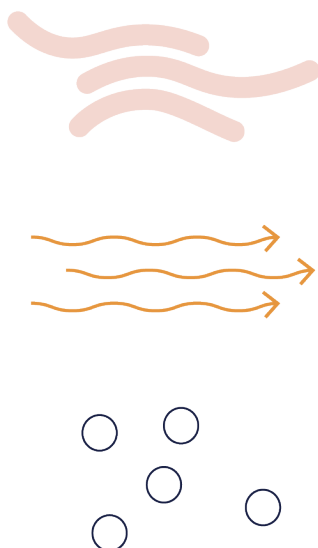
systemic opportunities

characteristic	description
fundamental	based on a completely different operating model to achieve a different goal
takes time to unfold	creates a mass of new value, economically and socially which takes time to be recognised and adopted
require collaborative innovation	a systemic opportunity requires new connections to be made.

table 2: the characteristics of systemic opportunities (The Rockwool Foundation Interventions, 2020)

system innovation on three levels

When there is a systemic challenge, a systemic opportunity, or both, system innovation can happen. Geels has divided systems into three levels, and he suggests we should engage on all three levels to perform system innovation (Geels, 2002). The three levels are the macro, meso, and micro and are defined in figure 2. On the following page, we will illustrate what happens on each level in a system innovation process.



macro

the 'landscape': values, ideologies, demographics and economic context

meso

the 'regime': frameworks, rules and norms embedded in infrastructure, institutions and markets

micro

'niche' innovations: new practises, technologies and lifestyles

figure 2: the three levels in a system, visually re-designed (Geels, 2002)

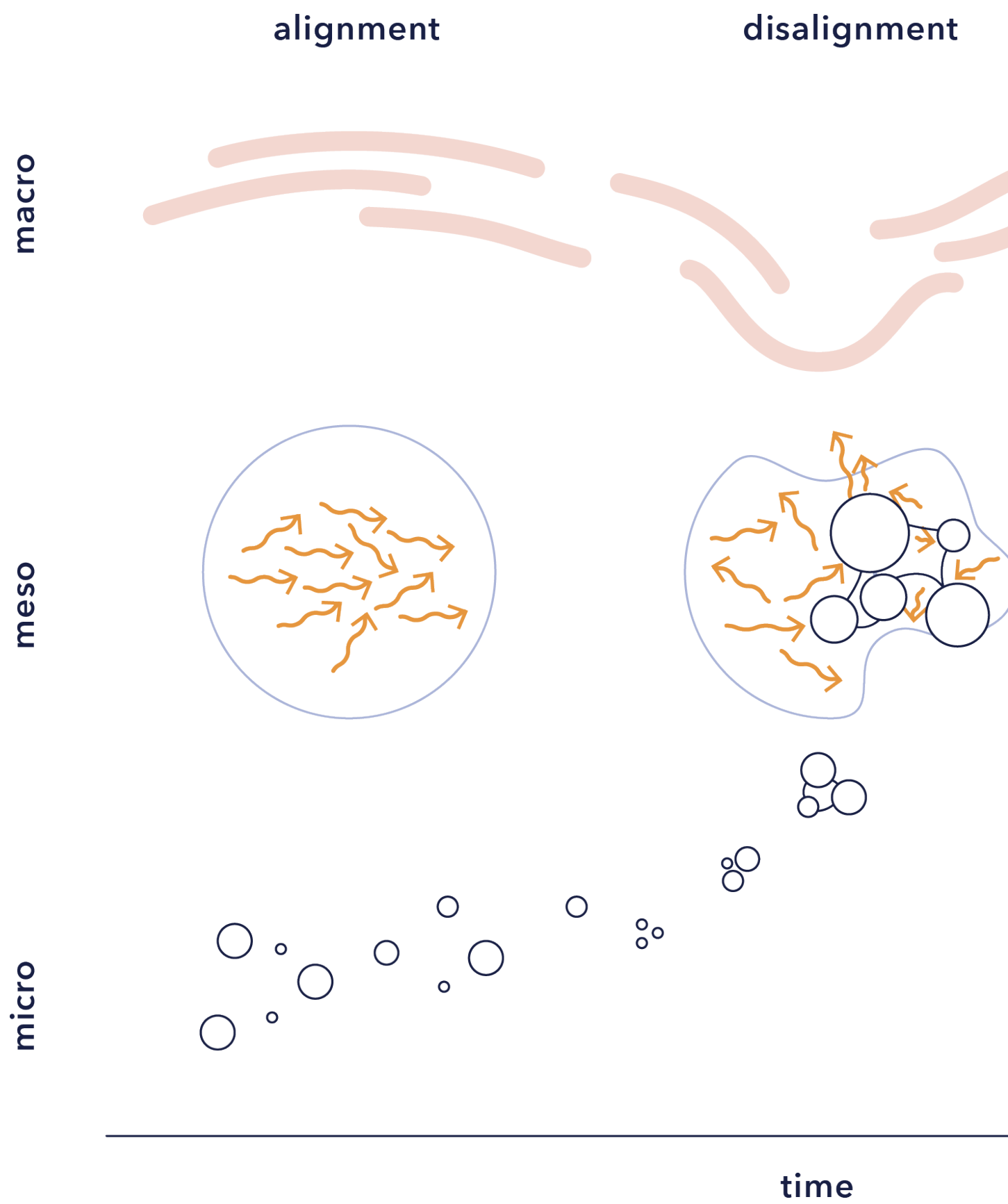
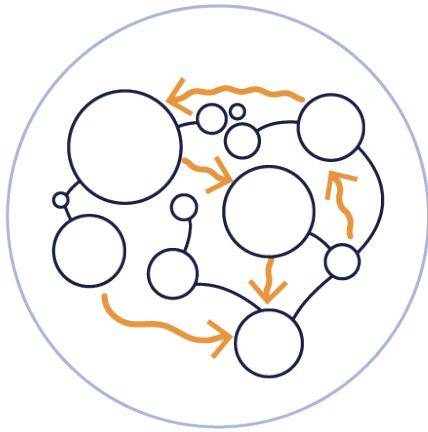


figure 3: how system innovation happens on three levels, visually re-designed (Geels, 2002)

realignment



Systemic change happens in each of the levels. At the micro level, entrepreneurs and creatives develop radical new solutions, habits, and ways of life. These changes are not necessarily focused on the entire system but rather on a local need. On the macro level, or the landscape, change happens in societal values and political ideologies, demographic trends, and economic patterns. Altogether, these shape the context in which a system operates. New developments, both on the micro and macro levels, create contexts where change becomes possible at the meso level. The meso level represents 'the regime': the combination of institutions, technologies, markets, and organisations that give a system its structure. In figure 3, one can see how these three levels behave in three phases of system innovation: alignment, disalignment, and realignment. Small, radically different initiatives emerge on the micro level in the alignment phase, whereas the meso and macro levels are aligned. The initiatives slowly move up to the meso level, where the system becomes misaligned. A new balance must be found where the regime and landscape change to fit with the micro level. Once a balance is found, we have a phase of realignment where the system operates differently on all levels (Geels, 2002)(The Rockwool Foundation Interventions, 2020).

the keys to unlock systems

Where do we start with system innovations? Systems innovation is a process of resistance and momentum. The green paper proposes to approach system innovation by thinking about four keys to unlock systems: power, resource flows, relationships, and purpose (The Rockwool Foundation, 2020). These keys will be lenses we look through throughout our thesis. Therefore, we will explain them below.



purpose

One key to unlocking a system is changing its purpose. In other words, to change the point around which people, activities, and resources are organised. Changing the purpose does not mean we need a different goal to reach but rather an alternative philosophy to be enacted.



power

Unlocking systems also includes a shift in who has the power, how resources flow, what takes priority, who matters, and what counts as a priority. Power can be embedded in culture or be observed in explicit instructions.



resource flows

Systemic change happens when resources suddenly become constrained or when resources of a new kind suddenly become cheap and widely available. These resources could be money, time, knowledge, reputation, technologies, etcetera.



relationships

Systems change when new patterns in relationships emerge. In other words, actors are reconfigured, and thereby new values are created.

reflection box one

The Rockwool Foundation's approach to system innovation will guide us throughout our journey to change the Danish welfare state to a relational state. We are aware that system innovation does not happen overnight and can be challenging. Hillary Cottam has spent ten years experimenting with subsystems of the British welfare system (e.g., the unemployment system). The results of her experiments were tremendous, yet they have not gotten the British to a relational state. Nonetheless, we will start the journey of system innovation for our subsystem in this thesis: the Danish school system. In the next chapter, we will introduce the systemic challenge we will use as a case to start our system innovation journey.

CASE: MENTAL HEALTH IN DENMARK

what the regime looks like

In Denmark, mental health problems are on the rise among young people. The number of young people diagnosed with either anxiousness, depression, stress, ADHD, or autism has increased within the last 20-30 years. Especially kids and young people in lower socio-economic groups are at risk (vidensraad.dk, n.d.).

potential causes

Many parties are looking for the causes and side effects of mental health issues. For example, the Danish Health Authority points to an obvious link between the well-being of young people and various factors such as relationship to parents, socio-economic status, and relationship to peers. Moreover, the Danish Health Authority emphasizes that satisfaction in early school life, in particular, is connected to fewer dropouts when students reach further education. Besides that, support from peers and teachers has proven to affect the well-being of adolescents (sst.dk, n.d.). Søren Christian Krogh (Ph.D. in sociology) is researching this field as well. In his research, Krogh focuses on how the three factors, social media, performance culture, and gender, play a crucial role in the well-being of young people. Krogh emphasizes that we as human beings have become freer during the last decade, and for that reason, the process of individualization has become much more difficult. Krogh states perfection as the new normal and that individuals today have to perform in many different areas such as school, socially, bodily, and on social media. Last but not least, Krogh also mentions that the course of bad mental health usually is not connected to the individual itself but more to social settings around them (innovationsfonden.dk, n.d.). One could think we should source the causes of mental health in these factors, but there does not seem to be a consensus about the causes. Just to mention one example, Amy Orben has dedicated her research to find out the precise effects of social media on well-being and found it is not in itself a strong predictor of life satisfaction across the adolescent population (Orben, Dienlin, & Przybylski, 2019). This is just a glimpse of all research conducted, and although there is no consensus about the exact causes of mental health issues, we seem to agree it is a challenge the Danish society faces.

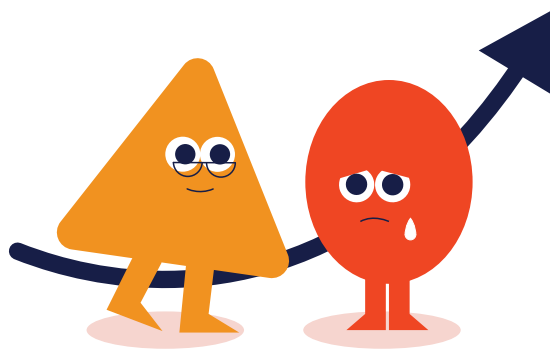


figure 4: the mental health issue is a rising problem in Denmark

reflection box two

At the beginning of the project, we were lucky to set up an online call with Søren Christian Krogh to go more in-depth with his knowledge. Krogh elaborated on the three bullet points about SoMe, gender, and performance culture during the meeting. Besides, he also gave us his first initial thoughts about what interventions society needs here and now. He listed factors such as better sexual education and more room for teachers to be teachers. All the insights we got from our meeting became a great starting point for us, as we could investigate how this research aligned with our findings. However, we also decided to let our process guide us, as we could foresee many perceptions of the actual causes of mental health issues.

2. Your knowledge

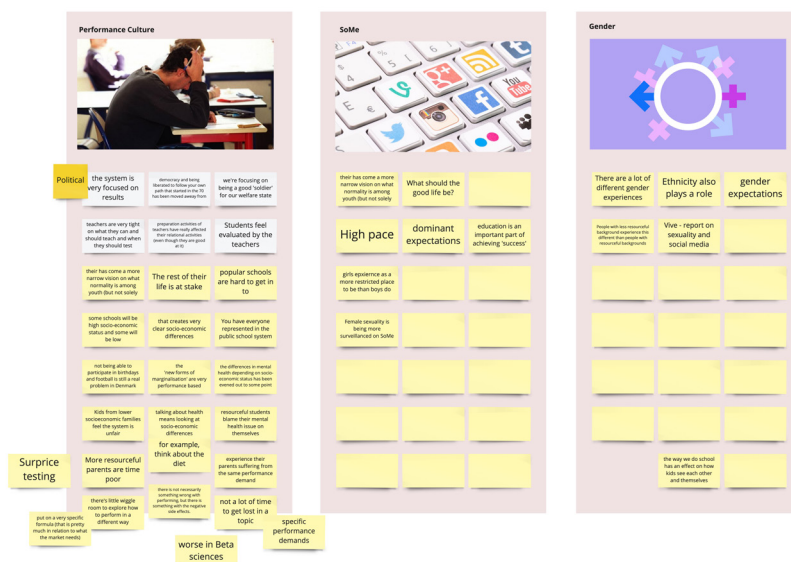


figure 5: Miro board with notes from our session with Søren Christian Krogh

systemic challenge

All these findings point to the fact that something in our society is not functioning as it should, and that we should explore new alternatives. This statement strikes back at Hilary Cottam's thoughts about the outdated design of our welfare state and how the design does not suit the challenges of 2021. We can see the number of young people being diagnosed increases yearly. Therefore, it is time to react.

The Rockwool Foundation also believes in the relational approach to society. From their perspective, the welfare state has a strong focus on tracing individuals who do not thrive and place them in an isolated setting to get the proper treatment from the

Danish healthcare system. In their opinion, there are many good things about those treatments, but in the long run, they agree with Cottam that the solution is neither socially nor economically sustainable. For this reason, The Rockwool Foundation came up with the Mental Health (MH) initiative, where the organization aims to do both research and system innovation within this field. The goal is to combine the social innovation approach with research and practice to produce new cost-effective initiatives that can be scaled in our society in the long term (rockwoolfonden.dk). The researchers in The Rockwool Foundation are looking into the data concerning the mental health of the young Danish citizens, which they continuously share with the social innovators at RFI. Throughout this project, we will take on the role of social innovators and explore alternatives. The project's scope is divided into three different tracks covering three different areas in the Mental Health team. In the light of the well-being issue, the Foundation is particularly interested in exploring schools (10-15 years), further education, and the early labour market.

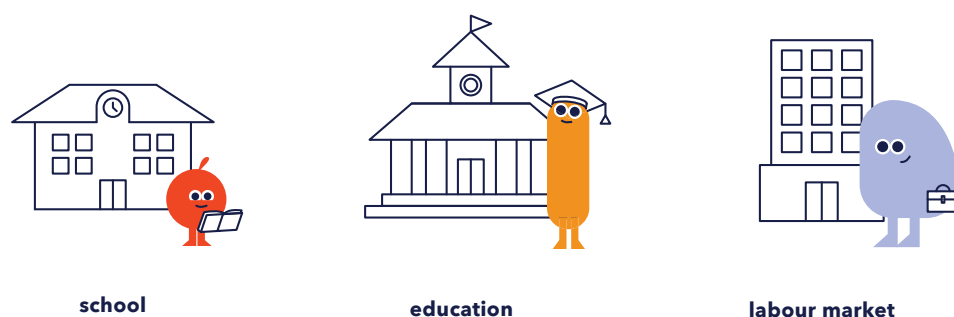


figure 6: the three tracks to be explored

For our thesis project, RFI made us responsible for the school track and all design-related activities performed in that field: our job was to explore the area and find opportunities for interventions. Besides our school track, other social innovators from the Mental Health initiative were doing similar activities in the further education track and the early labour market. Alongside economists conducting further quantitative research about the status of mental health in Denmark, all three tracks were explored in parallel. At the end of 2021, we were curious to discover whether findings from the school track could be connected to findings from the other tracks as public educational services could be considered one long service journey in life. At the same time, The Rockwool Foundation was interested to see how our holistic skills we learned during our education could be beneficial for the project in the long run.

reflection box three

At a later stage in the process, we were introduced to the discourse analysis one of our colleagues has conducted at RFI. A discourse analysis aims to reveal the ontological, epistemological premises embedded in language and allow a statement to be understood as rational or interpreted as meaningful (Pederson, 2009). Without going in depth with her discourse analysis results, which would be a thesis in itself, we would like to introduce some of the questions the analysis pointed to:

- As a society, we do not agree whether we need a new solution for mental health issues or if we need more of the same solution (more psychiatric interventions, for example). RFI has taken the standpoint we need a new solution, but we consider it highly important to stress that this is not a societal consensus.
- Is the number of people with mental health issues increasing, or does it just appear to be because we have a stronger focus on it in society? Our colleagues conducting quantitative research are trying to find an answer to this question.
- Is the mental health issue an issue of society or a societal group (= the young people)?
- Should we consider the mental health issue an institutional, cultural, relational, or individual problem? RFI believes we should consider the MH issue relational.

The discourse analysis was ready at the beginning of May. For that reason, we were unable to anticipate these questions throughout our thesis. Nonetheless, we felt the need to add it to the introduction of the systemic challenge. We realise we took a certain standpoint in this project that other members of society might disagree with.

focus of our thesis

In RFI, all initiatives are developed over four phases: exploration, design & prototype, pilot & prototype, and upscaling. When we entered the MH project, the initiative was still in a very early phase. This meant that we would only navigate within the first exploratory phase (rockwoolfonden.dk, n.d.). In this phase, the whole team aimed to seek areas in the current system, where there was room for improvement, and new opportunities could appear. For us, it involved investigating the current system and its actors to understand their world, challenges, and visions for the future. By doing so, we hoped to get an in-depth understanding of the school system and, more importantly, opportunities to possibly unlock the system for interventions.

Given this background, the problem statement of this thesis will be as followed:

“What are the opportunities in the current system to create better circumstances for the well-being of young people?”

We believe that we, as service designers, hold various skills to identify new opportunities for system innovation. The following chapters will elaborate on what design approach we believe will generate the right answers to our problem statement and reveal our research question.

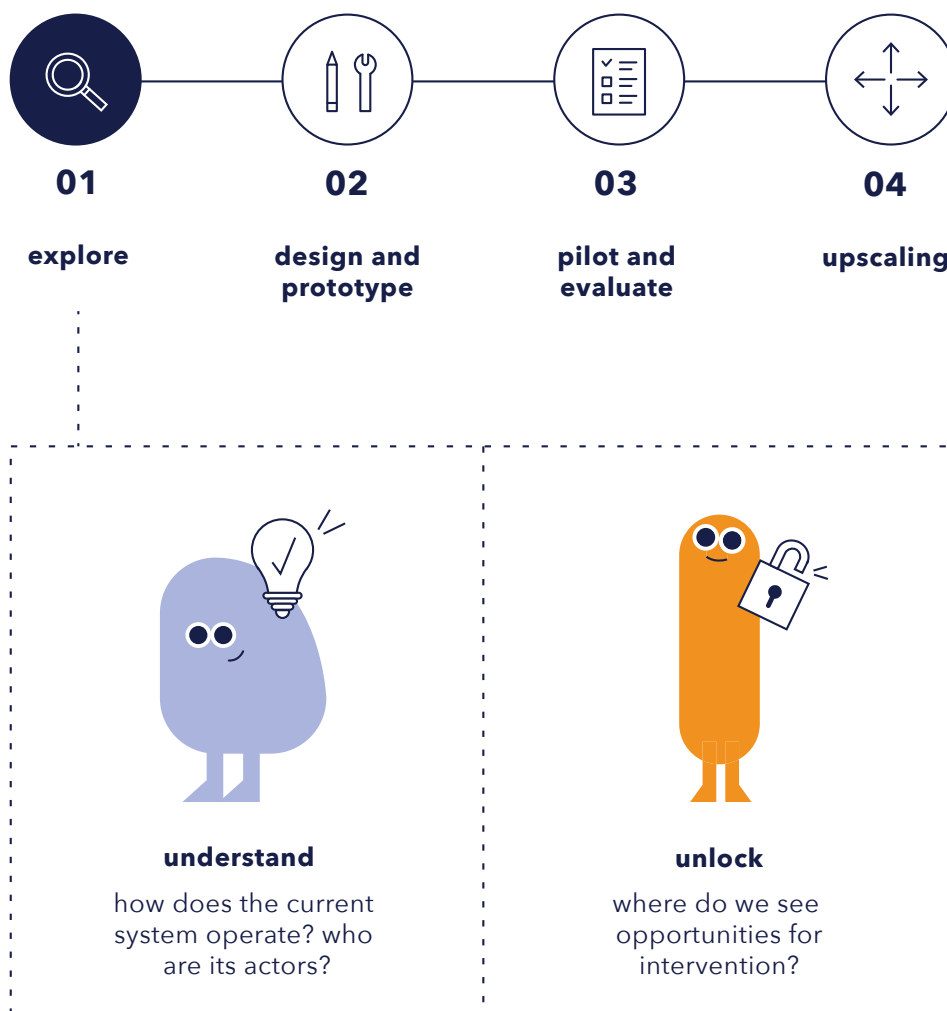


figure 7: the focus of our thesis



02

LITERA- TURE REVIEW



LITERATURE REVIEW

So far, we have presented a vision for a new social system, the framework for system innovation, and a systemic challenge. We will explore how we can unlock the system to make room for system innovation by exploring the purpose, power structures, resource flows, and relations within the Danish school as a subsystem. We will approach the exploration journey with design. Therefore, we have searched the literature on how we can use design for system innovation. The first part of the literature will outline how the design discipline has evolved over the past hundred years. Then, we will discuss why we need a co-design process for system innovation. Afterwards, we will specifically focus on what our role as service designers will be in co-design processes. Finally, we will look into the (service) design tools we can use for our co-creation sessions and showcase a gap in research we will (start to) close in our thesis. There are few guidelines on how design tools in co-creative settings work to find opportunities for system innovation. Therefore, we will focus on extending those guidelines in our thesis.

literature review strategy

The vision for a relational state is strongly related to social innovation because this approach advocates for collaboration on all levels for innovation. For this reason, we started by reading Manzini's work on social innovation to get an idea of how he envisions the design discipline to behave (Manzini, 2015 & Manzini & Staszowski, 2013). The reason to take Manzini as a starting point for our project is that we believe he is a key figure in social innovation, and this approach aligns well with the vision for a relational state where we have people-powered services. Aside from Manzini's work, we have looked into two journals to search for relevant guidelines on how to use design in our project: co-design and public management review. The titles in the journals were explored, where we judged relevancy for our thesis on title and abstract. Later on, we have explored cross-references of papers we found interesting to see what followed from them. The journals were accessed through Taylor & Francis Online. Finally, we have used the ServDes conference archive to find articles related to co-design and public innovation.

evolution of design

Taking a glance at the design evolution during the past hundred years, it is explicit that the role of designers has developed from being the experts to the facilitators of other people's expertise and knowledge (Sanders & Stappers, 2008). Users have been involved in the design process for many years, while interaction with the user has increased slowly. To understand this progress, four approaches to the design process are worth mentioning; **manufactura centered design**, **user-centered design**, **participatory design**, and **co-design**. All four approaches will be discussed in the following paragraphs.

manufactura centred - / expert design

The traditional manufactura centered design approach represents a closed process where the design of products and services is being developed without any involvement of end-users. This was how design evolved before the 1950s. In this case, the user's role is only to have needs to be fulfilled by the product or service designed by the manufactura (Von Hippel, 2005).

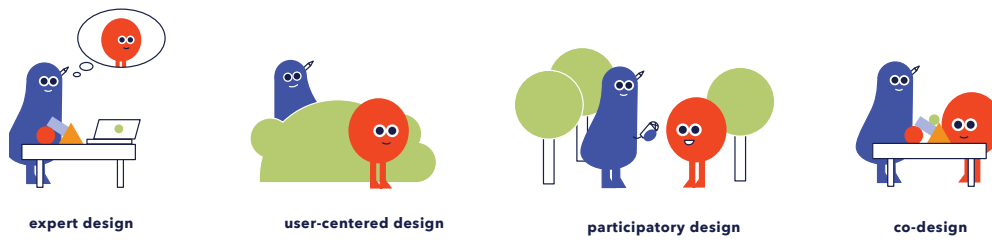


figure 8: the four types of design processes

user-centered design

The user-centered design approach treats the user as an object to be studied from a distance. In the paper *Co-creation and the new landscapes of design*, by Sanders and Stappers (2008), they describe the user-centered design process as a research process where the designer gets knowledge about the users in the form of reports while developing new ideas and concepts. In this case, there is no human interaction with users.

participatory design

Participatory design is the early stage of the co-design process and has currently existed for over 50 years. It is based on the principle that those affected by design should have a say in the design process (Ehn, 2008)(Holmlid, 2009). With this approach, the designers and engineers decided to move closer to the user and give them a voice in the design process by engaging them through interviews and the testing of final prototypes (Jørgensen, Lindegaard, and Rosenqvist, 2011). The role of the user in this process is only to share relevant knowledge with the designer, who is still the only creator of the final design. This approach would later develop to become co-design.

co-design and co-creation

The 'co' in co-design stands for collaborative and the term co-design is used to characterize a process where both designers and people, who are not educated in the field of design, act as equal partners in the process of developing new solutions (Jørgensen, Lindegaard and Rosenqvist, 2011). Co-design arises from the belief that everybody can adapt to a creative mindset and provide relevant knowledge to the origin of new ideas and concepts if the right surroundings and proper tools are being facilitated. It has been stated that outcomes of co-design interventions are rarely final designs but rather constructions of the knowledge from the participants. This knowledge can be a co-constructed understanding of a context, experiences, or potential futures (Vaajakallio & Mattelmaki, 2014).

When referring to co-design, it is unavoidable not to mention co-creation. The two terms, co-design and co-creation, are repeatedly being perceived as similar by many, while others distinguish them from another (Sanders & Stappers, 2008). According to associate professor at ITU Copenhagen - Lene Nielsen, co-creation represents the happening of a group of people who jointly apply their professional knowledge and creativity to produce new insights, ideas, and concepts. In the opinion of Nielsen, the term co-design rather indicates a collective and repeatedly creative approach throughout the whole design process (Nielsen, 2011). This means that co-creation can be applied as a one-time event or as frequent events in the co-design process.

why do we need co-design for system innovation?

Chapter x addressed the challenges of the 21st century and their need for an alternative system than the welfare state. It was suggested that we need a state where everybody is an active shaper of society instead of the welfare state where policymakers shape society. Following this logic, we need to approach design differently than we used to and ask everybody to be an active decision-maker in the design process: co-design. To strengthen the argument for a co-design process, we will illustrate three critical characteristics of our current society and their need for a co-design process (Manzini, 2015).

connectivity

We live in a world where we constantly interact with everybody, regardless of time and location. The diffusion of the internet is an essential factor for providing people the possibility to interact with each other and coordinate and combine new findings and ideas (Von Hippel, 2005; Manzini, 2015). This connectivity forces designers to change their process. Before, design experts were somewhat isolated from their context. The design process could be initiated by exploring the context to gather all information needed, but the designing itself would happen in the designer's space (e.g., an office) (Manzini, 2015). That approach does not seem so fruitful today because our world is more connected with constant interactions among people. Designers need to collaborate with others continuously because this aligns with our connected world (Manzini, 2015).

risk society

Then, it is worth it to look at what we need as a society. We can only speculate about our future, but it seems we agree on the prospect that we will have a future with risks (e.g., natural disasters). We need to be responsive, and so do our systems. If we design our systems as distributed systems (sociotechnical systems that are scattered in many but connected, relatively autonomous parts, which are mutually linked within wider networks), they automatically become more resilient. Let us explain this in further detail. Distributed systems can create sociotechnical systems that can deal with the risks, recover from them and even learn from them (Manzini, 2015). Resilience means diversity, redundancy, and continuous experimentation. If we agree to that, it also means our systems need to be more diversified and creative. Hence, we need to create them with a diverse group of people through co-creation.

intractable social problems

Public discussions and political agendas have shifted their focus to social innovations (Manzini, 2015). Pressing issues such as aging societies cannot be solved with existing structures, also known as intractable social problems (ibid.). With such problems, co-design seems vital because it blurs polarisations, such as private versus public, by proposing new models. Society faces a multiplicity of intractable social problems, calling for more collaboration in design processes.

The characteristics above illustrate a clear need for the “alternative approach”: some know it as social innovation, which focuses on creating new ideas through collaboration that meet societal needs and/or create new social relationships (Manzini,

2015). Social innovation is an approach that usually adopts co-design as a process to address societal issues (Schilling, 2008). We will continue to use the term co-design in our thesis, but we would like to point out that the two are strongly related, primarily when co-design processes are aimed to solve societal issues like in our case. In any case, now that we have illustrated why we need to adopt a co-design process for the systemic challenge we are facing, we will discuss our role as (service) designers.

the role of the designer in co-design processes

What role does the designer hold in co-design? First of all, it is worth mentioning that the co-design process is facilitated by a researcher who, in many cases, is a designer. The facilitator is responsible for encouraging all participants in the co-design process to turn on a creative mindset. However, the facilitator also needs to consider how much the participants are pushed out of their creative comfort zone and level of interest (Sanders & Stappers, 2008).

We might ask ourselves why there is a need for designers when we sense a future where users co-design equally with professionals, and non-designers could take the role of the facilitator. The future perspective of the designer is debated in literature too. As stated by Sanders and Stappers, the designer holds various competencies to solve complex challenges in our society:

“By selection and training, most designers are good at visual thinking, conducting creative processes, finding missing information, and being able to make necessary decisions in the absence of complete information. “ - Sanders & Stappers, 2008

Considering the designer as a part of the co-design team, the designer can provide knowledge about stakeholders that other co-producers do not have and an overview of production processes of existing service systems. Besides that, the designer holds a vast toolkit of methods that can be applied to co-produce insights and ideas in the team (ibid.).

big-ego design versus post-it design

In co-design processes, designers have a new role that comes with new challenges. Manzini articulates how the role of the expert designer often is down-priced to an administrative person, who tends to forget about its creativity and instead takes the role as a process facilitator writing on post-its (Manzini, 2015). Manzini claims the role of the designer is much more than this. Designers also hold the responsibility of applying their creativity to bring new visions and proposals to the table. However, the designer needs to be careful not to fall into the trap of being a big-ego who is not willing to recognize other perspectives than his own. Manzini states that co-design is a process that allows all participants to generate ideas and speak their opinions. Thus, designers need to be critical and creative, but also dialogical and open-minded to others throughout the process (Manzini, 2015).

the added value of a service designer

Now that we have illustrated the new role of the designer, we would like to outline the importance of service designers specifically in co-design processes for system innovation. There are many definitions of service design (Stickdorn & Schneider, 2018), but in this thesis, we will use the one including the term systems:

“Service design choreographs processes, technologies and interactions within complex systems in order to co-create value for relevant stakeholders” - Birgit Mager in This is Service Design Doing, 2018 (p.19).

While choreographic processes in systems and services, service designers are specifically good at considering all people affected in systems; collaborating with various stakeholders; being iterative in the design process; being realistic in the needs of society, and sustainably addressing the needs of all stakeholders involved (Stickdorn & Schneider, 2018). With complex systems such as the welfare state, it is important to have service designers because of their holistic and collaborative skills. Moreover, service designers have showcased to play a vital role in reshaping mental models (people’s thought processes), which is essential for system innovation (Vink et al., 2018). Namely, if one only focuses on tearing down current system structures and building new ones, but the mental models remain the same, actors will just enact the same mentality in newly built structures that are supposed to foster system innovation (ibid.). Thus, it is rather important to consider the mental models while targeting system innovation, and service designers have showcased to be skilled at reshaping these mental models in practice (ibid.). Service designers have a wide set of tools they can use with a holistic, collaborative, and iterative mindset. We will dive deeper into the toolkit of (service) designers in the following paragraphs.

service design tools in co-design processes

In this project, we will adopt the new role of the designer discussed in the previous paragraphs. The (service) design community has developed many tools to enable co-creation with different actors. Moreover, many tools exist to allow non-design participants to think visually. Today, multiple toolkits are publicly available to be used in co-creative contexts (e.g., This is Service Design Doing (Stickdorn & Schneider, 2018), designkit.org (by IDEO), Hyper Island Toolbox, just to mention a few of them). Even though there is a rising interest in these tools by organizations, they are not a recipe to success: there are specific capabilities required to navigate these tools (de Götzen, Morelli, & Simeone, 2021). Service designers hold many of these capabilities, such as the holistic mindset mentioned previously.

It is crucial to have representation techniques in co-design processes where systems exist of products and services. It allows all actors to contribute despite the complex nature of product-service systems (Morelli & Tollestrup, 2007). Designers can use these techniques to manage communication and facilitate discussions. The tools can be digital and analogue, and studies have shown some of the analogue tools to offer very distinct benefits to collaboration (Peters et al., 2020). Moreover, a combination of face-to-face co-creations and digital co-creations can lead to extensive user input (Näkki, 2012). Finally, it is worth mentioning that many tools have been investigated, and their

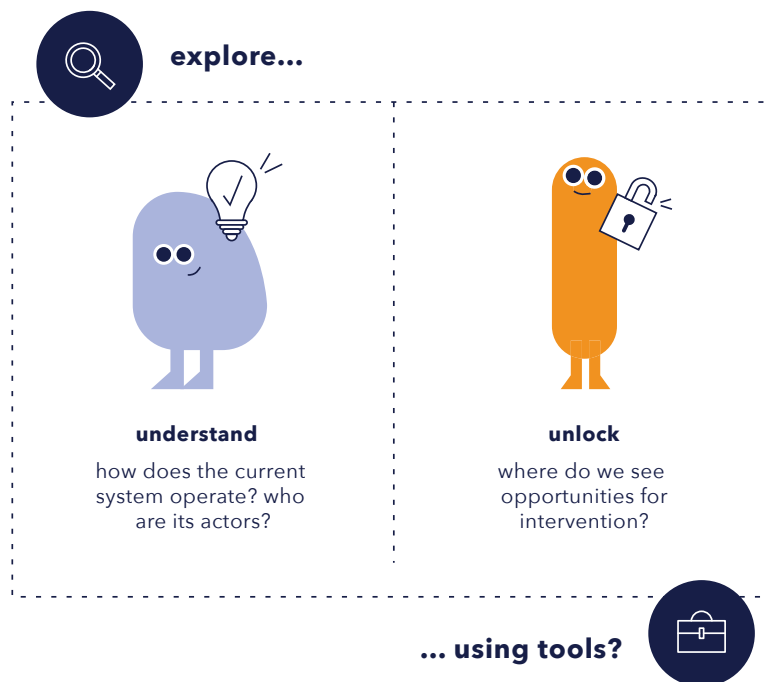


figure 9: the research question connected to the focus of our thesis

potential to co-design has been outlined (Sandberg, 2012; Rygh et al., 2014; Bourne & Walker, 2005; Hagen et al., 2012). However, there are few guidelines available about how to apply co-design in system innovation using these tools (Trischler et al., 2019). Literature suggests using a combination of tools to get an extensive understanding of experiences, e.g., personas, mapping service systems, and touchpoint analysis through observations (Trischler et al., 2019). At the end of their paper, Trischler et al. call for more examination of tools to involve users in service systems design and to test the applicability of such methods. They believe we will be able to meet the need of our people better by getting a deeper understanding of the tools available:

“...By so doing, service designers will be able to design public service systems that better support consumers to co-create their desired service experiences.” - Trischler et al., 2019

To this day, their quest for evaluating methods seems not to be answered. For that reason, we will focus our research on this topic. In our thesis, we will answer the following question:

“Can we apply service design tools in a co-design process to understand public service systems and its opportunities for interventions?”

Throughout the project, we will use multiple tools developed by (service) designers to evaluate how they can contribute to system innovation. More specifically, we will use the tools to find out how we can unlock the system using the four keys discussed in chapter x. By doing so, we hope to provide future (service) designers with guidelines on when to use what tool in system innovation.

03

The image features a solid orange background. In the upper left, there is a small, dark blue, organic-shaped blob. A large, dark blue, organic-shaped brushstroke-like element enters from the left side, extending horizontally across the middle of the frame. The word "METHOD" is written in a bold, white, sans-serif font, positioned in the upper right area of the image, partially overlapping the orange background and the blue brushstroke.

METHOD



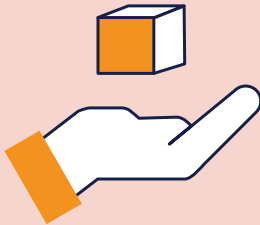
01 choose a tool
from toolkit



02 read about tool
in literature



03 list expected
outcomes



04 use tool for
co-creation



05 expectations
versus reality?



06 why use the tool
in co-creations?

figure 10: the method to evaluate tools in a co-creative setting

METHOD

We believe our process should remain open because system innovation is complex, and we would like to be guided by what we find along the way. Following this belief, we have not pre-defined the tools we will use and evaluate. We will source the tools from *This is Service Design Doing* (book), *Hyper Island Toolbox* (web-based), and *DesignKit* (web-based). We are aware there are many more toolkits out there, yet we believe these provide us with most of the tools available. If we find another tool on the way, we will explain how we found the tool and why we think it is relevant. Throughout our process, we will recruit various people involved in the school system to co-create with us. In the project context, we outlined there is no consensus about the causes of the problem and what the solution should be. For that reason, we believe we need more than one perspective in our journey to identify opportunities for system innovation. We will recruit people for co-creations along the way and motivate why we think they are relevant in the process at a given time. Once a session is planned, we will (1) choose a tool we consider to help us to answer our main question at that moment in the process. Then, we will (2) read about the tool in literature and re-design the tool as such it will fit our context. Before going into the co-creation session, we will (3) list down what we expect to get out of using this tool (in a co-creative setting) based on literature and personal expectations. Then, we will (4) have a co-creation session, after which we will (5) compare our expected outcomes with the reality, (6) motivate if co-creation was necessary for this tool, and share our key insights.

A session will qualify for co-creation when we have built knowledge with the participant or created new concepts. For example, an interview where we will ask questions and the participant answers will not qualify for a co-creation. On the other hand, if we build personas where we embed the participant's knowledge in a newly built format, it will qualify as co-creation. At the end of the project, we will synthesise all observations into implications for system innovation and using tools in co-design. By doing so, we hope to provide the (service) design community with some ideas when and how to choose specific tools to answer their needs in a particular project phase.

reflection box four

We could have recruited a group of actors to continuously co-create with, where we would have multiple perspectives represented at every session. We discussed that it would be a fruitful approach and it would be more holistic. However, we believe the world's circumstances do not allow people to engage with us so intensively. For that reason, we chose to invite people in for a singular co-creation session throughout this thesis.

PROCESS OVERVIEW

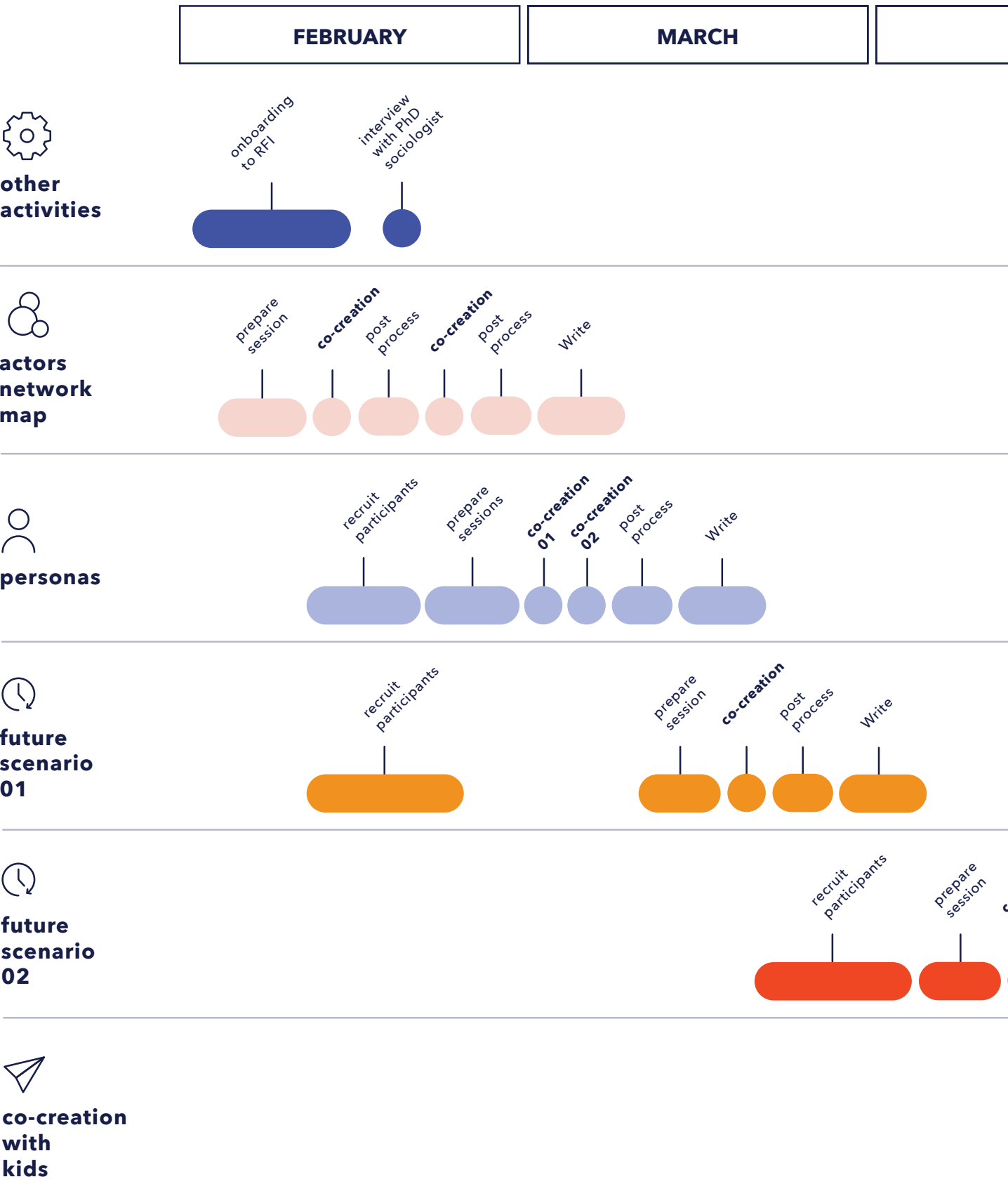
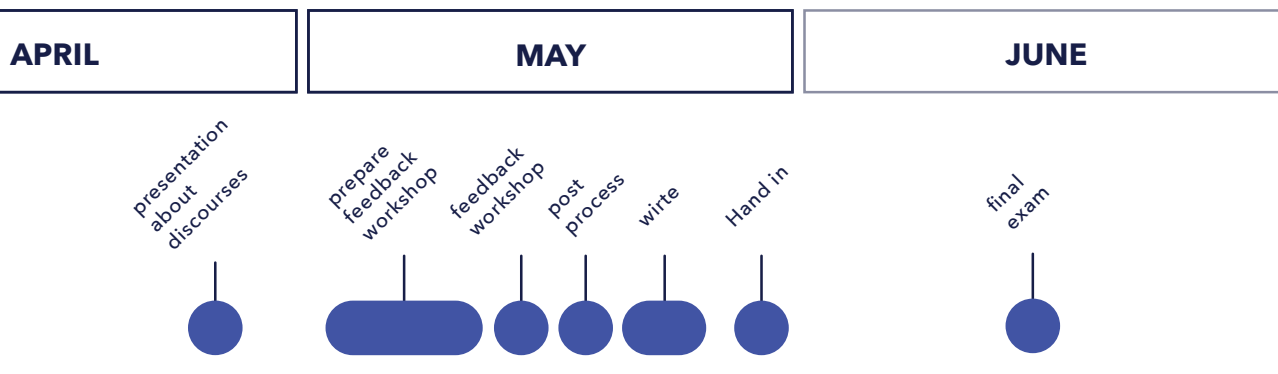



figure 11: an overview of the co-creation sessions and the process we went through to organise the sessions



04



CO- DESIGN PROCESS

session one

ACTOR NETWORK MAP



participants

- a former school leader



setting

- online



tools

- Miro
- Microsoft Teams



duration

- 2 x 90 minutes
- 15th + 19th of February 2021

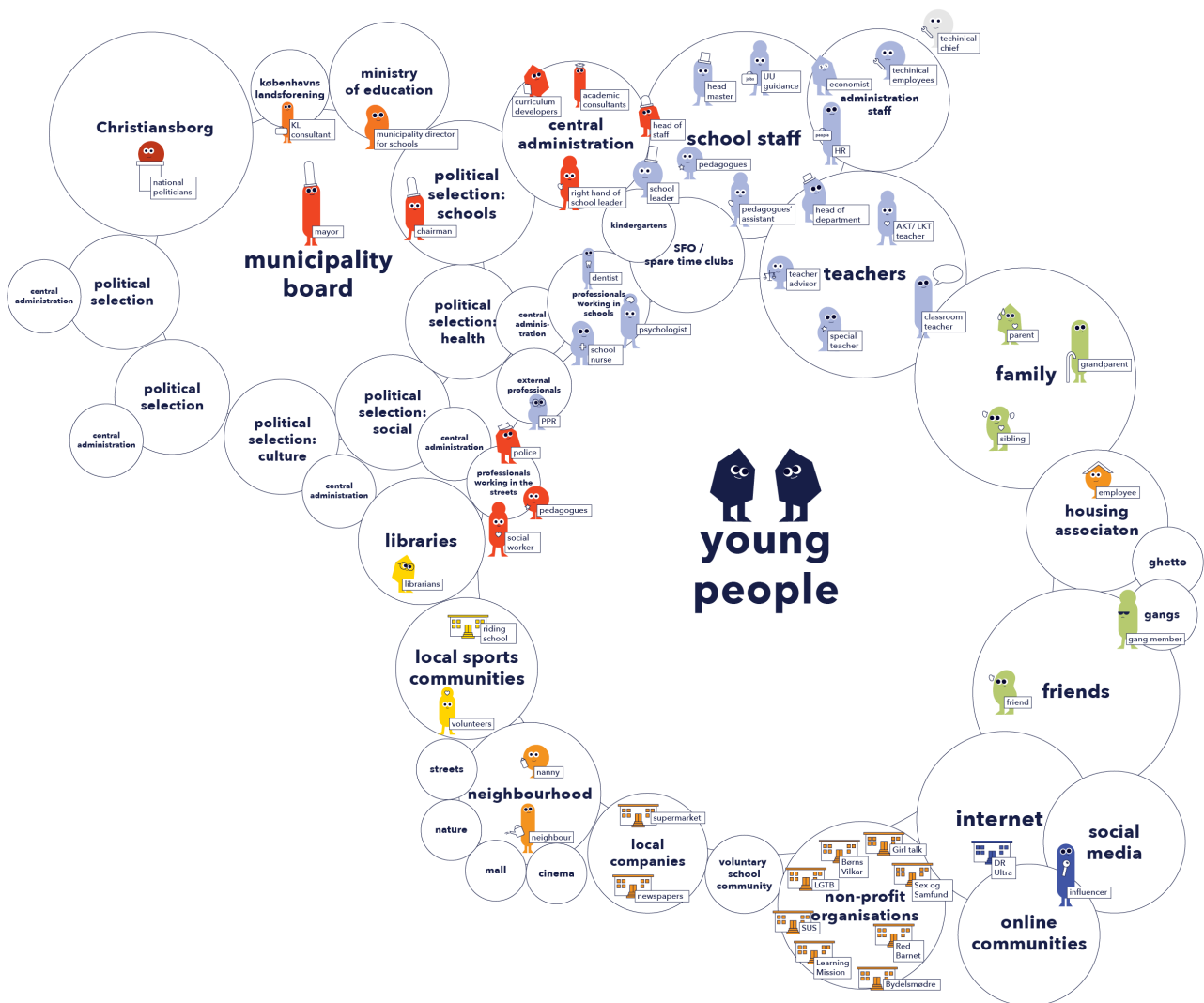


figure 12: the final actor network map as an outcome of the co-creation

PREPARATION

introduction

For our first co-creation session, we met up with Clara, a former headmaster who connected with us internally. We were suggested to talk to her to get a first understanding of the school system before reaching out to external parties. As a former headmaster of various Danish schools, Clara has extensive knowledge about its actors.

We knew very little about the school system at the time, so we could have taken many angles on the session. Taking a co-design approach, we knew we would have to enter multiple partnerships throughout the project. Therefore, we considered it fruitful if Clara could present us with a holistic overview of the actors involved within the current school system and how they were connected. In other words, a foundation for with whom we should co-create later in the process.

Subsequently, we considered what design tool would fit the first co-creation session. We had previously used actor network mapping to get a holistic overview of actors, which we considered suitable for this session. Reflecting upon our newly acquired knowledge about the intended shifts in power, purpose, relationships, and resources from the Rockwool Framework (see chapter 01), we thought an actor network map enriched with notes about purpose, power, relations, and resources could be an interesting approach.

what it is

An actor network map is a design tool to produce an overview of actors and components in a system (Morelli & Tollestrup, 2007). Creating a holistic network is in the literature described with various terms and can be done visually in several ways. We found the following terms for actor's network mapping in literature: system map, stakeholder map, actor network mapping, and ecosystem map (Stickdorn & Schneider, 2010; Morelli & Tollestrup, 2007; Giordano, Morelli, De Götzen, Hunziker, 2018). All tools hold more or less the same purpose of providing an overview of all actors with a role in a particular system. Nevertheless, every title represents minor tweaks on how to arrange the map and what the focus should be. We will refer to this method with the term 'actor network map' as proposed by Morelli and Tollestrup (2007). The core of an actor network map is usually based on the roles of each actor, how they are grouped in different arenas, and what relationships they have with another (Morelli & Tollestrup, 2007).

One of the pitfalls of creating a holistic overview is that the creator of the actor network map should have extensive knowledge about all actors within the system created. Even though this sounds simple, it has been proven that the failure of understanding systems has led to mistakes in various projects before (Bourne & Walker, 2005). Besides, we were aware that creating an actor network map would require more than one person in the long term. Therefore, we aimed for the outcome of this actor network map to be the first iteration.

expected outcomes

The purpose of the actor network map is to get a holistic overview. We have searched the literature for the outcomes we can expect from creating an actor network map. Moreover, we have listed our personal expectations based on the context and previous experiences with actor network mapping. In the evaluation, we will use these expectations to assess the values of co-creating an actor network map.

from literature

1. A systemic map of actors and stakeholders is sometimes applied as a conversation starter to support discussions about the role of actors and the power structure of a system (Giordano, Morelli, De Götzen, Hunziker, 2018). For this reason, we saw the creation of an actor network map as a conversation starter about the role of each actor in the school system. This discussion could provide us with guidelines who could be interesting to include in our co-design process.
2. A system looks different depending on what actor is invited to co-create it (Stickdorn & Schneider, 2018). By co-creating this actor network map with a former school leader, we expected to get an understanding of what the system looks like from a school perspective.
3. An actor network map will give us a diagrammatic representation to understand issues and challenges (Manzini, Jégou and Meroni, 2004).
4. The map will help to get an overview of actors that, directly or indirectly, influence the systemic solution (Morelli & Tollestrup, 2007).
5. The actor network map is expected to contribute to understanding and shape the problem (Morelli & Tollestrup, 2007).
6. Creating an actor network map will help to get an understanding of groups and relations (Morelli & Tollestrup, 2007).
7. The actor network map can contribute to a more comprehensive understanding of the complex school system because of its visualisation (Stickdorn & Schneider, 2018 p. 58).

personal

8. With Claras's background as a school leader, we expected to get a deeper understanding of the current school system and the people involved.
9. We also hoped to be surprised with actors or arenas in the system we did not expect to play a role in the school system.
10. We also assumed to get an idea of what actors operated far from- and close to each other
11. Discover new possibilities for future co-creation sessions based on the map.
12. We considered the actor network map to have a lot of notes of 'wrongfulness in politics', meaning we expected Clara to point out where the (political) system malfunctions.
13. We expect to build the actor network map in one session - (90 minutes).

preparing the session

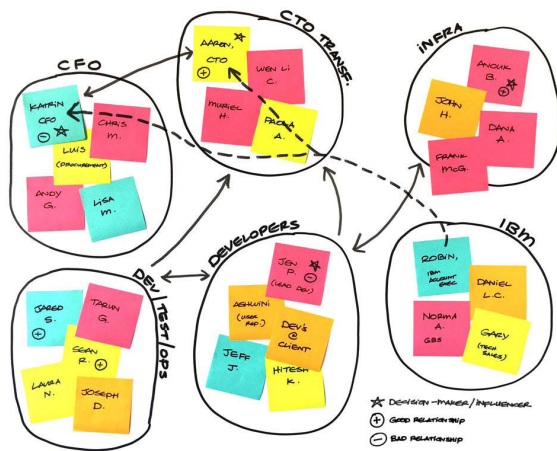
As actor network maps exist in various forms, we were required to ask ourselves what the guidelines of our map should be. Initially, we researched visual formats in online toolkits and literature (figures 13, 14, and 15). We realised it would be difficult to find an existing map that suited our exact purpose without requiring any reconstructions. We instead focused on finding something that could function as a starting point for creating our actor network map.

An off-centered actor network map seemed the most relevant because we were not looking to put one arena in the centre per se. Figure 13 was the starting point for our format. We came up with a visual format to explore the actors involved with the system, their purpose, power status, relationships, and resources. Besides this, we also considered a format clustering the actors into the arenas they operate in. We consider the arenas to be a sphere of interest or activity.

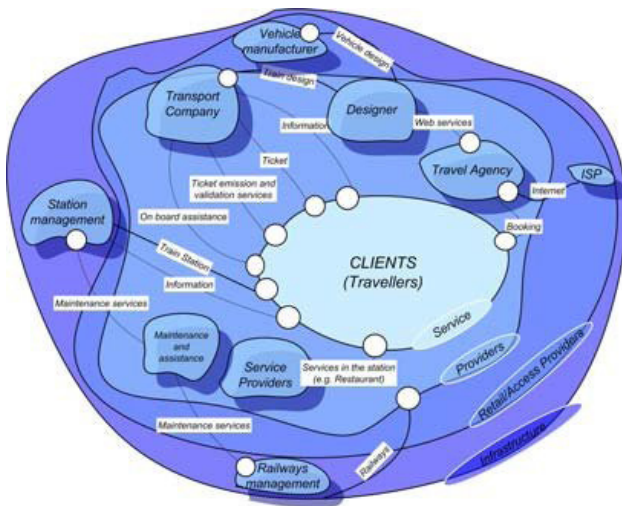
practical preparations

Before the co-creation, we spent some hours preparing a working template in Miro and an interview guide (see Appendix B) for the session. Our preparation was a lot of back-and-forth discussions about keeping the format open but not empty. Our wishes were to stay open-minded and curious during the session and not be limited by our template. For this reason, we decided to adapt to changes in the layout if we could see something unexpected happening. We decided to use online post-its for taking notes, icons representing unknown actors, and large bubbles in different colors to highlight and shape arenas.

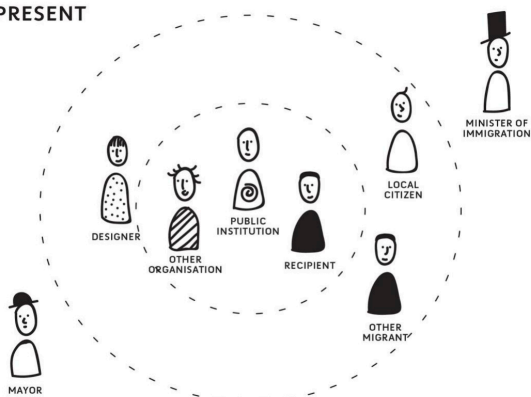
We made an interview guide to keep track of the 90 minutes we had, divide responsibilities between us, list questions to ask if needed, and list our hypotheses for the session. Last but not least, we formed a small icebreaker exercise to get to know each other within the first 15 min. This exercise aimed to break down the barriers and create a relaxed and informal atmosphere in the virtual world we were operating in.



figures 13, 14, and 15: three examples of an actor network map (ibm, n.d.; Morelli & Tollestrup, 2006; Giordano, de Götzen, Morelli, & Hunziker, 2018)



PRESENT



ACADEMIC EXPECTATIONS

☒ = fulfilled ☐ = not fulfilled ☐ = uncertain

01

A systemic map of actors and stakeholders as a conversation starter to support discussions about the role of actors and the power structure of a system.



02

A system looks different depending on what actor is invited to co-create it.



03

An actor network map will give us a diagrammatic representation to understand issues and challenges.



04

The map will help getting an overview of actors that, directly or indirectly, influence the systemic solution.



05

The actor network map is expected to contribute to understanding and shape the problem.



06

Creating an actor network map will help to get an understanding of groups and relations.



07

The actor network map can contribute to a more comprehensive understanding of the complex school system because of its visualisation.



PERSONAL EXPECTATIONS

☒ = fulfilled ☐ = not fulfilled ☐ = uncertain

08

With Claras's background as a school leader, we expected to get a deeper understanding of the current system and the people involved.



09

We also hoped to be surprised with actors or arenas in the system we did not expect to play a role in the school system.



10

We also assumed to get an idea of what actors operated far from- and close to each other.



11

Discover new possibilities for future co-creation sessions based on the map.



12

We considered the actor network map to have a lot of notes of 'wrongfulness in politics', meaning we expected Clara to point out where the (political) system malfunctions.



13

We expect to build the actor network map in one session - (90 minutes).



ANALYSIS

Creating the actor network map ended up taking two sessions of 90 minutes and two iterations in between from our side (see figures 17, 18 and 20). We discussed actors in relation to their power, purpose, relations, and resources. We started by listing many actors, after which we started putting them into bubbles representing arenas. After the first session, we rewatched the interview to iterate on the sketch of the actor network map. We continued with the iteration in the second session, where we continued adding actors and arenas. The figures below show the many iterations on the map (figures 16 to 21). The final figure represents the version we will be working with, and will add actors and arenas to as they will reveal themselves to us. We have created a booklet to show the actor network map followed by pages with notes about each actor. This booklet can be found in Appendix B. We will discuss how (and if) expectations were met below.

timing (expectation 13)

First of all, 90 minutes turned out to be too short to cover the complexity of the Danish school system. We had planned one session with Clara beforehand. Nevertheless, the actor network map was supposed to touch upon many different arenas, and we were not even halfway after the first session. Explaining all actors in the school system and municipalities was much more complex than anticipated, so we decided to plan another session with Clara lasting another 90 minutes.

the power discussion (expectations 1, 4, 7, 8, and 12)

Co-creating an actor network map with an external partner helped us specify arenas, actors, and relationships in the school system. Before the session, we expected the actor network map to initiate a discussion about the roles of actors and power structures within the system. These assumptions turned out to be true. During the first co-creation, Clara identified power status and hierarchies, focusing on top management inside the school and on a political level. After the first session, we had restructured the map because it ended up messy (see fig 16 and 18). Clara seemed a bit confused because we had removed hierarchy from her point of view. We did not consider it that carefully but she was right; we did not necessarily want to focus the map on the hierarchy where she thought we would. This again emphasises how she wanted to focus on power.

the focus of the actor network map (expectations 2 and 9)

Before the session, we presumed the actor network map would turn out differently depending on the actor invited for the co-creation session. Since we only co-created the map with one actor for now, we can not tell what the result would have been like with other actors involved. However, we will use this map continuously throughout the project and add actors and arenas when we find them. Later on, we will be able to say whether many arenas were missing after this session. Having that said, we could tell Clara's knowledge was more extensive in certain areas. It was clear she knew the actors operating inside the school and political arenas because she had been a participant herself. Her knowledge about actors in other arenas (such as local communities and online) was more speculative. We expected her to focus on the school arenas, and she did, but she also surprised us with the political arena. We were surprised to discover the many layers in politics. Within the school system, many leaders and decision-makers are operating on different levels.

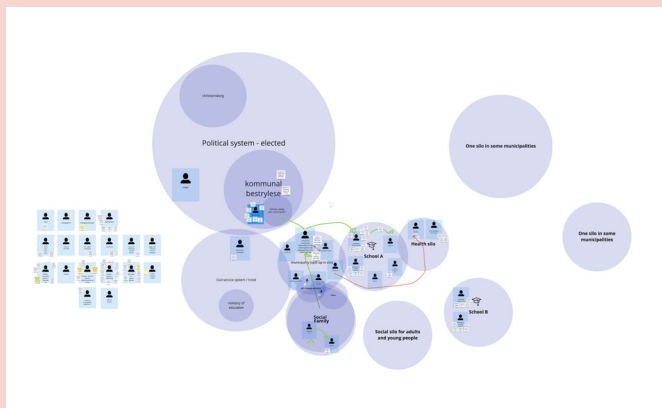


figure 16: the first iteration of the actor network map after the first co-creation session

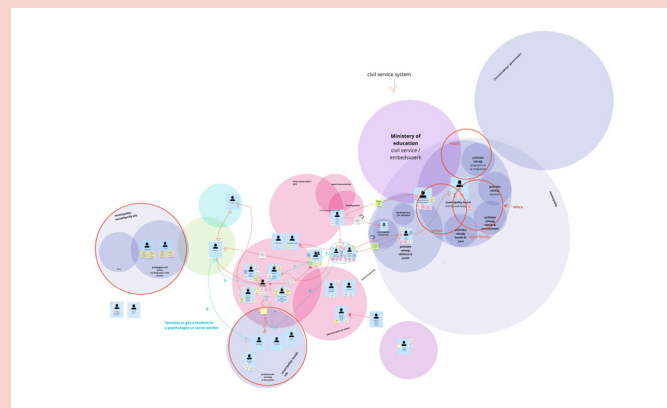


figure 17: the second iteration on the actor network map in between co-creation sessions

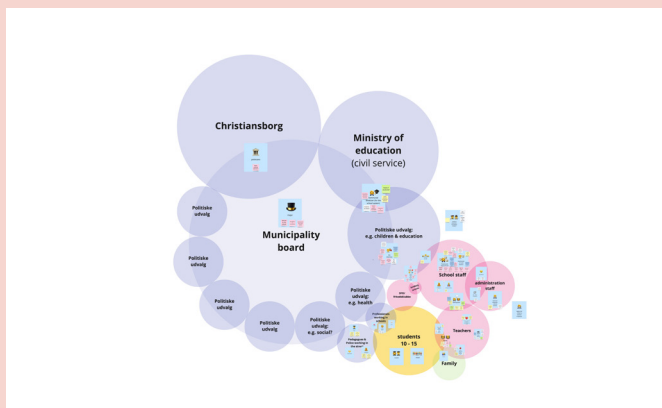


figure 18: the third iteration of the actor network map between co-creation sessions

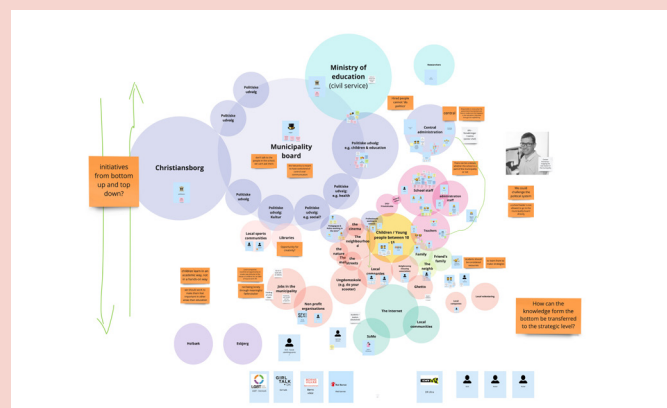


figure 19: the fourth iteration of the actor network map, this was right after co-creation session two

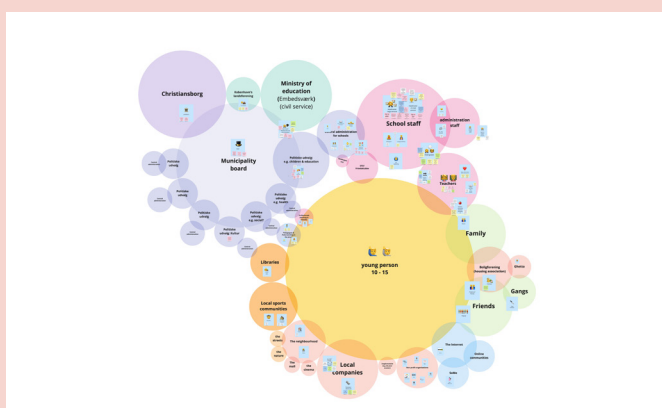


figure 20: the fifth iteration of the actor network map, after the two co-creation sessions

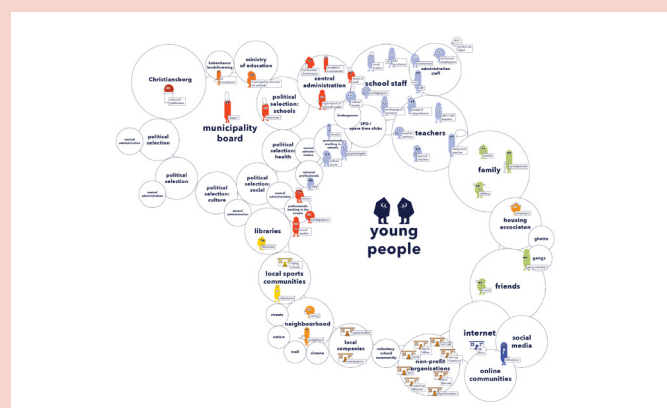


figure 21: the sixth iteration of the actor network map, a visual re-designed version of the fifth iteration

systems cannot be captured in one way (expectations 3, 5, 6, 7, and 11)

Clara also made us aware that no school is the same, and it is impossible to make a general actor network map applicable to all schools. With this in mind, we became aware not to mark the result of the co-creation as ‘THE’ actors network map but rather “AN” actor network map. This conclusion was confirmed after having the actor network map reviewed by other colleagues within the foundation. We discussed the need for a disclaimer to not ‘step on anybody’s toes’ and keep an open attitude towards different perspectives on the actors.

Even though we could not identify our result as “THE” actor network map, our map still provided us with a holistic overview of actors involved in the system and future collaboration opportunities for the project. Building the map enabled us to identify the position of each actor in the system as well as arenas and relationships. The map helped shape the problem because we can see there are many people involved with different purposes and power (that sometimes conflict). In order to shape the exact problem, we believe we need more perspectives than one, but the actor network map was a good start.

visualising (expectations 6, 7, 10, and 11)

Finalizing the visual representation of the actor network map was challenging. It took us two co-creations and two times rewatching our recordings before we reached a far from ideal composition but still provided a holistic result to continue with (see figure 21). The map consisted of many notes about actors, which we decided to isolate and put on separate slides to keep the map comprehensive. We had never believed our map would turn out this complex, but from a visual point of view, we later experienced how we linked our visual representation of the map to new activities. This could, for instance, be by grouping the actors in colored post-its matching the colors applied in the actor network map. Our visualization strategy also made it manageable for us to get an overview of the distance between the various arenas and actors. The overview helped us define how politicians have a significant influence on the circumstances of the teachers without having any physical relationship. This made us aware we could potentially combine actors from different arenas in future co-creations. Our focus should be divided across all areas of the map, since the key to unlock the system might be to connect arenas that are disconnected at this current state.

why co-create an actor network map?

By now, the values of an actor network and the outcomes have been discussed. In general, we are pleased with the result as it will be a great help to guide us further in finding participants for our co-creations. Moreover, we have retrieved lots of insights regarding opportunities for system innovation, which we have summarised on the following pages (66 and 67). Before continuing our journey to find opportunities for system innovation, we should discuss the values of co-creating an actor network map. What would have happened if we would have made this map based on desk research or an interview with Clara?

From our perspective, we could not have made an actor network map that would make sense for Clara without co-creation. She was already confused about the map when we iterated on it (see paragraph: the power discussion) between our sessions. Besides, we continuously discussed where to place actors and arenas throughout the session. There were many moments where Clara explained something to us about an actor, and we placed the actor in the wrong arena (because we did not grasp what she said). The continuous discussion was necessary to make sense of the knowledge retrieved and reach a consensus of the composition.

The actor network map showcases lots of power-relations and purposes of actors, which cannot be googled. For example, one might be able to Google the proposed purpose of an afdelingsleder (head of department) but will never find out if this actor enacts a different purpose. We had done some superficial desk research about actors in a Danish school system, but we do not believe one can reach a good actor network map without including experts.

Finally, we think it was valuable to add the actors and arenas live. This way, the post-processing was way more manageable because we only had to focus on making the composition. Moreover, there was no way to ignore an actor because it was already there. From personal experience, we know it can be tempting to focus the attention more on what sticks to your brain while, for example, synthesizing interviews. Because we co-created the actor network map, we were forced to add all elements while Clara talked about them. Hence, they all found a spot in our actor network map.

KEY / SYSTEM INSIGHTS



purpose

We learnt about the purpose of each actor, and how this purpose sometimes disaligns with their enacted purpose. This awareness will help us to position comments of actors we will engage with in future sessions.



power

Clara pinpointed to the decision rights of each actor, especially in the school system and municipalities. We can use this knowledge to consider who we should engage with to realise change in the school system.



resources

The school system is focused on human resources. Decision-makers view their financial resources as 'hours to spend'. Clara stated a lot of decisions are strongly focused on dividing these 'hours to spend'.



relationships

This map provides us with a good overview about all actors and their relationships to one another. The map shows who is far away from each other, moreover if these distanced actors could learn from each other.



macro

We learnt about the importance of hierarchy in the system. Especially the school arenas and the municipal arenas are hierarchial, which made us aware it could be difficult to realise change in these arenas.



meso

We are now aware who enacts the regime and what (social) rules are in place in the current regime. For example, we have learnt how civil services are not to intervene with political decisions and it is frowned upon if they do so.



micro

We listed many institutions trying to do something slightly different than the regime prescribes. We could potentially engage with these institutions to hear more about their visions for society.

conclusion

An actor network map is a fruitful activity to get a holistic overview of actors in a system. Moreover, in large, complex systems, we tend to believe it is impossible to create a good actor network map without including experts from the field. We even think it should be co-created to reach a composition the expert(s) sees fit. In the synthesis, we will put the value of an actor network map in a larger perspective in the co-design process. For now, we retrieved many insights to continue our journey in search for opportunities within the system.

what is next

The actor network map fostered a discussion about whom we should reach out to for our next co-creation. While looking at the arenas, we considered areas we were curious about and areas we believe we must include. We are designing for young people, so we agreed they should be the ones to talk to next. The co-creation session with Clara also pointed in that direction:

“In your drawing.. you should actually make the students the biggest one.”

“[We have to think of] the students as resources to build on. They have knowledge, we do not have, about how it is right now to be in the school system as a student.”

We were thinking of a smart way to reach the young people because we saw multiple challenges:

- They are underage, so we need consent from their parents/caretaker before we are allowed to collaborate with them
- Especially the younger ones might not speak English, which we do not consider a major challenge since one of us speaks Danish, but still a challenge.
- They are currently homeschooled, and many of their spare time activities are cancelled, so it can be hard to find them.

The challenging situation led to a ‘three-lane strategy’ to reach students, listed here based on priority:

1. Via schools
2. In the city (streets, mall, soccer field, etcetera)
3. Through our network of friends

Our next step was to reach out to many schools and to explore where we can find young people in the city. The first entry points we found were a head of department in a school and an AKT-teacher. A head of department is concerned with young people who do not thrive in schools and are responsible for teachers’ development. An AKT-teacher both teaches and is concerned with the well-being of students. We were hoping to find out more about students through these people and perhaps get access to the students themselves. Therefore, we planned a session with each of them.

session two and three

PERSO- NAS



participants

- an afdelingsleder
- an AKT-teacher / politician



setting

- online



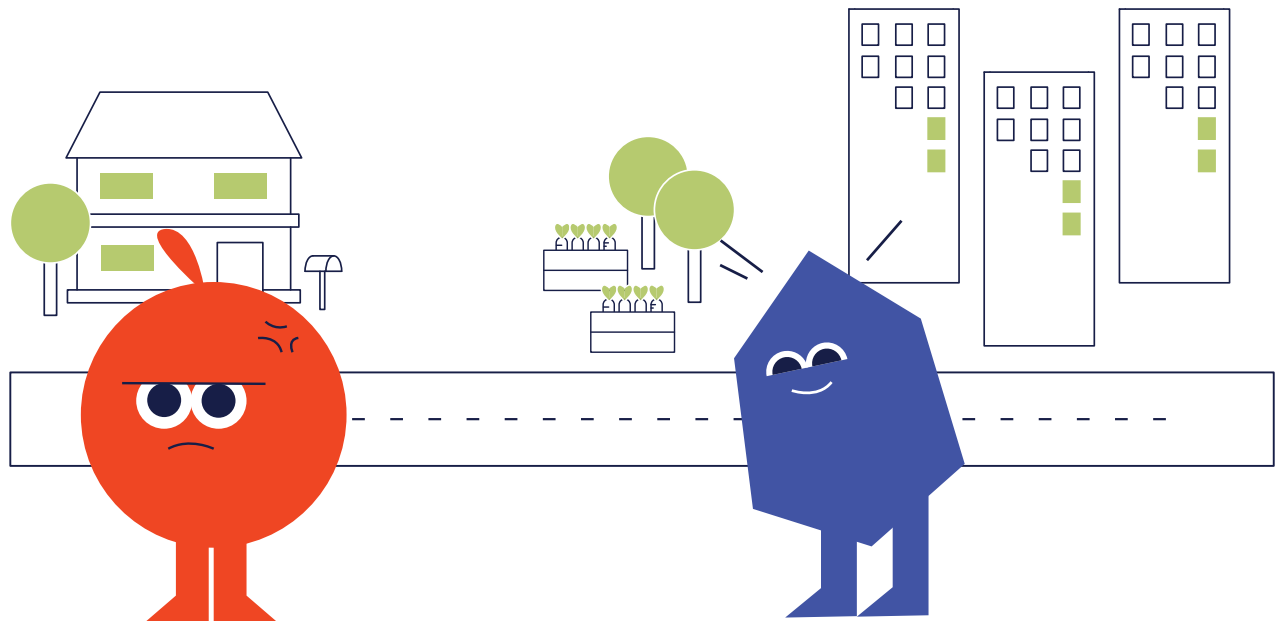
tools

- Miro
- Microsoft Teams



duration

- 2 x 90 minutes
- 11th + 12th of March 2021



not thriving

students who do not thrive, **get affected by social media** and the **pressure to perform** in many arenas. Some students suffer from **divorced parents**, which is considered a crisis. Non-thriving students have a **hard time with changes** and are not always ready to go to school.

thriving

students who do thrive, **are good with changes** and **see their position in society**. A thriving student is stimulated in the right way and **has a solid relationship with adults**. Thriving students **feel comfortable sharing their concerns** with parents and are **not affected by the content on social media**.

figure 22: a visual representation of the final personas with a summary of characteristics

PREPARATION

introduction

We had limited knowledge about what a head of department and an AKT-teacher do in Danish schools. From the previous co-creation, we knew a head of department is in a lot of meetings about individual students and is responsible for the development of employees at a school. An AKT-teacher seemed to be a person who is responsible for a safe environment and who is concerned with the well-being of students. Even though we were not quite sure what their activities were, we considered it safe to assume they were closely involved with students.

We were curious about what makes young people thrive and what does not. We had both planned a 90-minute online session with the AKT-teacher Ellen and head of department Marlena. We decided to revolve both sessions around that question because of our curiosity about what makes young people (not) thrive. We were curious to discover if certain events or characteristics lead to a student who does (not) thrive. Both Marlena and Ellen were likely to be closely involved with students, so we considered it relevant to sketch a profile of both a student who thrives and a student who does not thrive with them. By doing so, we hoped to get an idea of well-being and young people from their point of view. Sketching profiles of people is, fortunately, a widely known tool in service design: creating personas (Fuglerud et al., 2020). So in these two sessions, the goal was to co-create personas.

reflection box five

We both attach great value to diversity. Personas can be created in many different ways. Nevertheless, some approaches will result in stereotypes or will result in a persona based on prejudice (we elaborate on this matter in the definition of personas). For this reason, we will aim to create two personas: a person that thrives and a person that does not thrive. We are aware there can be many reasons a young person thrives or does not, so we are not necessarily looking for a very specific profile, but rather a set of components that could characterise young people (not) thriving. We will elaborate on this further in the preparation of this co-creation. However, we note this now so one can be aware the tool is considered slightly different from what one might be familiar with if it comes to personas.

what it is

The personas tool has evolved from a tool to develop IT systems to being used in many contexts over the last twenty years (Nielsen, 2013). The tool is used to develop products, marketing, planning of communication, and service design. Personas can be described as “fictitious, specific, concrete representations of target users” with the purpose of keeping designers emphatic and aware of their wishes and needs throughout the design process (Fuglerud et al., 2020). The target users mentioned here refer to the people one is designing for (Fuglerud et al., 2020). Personas can be created in many different ways. They can be based on assumptions, qualitative or quantitative data (Nielsen, 2013).

The target users are rarely included in the process of creating personas, even though the co-creation of personas has shown great outcomes in a co-design project of complex health interventions (Fuglerud et al., 2020). If personas are being co-created, their quality highly depends on their co-creators. For example, the co-creation of personas solely with people with abstract knowledge might appear convincing, but they are often very biased (Stickdorn & Schneider, 2018 p. 124). So, if the designer decides to co-create personas, the designer must consider whom they invite in for the session. Front-line employees are usually great partners for these sessions since they hold experiences from the real world. (Stickdorn & Schneider, 2018 p. 124).

reflection box six

Personas are meant to empathise with end-users. In our project, it is not so clear who the end-users of our system innovation will be. We thought about how to interpret the term end-users in the co-creation of our personas and decided we will consider the young people our users for these sessions. Our goal is to create better settings for their well-being, yet we do not know if that will require their active participation. Therefore, we will consider these co-creation sessions a sensemaking activity rather than an empathising activity laying the foundation for a final design (Manzini, 2015 p.40). We might use the personas once we go into the design process. However, we aspire to actively involve people who take part in the system continuously, which might make the use of personas obsolete. We believe the activity will be good to create a shared understanding of what it means (not) to thrive. Moreover, the personas will help us communicate about young people’s characteristics and surroundings, as personas have been proven to create a shared basis for communication (Pruitt and Grudin, 2003).

expected outcomes

The co-creation of personas is supposed to be a sense-making activity. We hope to get a deeper understanding of young people who thrive and young people who do not thrive. We are not looking to create a specific profile but rather characteristics and possible surroundings. Again, we have searched the literature to find other outcomes we can expect by co-creating personas, and we have listed some of our personal expectations based on context and experience with the tool.

from literature

1. We assume both Ellen and Marlene have firsthand experience with young people. Consequently, we expect our personas to be based on real experiences and not on abstract knowledge (Stickdorn & Schneider, 2018 p. 124).
2. We expect to leave the session with a draft of personas, which we will post-produce afterwards (Stickdorn & Schneider, 2018 p. 124).
3. The co-created personas will lack 'lived experiences' because they are not co-created by young people themselves (Fuglerud et al., 2020).
4. We expect Marlene and Ellen to share some extreme examples of not-thriving students (we will consider this a personal expectation) which will help to generate insights and explore the edges of our design space (Djajadinigrat et al., 200).
5. The result of these two sessions will be a first iteration that has to be updated as we engage more people in our co-design process. Some information might become irrelevant over time, or circumstances can change (Nielsen, 2013).
6. The number of personas is pre-defined to be two and we do not expect that number to change throughout the session (Nielsen, 2013).
7. Both Marlene and Ellen will be able to use their understanding of the young people to create scenarios for both personas, because they are familiar with the different behaviors within the given design area (Nielsen, 2011).

personal

8. We expect both participants to base the personas on many personal experiences they have, and to share their knowledge by means of examples.
9. Both participants will discuss marginalised groups of young people, because today's society is based on fitting in and if a student cannot fit in, they will not thrive.
10. We expect performance culture, gender and social media to play a role in the personas, because it was widely discussed to play a role in mental health in a previous session we had with a PhD student from AAU.
11. The session will be online and we will use Miro once again to build live. We expect this to be challenging with our participants because they might not be familiar with the tool. Therefore, the level of co-creativity might be low.
12. We expect to have a high-level discussion rather than a detailed scenario discussion, which will result in high-level personas.



figure 23: goal-based persona (Bradley, 2019a)



figure 24: role-based persona (Bradley, 2019b)

preparing the session

Personas can be created in many formats, and we both had experience with templates for goal-based personas (fig 23) or role-based personas (fig 24). Goal-based personas focus on the question: “What does my typical user want to do with my product?” (Dam & Siang, 2021). The focus of these personas is targeted at product/service development and we did not consider it relevant for system innovation. We do not know what our “user”, the young person, wants from the system. Role-based personas focus on behaviour instead and are typically data-driven (Dam & Siang, 2021). This approach would be suitable if we would base the personas on quantitative data or create the personas with the young people themselves. We did not consider it relevant to map the knowledge of our participants this way, so we searched for other types of personas. Our system innovation is in early stages, and we decided to co-create fictional personas. Fictional personas are based on the team’s experience and can therefore be highly flawed, so one should consider them an initial sketch instead of a definite guide for the final design (Dam & Siang, 2021). In our case, the ‘team’ consists of Marlena, Ellen, and us. Both Marlena and Ellen have firsthand experience with young people, so our personas will be fictional but based on real experiences. We would argue that fictional personas suit the stage of our project because they are more open and allow a discussion instead of focusing on creating the personas aligning with the real world.

practical preparations

As stated before, we attach great value to diversity. We decided to represent the two personas we were looking to make sense of in an abstract, non-binary way (fig 25). By doing so, we hoped to create as little bias about our perception of young people and what makes them thrive. For the same reason, we put the two personas on a blank sheet in our Miro board and had questions in our interview guide to initiate discussions. We wanted to be guided by Marlena and Ellen: what do they want to share with us about young people? We were aware we might end up with messy personas that we could not make sense of. Nonetheless, we contemplated it to be more relevant what is important from their point of view instead of ours. For the same reason, we decided to start with a blank sheet with both of them instead of asking Ellen (second session) to build upon Marlena's personas (first session).

Both sessions had somewhat the same format, where the warm-up exercise was different. One of us met Ellen before, which allowed the warm-up to be a bit more playful, whereas we wanted to focus more on getting to know each other in Marlena's session. We each facilitated one session, and we targeted to speak as much English as possible without discomforting the participants. Therefore, we agreed to record the sessions beforehand to make sense of it afterwards whatever language we would end up speaking.

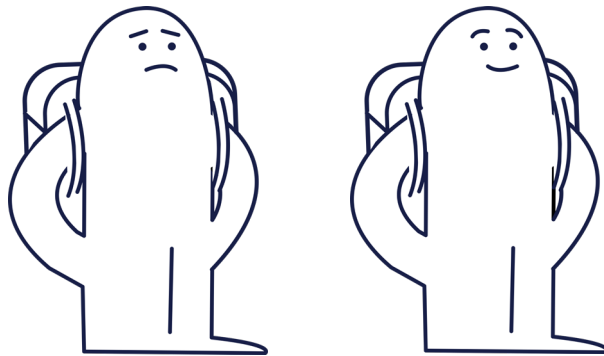


figure 25: non-binary representation of a thriving and a non-thriving student

ACADEMIC EXPECTATIONS

☒ = fulfilled ☐ = not fulfilled ☐ = uncertain

01

We assume both Ellen and Marlene have firsthand experience with young people.



02

We expect to leave the session with a draft of personas, which we will post-produce afterwards.



03

The co-created personas will lack 'lived experiences' because they are not co-created by young people themselves.



04

We expect Marlene and Ellen to share some extreme examples of not-thriving students, which will help to generate insights and explore the edges of our design space.



05

The result of these two sessions will be a first iteration that has to be updated as we engage more people in our co-design process.



06

The number of personas is pre-defined to be two and we do not expect that number to change throughout the session.



07

The number of personas is pre-defined to be two and we do not expect that number to change throughout the session.



PERSONAL EXPECTATIONS

☒ = fulfilled ☐ = not fulfilled ☐ = uncertain

08

We expect both participants to base the personas on many personal experiences they have.



09

Both participants will discuss marginalised groups of young people, because today's society is based on fitting in and if a student cannot fit in, they will not thrive.



10

We expect performance culture, gender and social media to play a role in the personas.



11

We expect Miro to be challenging tool to use for our participants because they might not be familiar with it. Therefore, the level of co-creativity might be low.



12

We expect to have a high-level discussion rather than a detailed scenario discussion, which will result in high-level personas.



ANALYSIS

The two sessions took place on two following days and both lasted 90 minutes. The ambition was to take the results of the sessions and build one set of personas based on them. In figures 27 and 28, the rough results of the two co-creations are displayed. In figure 26, we showcase how we the following week took the time to merge the findings of the sessions into one set of personas. The final personas can be found in the booklet in Appendix C.

The sessions took place in Danish mostly, so we transcribed and translated both interviews to make sure we did not miss any nuances. We translated many things throughout the session, which turned out to be a comfortable format for all participants. Moreover, our assumption that both Marlena and Ellen were involved with students closely turned out to be true. This was a prerequisite for a successful co-creation and we were therefore able to focus on their experiences with students. We will analyse the interview below to discuss if our expectations were met and if we encountered any surprises. One can find a rough overview of the expectations and outcomes on pages 78 and 79.

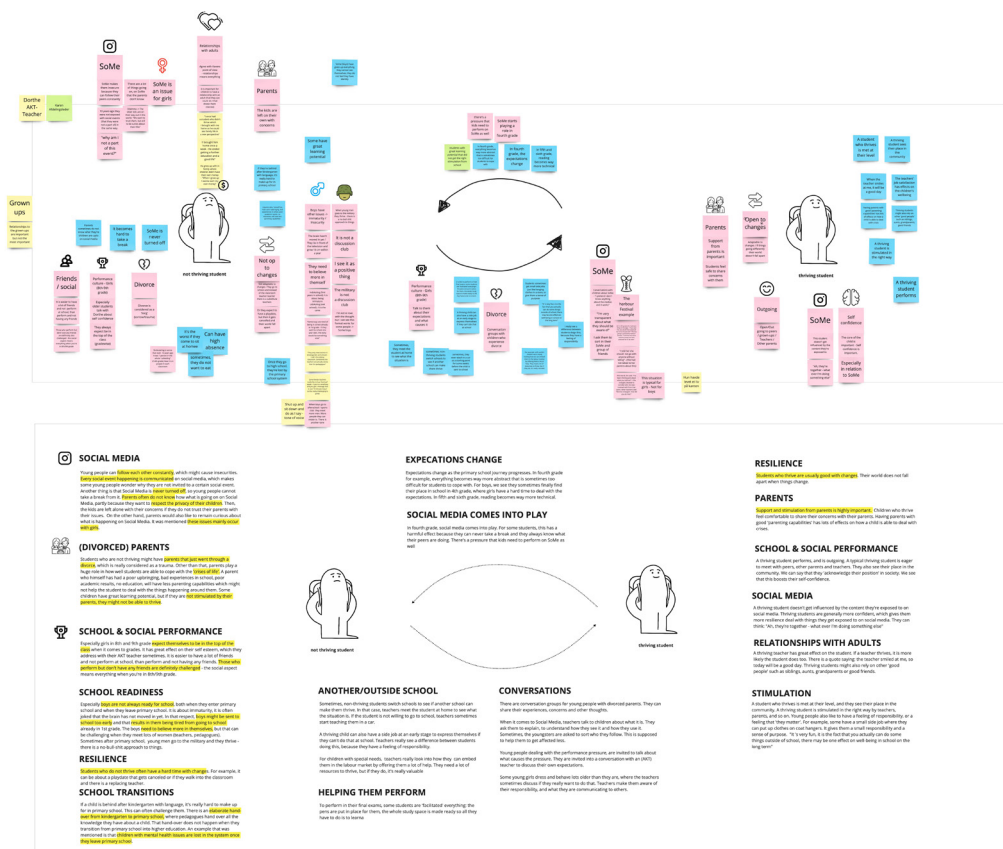


figure 26: the process of merging the two co-creations and clustering the information

discussion level (expectation 12)

In both sessions, concrete examples about young people were discussed. Nonetheless, both participants focused on what it means (not) to thrive on a more abstract level. For example, when we asked Ellen what characterises a thriving student, she immediately answered that thriving students are able to deal with change. We had expected the participants to have a stronger focus on external events that would lead to stress, depression, or anxiety. Marlena and Ellen mentioned these external factors, such as divorce, yet they both started by outlining things residing in the young person.

sharing experiences (expectations 1, 3, 4, 7, 8 and 9)

Marlena and Ellen both had over twenty years of experience with young people, and they were able to synthesize what it means to thrive from their extensive experience. They shared firsthand experiences a lot, both about students that did not thrive and about how they helped them. We did not anticipate they would address their activities to improve the young people's well-being to this extent. In retrospect, it makes sense because their purpose is to make students feel better. We were also surprised by how adaptable their methods to improve the well-being of individual young people were. Neither Marlena nor Ellen relied on one single way of working, and they even mentioned some quite creative methods. For example, when a child refuses to go to school, they teach from a car sometimes:

"We do everything we can. Sometimes we have to start at zero, which can mean that we have to start by meeting the student. [For example] that the teacher has to start by meeting the student at the student's home with parents in the first place. Or it may be that you have to meet in the car, park in a parking lot and teach there for half an hour" [Translated from Danish]

We ended up with personas based on super extensive experience from frontline staff, which we partly expected. On the one hand, we expected them to be frontline staff. On the other hand, we did not foresee they could base their statements on experience this extensive. They mentioned some extreme examples, but the general tendency was to discuss cases reflecting recurring issues.

performance culture, Social Media and Gender (expectation 6 and 10)

The number of personas did not change. However, both participants made sub-categories for the personas based on gender. Some themes were overarching. For example, the previously mentioned resilience was a prerequisite for both boys and girls to thrive. However, Marlena and Ellen outlined the issues for not thriving to be very different for boys and girls. Girls were, from their point of view, way more affected by the pressure of social media. On the other hand, boys were facing more issues because of their immaturity when entering primary school. Both Marlena and Ellen made the same division regarding performance culture: girls are better at dealing with expectations than boys and therefore are better able to perform, which also causes stress. The immaturity of boys can result in them not being able to perform and to thrive better outside of school (e.g., at their soccer club).

post-production (expectations 2, 5 and 11)

As expected, both sessions ended with Miro boards filled with post-its. We ended up interacting with the Miro board while Marlana and Ellen observed, which aligned with our expectation of low co-creativity. The discussion went back and forth between thriving and non-thriving students, making it hard to put the notes with the persona they belonged to. It was therefore a necessity to rewatch the interview to be able to create the personas. Once we did that, it was relatively easy to combine the two sessions' information and cluster it. Marlana and Ellen generally addressed the same themes, and their perspectives seemed to align quite well. For example, they both addressed social media to create difficulties for young people to take a break. Their aligned perspectives resulted in our wondering what the personas would become if we would ask people with different profiles. Moreso, we think we should try this exercise again with other people to challenge statements and get a more holistic overview of what it means to thrive. This meets our expectation to end up with a first iteration of the personas we can update over time when we retrieve more input.

reflection box seven

After the two sessions, we reflected upon how we designed the exercises and what we could have done to increase interactions. The two personas were placed in one box, yet they were standing on their own. We discussed if we biased Marlana and Ellen to talk about individual students by placing the personas in isolation. If we would have put them in a classroom, would the result have been different? From RFI's prior qualitative research, we assumed students are considered as individuals and treated this way if they are not thriving. Consequently, we thought it would align with reality if we would place the students in isolation. There is a chance we missed the opportunity to discuss not thriving in a group format, which we might want to discuss later on in a similar session.

Then, we discussed if we could have increased co-creativity by having both Marlana and Ellen in one session instead of in two. Frankly, we planned the sessions to their preferences without trying to have both of them in one session. We believe it did allow them to speak freely without potential disagreement, as we remained neutral in both sessions. On the other hand, they could have built upon each other and the session might have been more co-creative. We will consider having co-creations with individuals more carefully because we aspire to foster discussions between (marginalised) people, and we might not reach that when one individual joins us in a session.

why co-create personas?

On pages 78 and 79, we have listed all expectations and showcased whether they were met. We have learnt a lot about non-thriving students from experienced teachers and pages 86 and 87 highlight how these findings contributed to our work with system innovation. At this point, it is relevant to consider whether a co-creation was the right choice to build personas.

If we consider the key insights, there is no doubt the co-creation was valuable, and it might lead us to new opportunities for system innovation. However, the level of interaction with the participants was low because the co-creation was facilitated online. None of the participants wished to try Miro, and for this reason, we only used the software to take visual notes during the session. After this experience, we discussed whether the two sessions could be considered co-creation as they felt more like interviews. Even though the outcomes of the sessions were personas, the general flow felt more like an interview, as we were the ones grouping the insights in the categories thriving- and non-thriving students as we went about our different questions. For this reason, it can be argued that the sessions were closer to participatory design. We have subsequently discussed that this outcome could be caused by the fact that our participants entered the sessions with the expectation of entering an interview instead of a co-creation.

Even though it can be difficult to tell if the sessions were a co-creation or participatory design, there were still many positive things about the format. First of all, the live categorizing and visualizations helped us overcome the language barriers of both participants and facilitators, as everyone could follow along as we took notes. This format also contributed to the analysis and evaluation of our insights. All findings were already grouped in a structured format we could use as a starting point after the sessions. Compared to working in a note sheet of an interview, we both preferred this structure, as it seemed less overwhelming to work with.

Looking back at the two sessions, it is still difficult to state if the sessions were co-creations or participatory design. For this reason, we do not feel we have enough evidence to answer why or if one should co-create personas.

KEY / SYSTEM INSIGHTS



purpose

It does not come forward in the personas as much, but we have learnt a great deal about the purpose of an AKT teacher, especially the enacted purpose. The same applies for the afdelingsleder. We have enriched the actor network with this information.



power

We learnt about the 'wiggle room' of an afdelingsleder and her decision rights. From the session, we do not think the AKT teacher has that much power. In her previous role, we learnt about the fact that people with power in municipalities are sometimes very disconnected from what they make decisions about.



resources

In these two sessions, we got many examples of the resources and methods teachers use to help young people thrive.



relationships

We have learnt about the teachers' desire to have stronger relationships with businesses to give the children more opportunities to explore what they enjoy doing and the importance of strong relationships between adults and young people.



macro

We have learnt about the ideologies of experienced teachers regarding social media and gender. We are curious to know if younger audiences share these experiences too.



meso

In the session with the AKT-teacher, we learnt about the government's decision to include everybody in schools. This means that children with special needs are supposed to go to a public school too. The intentions were good, but it is complex in practise.



micro

We learnt about a small initiative 'nest', which focuses on children with special needs in combination with 'regular' kids - The school setting is designed for the minority instead of the 'normal' kids.

conclusion

Building personas was a valuable activity for us to define the characteristics of thriving and non-thriving students in the Danish school system. The tool also helped us characterize the two participants' roles, which we updated in our actor network map afterwards. Last but not least, these sessions made us aware of what is going on in the current system. This in-depth knowledge was very convenient for us since we first need to understand the challenges in the current system before we can define how to change them. Nevertheless, we think that these findings perhaps could have been achieved in a regular interview setting. Summing up, personas seem a fruitful tool to use to understand challenges in systems and they can be co-created. However, from this session, it seems they can also be created through participatory design events.

what is next

While planning these sessions, we got in touch with three teachers from Marlena's school. They were willing to engage in a two-hour online session with us despite their scattered schedules due to COVID-19. The school was unfortunately not able to join us for a longer period for this reason. Still, we were more than happy to take the opportunity to talk to more teachers.

In the meantime, we were reaching out to other schools hoping that we could get in touch with young people and co-create with them. We also explored where we could find children in the streets to brainstorm how to engage with them if the schools could not help us. The exploration was an informal observation afternoon in the city, where we just sat down after school hours to see where young people hang out.

Hence, our next steps were a few things in parallel: contacting schools, observing people, contacting social workers, and so on. The next co-creation session was the one with the teachers, which will be discussed next.

reflection box eight

At this point, we had some internal discussions about the project and how we should go about system innovation. One of our supervisors said:

“It seems like we are all trying to navigate in the dark to find one, single truth.”

What he meant was, we were trying to understand the system until we have one comprehensive understanding before we go into ideation. We discussed that this might simply not be possible because systems are complex, and one can never find one singular truth. Therefore, we decided to shift our focus slightly from understanding to the exploration of alternatives. From now on, our co-creations will therefore not only focus on understanding the current system but also on exploring what alternative trajectories could be.

session four

FUTURE SCENA- RIOS



participants

- three teachers



setting

- online



tools

- Miro
- Microsoft Teams



duration

- 120 minutes
- 22nd of March, 2021

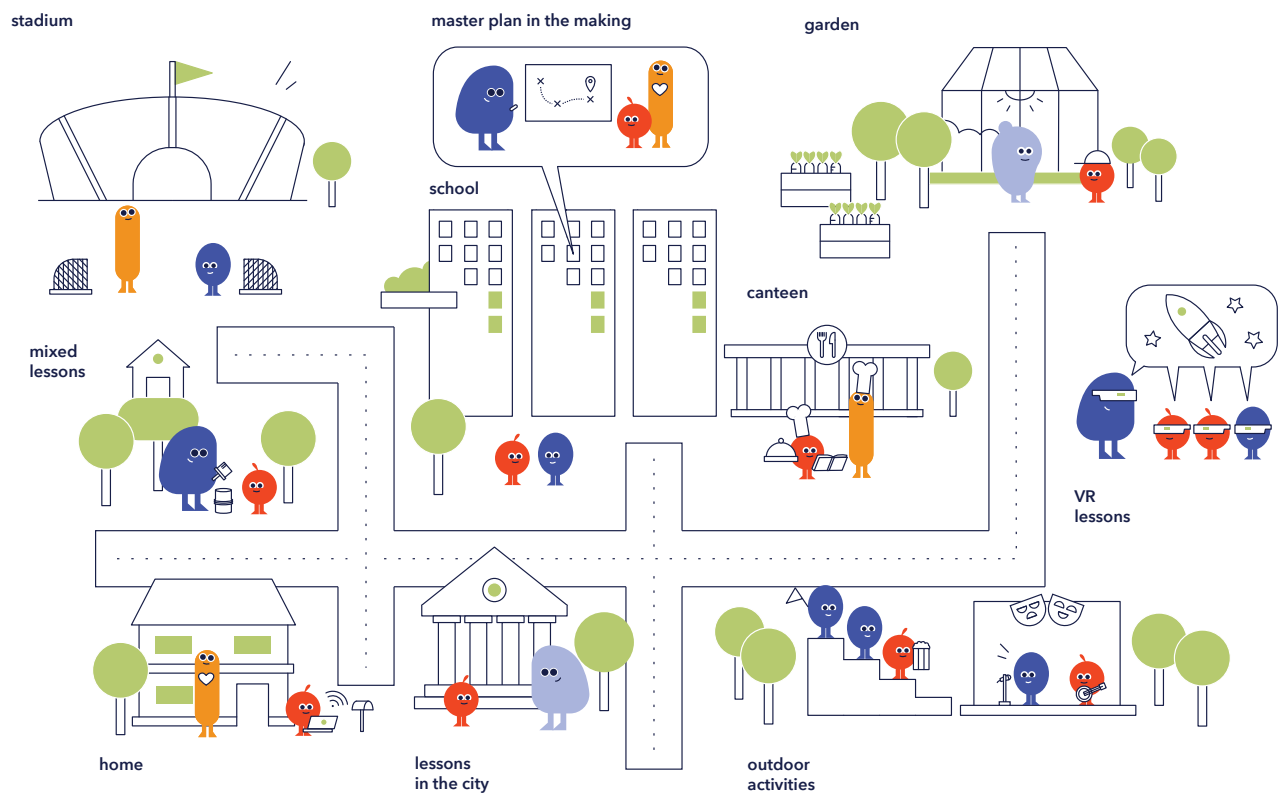


figure 29: a visualisation of the future scenario built in this co-creation

PREPARATION

introduction

With the teachers, we saw an opportunity to brainstorm about the future. They could rely on wide-ranging knowledge about schools, young people, their role as a teacher, their role as a parent (they all have children), and their role as citizens of their city. We were curious about all of these things and how they would combine the knowledge to dream about better futures. The turning point in the project contributed to the decision not to focus on the current system but rather on an alternative system. Moreover, we believe we should not only have co-creations for sensemaking but also for problem-solving.

We strove for a creative and fun session because it was scheduled at the end of a Monday filled with online teaching for our participants. We wanted to create a light setting where we could share ideas instead of focusing on what is wrong with the current system. We considered this to suit the context well, and we wanted to give the teachers a pleasurable experience. Consequently, we decided to build future scenarios with them.

what it is

Building scenarios is a tool to research the perception of either individuals' or a group's understanding of the world. By creating an amount of possible futures which are different from what is stated as the business as usual, participants try to stretch the limits of what is possible (Van Der Heijden, 2000). Building scenarios has been around for years and can be applied in governments, businesses, and non-profit organizations. The need for scenario building has, in particular in this age, been striking as we see changes both politically, socially, economically, and environmentally across the globe. Changes that were considered impossible just a couple of years ago, for example, the social changes that came across in the light of the pandemic (Cairns & Wright, 2018).

The core of building scenarios is to focus on the future and how it might be in years from the present. The unpredictable futures are usually based on critical uncertainties, global trends, and the actions of all people who could have a stake in the new possible futures (Cairns & Wright, 2018). Manzini & Willis state this way of creating new possible visions for an alternative future with the term Design Orienting Scenarios (DOS). The authors define DOS as individuals or a group building shared future visions to generate a common direction for ongoing projects (Manzini, & Willis, 2004). In another paper about creating scenarios for regional projects, the authors use DOS as a design tool to improve the system effectiveness, spark a conversation about an action plan that can lead to the future vision, and make both goals and future results visible and understandable for everyone involved in the project. Both for researchers, stakeholders, and the public (Cantu & Simone, 2010).

The tool is not to be found on either Hyper Island, IDEO, or in This is Service Design Doing. However, Danish Design Center has recently published the webpage Living Futures, an online Scenario Kit, which we were presented to during an inspiration talk in the Rockwool Foundation. The toolkit's content is made from inputs by 130+ experts, developed by DDC and can be used for free by everyone. On the webpage, DDC states building scenarios as a tool to foster changes and ensure new opportunities in a world of uncertainty (livingfutures.org).

We will use the tool in relation to system innovation to explore new trajectories for our project scope. Nonetheless, building scenarios has proven itself to be a successful tool in the development of digital services. The tool contributes to the understanding of user personas behavior around future digital service solutions (Aoyama, 2005).

expected outcomes

from literature

1. Co-creating a scenario with teachers will contribute with future visions on how to solve social challenges happening in our society today and lead our team in a common direction (Cairns & Wright, 2018).
2. The end result of our scenario co-creation, will be a scenario where the teachers have strengthened the limits of what is possible today (Van Der Heijden, 2000).
3. The scenario co-created by the teachers will be based on critical uncertainties, global trends and the action of actors who could take part in a possible future. (Cairns & Wright, 2018)
4. The scenario co-created by the teachers will contribute to the system improvement, spark conversations about a concrete action plan and make goals visible and understandable for everyone (Cantu & Simone, 2010).
5. Building scenarios will foster changes and insure new opportunities in a world of uncertainty (livingfutures.org).

personal

6. We expect the teachers to build upon each other's ideas and dreams while they co-create the school of the future scenario.
7. We expect the teachers to build their visions based on the knowledge they have from the field.
8. The teachers design a future school that removes the limits of the school of the present .
9. We expect the teachers not to focus on an alternative physical environment necessarily, but rather on alternative teaching methods and the purpose of going to school.
10. We expect the beginning of the co-creation to require a lot of facilitation from our side to guide the teachers in a futuristic and co-creative mindset. We expect this because we think the teachers are not used to design.
11. As the session progresses, we expect the discussion to evolve more naturally as the teachers will get comfortable with the design mindset.

preparing the session

Like every other tool, scenario building can be done in various formats. The Danish Design Centre introduced a matrix where they define parameters for future societies (img 8). In other examples, we see scenarios as storyboards where they are being used to showcase how a product/service can be used. These storyboards are usually sequences of drawings that explain and visualize how a user interacts with a service and/or product (img 9).

We thought it could be good to start without any constraints, to see what constraints the teachers would expect to be there in twenty years. This approach would allow us, on the one hand, to assess what conditions the teachers would expect to change in a timeframe of twenty years, but on the other hand, to see what conditions they expected to remain the same. For that reason, we decided to start the exercise simply by removing the current school building from its site and to start with an empty landscape (images on page 96).

Before we would start designing the school, we wanted to provide the teachers with an easy landing in the future mindset. Therefore, we designed a warm-up exercise where we asked them where they imagined themselves in ten years. Later on, we would ask them to add ten years because we wanted to design a school in 2040. Starting ten years ahead would make it easier for them to imagine themselves, but it would not be enough to realise radical changes in the school system. We considered twenty years to be suitable because it was not too far away, and we would not have to go into space scenarios, but it was still far enough to imagine some real change.

We planned the discussion to zoom in more on a micro level over time. The beginning of the session focused on the environment outside of the school, and we designed a follow-up exercise to discuss what would happen on a micro-level: in the classroom. Again, there were no constraints except for four walls. We hoped the discussion would shift to well-being and how we should teach our children in the future. To ensure we would end up with a discussion about well-being, we decided to have a 'well-being bomb' in the middle of the session, where we would add a constraint that would require the teachers to only design things that would contribute to the well-being of young people.

As a last part of the exercise, we wished to relate their future scenario to today's system. Therefore, we had in mind to pinpoint characteristics in their designed school and ask them how (and if) it is different from today's school. Hereby, we hoped to find out where they are critical on today's system and where they feel it lacks.

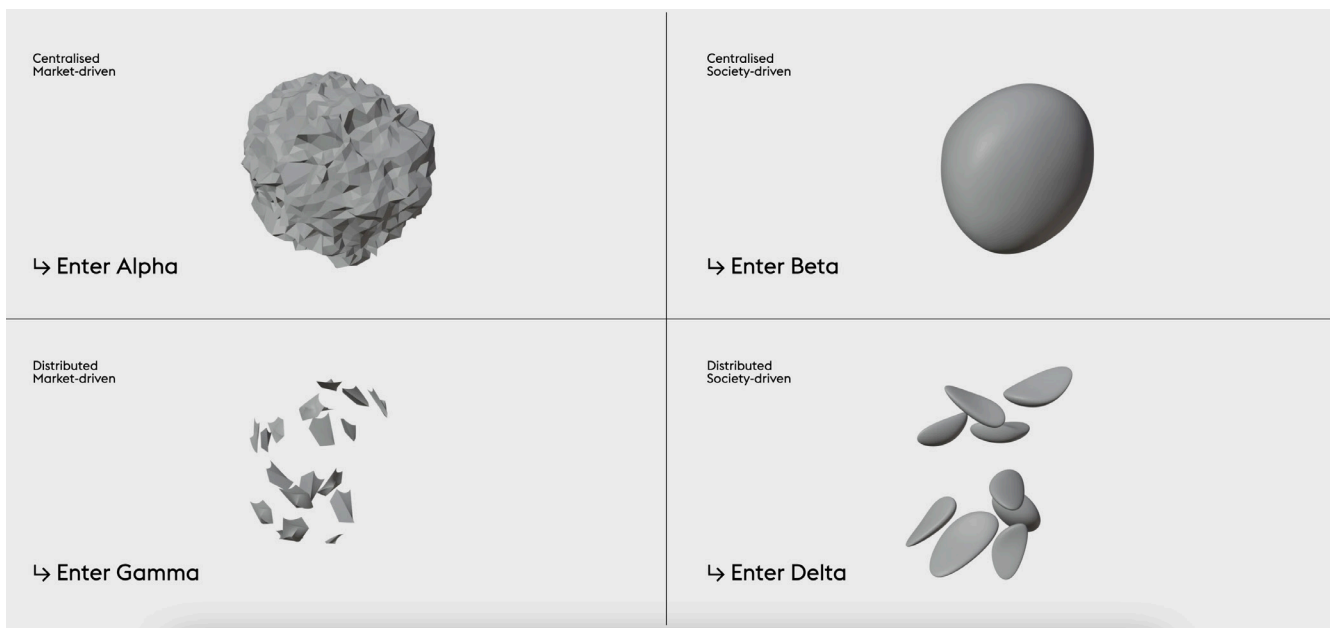
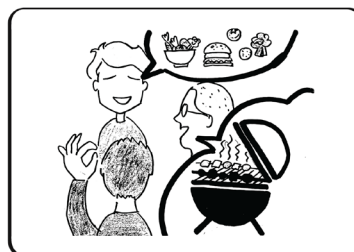


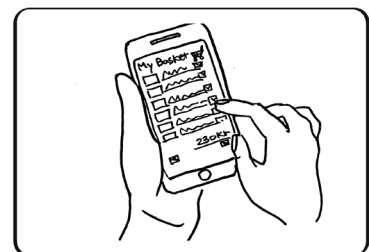
image 08: Danish Design Centre's matrix to think about the future (livingfutures.org, n.d.)



At first, Frank and his friends were super happy with the TV and since they underestimated the amount of stuff they have, it is actually quite nice to get some extra hands with the moving today. But soon Frank realised that he should be hospitable to his parents and make sure there is some nice dinner for them this evening. However, they did not really have the time to go to the grocery store today. They decided to order online so it would save them some time.



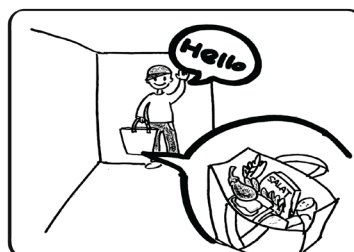
Since none of the guys are good chefs, William suggests to have a barbecue on their new balcony. The weather is quite nice and it shouldn't rain, and William did not carry his barbecue all the way up for nothing! Frank said it's fine but his mother is a vegetarian since last year, so they should have some veggie burgers as well.



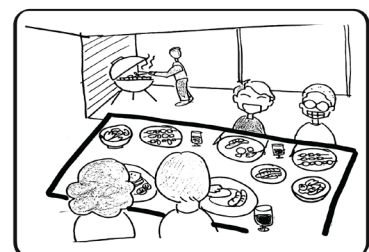
Luckily, the selection is wide and they can find everything they need. First of all, they make a shopping list together and then Frank orders food on the online supermarket and chooses a delivery time for around four o'clock in the afternoon. Jonas is really happy with them ordering online: he wants to get some beers in the afternoon and now he does not have to carry.



Frank's parents arrived and they have been working very hard on making the apartment look nice, they did not even think about the groceries any more.



Around four, the doorbell rings. Nobody was even thinking that it was already four, but William decided to open up and receive the groceries. Luckily, the delivery guy came upstairs and delivered the groceries to the door: they already had enough carrying around for one day. The first thing Jonas unpacked was his beer.



Around seven, when the beer and wine was cooled and the furnishing of the home is almost done, Frank and William start warming up the barbecue and Frank's mom cleans the home so they can have a nice dinner. They all sit together and enjoy dinner in the new, furnished apartment.

image 09: example of a storyboard that showcases how a user interacts with a product

practical preparations

The preparation consisted of some photoshopping activities mostly. We isolated some buildings and removed the school from a photo so we would start with an empty but familiar landscape (images x and x). The Miro board was quite empty other than that, because we decided to find and place icons with the built-in Miro feature during the session.




In the interview guide, we listed a lot of questions to spark discussions and we decided to drop the potential ‘well-being-bomb’ after an hour if the teachers did not discuss the well-being of young people.

Lastly, the session would take place in English at the end of the day. We would not have to focus on live translations, so we had a bit more time to create a comfortable setting and to chat with the teachers informally before getting started.



images 10 and 11: school's site and a second photo where the building and its surroundings have been removed.

ACADEMIC EXPECTATIONS

 = fulfilled  = not fulfilled  = uncertain

01

Co-creating a scenario with teachers will contribute with future visions on how to solve social challenges happening in our society and lead our team in a common direction.



02

The end result of our scenario co-creation, will be a scenario where the teachers have strengthened the limits of what is possible today.



03

The scenario co-created by the teachers will be based on critical uncertainties, global trends and the action of actors who could take part in a possible future.



04

The scenario co-created by the teachers will contribute to the system improvement, spark conversations about a concrete action plan and make goals visible and understandable for everyone



05

Building scenarios will foster changes and insure new opportunities in a world of uncertainty.



PERSONAL EXPECTATIONS

☒ = fulfilled ☐ = not fulfilled ☐ = uncertain

06

We expect the teachers to build upon each other's ideas and dreams while they co-create the school of the future scenario.



07

We expect the teachers to build their visions based on the knowledge they have from the field.



08

The teachers will design a future school that removes the limits of the school of the present .



09

We expect the teachers not to focus on an alternative physical environment necessarily, but rather on alternative teaching methods and the purpose of going to school.



10

We expect the beginning of the co-creation to require a lot of facilitation from our side to guide the teachers in a futuristic and co-creative mindset.



ANALYSIS

The session with the teachers took place during an afternoon, and all teachers in this session agreed to do it in English, which turned out to be a successful experience for everyone. We invited the teachers in for 2 hours because we thought this session would require more time than the previous one since it consisted of more participants. However, we ended up spending 90 minutes as the teachers turned out to be sharp in understanding and responding to the questions we asked. We have co-created a vision for what School 2041 should look like, based on the teachers' experiences. We triggered the teachers with questions about power relations, resources, relations, and purposes to guide them towards the insights we were looking for (see interview guide, Appendix D). Once the vision was created, we zoomed in on some elements they had designed (e.g., small classrooms) and asked them how it is different from today. The result is a vision for School 2041 and the shifts we need to realise to reach that vision. We post-processed the Miro board into a comprehensive booklet, which can be read in Appendix D.

knowledge (expectation 3 and 7)

We chose to invite the three teachers in as experts, as we believed they had first-hand knowledge from the field and knew about the challenges of the present school system. This assumption turned out to be true. All teachers referred to their experiences from the present while they designed their future scenario. It was noticeable that all teachers used frustrations of the present as inspiration for future opportunities, even though we decided not to focus too much on the present as facilitators while building the scenario. Nevertheless, these frustrations sparked many new ideas, and we even wondered whether some of the teachers had thought about some of the new options over time, but did not have a tool to realize them.

collaboration and setting (expectation 4, 6, 10, and 11)

We spent some time creating a comfortable atmosphere with room for informal chats, which contributed positively to the session. As the teachers were colleagues, it did not take them long to get comfortable enough to participate in the scenario building. However, we could tell the informal chats made them feel more relaxed and open to trying our design approach, as we spent some time getting familiar and secure with each other. As the teachers got more comfortable during the session, they started to build more and more upon each other's ideas and dreams for the future. Compared to our previous sessions, we could tell that bringing more people together created some nuances to the exercise, as the participants used each other's inputs to take part in the scenario building and add extra layers to the conversation.

adapting to future thinking (expectation 2 and 8)

It was apparent that all teachers enjoyed working with future thinking. They had no problem adapting to the exercise, and it did not take them long to strengthen the limits and think abstract about what could be possible in the future. As the session progressed, the teachers developed their futuristic speculative mindset and became more abstract about what a school setting could be. One example was a teacher stating the school's borders should be removed, and classes could be taught everywhere in the city by other people than just teachers. This also meant that our assumption of teachers not to focus on an alternative physical environment, but rather on alternative teaching methods and the purpose of going to school, turned out to be slightly wrong, as most the teachers focused a lot on the physical environment as well as the methods and purpose.

visions (expectation 1, 5, and 9)

As mentioned earlier, the knowledge and frustrations of the teachers provided new ideas and common visions in the group on how to build a new and alternative school. This gave us some guidelines for a direction we could explore more in terms of our project. After the session, we discussed that it was important to be aware that the session's outcome consisted of guidelines based on the wishes of three individual teachers. There were many great inputs from the session, but we also realized that we had to do this exercise with many more actors to find out if these inputs overlapped with the wishes of others. One teacher suggested doing this exercise with parents and students too. We also discussed that including NGOs like, for instance, Sex & Samfund could provide us with a more theme-based scenario related to gender. At this stage, it was still doubtful whether building future scenarios would foster changes and ensure new opportunities in a world of uncertainty. However, the exercise provided us with a great starting point to explore the opinion of other actors and stakeholders.

visual outcome (expectation 4)

Last but not least, the exercise provided us with some goals that were visible and understandable for everyone. Therefore, we also decided to use the outcome of the exercise to show future collaboration partners what exploring new alternatives with us could be like.

why co-create future scenarios?

In general, it was a very productive activity, and we retrieved many insights on the shifts we should make in relationships, power relations, purposes, and resources (see the shifts in the booklet, Appendix D). Without a doubt, this scenario points to many opportunities for interventions. For example, we could create an intervention where we teach throughout the city to explore if this could create better well-being circumstances. The critical insights concerning the system innovation framework can be viewed on pages 102 and 103. Before moving onto the next co-creation, we shall again discuss the value of co-creating this future vision instead of creating it through expert design/user-centred design or participatory design.

First of all, we considered it was crucial to co-create visually while creating this scenario. By having the visual elements, both teachers and we could see how the vision emerged by enriching the landscape. It was convenient to go back to things discussed earlier and build on top of it. If we would have done this verbally in interview format, we assume we would not have gotten to a holistic vision like we ended up with now. Sometimes, we had a silent moment where everybody observed the Miro board to see what we had created so far and see where the vision was still lacking. Teachers had the opportunity to go back to things created previously, and we as facilitators could zoom in on things and trigger more thoughts. Moreover, by capturing the session live, we could make the shifts in the end by revisiting what we had created. If it had been verbally only, it would have been tough to remember.

Synthesizing this session was also a lot more convenient because we thought about the composition as we went. We feel it was a democratic decision between us and the teachers what the vision should be, not only visually but also content-wise. We both suggested things to add and discussed how to shape the school. Our only task was to put it into a more graphically designed format.

Lastly, we think it was inevitable to co-create this future vision. We could have taken the Danish Design Centre's matrix and designed future schools ourselves, but they would have lacked lived experiences. In previous work experiences, we have created future scenarios internally, but they were somewhat crazy and unreal than strengthening the limits of today and pointing towards opportunities for intervention. For that reason, we believe it should be a co-creation between designers and experts from the field.

KEY / SYSTEM INSIGHTS



purpose

Today, school is about education. The teachers think school should be about life, and becoming a good citizen. Teachers should not only teach, but also be coaches of life. We should focus on what the children are good at, instead of what they cannot do. Instead of a one-size-fits-all education, it should be custom made and based on the interest of young people.



power

Opportunities are not equal for everybody in our current system. The teachers spoke a lot about privileges and the importance of your socio-economic background in the current school system. They think we should focus more on closing the gap and creating the same opportunities for every child.



resources

The classrooms should be smaller, so the teachers can pay more attention to individual students. Moreover, education should not be limited to the resources of a school building. The teachers want to use the resources from the city to teach the children in context.



relationships

The relationship between teachers and parents varies a lot, and the teachers wish to be closer to parents. By having a closer relationship to the parents, the teachers hope to have a more democratic approach to what the child should learn.



macro

The purpose of going to school that was proposed in this co-creation, is not that far from the purpose stated on the website of the Danish government (Børne og Undervisningsministeriet, 2020).



meso

The teachers shared their frustrations about the need to measure everything the young people do in schools. The 'measurement culture' is part of the current regime, but the teachers think it does not contribute to the well-being of young people.



micro

At the end of the session, the teachers told us that they could see some of the shifts happening on a micro level. We could explore further where institutions try to enact school 2041 on a micro level to see if it is fruitful.

conclusion

This co-creation has blown our minds in terms of creativity and amount of insights. We both agree it is imposing how the teachers could shape a new school within 90 minutes, and it confirms Manzini's belief that everybody should be an active shaper of society; we just need to give them the right tools. We will elaborate further on how this session has pointed to opportunities and directions to explore further in the synthesis. For now, we would conclude it is fruitful and necessary to co-create future scenarios with experts from the field. By doing so, one can both learn about today's lived experiences and interesting directions to go in the future.

what it next

After the scenario-building exercise, we concluded the general outcome to be very fruitful for our project. Building a future vision with a group of people from the field provided us with a potential alternative trajectory to aim for. Many suggestions on how to do things differently became visible, and the voice of the teachers got represented in our process. Since the tool worked so well, we wanted to do it with more actors. As all teachers involved in the previous co-creation were very experienced, we thought it could be interesting to investigate the dreams and visions of a group of teachers who had not been in the field of teaching for so long. So for the following co-creation, we contacted a young teacher from our existing network to find out if she could be interested in our project. She turned out to be curious and was happy to help. Through her, we also got in touch with two other teachers. All three of them were from the same education and worked together at the same school. As we at this current state experienced more freedom to have face-to-face interactions with actors, we decided to arrange the following session physically at our office in Copenhagen.

session five

FUTURE SCENA- RIOS II



participants

- three teachers



setting

- offline



tools

- clay
- lego
- Post-its / paper
- Sharpies



duration

- 120 minutes
- 20th of April, 2021

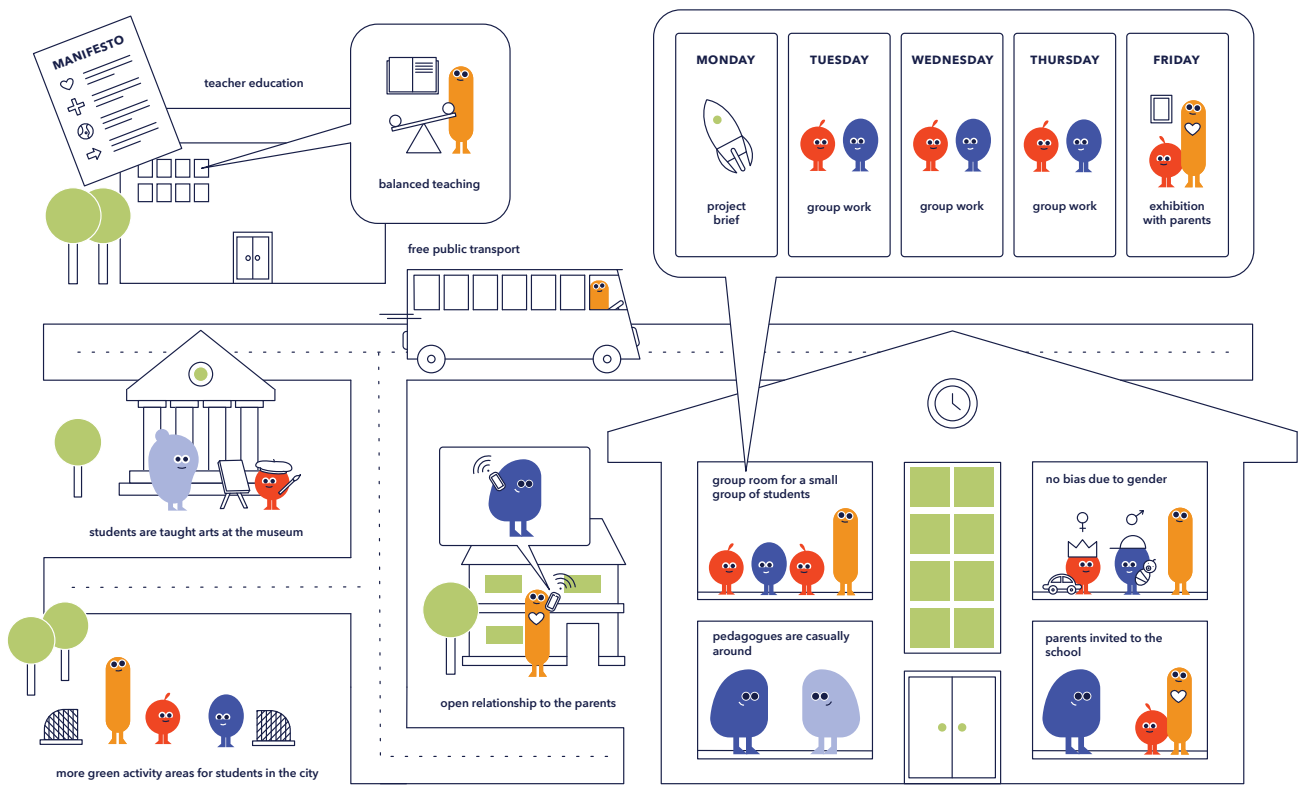


figure 30: a visualisation of the school 2045 built in this co-creation

PREPARATION

introduction

With the younger teachers, we were curious to find out how they see the future and if their points of view would be different from experienced teachers. One reason to invite younger teachers to brainstorm about the future is that they have not been in the current school system for so long, and we thought they might be critical about the system in different ways. Another reason was to understand whether the reality of being a teacher aligns with what they were taught in their education, so we could understand how this transition is for teachers. We were curious to determine if the teacher education results in thriving teachers once they have entered the work field. As Marlena stated, while building personas, teachers must thrive for the well-being of students.

Like the previous co-creation, it would be a session on a late Tuesday afternoon, so we aimed to create a light setting. We would focus on making the experience appealing, so the teachers might be convinced to engage their students in similar sessions. In this co-creation session, we will focus the theory and preparation mainly on making the transition from online scenario building to physical scenario building. Therefore, we will not explain the tool but rather discuss how we iterated on the tool and what we can expect from doing a scenario-building session physically.

how we iterated on the method

The first scenario co-creation took place online, where we facilitated the session verbally through Teams and with objects like digital post-its and pictures through Miro. The level of interaction with the objects was low, as none of the teachers wished to try Miro. Since the teachers had agreed to meet us physically, we started iterating on how to turn elements, which we knew worked well online, into an offline setting, so the level of interaction hopefully would improve. This made us reflect upon how physical materials can contribute to co-creation sessions. It has been argued that the element of ‘making’ enables a dialog between the designer and the material. The designer can explore the design challenge with their hands. In this case, the designer gets the opportunity to confront abstract thoughts with concrete examples (Frens & Hengeveld, 2013). We wanted to transfer this value to a co-creation session, which has fortunately been researched widely too. In research, it is reflected upon the role of design materials and their value to co-creations. Pre-made elements like a pen, Playmobil figures, paper, clay, disposable cups, and more as design materials might spark dialogue about topics investigated through a co-creation session. These materials are also referred to as things-to-think-with (Dalsgaard, Lucero & Vaajakallio, 2012). The researchers showcase how applying things-to-think-with can support actors involved in the co-creation to build a common design language that contributes to a calm atmosphere where creativity is the highest priority.

The things-to-think with approach is in literature also being referred to as embodied sensemaking. The term is described as: “shared sensemaking between people through ongoing embodied interaction and sensorimotor coupling in a social situation. Tangible artefacts enable dynamic, continuous forms of interaction, giving opportunity for social mediation” (Smit et al., 2016). In this case, the intended outcome of applying embodied sensemaking in the co-design process is to generate a

shared understanding across stakeholder groups through an interactive exercise. By doing so, the professional lingos of the stakeholders involved will be removed, so every stakeholder uses the same (visual) language (Smit et al., 2016).

expected outcomes

In this co-creation, we will build future scenarios again. So the expectations we had listed in the previous chapter will remain the same, and we will focus on the physicality of this session and what we expect to get out of a physical workshop. However, we will evaluate if the expectations were met in the same way as in the previous co-creation. Thus, in the results section, we will both discuss how the previous chapter's expectations were met and the outcome of a physical session.

from literature

1. Having physical objects will remove the professional lingo barrier between us as designers/innovators and the teachers (Smit et al., 2016).
2. The physical, pre-made objects will spark thoughts and provoke discussions (Dalsgaard, Lucero & Vaajakallio, 2012).
3. The participants get the opportunity to confront abstract thoughts with concrete examples (Frens & Hengeveld, 2013).
4. The things-to-think-with will support the actors involved in the co-creation to build a common design language that contributes to a calm atmosphere where creativity is the highest priority (Dalsgaard, Lucero & Vaajakallio, 2012).
5. The tangible artefacts enable dynamic, continuous forms of interaction (Smit et al., 2016).
6. We will generate a shared understanding among each other through the interactive session (Smit et al., 2016).

personal

7. We expect the teachers to have a different perspective on the current school system than the teachers in the previous session, therefore they will create a different future scenario.
8. We expect the level of co-creation to be a lot higher than in the previous session, because it is easier to engage with the physical artefacts than it was to engage with the Miro board.
9. We think it will be more complex to post-process the co-creation as we cannot record and save exactly what is happening in this setting.
10. We expect the participants to tinker with their hands instead of in their minds, as was the case in the last session.
11. We expect this session to require more facilitation from our side, to encourage the participants to use the artefacts.
12. We expect the artefacts to be appealing to the participants, which will make them more enthusiastic about the session compared to the online format.
13. We think it is more crucial to have one of us as a participant, to showcase how the artefacts can be used.

preparing the session

For each co-creation, we had started to clarify what we hoped to get out of it. We hoped to get the teacher's hopes and dreams for the future of the school and their vision on the teacher education. Therefore, the first part of the session would be about creating a school in 2045, and the second part would be to create a teacher education manifesto.

We wanted it to make it easy for the teachers to express themselves, so we looked for multiple types of artefacts they could use in the co-creation. We wanted the artefacts to be flexible, but the participants should be able to express their thoughts about resources, relations, power, and purpose. We decided to give them LEGO for physical resources so they could make buildings and other environmental objects. For other resources, we gave them icons representing objects and clay to make physical objects. From the same clay, we had pre-made multiple puppets they could use as actors. We hoped they could place actors together on the blank sheet if they would have a close relationship, or maybe draw a line between them with the pen we gave them. We gave them post-its for power relations and purposes because we had imagined those aspects to be difficult to express visually. We had made an effort to make all objects as such the participants could decide what identity they would give them. To make the setting pandemic-proof, each participant received their own toolkit (image 13).

practical preparations

We realised we could not use the same interview guide we had used for the experienced teachers for this session. It would be more time consuming to build things, and we wanted to give the participants time to get familiar with the artefacts. For that reason, we asked them to build an object they thought they would use in 2045 from the clay we gave them. By doing so, they could get into the futuristic mindset as well as explore the clay. Finally, we tried to take photos throughout the session because we could not record the session like the online ones.



image 12: the table right before the co-creation



image 13: each participant got their own toolkit to express themselves.

ACADEMIC EXPECTATIONS

☒ = fulfilled ☐ = not fulfilled ☐ = uncertain

01

Having physical objects will remove the professional lingo barrier between us as designers/innovators and the teachers.



02

The physical, pre-made objects will spark thoughts and provoke discussions.



03

The participants get the opportunity to confront abstract thoughts with concrete examples.



04

The things-to-think-with will support the actors involved in the co-creation to build a common design language that contributes to a calm atmosphere where creativity is the highest priority.



05

The tangible artefacts enable dynamic, continuous forms of interaction.



06

We will generate a shared understanding among each other through the interactive session.



PERSONAL EXPECTATIONS

☒ = fulfilled ☐ = not fulfilled ☐ = uncertain

07

We expect the teachers to have a different perspective on the current school system than the teachers in the previous session, therefore they will create a different future scenario.



08

We expect the level of co-creation to be a lot higher than in the previous session, because it is easier to engage with the physical artefacts than it was to engage with the Miro board.



09

We think it will be more complex to post-process the co-creation as we cannot record and save exactly what is happening in this setting.



10

We expect the participants to tinker with their hands instead of in their minds, as was the case in the last session.



11

We expect this session to require more facilitation from our side, to encourage the participants to use the artefacts.



12

We expect the artefacts to be appealing to the participants, which will make them more enthusiastic about the session compared to the online format.



13

We think it is more crucial to have one of us as a participant, to showcase how the artefacts can be used.



ANALYSIS

The session lasted precisely two hours, where we both built a vision for a new school and a manifesto for teacher's education. There was a strong focus on what it is like to be a recently graduated teacher. All participants built upon each other's experiences, where they addressed the gap between their education and teaching in reality. The vision for 'School 2045' had strong relations to 'School 2041' we previously built with the other teachers: both visions removed the school's physical boundaries and wanted to teach in context. However, the outcome of this co-creation has a stronger focus on the teacher's education and how we should prepare teachers to work at school 2045. The vision and manifesto can be read in Appendix E.

level of co-creation (expectations 2, 3, 4, 5, 6, 8, 10, 12, and 13)

Throughout the session, we co-created much knowledge about the teacher's experiences and put them into the format of a new manifesto for the teacher's education (img 14 and 15). The outcome aligns with expectation 01 from the previous session:

"Co-creating a scenario with teachers will contribute with future visions on how to solve social challenges happening in our society today and lead our team in a common direction" -Cairns & Wright, 2018

On top of the manifesto, we have co-created a vision for School 2045, where the teachers designed a new way of educating children. Julie triggered discussion by asking questions, after which the teachers created a vision for the new school among each other. Their discussion took place mostly verbally, and they barely interacted with the physical artefacts. While the teachers were talking and Julie facilitated the discussion by asking questions, Lucy live-recorded their discussion using the artefacts. We hoped that they would eventually start interacting with the clay, LEGO, and post-its, but they did not. So, the teachers did not use the artefacts as things-to-think-with, but they closely observed how their discussion was live-recorded on the blank sheet. It was good to capture their thoughts visually, so we all had a sense of creation, and we could leave the room with a satisfied feeling of having built something.

At some point, we asked them to think about teacher education in silence and write their thoughts on post-its. We did the same at the beginning, where we asked them to build an object in clay they think they will use in 2045. These were the moments they interacted with physical objects and expressed themselves visually (or in written form). What we have learnt from this, is that we think we should give them more time to 'think with the objects' individually. We did not decide to go in that direction during the session because we preferred the in-depth discussion, which we were afraid to lose when we would ask them to think in isolation. So, in short, the objects did not trigger many thoughts by themselves, perhaps because they had little identity. The teachers were enthusiastic to see the setting when they entered the room and find their names on the future toolkits, but that was about it.

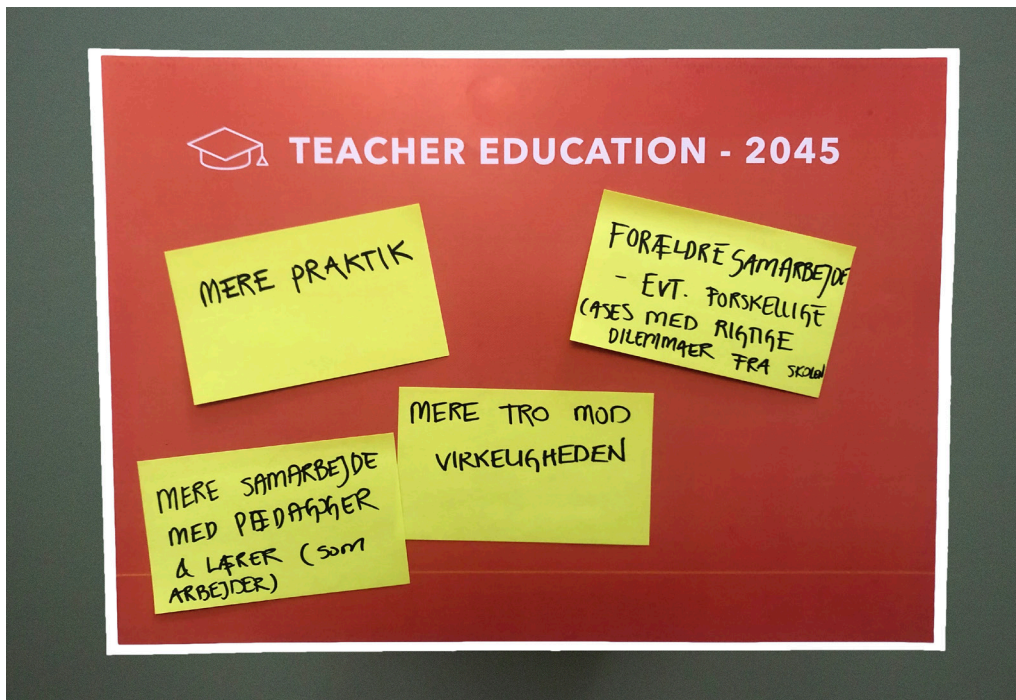


image 14: the teachers each got time to think about what they would like their education to be on these sheets



image 15: after the individual thinking time, we synthesized their wishes into a manifesto. The rough result is the clayed icons together with the headlines on the right side of this image

a vision closer to reality (expectation 7)

Compared to 'School 2041' from the previous session, the vision for 'School 2045' was closer to reality. We were surprised about this because we expected it to be the other way around. We thought the experienced teachers would be more influenced by their extensive experience, and the younger teachers would have a more 'blank sheet' to start from. However, we had not anticipated that the younger teachers were still very occupied with adapting to today's school system. They expressed many concerns about their relationship with parents and how they felt they lacked education about conflict management. We think it might have been more challenging for them to take a helicopter view of today's reality and reflect upon it because they were still in the process of figuring out it works. For that reason, we think 'school 2045' is closer to reality than 'school 2041'. Nonetheless, the younger teachers had similar visions as the experienced teachers had. They both wanted to remove the boundaries and teach in context, where relationships with parents and pedagogues would be closer and more open.

physical space (expectations 1, 3, 6, and 11)

At the beginning of the session, we both participated in the warm-up exercises to show how the clay can be used and to create a comfortable environment. We could see the participants looked closely at how we used the artefacts, and it triggered them to build their own objects in the warm-up exercise. However, when we started brainstorming about the future school, it was difficult for them to express abstract thoughts with the objects we gave them. When we tried to encourage them to join the visual recording process, they commented:

'No, you guys are so good at it, we'll observe' (quote from memory, written down immediately after the session)

We learnt that it might take more time for non-designers to explore how to express their abstract thoughts in physical objects. So that made us question what the advantage of a physical workshop was compared to an online setting. We have a few observations we would like to share regarding the physicality of the session. First of all, the conversation was more natural, and after approximately thirty minutes, there was barely a need for facilitation of the discussion. The participants could build upon each other and it was easier for us as facilitators to read their body language and see who had something on their mind. This was comfortable for us, and the teachers seemed comfortable with each other too. Part of their comfortability could be because they have known each other for years and they are colleagues. We could hear this was not the first time they shared their thoughts. On the other hand, the teachers in the previous session were familiar with one another too, and that conversation was less natural and dynamic. So it seems like a physical environment allows for more dynamics than an online environment.

post-processing (expectation 9)

We had planned to take some photos to capture how the session evolved, but we focused on creating a comfortable environment and did not want to disturb with cameras constantly. Immediately after the session, we decided to discuss our initial thoughts and write the first things down. It was crucial to post-process the session the next day because we were sure our memories would leave us behind if we waited longer. In retrospect, we should have recorded the session's audio, or even video recorded it, so there would have been less pressure on our memory. Except for the pressure on our memory, post-processing the insights was relatively easy because we had a clear idea of the visual format (similar to the previous booklet, see Appendix E).


gender

Finally, we would like to address a big part of the session was about gender. The teachers wished they had more education about upbringing concerning gender. They indicated they did not want to reproduce the stereotypes they grew up with, but they were unsure how. We mention this specifically because we have had more discussions about gender education as important for well-being. The teachers did not mention anything about social media, which we also found interesting because Marlena and Ellen strongly focused on this.

why co-create future scenarios in a physical environment?

After this session, we had valuable insights on what the teacher's education leading up to becoming a teacher should contain. We believe we have a more holistic view of how we can intervene in the system now, which also connects to the work of our colleagues. Our RFI colleagues are specifically concerned with secondary education and how to improve the circumstances for well-being in that area. Through this co-creation, we feel we can connect our insights to theirs, and we will be able to discuss opportunities for intervention in a joint format. The key insights from this session concerning system innovation are summarised on pages 120 and 121.

Now, we should elaborate on the necessity for co-creation of the teacher's manifesto and the future vision for schools. The arguments for co-creating a future vision from the previous co-creation still hold after this session. We believe it should be a democratic decision between experts from the field and designers. We will discuss the values of co-creation in this session that were different from the previous one.

In this session, we gave the teachers some thinking time to develop a manifesto for teacher education. It seemed valuable to give them this quiet thinking time because we could see their arguments were more elaborate than the group discussions. After this thinking time, we asked them to share their thoughts, which would not have been possible in an interview format. By doing so, we were able to synthesize their thoughts into a single manifesto everybody agreed to (see ). We both suggested things, and the teachers were able to share their (dis)agreement, which we believe to be a valuable element of doing this in a co-creation format.

Just like with the other sessions, it was wonderful to see how much we could produce within two hours. In an interview format, this is usually not so visible. For that reason only, we think it was a good thing to build the system as we created it. Besides, we could see where the 'gaps' in the vision were by looking at the table and prompt the participants with questions so they could extend. As a result, we had a nice and whole vision that was easy to transform into a graphically designed format.

We feel this vision came to life democratically where we all suggested things, despite the fact that the interactivity with the visual elements was low from the participants' side. And again, we would argue it is inevitable to co-create future visions because this is the only way to include lived experiences and really get under the actors' skin.

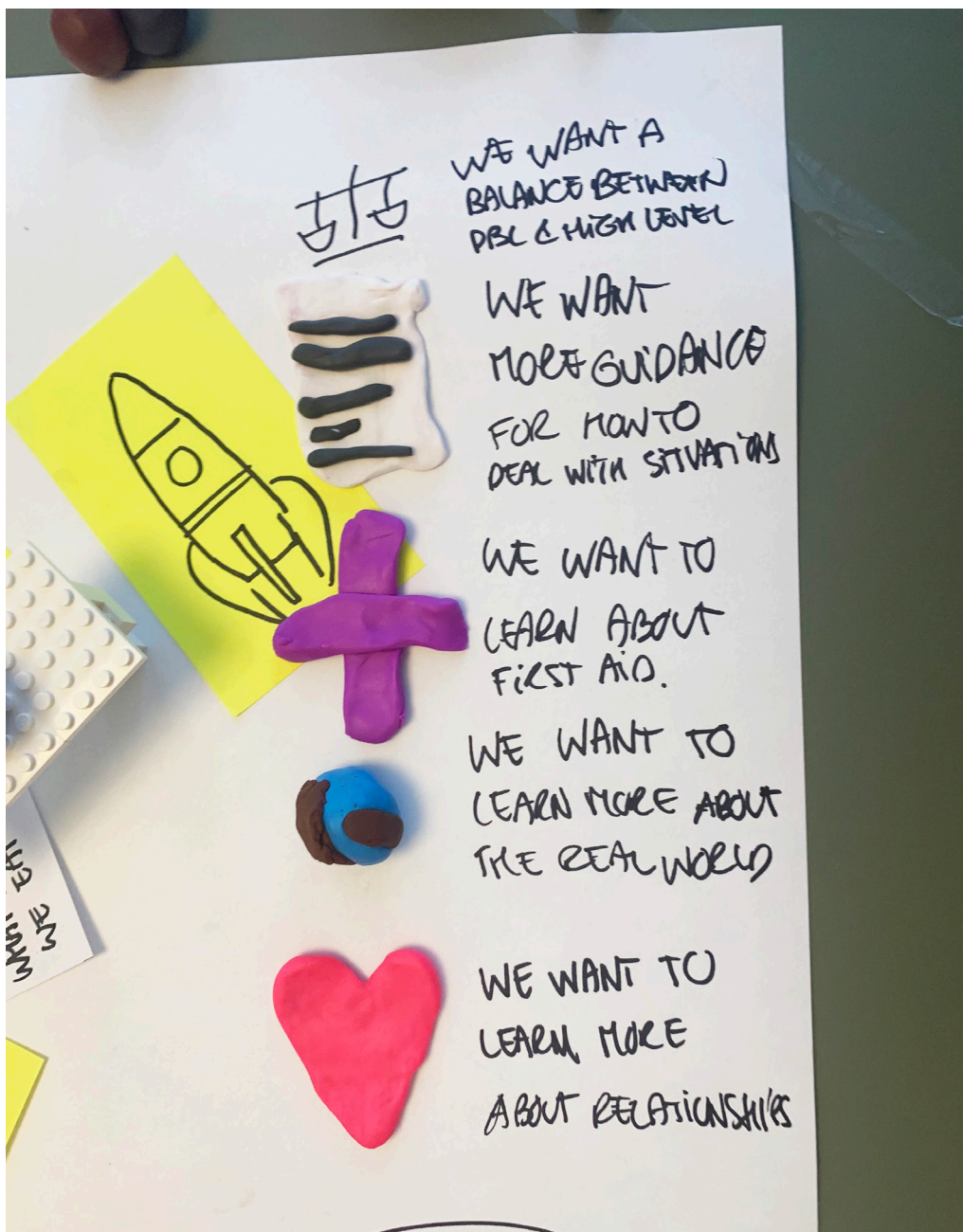


image 16: the co-created teacher manifesto (a summary)

KEY / SYSTEM INSIGHTS



purpose

The teachers think the purpose of going to school should be to become good citizens who respect each other. The proposed purpose for going to school is very similar to the purpose the experienced teachers proposed.



power

We could not find any particular insight related to power in this session.



resources

Just like the other teachers, the young teachers want to utilise the resources of the whole city to teach their children in context. With their idea for free public transport, they want to be able to move freely. Moreover, they want smaller classrooms to be able to pay more attention to individual students.



relationships

Young teachers feel a great distance to the parents of the children in their classroom. In the current school system, teachers only contact parents personally when there is a conflict. The young teachers indicated this is a very uncomfortable setting to meet somebody for the first time.



macro

The teachers had a strong desire to teach their children to be more open to gender and sexuality. From this, we learnt that the young teachers would like the ideology to change to a society where we do not classify people based on their gender or sexuality.



meso

This session pointed to some frustrations about how easy it is to become a teacher. The young teachers want it to require more to become a teacher, since they consider it a highly important role (an active shaper of the new generation). They think the internships should be longer to learn in real contexts.



micro

They pointed to communities on the micro level helping them to get educated about gender, which they strongly desired to know more about.



image 17: the workshop table right after the participants left



image 18: the clay puppets we used in the co-creation session

conclusion

This co-creation went in a different direction than we expected, since it focused way more on the transition of teacher education to being a teacher than we anticipated. Nonetheless, it was incredibly insightful to hear about these pain points and the teachers' ideas on doing it better. We have plenty of opportunities for intervention in teacher education, which is not necessarily our focus area but is within the focus area of RFI. We could easily connect the insights from this co-creation to the previous sessions, which we hope will point to a clear direction for intervention.



05

SYNTHE- SIS

The background of the image consists of several broad, curved bands of color. At the top, there is a dark blue band. Below it is a light blue band. This is followed by another dark blue band, then another light blue band, and finally a large, solid light blue band at the bottom. The curves of these bands are smooth and sweep across the width of the image, creating a sense of movement and depth.

SYNTHESIS

Throughout this thesis, we have explored how we can use service design tools in a co-creative setting to explore public systems and its opportunities for system innovation. Chapter four discussed what we have learnt from using each tool in a co-creative setting. Moreover, we outlined if it was helpful utilizing this tool in co-creation or if we could have reached the same outcomes with other approaches. We have now reached the point in the project where we will pinpoint what we identified as opportunities for better circumstances of the well-being of young people. These opportunities will consist of specific design challenges of which the 'how' can be explored further through co-creation with particular actors. After the opportunities, we will reflect upon our approach to finding the opportunities: relatively short (up to two hours) co-creation sessions with multiple actors using service design tools. The reflection on the values of this approach will be based on an internal workshop we did with the designers at RFI.

OPPORTUNITIES

In chapter one, we have discussed the rising mental health issues amongst young people in Denmark. We briefly touched upon some potential causes but had to conclude there was no consensus about the cause. We were asked to explore the school system and what could be possible causes for poor mental health, and more importantly: what are opportunities for intervention? A series of co-creations with multiple actors from the system has provided us with many insights about the current system and its potentials to do things differently. We believe we have identified some opportunities we could take with us into the prototyping phase. However, since the exploration phase of the mental health initiative runs until the end of 2021, we will recommend more specific explorations to discover the potential of each opportunity in the remainder of 2021. We will do so by listing six specific design challenges which focus on the 'how to' and recommending co-creation tools to exploit to find the answers. Phrasing insight statements as 'Hog might we' questions suggest that a solution is possible, and it allows for answers in various ways (IDEO, n.d.). Lastly, we will pinpoint specific collaboration partners we consider fruitful for these co-creation sessions.

DESIGN BRIEFS

01

how can we shift from a one-size-fits-all education to an education where children can live up to their potential?

School 2041 and 2045 point specifically towards a school where children can flourish because they are guided by their interests instead of a curriculum. School 2041 suggests a master plan for each specific child, and school 2045 consists of project weeks where each child can choose what they would like to learn. Besides the future scenarios suggesting exploring this further, we were intrigued by the wide variety of methods the teachers from the personas session used to help the children thrive. They do not use a one-size-fits-all methodology to help children thrive but have a wide range of things in mind they can apply when they see fit.

02

how can we create bigger platform for children to create relationships with adults?

The relationships young people have with adults play a crucial role in how they see themselves in society. The actor network map shows some arenas where children can thrive outside of school (e.g., in sports clubs), and both the AKT teacher and the head of department (afdelingsleder in Danish) stressed that we need to have strong connections to businesses. By doing so, we can allow children to have relationships with multiple adults and explore whom they want to be in society. The future scenarios point to this design brief as well because they want to teach in context, and teaching should not be limited to the teachers. We believe this is a very fruitful design brief, yet it does not have to be explored further in the mental health initiative. Another project at RFI is focused on this design brief specifically, and they have found a potential solution currently in the prototyping phase (Rockwool Foundation Interventions).

03

How can we create stronger relationships between parents and teachers?

The actor network map clearly shows that we should not fool ourselves to think that we could create better well-being for young people by focusing on schools only. The life of young people consists of much more than school so we should not limit our scope to the school. The personas sessions showed us the importance of parents and their ability to support their children. In both future scenarios, it was clear that the teachers desired closer relationships with the parents. Teachers want to collaborate on the child's journey to become whole people. Therefore, we should explore how we can foster the relationships between parents and teachers.

04

how can we equip teachers (in their education) to feel confident in their profession?

In the session where we co-created school 2045, we discovered a disconnection between the teacher education and the reality of the profession. This is highly relevant for the tracks our colleagues are exploring (education and labour market) because the quantitative data indicates the number of students with mental health issues (and who are later to drop out from the labour market) is relatively high in the teacher education. Unfortunately, the specific graphs are not published yet and can therefore not be shared in this thesis. However, we think this design brief is worth exploring in the remainder of 2021 as teachers are key actors in the schools.

05

how can we design a school where we allow everybody to be who they want to be instead of reproducing stereotypes?

Throughout co-creation sessions, we had many discussions about different reasons for boys and girls to thrive. The young teachers were reluctant to reproduce stereotypes, but they did not know how to educate children about gender and sexuality as such they would not reproduce stereotypes. Furthermore, the personas showed there are specific perceptions of boys and girls present in the school system. Thus, we think we should explore this design brief to see how we can abandon stereotypes. We specifically attach value to this design brief due to the broader movement for gender equality and a report we have read from Sex & Samfund that states the importance of gender education for well-being (Sex & Samfund, 2021).

06

how can we design a school where resources are not limited to the silos but can be utilised everywhere?

While creating the actor network map, we have learnt about the strong hierarchies in the system and how resources in municipalities and schools are divided per arena. The resources are not to be shared and encourage working in silos, making collaboration across arenas more complex. In the personas session, the AKT-teacher also expressed that she was frustrated in her former role in the municipality because it was disconnected from the reality in schools. On top of the frustrations about silos in the current system, the two future scenarios show a clear desire for more connections and breaking the silos. Therefore, we think it could be valuable to see how we can design a school without silos.

HOW AND WITH WHOM?

We discussed how we could explore the design briefs in the internal workshop to get closer to a prototype. The future scenarios seem like an excellent tool to deepen scenarios and brainstorm about the 'how to'. We could experiment with future scenarios with constraints and conflicts to challenge our visions. Therefore, we would recommend RFI to continue with co-creations where we built future scenarios targeted to answer the design brief.

With whom should we co-create?

In our process to identify the opportunities, we came across multiple actors we would like to include in the second phase of exploration. In chapter one, we shared how one should engage on all three levels of the system to create system innovation. For that reason, we have mapped the actors we would recommend RFI to engage with on these three levels.

Partners to re-think the macro-level

Reshaping the landscape means we need alternative ideologies, economic contexts, and demographics. For example, we believe Sex & Samfund would be a good partner to reshape our view on gender and gender education. In the actor network map, one can find various NGO's that would be interesting to engage with to re-think ideologies and economic contexts. On top of that, we think it could be relevant to engage with Søren Kristian Krogh and Amy Orben again to re-think our views on gender, social media, and performance.

Partners to enable change on the meso-level

We got in touch with three schools that are willing to engage with RFI for long-term experiments. The first two schools operate as the current regime prescribes, so we would suggest engaging with one of them to ensure the values of the current regime are transferred into the new regime. The third school works with a problem-based-learning approach and we think they are essential to engage with. The future scenarios are focused on problem-based-learning too, so we think we need to learn from the school's approach.

Partners to learn from on the micro-level

Lastly, we would suggest having a couple of co-creation sessions with entrepreneurs on the micro-level who have radical ideas. Through one of our colleagues at RFI, who runs a start-up to teach children design thinking on the side, we found an incubator for start-ups revolving around children (<https://reachforchange.org/en/what-we-do/our-portfolio>). We think it could be interesting to ask some of these entrepreneurs in for a co-creation session to see where we can push the boundaries of the current system

VALUABLE APPROACH?

About a week before hand-in, we organised a workshop to share the insights with our colleagues at RFI. To limit the number of participants, we invited the mental health team and other service designers in the organisation working with primary schools. We created an interactive format to share our insights at the beginning of the session (image x). After an introduction about our approach and design brief, the participants had time to explore the outcome of each co-creation in-depth. Afterwards, we asked them some questions about the approach and if they think we should implement the approach at RFI. We collected all their answers on post-its (image x), and we had time for a short discussion afterwards. This part of the synthesis will be based on the input we received in the workshop. We will discuss the benefits and pitfalls of quick & dirty co-creation sessions with multiple actors and what our colleagues need at RFI to implement this approach.

values

co-creating with multiple (different) people

In the exploration phase of projects with this level of complexity (no consensus about the cause, many actors involved), quick co-creation sessions with multiple people is an excellent approach to ‘scan the horizon’. Our colleagues agreed that the approach works very well to retrieve lots of perspectives in an in-expensive way. The approach allows multiple voices to be represented, and it creates support for potential new interventions. Thus, co-creating with multiple actors is not only beneficial to learn about the many perspectives, it also creates willingness for an upcoming intervention. A next step could be to engage with some actors for the longer term to gain deeper insight into some perspectives and concepts.

the approach as system innovation itself

System innovation does not happen overnight. It happens incrementally and very slowly (The Rockwool Foundation Interventions, 2020). We should not fool ourselves to think we can achieve system innovation with one intervention we can find through co-creation activities. Instead, we should see the co-design approach as one of the stepping stones to system innovation since the approach suits the vision to have a relational state (see chapter two, page 42). Thus, we suggest seeing both co-creation activities and interventions as a means to create stepping stones that, as a whole, might contribute to system innovation.

the use of tools in co-creation sessions

In the workshop, we received many comments about the values of each tool specifically. For example, one of the many comments on the actor network was:

“The map provided us with a more holistic overview of all the systems surrounding young people than ever would have imagined. The challenge for us might be bigger than we first expected.”

One of our colleagues even requested a toolbox she could use in co-creation activities, as she is not educated as a designer. We were pleased to hear our colleagues were enthusiastic and they would like to apply the tools themselves. Nonetheless, we have learnt that the tools are not a recipe for success, and we should focus on building

capabilities within the organisation (de Götzen, Morelli, & Simeone, 2021). We believe the tools provided us with a framework to map our knowledge or come up with new ideas, and therefore we would encourage using the tools in co-creation sessions.

combining the outcome of co-creations with other types of knowledge

We went in most of the co-creation sessions with a blank sheet to be guided by what people wanted to tell us rather than what we wanted to know. As can be read in the co-design process, we were surprised many times, and it was a valuable approach for us. However, one of our economists suggested we could have prompted our participants with facts from the quantitative data. For example, the personas state school absence among young people rate is rising. The quantitative data shows quite the contrary, so it could be interesting to introduce the facts in our co-creation sessions. Moreover, we discussed combining the co-creation insights with more abstract insights such as books we read, scientific research, etcetera. We have subconsciously woven all that knowledge into our co-creation sessions, but we do not have a system for it. It could be interesting to explore how to combine the different knowledge to maximize the value of co-creation sessions.



image 19: the workshop participants had ten minutes to answer questions by writing Post-its

INTERNAL WORKSHOP



image 20: the set-up for the internal workshop. The walls were covered with the outcomes of our co-creations and we would kick-off with a small presentation on the screen



image 21: one of our colleagues was exploring the information about individual actors we had put in small booklets alongside the actor network map



image 22: we asked our colleagues to rotate in pairs, to make sure they had room to discuss the outcomes of co-creations and everybody would have enough space to explore



image 23: some pairs listened to the audio-recording of the teachers together so they could discuss the future scenario in the meantime



image 24: after exploring the exhibition, we listed three general questions for all our colleagues to answer and a fourth question custom-made for each colleague based on their expertise



image 25: the personas were pictured on a poster and each of them had a cord with characteristics.



image 26: it was not our intention, but the exhibition was inviting to leave thoughts on. We collected many insights on Post-its through the workshop.



image 27: we attached the future school stories as an audio file. There was a QR-code next to the poster that led to a recorded story about each future scenario

IMPLEMENTATION AT RFI

As a final part of the synthesis, we will outline what RFI would need to be able to implement the co-design approach.

Making the knowledge accessible across the organisation and outside

In the workshop, we invited multiple colleagues from different projects. Some of them had prior knowledge about our work, but most of them did not. After the workshop, they all said they found it easy to engage with the project and the insights because of the visual format. They agreed we should make an effort to make all knowledge at RFI more accessible, so it does not take hours to dive into another project. By doing so, we could break the silos within the organisation and even make the knowledge accessible to externals:

“We should have these things up the wall and make them accessible to everybody who drops by, also externals. This way, we can gather so much knowledge in such an easy way. The boards were extremely inviting to put notes on and to share thoughts.”

It could be wonderful to make the knowledge more accessible across projects, so we do not seek information that is already out there. Our exhibition was shown in the workshop room, and we sent out an email to the organisation they could drop by to have a look. We got many responses, and we hope our colleagues will follow our example to put their knowledge in a visual format we can engage with quickly instead of lengthy PowerPoint presentations. This also confirms the need for a designer to be able to express yourself visually.

The co-creation approach should be embedded in the applications

To get funding for projects within RFI, employees write applications where they pinpoint precisely what they hope to achieve and why they think a project is relevant. The applications are quite dominant within RFI, and no event is supposed to occur if it is not agreed in the application. For that reason, the co-design approach should be a part of the application. Our colleagues outlined that the current applications do not allow for much creativity.

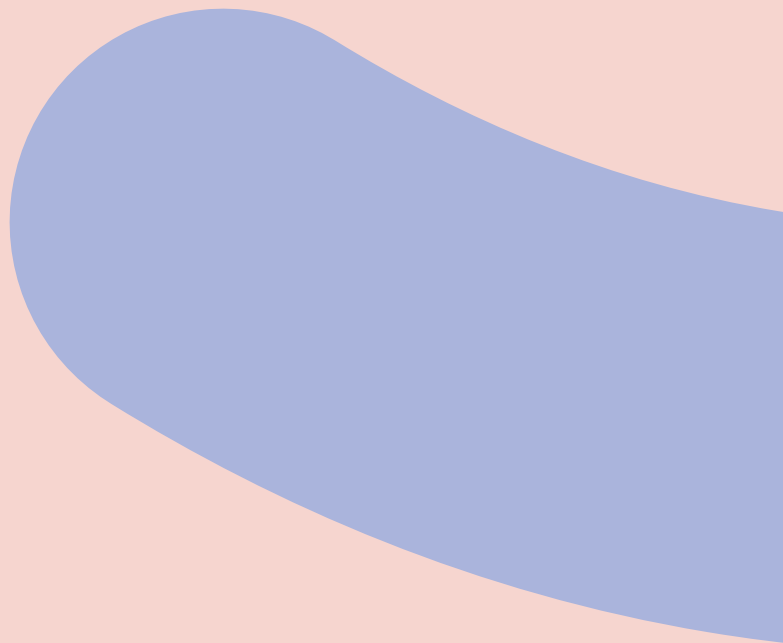
A new organisation culture: failure is good

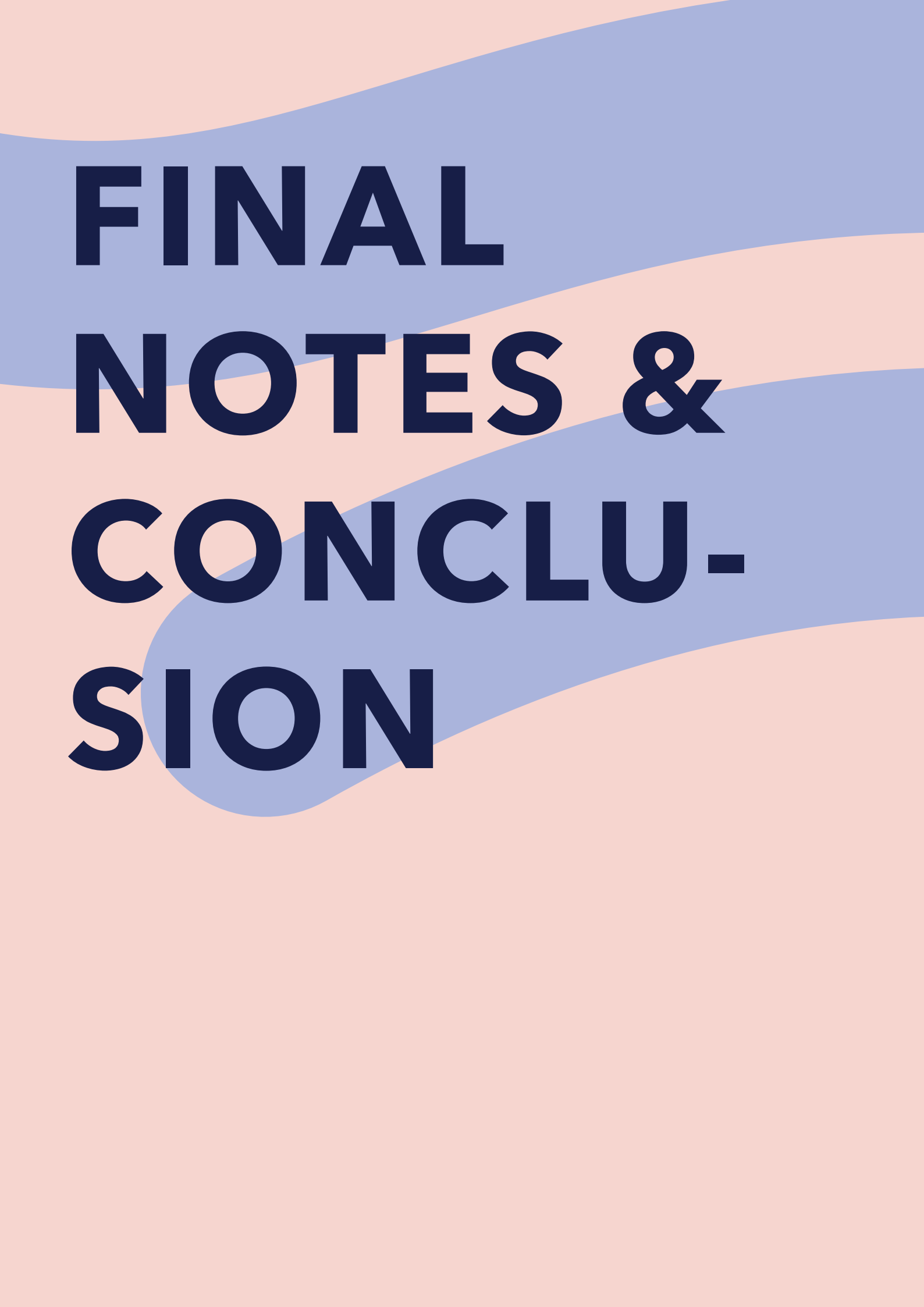
Finally, RFI has to shift its company culture to one where we are allowed to fail. The intervention unit emerged from the research unit. The foundation had the ambition to develop new solutions based on the societal problems the researchers find in data. Thus the intervention unit arose. However, the culture among researchers transferred into the interventions unit. In scientific research, it is about being ‘pixel-perfect’ and making sure every statement is correct. That mindset does not work for experimentation, and RFI should be allowed to make mistakes. Therefore, one of our colleagues suggested a new strategy:

“design many different stepping stones where most will fail, and where some might show enough potential to go to an RCT (a large-scale experiment).”

We think the organisation is on its way to a new mindset, but it simply takes time. More and more educated designers are being hired, of whom the DNA will hopefully be transferred into the organisation.

06





FINAL NOTES & CONCLU- SION

FINAL NOTES

Throughout this report, we have reflected upon our process continuously. However, there are three subjects we would like to pay a little more attention to. Each of the subjects has been quite present for us but is not widely discussed in the thesis. Thus, we will briefly touch upon each of them before concluding.

limitations of co-creations

First of all, we have discussed what improvements we could have made concerning our co-creations. During supervision with our professor, we realised we missed an element of feedback from participants. It could have been interesting to know whether the participants found the co-creation format as valuable as we did. We valued democracy in the co-creation sessions, and we would have appreciated a more democratic analysis of the approach. A way to receive the feedback could have been to ask the participants at the end of every session or provide all participants with a questionnaire afterwards. It would have added significant value to our process and analyses. Nonetheless, we discussed that every participant already committed much spare time to our project, and an additional questionnaire would have been too much to ask for.

Another element worth highlighting as a limitation of the co-creation is the recruitment processes. Already at the beginning of the project, we realised that recruiting participants takes time. We learned that before every session, we should at least add 2-3 weeks of pre-work consisting of the recruitment of the participants. We also learned that schools are difficult to enter because co-creation with children requires consent from both parents and teachers. For that reason, we first got access to the children at the very end of our project. We see this as a limitation because we had the ambition to include actors from other arenas than the school. We had hoped to break the silos in our co-creations by inviting people who normally do not interact. Unfortunately, this turned out to be easier said than done.

RFI processes

We would like to reflect upon our experience with the fail-fast approach in relation to the internal RFI processes. The intervention unit is a relatively new department in the foundation that emerged from the research unit. Sometimes, it was apparent that the organisation is still transitioning from doing research only to doing research AND design. All research communicated in the name of the foundation needs to be 100% validated before being published. We experienced some colleagues follow that logic in the design process too, which made it complex to be quick and dirty. From our point of view, working as a designer requires the freedom to be explorative and curious. Sometimes, our belief misaligned with the company culture of having every decision validated multiple times before taking any directions. Having that said, we experienced that many of our colleagues saw the value of our approach, and they aspire to take the same path. We realise it can be demanding to implement a design approach in a company culture where many employees have been used to a different mindset.

How the mental health project progressed

The last thing we want to pay attention to is the alignments with the other tracks in the Mental Health team. As mentioned earlier, there were two parallel tracks on the project -one exploring the circumstances for young people in further education and one exploring the labour market. In contrast with our quick and dirty co-design approach, our colleagues spend a fair share of time asking and answering existential questions. For example, they are still figuring out how one should measure mental health issues. We believe existential questions are crucial with a sensitive subject like the well-being of young people. Nevertheless, we regret that our work in the school track is difficult to align with the work of our colleagues. In fact, their approach seems so different that we hardly believe it is possible to continue the school track with our approach. We hope that they still see the values of our work, and it will be useful for them at some point.

CONCLUSION

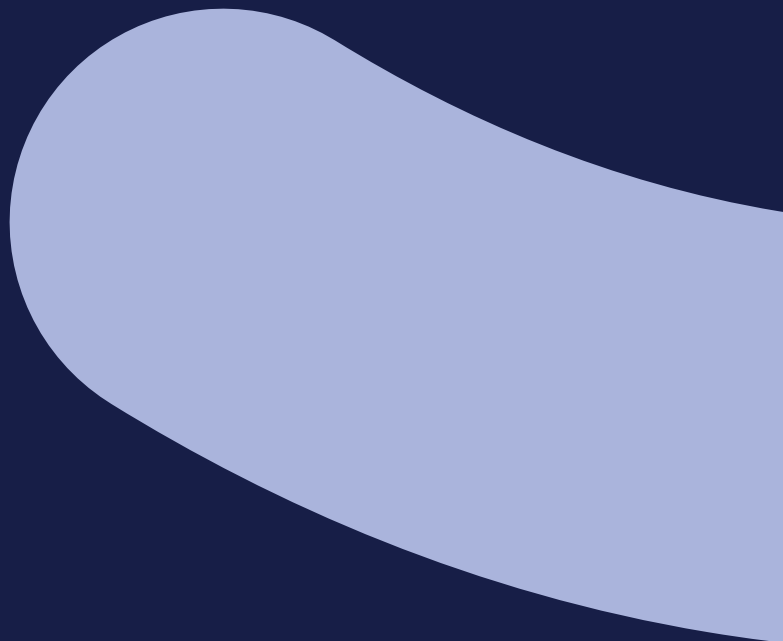
This thesis explored if we can apply service design tools in a co-design process to understand public service systems and its opportunities for interventions. We would argue that the tools are excellent for co-creation because they give the sessions a framework to map knowledge or ideas. Moreover, the comprehensive, visual outputs we created after each session ensured the obtained insights were easy to engage with quickly. Hence, we would recommend people engaging in system innovation processes to use service design tools in the exploration phase. Furthermore, the visual communication of the outcomes is an essential part of using the tools. Both during the co-creations and when presenting the findings, we became aware of how a visual language can be helpful for service designers to communicate complexity. For each of the tools we have used, there are certain things one can expect as outcomes, which we have listed in corresponding chapters. Without going into detail about each of the tools again, we would like to stress that the tools are not a recipe for success, and one should consider how to deploy various tools in co-creative settings.

Then, we would like to pay attention to co-design as an approach for exploring systems. As discussed in the synthesis, the quick and dirty co-creation sessions are very good for scanning the horizon of systems. As discussed with our colleagues at RFI, it works very well in the exploration phase of a process towards a new intervention. Later on, it could be valuable to engage with some actors for the longer term to deepen concepts.

Lastly, we should stress that the company culture should be suitable for a co-design approach. If organisations would like to adopt the quick and dirty approach we deployed in our project, they should make room for failure and exploration. We would argue that the space for failure should be embedded in the official structures of a company, such as the application process at the Rockwool Foundation.

Summing up, using tools in a co-creative setting is highly valuable to scan the horizon of a system and to get a first feeling of opportunities for intervention. In the later stages of design projects revolving around system innovation, we would recommend engaging with some actors on the longer term. Lastly, a company culture where exploration and failure are allowed is crucial for a co-design approach, and organisations should ensure suiting structures.

07





**AND
FINALLY**

REFERENCES

- Aoyama, M. "Persona-and-scenario based requirements engineering for software embedded in digital consumer products," 13th IEEE International Conference on Requirements Engineering (RE'05), Paris, France, 2005, pp. 85-94, doi: 10.1109/RE.2005.50.
- Bauwens, M., & Lievens, J. (2013). *De wereld redden*. Houtekiet.
- Beveridge, W. (1942). *The Beveridge Report*. London: His Majesty's Stationery Office.
- Børne og Undervisningsministeriet. (2020). Folkeskolens formål. Retrieved May 14, 2021, from <https://www.uvm.dk/folkeskolen/folkeskolens-maal-love-og-regler/om-folkeskolen-og-folkeskolens-formaal/folkeskolens-formaal>
- Bourne, L., & Walker, D. H. (2005). Visualising and mapping stakeholder influence. *Management Decision*, 43(5), 649-660. doi:10.1108/00251740510597680
- Cottam, H. (2018). *Radical help*. London: Virago Press.
- Cottam, H. (2021). Relational Welfare. Retrieved April 08, 2021, from <https://www.hilarycottam.com/practice/relational-welfare/>
- Cairns, G., & Wright, G. (2018). *Scenario Thinking*. Cham: Springer International Publishing :Imprint: Palgrave Macmillan.
- Dam, R., & Siang, T. (2021). Personas – a simple introduction. Retrieved March 24, 2021, from <https://www.interaction-design.org/literature/article/personas-why-and-how-you-should-use-them>
- Dansk Centre for Undervisningsmiljø. (2017). *Præstationskultur i skolen* (Rep.). Retrieved April 29, 2021, from https://dcum.dk/media/2179/dcumpraestationskulturdigi2017.pdf?fbclid=IwAR1NoKM_tghjOXj6dgdwm0bmCmOcLPxer7BkGsWBb4w0dCZtpu7MzDeUVNpQ
- De Götzen, A., Morelli, N., & Simeone, L. (2021). *Service Design Capabilities*. Cham: Springer International Publishing. doi:<https://doi.org/10.1007/978-3-030-56282-3>
- Den Danske Ordbog. (2021) intervention. Retrieved 5 May 2021, from <https://ordnet.dk/ddo/ordbog?query=intervention>
- Djajadiningrat, J. P., Gaver, William W. and Fres, J. W. (2000): Interaction Relabelling and Extreme Characters: Methods for Exploring Aesthetic Interactions. In: Proceedings of DIS00: Designing Interactive Systems: Processes, Practices, Methods, & Techniques 2000. pp. 66-71
- Ehn, P. (2008). Participation in Design Things. Proceedings Participatory Design Conference 2008, 92–101. Retrieved from <http://urn.kb.se/resolve?urn=urn:nbn:se:mau:diva-11060>

- Elzen, B, Geels, F W, Green, K, 2004 System Innovation and the Transition to Sustainability: Theory, Evidence and Policy (Edward Elgar, Cheltenham, Glos)
- Frens, J. W., & Hengeveld, B. J. (2013). To make is to grasp. In *5th International Congress of International Association of Societies of Design Research (IASDR)*, 26-30 August 2013, Tokyo
- Geels, F. W. (2002). Technological transitions as evolutionary reconfiguration processes: A multi-level perspective and a case-study. *Research Policy*, 31(8-9), 1257-1274. doi:[https://doi.org/10.1016/S0048-7333\(02\)00062-8](https://doi.org/10.1016/S0048-7333(02)00062-8)
- Hagen, P, Collin, P, Metcalf, A, Nicholas, M, Rahilly, K, & Swainston, N 2012, Participatory Design of evidence-based online youth mental health promotion, prevention, early intervention and treatment, Young and Well Cooperative Research Centre, Melbourne. Retrieved from https://www.westernsydney.edu.au/__data/assets/pdf_file/0005/476330/Young_and_Well_CRC_IM_PD_Guide.pdf
- Holmlid, S. (2009, November, 24-26). Participative, co-operative, emancipatory: From participatory design to service design. First Nordic Conference on Service Design and Service Innovation. Oslo, Norway. Retrieved from: https://www.researchgate.net/publication/228629923_Participative_co-operative_emancipatory_From_participatory_design_to_service_design
- Ideo. (n.d.). How Might We. Retrieved May 20, 2021, from <https://www.designkit.org/methods/how-might-we>
- Innovationsfonden. (2021) Erhvervsforskerprojekt kortlægger mentale trivselsproblematikker blandt indskolingsbørn. Retrieved from <https://innovationsfonden.dk/da/investeringer/investeringshistorier/erhvervsforskerprojekt-kortlaegger-mentale>
- Jørgensen, U., Lindegaard, H., & Rosenqvist, T. S. (2011). Engaging Actors in Co-Designing Heterogeneous Innovations. In *Proceedings of the 18th International Conference on Engineering Design: Impacting Society through Engineering Design* (Vol. Vol.1 Design Processes, pp. 453-464). Design Society.
- Lucero, A., Vaajakallio, K., & Dalsgaard, P. (2012). The dialogue-labs method: process, space and materials as structuring elements to spark dialogue in co-design events. *Codesign*, 8(1), 1-23. doi: 10.1080/15710882.2011.609888
- Manzini, E. (2015). *Design, when everybody designs: An introduction to design for social innovation* (1389515125 1014421433 R. Coad, Trans.). Cambridge, MA: MIT Press.
- Manzini, E., & Staszowski, E. (2013). *Public and collaborative: exploring the intersection of design, social innovation and public policy*. DESIS Network. Retrieved from http://www.designagainstcrime.com/files/publications/pub_2013_public_and_collaborative.pdf

Morelli, N., & Tollestrup, C. (2007). New Representation Techniques for Designing in a Systemic Perspective. In Design Inquiries, Nordes 07 Conference. Retrieved from https://www.researchgate.net/publication/242094870_NEW_REPRESENTATION_TECHNIQUES_FOR_DESIGNING_IN_A_SYSTEMIC_PERSPECTIVE

Näkki, P. (2012). ServDes.2012 Third Nordic Conference on Service Design and Service Innovation. In *Service Co-design Using Online Ideation and Face-to-face Testing: Case City Adventure*. Retrieved April 13, 2021, from <https://servdes.org/pdf/2012/nakki.pdf>

New Economics Foundation. (2012). *Measuring Wellbeing (Rep.)*. Retrieved April 29, 2021, from New Economics Foundation website: <https://neweconomics.org/2012/07/measuring-wellbeing>

Nielsen, L. (2011, November). Personas in co-creation and co-design. Eleventh Danish HCI Research Symposium, Copenhagen, Denmark. https://www.researchgate.net/publication/228091651_Personas_in_Co-creation_and_Co-design

Nielsen, L. (2013). Personas. Retrieved March 23, 2021, from <https://www.interaction-design.org/literature/book/the-encyclopedia-of-human-computer-interaction-2nd-ed/personas>

Orben, A., Dienlin, T., & Przybylski, A. K. (2019). Social media's enduring effect on adolescent life satisfaction. *Proceedings of the National Academy of Sciences*, 116(21), 10226-10228. doi:10.1073/pnas.1902058116

Pedersen, O. K. (2009). Discourse Analysis. Department of Business and Politics. Copenhagen Business School. Working Paper / International Center for Business and Politics No. 65

Peters, D., Loke L., & Ahmadpour, A., (2020) Toolkits, cards and games – a review of analogue tools for collaborative ideation, CoDesign, DOI: 10.1080/15710882.2020.1715444

ROCKWOOL Fonden. (2021) Hvad ved vi om unge kvinders mentale helbred? Retrieved 29 April 2021, from <https://www.rockwoolfonden.dk/projekter/hvad-ved-vi-om-unge-kvinder-mentale-helbred/>

Rockwool Foundation Interventions. (n.d.). Back in Business. Retrieved May 20, 2021, from <https://www.rockwoolfonden.dk/projekter/backinbusiness/>

Rygh, K., Arets, D., & Raijmakers, B. (2014). ServDes.2014 Fourth Service Design and Innovation conference. In *Defining Values Through Collaboration*. Retrieved April 13, 2021, from <https://servdes.org/wp/wp-content/uploads/2014/06/Rygh-K-Arets-D-Raijmakers-B.pdf>

Sandberg, F. (2012). ServDes 2012. In Co-creating Collaborative Food Service Opportunities through Work Context Maps. Retrieved April 13, 2021, from <https://servdes.org/pdf/2012/sandberg.pdf>

Sanders, E. B., & Stappers, P.J. (2008). Co-creation and the new landscapes of design. *CoDesign*, 4(1), 5-18. doi:10.1080/15710880701875068

Schilling, M. A. (2008). Strategic management of technological innovation (2. ed., internat. ed. ed.). Boston, Mass. [u.a.]: McGraw-Hill. Retrieved from <http://www.econis.eu/PPNSET?PPN=515847275>

Sex & Samfund. (2021). *Lige køn leger bedst* (Rep.). Retrieved May 20, 2021, from <https://www.ligebogenlegerbedst.dk/forandring>

Smit, D., Oogjes, D., Goveia da Rocha, B., Trotto, A., Hur, Y., & Hummels, C. (2016). Ideating in Skills: Developing Tools for Embodied CoDesign. *Proceedings of the TEI '16: Tenth International Conference on Tangible, Embedded, and Embodied Interaction*. doi:10.1145/2839462.2839497

Stickdorn, M., Hormess, M., Lawrence, A., & Schneider, J. (2018). *This is service design doing applying service design and design thinking in the real world ; a practitioners' handbook*. Sebastopol, CA: O'Reilly Media.

Sundhedsstyrelsen (2021) Tal og fakta. Retrieved 29 April 2021, from <https://www.sst.dk/da/Viden/Mental-sundhed/Mental-sundhed-blandt-boern-og-unge/Tal-og-fakta>

Tassinari, V., Baerten, N., & Staszowski, E. (2013). From welfare state to partner state: The case of Welcome to Saint-Gilles. In 1297686782 955472423 E. Manzini (Author), *PUBLIC AND COLLABORATIVE Ezio Manzini and Eduardo Staszowski, Editors. EXPLORING THE INTERSECTION OF DESIGN, SOCIAL INNOVATION AND PUBLIC POLICY* (pp. 89-104). Desis Network. Retrieved April 08, 2021, from https://www.desisnetwork.org/wp-content/uploads/2017/04/DESIS_PUBLIColab-Book.pdf.

The Rockwool Foundation Interventions (2020), *Building Better Systems*. Available at: <https://www.systeminnovation.org/green-paper>

Trischler, J., Dietrich T., & Rundle-Thiele, S., (2019) Co-design: from expert- to user-driven ideas in public service design, *Public Management Review*, 21:11, 1595-1619, DOI: 10.1080/14719037.2019.1619810

Vaajakallio, K., & Mattelmäki, T., (2014) Design games in codesign: as a tool, a mindset and a structure, *CoDesign*, 10:1, 63-77, DOI: 10.1080/15710882.2014.881886

Van Der Heijden, K. (2000). Scenarios and Forecasting. *Technological Forecasting And Social Change*, 65(1), 31-36. doi: 10.1016/s0040-1625(99)00121-3

Vidensråd for Forebyggelse. (2021). Ny rapport: Stigende mental mistrivsel hos de 10-24-årige. Retrieved 29 April 2021, from <http://www.vidensraad.dk/nyhed/ny-rapport-stigende-mental-mistrivsel-hos-de-10-24-%C3%A5rige>

Vink, J., Edvardsson, B., Wetter-Edman, K., Tronvoll, B., (2018) “Reshaping mental models – enabling innovation through service design”, *Journal of Service Management*, <https://doi.org/10.1108/JOSM-08-2017-0186>

Von Hippel, E. (2005). Democratizing innovation: The evolving phenomenon of user innovation. *International Journal of Innovation Science*, 1(1), 29-40. doi:10.1260/175722209787951224

Weir, M. (2001). Welfare State. *International Encyclopedia of the Social & Behavioral Sciences*, 16432-16435. doi:<https://doi.org/10.1016/B0-08-043076-7/01094-9>

Willis, A., & Manzini, E. (2005). Ezio Manzini Interviewed on Scenarios for Sustainability. *Design Philosophy Papers*, 3(1), 9-18. doi: 10.2752/144871305x13966254124112

Image references

Bradley, S. (2019a, September 17). [Goal-based persona]. Retrieved May 13, 2021, from <https://vanseodesign.com/web-design/a-guide-to-user-personas/>

Bradley, S. (2019b, September 17). [Role-based persona]. Retrieved May 13, 2021, from <https://vanseodesign.com/web-design/a-guide-to-user-personas/>

Danish Design Centre. (n.d.). [Scenario Matrix]. Retrieved May 13, 2021, from <https://livingfutures.org/scenarios/>

IBM. (n.d.). [Stakeholder Map]. Retrieved May 13, 2021, from <https://www.ibm.com/design/thinking/page/toolkit/activity/stakeholder-map>

Giordano, F., De Götzen, A., Morelli, N., & Hunziker, J. (2018). Figure 7 – Present situation done by public servants alone [Digital image]. Retrieved May 13, 2021, from <https://servdes.org/wp/wp-content/uploads/2018/07/48.pdf>

Morelli, N., & Tollestrup, C. (2007). The map of actors involved in a train trip [Digital image]. Retrieved May 13, 2021, from https://www.researchgate.net/figure/The-map-of-actors-involved-in-a-train-trip_fig1_242094870

APPENDIX A: VIDEO

All appendixes will be handed in digitally, however, we will define what files can be found in each appendix in this chapter.

Appendix A:

Video - MentalHealthVideo.mp4

APPENDIX B:

ACTOR NETWORK FILES

Actor network booklet: 210527_ActorNetwork.pdf

Interview guide - Interview.guide.Clara.pdf

Sound recording 1 - cocreation.session1.clara.mp3

Sound recording 2 - cocreation.session2.clara.mp3

APPENDIX C: PERSONAS FILES

Personas booklet: 210409_personas.pdf

Interview guide: Interview guide-Ellen.pdf

Interview guide: Interview guide-Marlena.pdf

Sound recording 1: cocreation.session1.marlena.mp3

Sound recording 2: cocreation.session2.ellen.mp3

Consent form 1: Marlena_consent.pdf

Consent form 2: Ellen_consent.pdf

APPENDIX D: FUTURE SCENARIOS FILES

Interview guide: Interview guide - Teachers - school1.pdf

Scenario booklet: 210406_School2041 (1).pdf

Sound recording: cocreation.session.teachers.mp3

Consent form 1: Teacherone.school1.pdf

Consent form 2: Teachertree_school1.pdf

Consent form 3: Teachertwo_school1.pdf

APPENDIX E:

FUTURE SCENARIOS II FILES

Interview guide: [interviewguide-youngteachers.pdf](#)

Map with pictures of the session: [pictures of the session](#)

Scenario booklet: [210421_School2045.pdf](#)

Consent forms: [Consent-forms-young-teachers.pdf](#)

APPENDIX F: PRODUCT REPORT

Product report: [productreport.pdf](#)

