Promoting well-being among adolescents
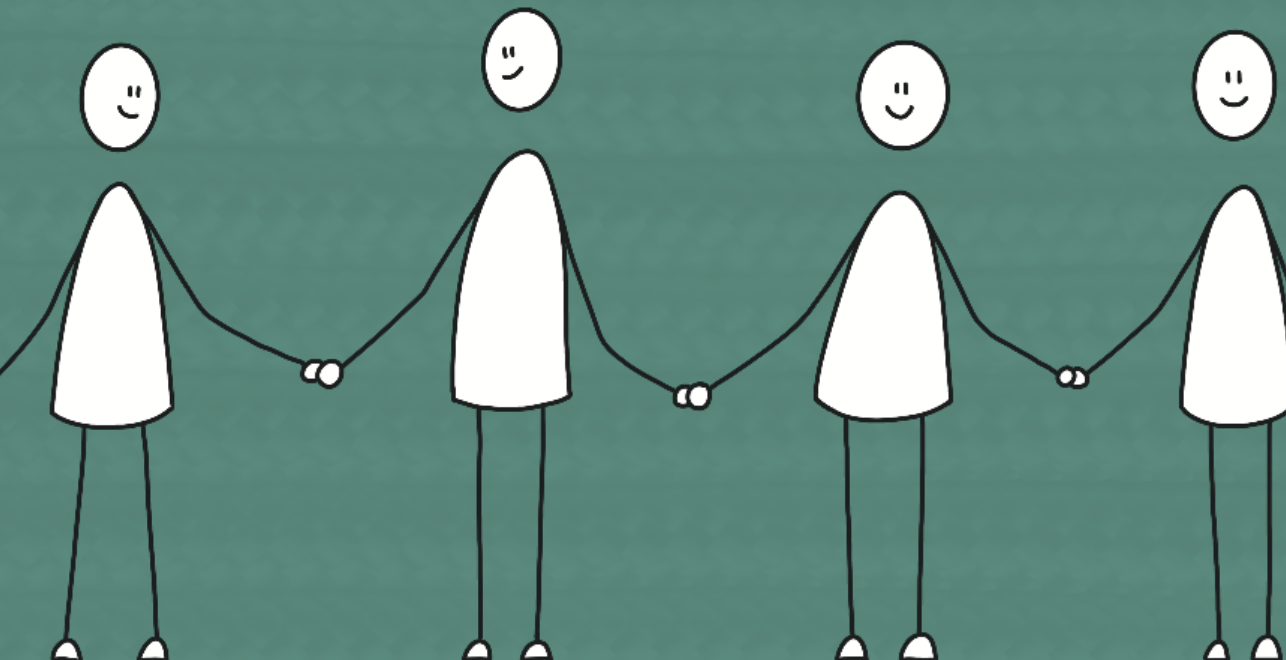
Exploring the added value of a systemic design approach

Master Thesis by Kirsten Vos

Colofon

TUDelft   MARKET RESPONSE

Preface

Dear reader,

I am happy to share my graduation project thesis with you! During my master Design for Interaction, I found that working on societally relevant projects gives me great satisfaction. I love seeing how a design can make a positive impact on someone's life, and find it important to involve the people I am designing for to ensure the solution suits their needs. The topic of this project is in line with the societally relevant project: adolescent well-being. Additionally, this topic is close to my heart, as it has been a challenge for me to obtain good well-being. My passion for this topic made it a very nice project to work on. In addition to my passion for the topic, the people I worked with during this project also helped bring this project to successful completion. Many people have helped me with this project, with both personal challenges and project content challenges, and I want to take a moment to express my gratitude.

First of all, I would like to thank my supervisors. Mieke, thank you for your expertise, critical questions and the occasional personal support. You really helped me to get the best out of myself, but also to continue to be mindful of my own well-being. Gijs, thank you for your guidance and helpful feedback. You helped me to find a balance between interaction design and systemic design.

Next, I would like to thank Koen, my company mentor, who always asked surprising and somewhat philosophical questions which made me reflect on my decisions. You certainly kept me focused during graduation.

I am also extremely grateful to all stakeholders who participated in my project. All participants generously made time for me and were very open in the conversations we had. Without all of you, my thesis project would not have been possible.

Finally, I would like to thank my fellow students, friends and family for supporting me, listening to me, thinking along with me, and occasionally providing a much-needed distraction. You all have made this project more enjoyable for me.

Thank you.

Kirsten
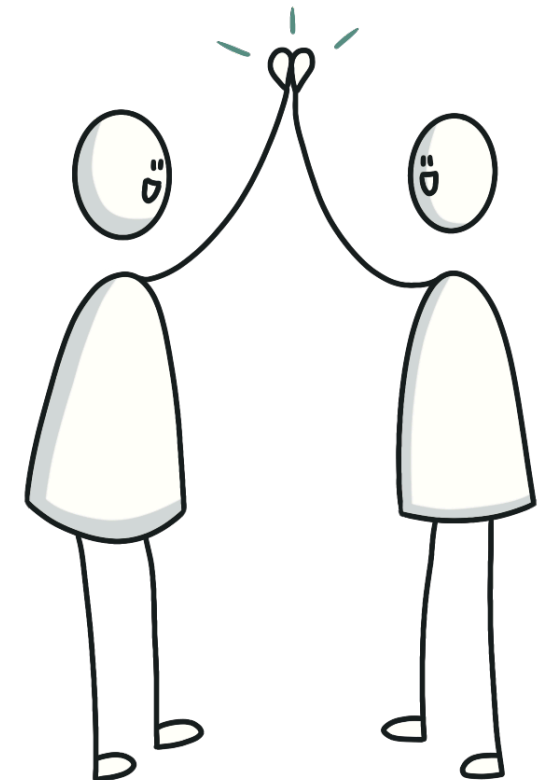
Executive summary

75% of all mental health issues arise between the ages of 14 and 25 (Kessler et al., 2005). Suicide is the number one cause of death among young people (Centraal Bureau voor de Statistiek, 2023), one in three adolescents experiences performance pressure (Kleinjan et al., 2020), one in seven adolescents has depressive symptoms (Kleinjan et al., 2020) and life satisfaction has decreased significantly over the past 20 years

Figure 1. The giga-map I made using the insights from stakeholder sessions.

(Kleinjan et al., 2020). All of these statistics show one thing: a lot of adolescents have poor mental health and they seek more professional help because of it. However, youth care cannot handle this increased demand. This combination leads to problems and therefore a new approach is needed. In my project, I used a systemic design approach and focused on promoting well-being instead of only fixing mental health issues. Accordingly, the main research question in my project is:

"How can the systemic design approach contribute to improving well-being among adolescents (ages 16-18)?"

I used a systemic design approach to look at the larger system around adolescents to find new opportunities for possible interventions. I interviewed a lot of different stakeholders and explored their perspectives and their interactions with other stakeholders. I processed these insights into a giga-map (Figure 1), which helped me formulate three themes and

eventually choose one theme: 'Who is responsible'. This theme deals with a social norm where parents are held responsible for the upbringing and well-being of their children, whereas adolescents at this age distance themselves from their parents and need other adult support figures (McElhaney et al., 2009). In addition, the support adolescents receive in this system depends on individual motivation: some people recognize their role, others do not. From this theme and all the insights from the stakeholder sessions, I formulated a future vision which is represented by this African proverb:

"It takes a village to raise a child"

The shift needed to achieve this future is from scattered islands to a connected proverbial village. To achieve this, I chose teachers' mental models as a leverage point (Meadows, 1999). By showing teachers the value of their role, the value of promoting well-being and the value of connections, I hope they will also change their behaviour. From
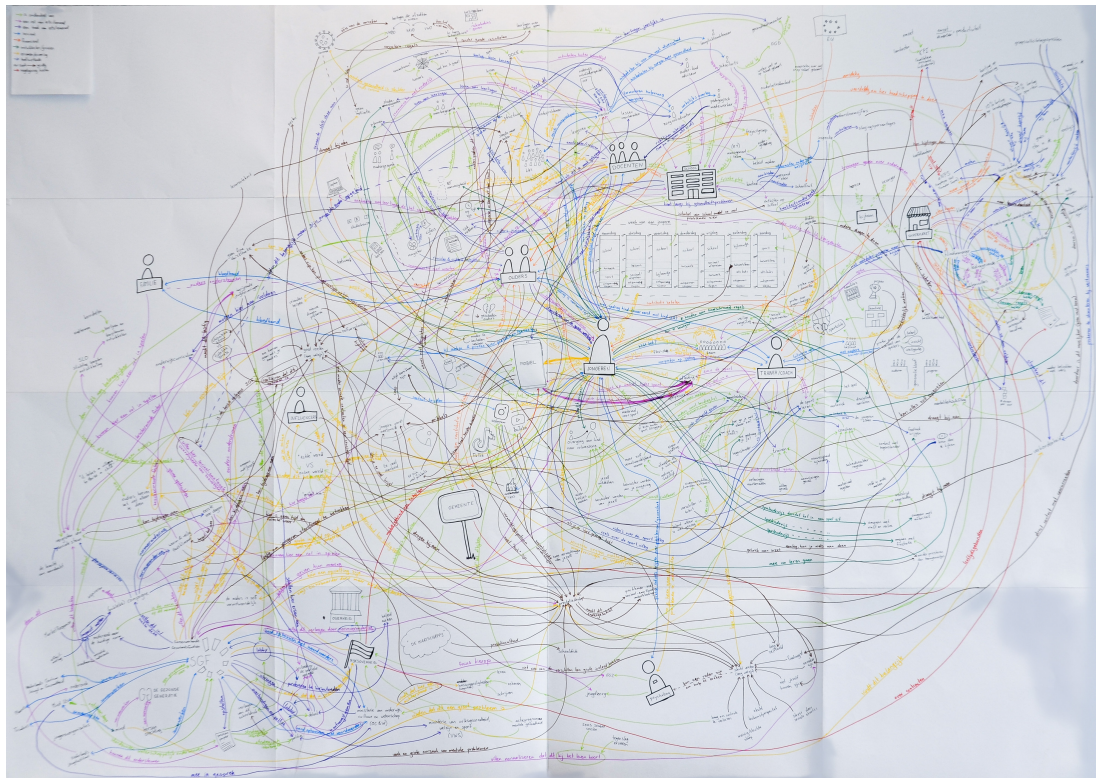
that goal, I designed my intervention OmDraaien (Figure 2), where three teachers are each given a role: a teacher, a parent and an adolescent. They play an interactive game in which they play a scenario and interact with ropes (connection pieces) that represent their relationships. After this interactive game, the participants reflect on the game they just played and relate it to their own work.

To shortly answer my research question, a systemic design approach has helped me to look at the broader system around adolescents and has therefore helped to create not only stakeholder value, but also potential systemic value. In addition, a systemic design approach has allowed me to discover an underlying problem: stakeholders focus just on symptomatic solutions rather than also on fundamental solutions.

Figure 2. The elements OmDraaien contains.

Table of contents

1

Introduction

Framing the system

In this Chapter, I will explain the initial project and the motivation for choosing this specific project, for which MarketResponse is the commissioner. At the start, I made a project brief which can be found in Appendix A. This Chapter contains an explanation of the motivation for starting the project, as well as theory on systemic design and why I will be using it.

75%

of **mental health issues** arise between the ages of **14** and **25**

1.1 Problem background

In this Section, I will introduce the current status of mental health among adolescents, which is the reason I started this project, and what approach this project will take to contribute to finding a solution.

Poor mental health among adolescents

75% of all mental health issues arise between the ages of 14 and 25 (Kessler et al., 2005). This number shows how vulnerable and important this period is. Adolescents are struggling with their mental health, also illustrated by more statistics: Suicide is the number one cause of death among young people (Centraal Bureau voor de Statistiek, 2023), one in three adolescents experiences performance pressure (Kleinjan et al., 2020), one in seven adolescents has depressive symptoms (Kleinjan et al., 2020), almost 60% of secondary school students experiences psychosomatic symptoms at least once a week (Kleinjan et al., 2020) and life satisfaction has decreased significantly over the past 20 years (Kleinjan et al., 2020). These statistics show that mental health issues among adolescents are a serious problem right now. But how did this problem become so significant?

Causes of the problem

Various studies have identified a wide range of factors that contribute to the problem of mental health issues among adolescents: problems at home, pressure at school, social pressure, social media, high expectations of parents and the pressure to perform in all areas of their life: school, side job, free time, sports, music, friends, etc. (Figure 3) (MarketResponse, 2023; Boer et al, 2022; Kleinjan et al., 2020). All of this together seems to become too much for many adolescents, and neither they nor those around them are sufficiently aware of how to deal with all these pressures. Because adolescents cannot handle this sufficiently well themselves, they seek help: more than 10% of adolescents until the age of 23 receive youth health
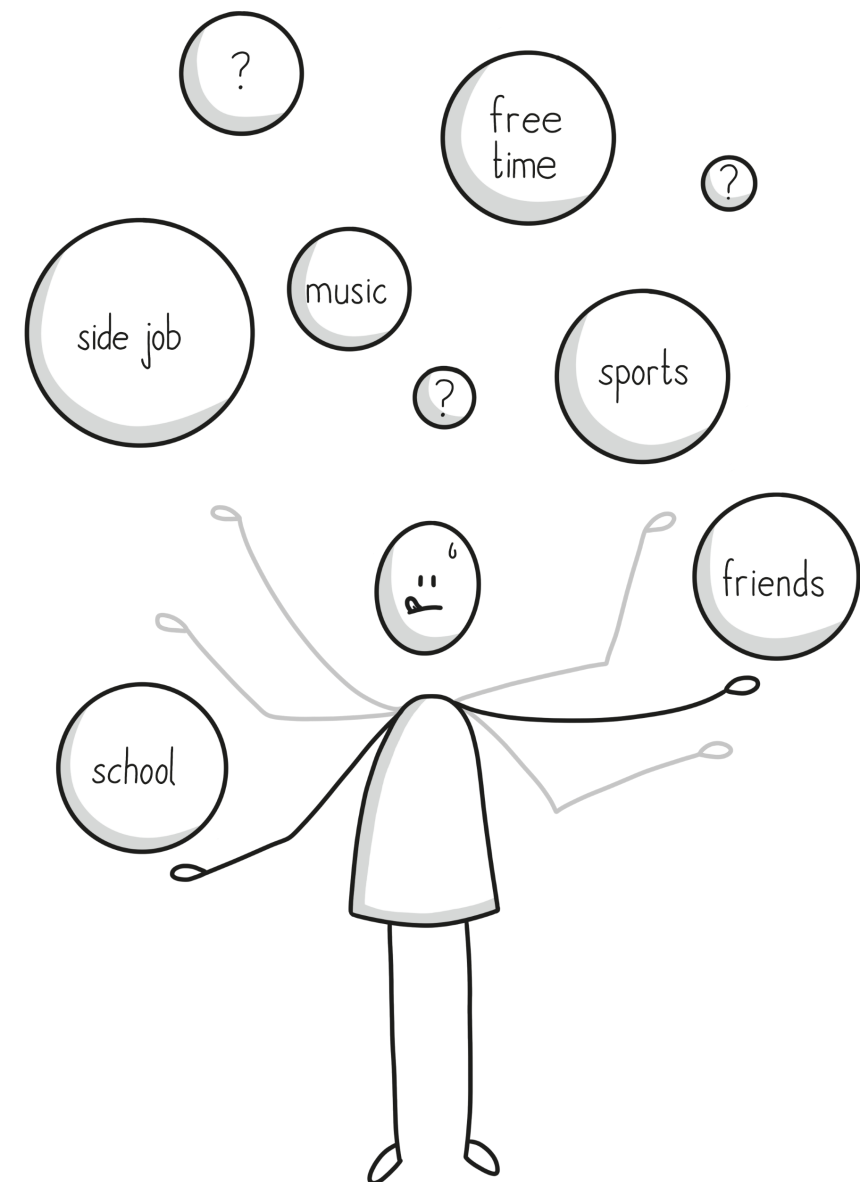
Figure 3. All different aspects of life that adolescents feel they have to perform in.

care in the Netherlands (Nederlands Jeugdinstituut, 2019). However, the Netherlands Youth Institute stated that the current Dutch youth care system is not equipped to supply the high demands (Nederlands Jeugdinstituut, 2019). The combination of poor mental health among adolescents and an inadequately equipped youth care system is likely to amplify the problems. The situation calls for a more preventive approach: promotion of well-being.

From cure to prevention

Promotion is the first of several preventive strategies and can contribute to better well-being among adolescents (Figure 4). I will give a short explanation of the Figure itself and then explain why promotion is an effective strategy to improve well-being among adolescents. The Figure shows the target groups on the right, which are distinguished based on illness stage: from healthy up to people who are dealing with the consequences of an illness. The

left side of the Figure shows the different types of prevention, which are divided into two categories: collective and individual approaches. The dotted arrows indicate for which target groups the prevention method is used. The grey blocks indicate what my project's focus is, and the focus of the current youth care system. What stands out is that the current youth care system starts when issues already exist (Figure 4). Their main focus is on indicated prevention and care-related prevention. Indicated prevention targets people with early symptoms and prevents them from worsening into a disorder and care-related prevention focuses on people with an illness or condition and prevents that an existing condition can cause complications, impairments, reduced quality of life or death (VZinfo, n.d.). Although this care is very important, I have already concluded that the current youth care system cannot handle the many requests. Therefore, my project will focus on two strategies: promotion and universal prevention (Figure 4). Universal prevention targets (parts of) the healthy population and
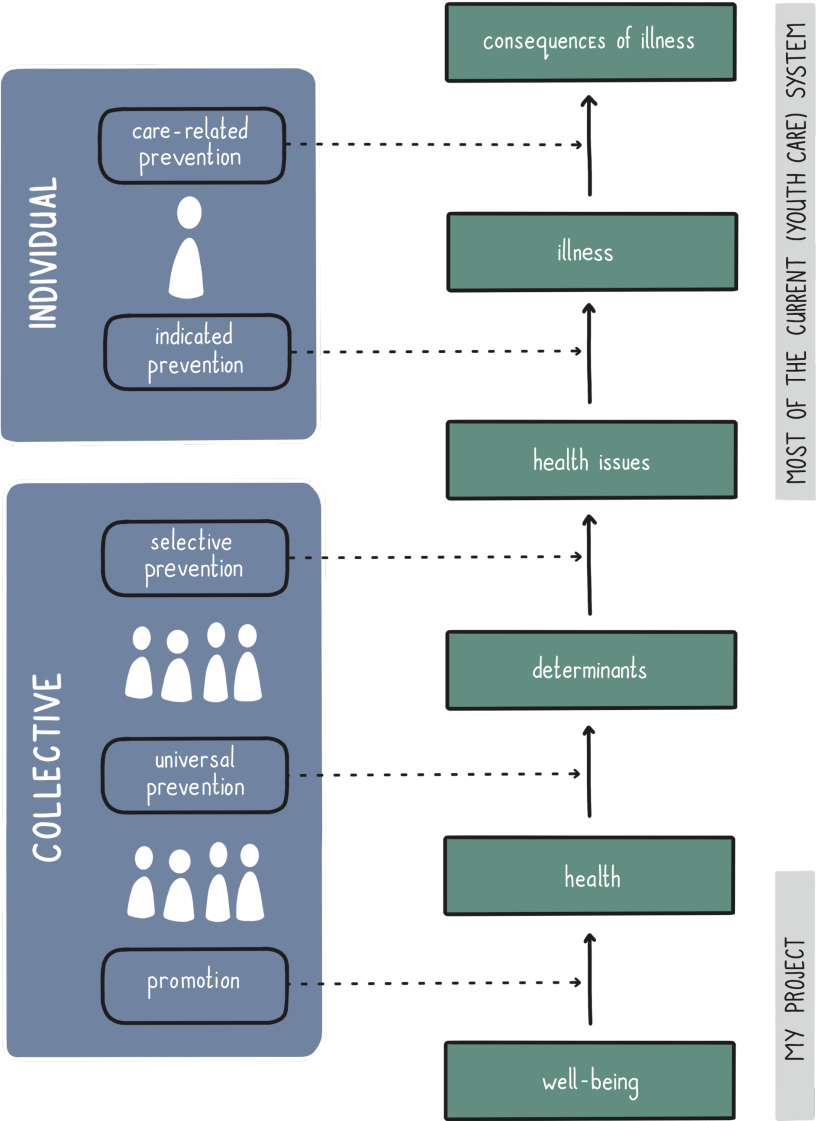
Figure 4. Prevention framework which shows the prevention methods and in which target group they intervene. The illustration is a combination of (VZinfo, .n.d.) and (National Research Council & Institute of Medicine, 2009).

actively promotes and protects the health of the population (VZinfo, n.d.). A study suggests that promotion is one step before universal prevention, and aims to promote good well-being (National Research Council & Institute of Medicine, 2009). The differences between mental illness, mental health and well-being will be explained in Section 2.1. In conclusion, my project focuses on promoting well-being to prevent health issues from occurring at all. It is effective because it happens before adolescents develop mental health issues. This approach also helps the youth care system, as fewer adolescents will need the professional help they provide.

1.2 Project stakeholders

In the previous Section, I introduced the reason why I started this project and the focus I will have: promotion of well-being. However, a lot of research on this topic has already been done and will serve as a starting point for my project. Figure 5 shows different stakeholders that have already done work on the topic of mental health among adolescents, and how they are related to each other. In the next paragraphs I will introduce the stakeholders, the work they have done and their role in this project.
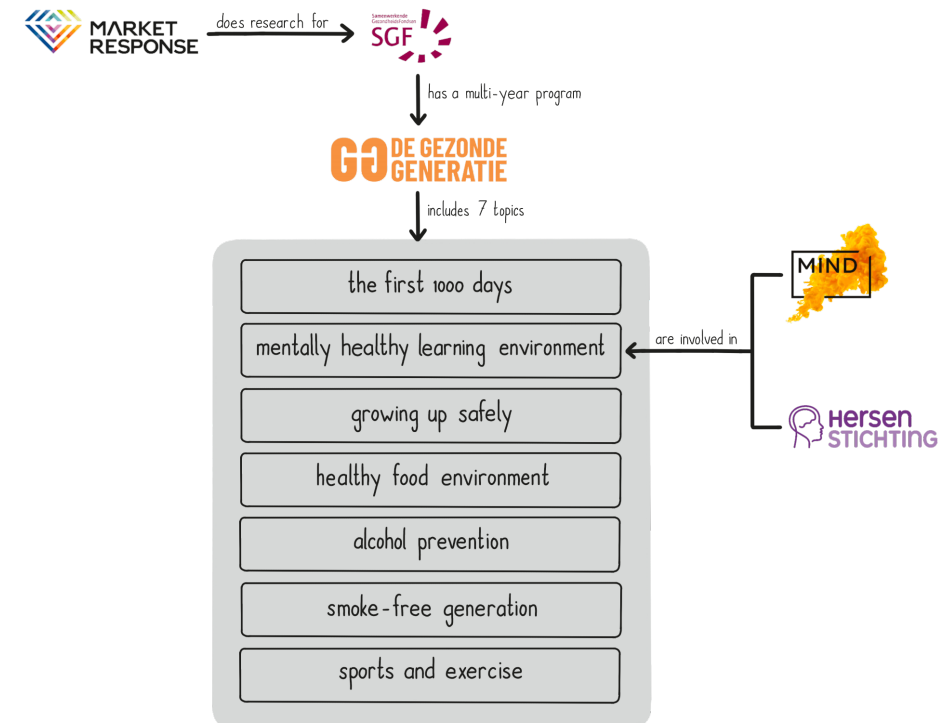
Figure 5. Stakeholders in the project and how they are related.

The relation between MarketResponse and the SGF

This project will be done for MarketResponse. MarketResponse has previously researched mental health and performance pressure among adolescents, commissioned by the SGF. SGF stands for 'Samenwerkende GezondheidsFondsen', which is translated to 'Collaborating Health Funds'. More of SGF's work is related to youth and mental health, which I will further explain in the paragraph about the SGF. I will first introduce both MarketResponse and the SGF to better understand how they both work, followed by an explanation of the research MarketResponse did for the SGF, which is the starting point for my project.

The company MarketResponse

MarketResponse is a research agency that helps organisations define their markets, understand target groups, build brands and reputation, optimise customer and employee experiences and improve marketing and communication. It also works for governmental and non-profit organisations to create a positive impact, often on social issues like mobility, health and sustainability. MarketResponse combines traditional market research methodology with design thinking and behavioural science and usually focuses on one main target group. If you want to learn more about MarketResponse, you can visit their website here: https://marketresponse.nl/

The organisation SGF

The SGF consists of 22 health funds working to prevent, cure and treat illnesses. They invest in research, care innovation and provide education and advice. Because this domain contains a wide variety of topics, the SGF works with multiple programs. One of those programs is called 'De Gezonde Generatie', which translates to 'The Healthy Generation' (see Figure 5). The goal of this program is for children and young people to be able to develop into independent, healthy and happy adults. The program is divided into seven different categories, and one of them is a mentally healthy learning environment (Figure 5), which I will explain more about in the next paragraph. If you want to learn more about the SGF, you can visit their website here: https://www.gezondheidsfondsen.nl/

Mentally healthy learning environment

Within this topic of a mentally health learning environment, the organisations MIND and Hersenstichting work on strengthening the resilience of young people and promoting a mentally healthy learning environment. Both of these organisations are connected to the SGF and they collaborate with other organisations as well. Their goal is:

"Together we strive for a mentally healthy learning environment for all children and youth in the Netherlands."

To reach that goal, they use different strategies. They work on empowering youth themselves: preventive promotion of social-emotional skills through education. To achieve this, they lobby politicians and the government and help teachers to work with social-emotional skills in education. They also tackle the current norm around performance (at school) by making youth and their environment aware of their contribution to the problem and the solution. They use campaigns to activate the population so they hopefully reduce the pressure on young people in their environment, which makes a difference for the young people. In conclusion, the SGF and its related health funds and organisations aim to improve youth's mental health within and outside the classroom, by lobbying the government and running national campaigns about topics associated with youth's mental health.

Research 'understanding performance pressure'

MarketResponse's research was called 'Understanding performance pressure' and contributed to the SGF's work on improving youth's mental health and had one central research question:

"Does Dutch society experience problematic performance pressure among youth? If so, to what extent is this pressure caused by education and how can the pressure be structurally reduced?"
(MarketResponse, 2023).

This research has several layers, as illustrated in Figure 6. Initially, the SGF asked MarketResponse to research performance pressure in schools. However, MarketResponse zoomed out and started their research by asking the Dutch population how they perceived mental health in general (Figure 6). The next questions were about mental health in youth, followed by the topic of performance pressure in youth, and ended with questions about performance pressure in schools. From all the data collected, MarketResponse and the SGF came up with two main solution directions: strengthen youth's resilience, and reduce the pressure on youth from the environment (MarketResponse, 2023). These two directions were input for the SGF to work with MarketResponse and NOISE (strategic advertising agency) to create their campaign in which they want young people to feel heard and turn to the environment for the solution.
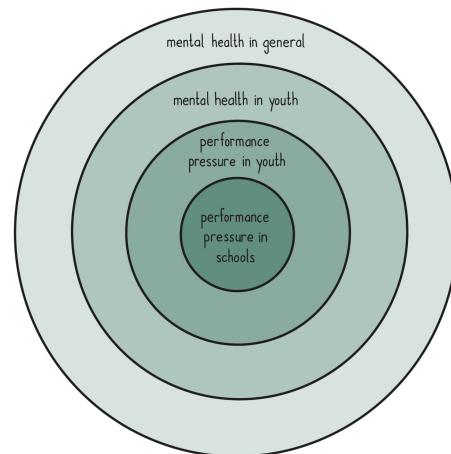
Figure 6. Layers in MarketResponse's research for SGF.

1.3 Complex context

In the previous Section, I introduced the project stakeholders and the research MarketResponse conducted for the SGF. I previously mentioned that their research was the starting point for my project, and now I will talk more about my project. The initial assignment of my project was formulated as follows:

"Investigate how systemic design can help to design interventions to improve well-being in adolescents (ages 16-18)."

In this Section, I will explain why I chose systemic design as the approach for my project. I made that decision based on theory about different contexts, which is what I will elaborate on first.

Different types of context

In the Cynefin framework (Figure 7), Snowden and Boone describe five contexts: simple, complicated, complex, chaotic and disorder (2007). These contexts differ in the kind of relationship that occurs between cause and effect. In a simple context, cause and effect are obvious from experience and the system behaviour is predictable. A person operating in this context is working with 'known knowns', which means that they can solve a problem using 'best practice'. In the complicated domain, the system behaviour is predictable as well, and there also is a relationship between cause and effect. However, it is not as obvious as it is in the simple context. A person trying to solve a problem in this context is dealing with 'unknown knowns', which implies that expertise is necessary to find a fitting solution for a problem. A context where the system behaviour is unpredictable is in the complex context. Here, cause and effect are only apparent in hindsight. Working in this context means you are dealing with 'unknown unknowns', which indicates that experimentation is needed to find a working intervention for a problem. In the chaotic context, cause and effect cannot be related at all. This can be seen as random behaviour in,

for example, a crisis or emergency, which requires a rapid response. The fifth context is the disorder context, where it is unclear which of the other four contexts is dominant. More information should be gathered to

identify the right domain and then take the appropriate action. The next two paragraphs will explain the current approach in this context, and the new approach that I will be using for my project.
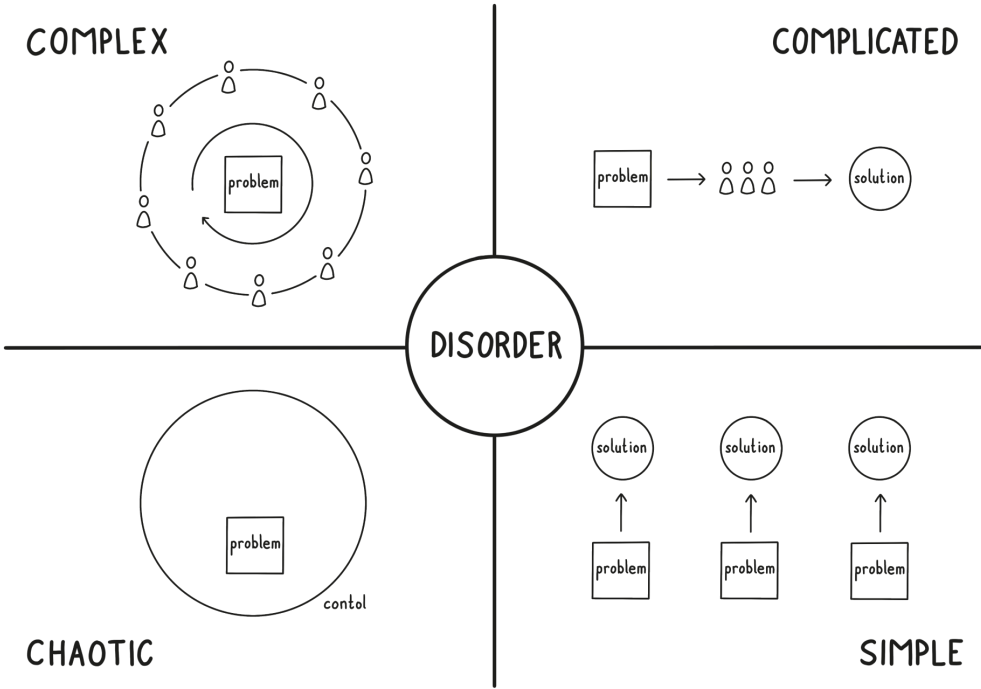
Figure 7. Cynefin framework. This image is adapted from van der Bijl-Brouwer (September 4, 2023). "Designing for Complexity: Introduction workshop". [Lecture].

Current approach: complicated challenge

The challenge of adolescents' poor mental health, as described in Section 1.1, is currently treated as a complicated challenge. A lot of people and organisations who work on this issue now, approach this issue as if it can be solved with enough knowledge and enough expertise. That approach should result in finding a good working solution for the mental health issues that adolescents have nowadays. Examples are training courses such as 'Happy lessons' or 'The Lab of Life', which are offered in schools and subsidised by the municipality. These training courses, and other similar initiatives, are based on the idea that if adolescents and teachers have enough knowledge, they will eventually see results in their well-being. However, the challenge of adolescents' poor mental health is not only a complicated challenge but also a complex challenge. This means that exclusively dealing with the problem in a complicated way limits the possible solutions and thus the overall impact

the solutions can have. By treating this challenge as a complex problem, new interventions can be developed that potentially have a wider and longer-term impact. In the next paragraph, I will explain why this challenge is complex.

New approach: complex challenge

Adolescents' well-being is a complex challenge because there is no single, straightforward way to solve the issue. It is difficult to identify the exact problem or how to resolve it. Van der Bijl-Brouwer et all. also make this argument but then in the context of university staff and student well-being. Their research explains that "even if the desire to support well-being is concrete, it is difficult to identify what the problem actually is or how to resolve it." (2021). Additionally, the challenge is complex because various stakeholders have different perceptions and approaches to well-being, which also influences the responsibilities they see for

themselves and other stakeholders. Well-being is also a complex topic because it contains a lot of interrelated problems that cannot be solved independently (van der Bijl-Brouwer et al., 2021). For example, encouraging adolescents to talk more about their feelings and problems has led to more adolescents seeking help, resulting in a new problem, which is long waiting lists in mental health care. Finally, adolescents' well-being is a complex challenge because it emerges within a complex and dynamic context. The schools adolescents attend are constantly changing, just as policies that influence teachers, parents, adolescents and many more (van der Bijl-Brouwer et al., 2021). Concluding, adolescents' well-being is a complex challenge which requires an approach focused on complexity. In the next paragraph, I will argue why systemic design is a suited approach for this complex challenge.

Systemic design to deal with complexity

To explain why systemic design is a good approach to dealing with a complex challenge, I will first explain the appropriate approach according to Snowden and Boone. They described this approach as 'probe, sense and respond' (2007). In other words, make an intervention, see what happens and adjust accordingly. This way of working is often used in systemic design, but it is called slightly different: vary, select, and amplify (Capra, 1997). The process is very similar: try different interventions, in this case called safe-to-fail experiments, choose one or more and develop further to evaluate its effect. This practice involves taking small steps while aiming big, developing a portfolio of various prototypes and problem frames and looking at what has an effect in the system (van der Bijl-Brouwer & Malcolm, 2020). Figure 8 illustrates that such a portfolio includes variations of ideas and problem frames, which is early in the design process. It also

includes exploring different options in prototypes and problem frames, which is later in the process of designing. This portfolio of problem frames and connected interventions displays the probe, sense and respond approach that Snowden and Boone described as

appropriate for this complex context (2007), which makes systemic design a suited approach for this project. But what exactly is systemic design? That is what I will explain in the next Section.
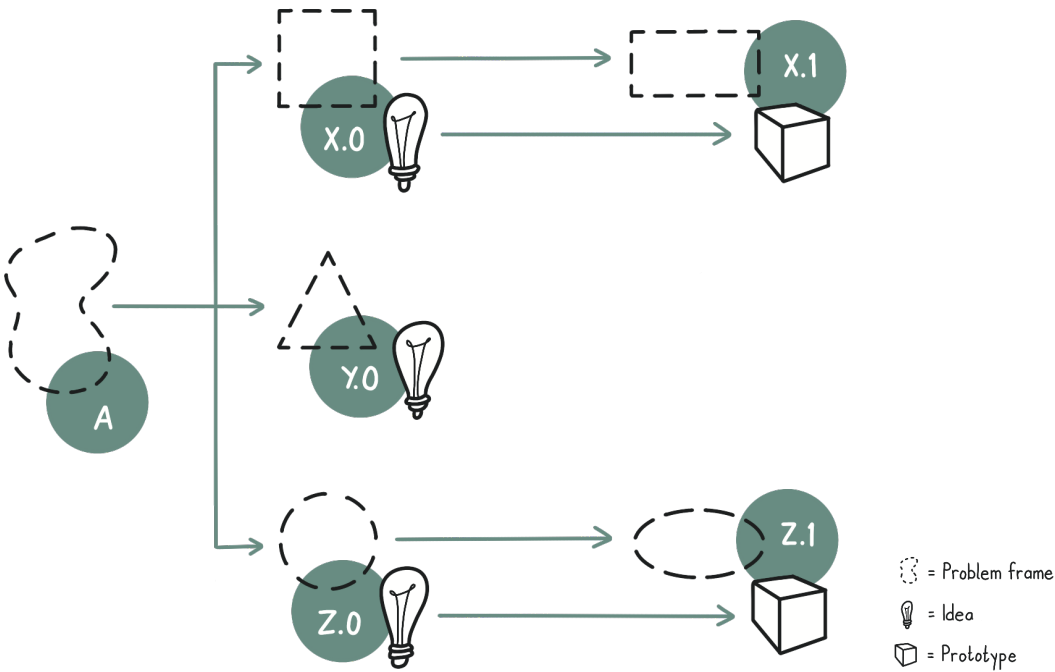

Figure 8. A portfolio of problem frames and connected interventions over time. Adjusted image from van der Bijl-Brouwer, 2019.

1.4 Systemic design

In the previous Section, I argued why the challenge of promoting well-being in adolescents is complex and why systemic design is a suited approach. In this Section, I will elaborate on systemic design. Systemic design is a relatively new field, and there are new insights and developments regularly. The explanation that follows is based on the insights as they currently exist. I will explain what systemic design is, what a system is, what different types of systems are, how to design with(in) a system and what the process looks like.

What is sytemic design

A short explanation of systemic design is this: systemic design is a combination of design thinking and systems thinking (Figure 9). To better understand systemic design, I will first explain systems thinking and design thinking. Starting with systems thinking, which complements reductionism or analytical thinking where phenomena are studied by zooming in on their parts. In contrast, systems thinking looks at relationships between parts and their relationship to the properties of the whole (van der Bijl-Brouwer, 2023). I will further explain this in the next paragraph about systems. Systems thinking is a way of looking which provides a fuller understanding of phenomena than the reductionist perspective only. However, it does not provide means to improve those systems. This is where design thinking comes in. Designers "change existing situations into preferred ones" (Simon, 1968) by generating things for a target group: products, services, events, etc. To achieve those solutions, designers work iteratively, and they prototype to test hypotheses or solution directions. The intersection of systems thinking and design thinking is systemic design. Because systemic design is a combination of different ways of thinking, it is not tied to one specific theory or practice (van der Bijl-Brouwer, 2023). It has a wide variety of practices but usually works with zooming in and out. Zooming out to understand how the parts of the system influence each other, and zooming in on and with stakeholders to create the interventions that can leverage systems change (Jones & van Ael, 2022).
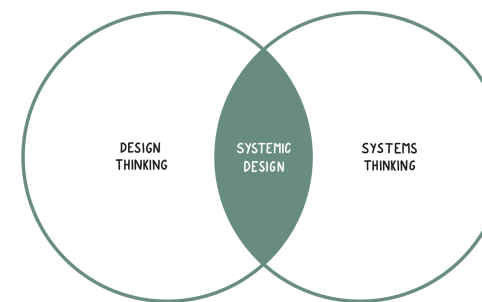
Figure 9. Systemic design is a combination of design thinking and systems thinking.

What is a system

In the previous paragraph, I explained what systemic design is and also mentioned 'parts' and 'whole'. These are terms used to talk about systems. In this paragraph, I will explain what systems are, because it is important to know what a system is to be able to design for or in it. A system is a whole that cannot be divided into independent parts. But what does that mean? A system is an integrated whole, that consists of parts. Those parts can affect the system's behaviour or its properties. But to have an effect on the system, each part is dependent on some other part(s) of the system. In other words, the parts are interdependent and need their relationships to function (Ackoff, 1999). An important implication of this is that the parts do not have the essential properties, or emergent properties, that the system as a whole has. Ackoff explains this by using the car as an example. "A car has the emergent property to carry you from one place to another. No part of the car can do that: the wheel can't, axle can't, the seat can't, the motor can't, etc. But the car can." (Steven Brant, 2010). This illustrates that a system loses its emergent properties when it is taken apart. In conclusion, a system is not the sum of the behaviour of its parts, it is the product of their interactions (Steven Brant, 2010).

Complex vs complicated system

In the previous paragraph, I explained what a system is, but there are also different types of systems which require different approaches. I will explain two different systems: a complicated and a complex system. A complicated system is a system that is designed to produce particular system properties. Additionally, the system boundaries can be objectively defined, which means that it is clear what is part of the system and what is not (van der Bijl-Brouwer, 2023). This is different from a complex system where the boundaries cannot be objectively defined and the system properties cannot be fully predicted (van der Bijl-Brouwer, 2023). For example, what and who is included or excluded in the 'healthcare system' or the 'educational system'? And what do we know about these system properties in a month, or a year? It is impossible to predict how these systems will behave and what its boundaries are (van der Bijl-Brouwer, 2023). I explained earlier that well-being among adolescents is a complex challenge, and it is also

a complex system. Therefore, for this project, I will define the system boundaries and examine the current system properties.

System-shifting design

You now know the meaning of systemic design and a (complex) system, but how does the theory connect to my design project? That is what I will explain now. There are different perspectives on how to design (with) systems, but I will focus on one: system-shifting design. This type of design requires the designer to create a vision which represents the desired 'directionality' (Figure 10). Designed interventions are created to contribute to the shift of the complex system towards the defined desired directionality, as illustrated in Figure 10 (Van der Bijl-Brouwer, 2023). These interventions are often based on 'leverage points' (Meadows, 1999), which are places within a complex system where a small shift in one thing can produce significant changes across the whole system (Van der

Bijl-Brouwer & Malcolm, 2020). Both the desired directionality and the system boundary are subjectively defined by the designer after researching the complex context. In

the case my project focuses on, the aim is to shift the system around adolescents' environment in order to improve adolescents' well-being.
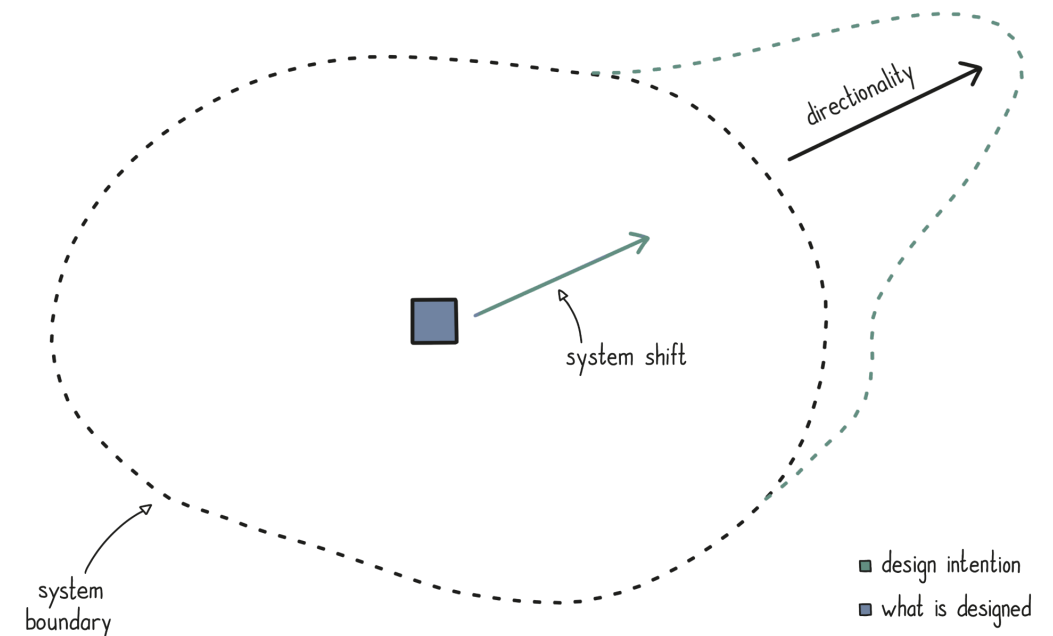
Figure 10. System-shifting design.

1.5 Approach comparison

I have introduced MarketResponse's research and the approach for my research, and now I will shortly explain the differences between the two. While MarketResponse's research provided interesting insights for the SGF, it also had a couple of limitations. In this Section I will describe the limitations of MarketResponse's research, how it differs from my project and what value this new approach intends to add.

The overall approach

The first and most important limitation is about the approach. MarketResponse is interested in a more systemic approach, hence their commissioning of me for this project. However, their research for the SGF had a traditional, scientific approach, suited for linear problems. The suited approach for linear problems is to gain knowledge, which will result in the right solution. And that is what MarketResponse did: they focused on gathering knowledge about mental health in youth and the performance pressure they experience (Figure 11).

The SGF then used that information to inform decisions about their program. However, the problem of mental health in youth is not linear but has a complex nature, as I explained in Section 1.3. This implies that no amount of knowledge or expertise can predict which intervention might have a positive effect (Snowden & Boone, 2007). To work towards a promising intervention, I decided to use a systemic design approach, which I explained in Section 1.3. This approach makes me consider more stakeholders, their perspectives, and the relations between them (Figure 11). In other words, I will look at the collective, the bigger system. It will therefore help me to better focus on the promotion of well-being, as explained in Section 1.1. In conclusion, MarketResponse had an approach suited for a problem with a linear cause-effect, where they focused on the main target group, youth. In contrast, my project will have a systemic design approach which is suited for a complex context and consider the wider context around the main target group, adolescents.

Data collection

A second difference between MarketResponse's research and my project is the type of data we collect. MarketResponse had a lot of participants and they used surveys to collect data. This means that the data they collected was mainly quantitative. In contrast, my project will mainly involve interviews and sessions with fewer people, where I will collect qualitative data. This is not necessarily better than quantitative
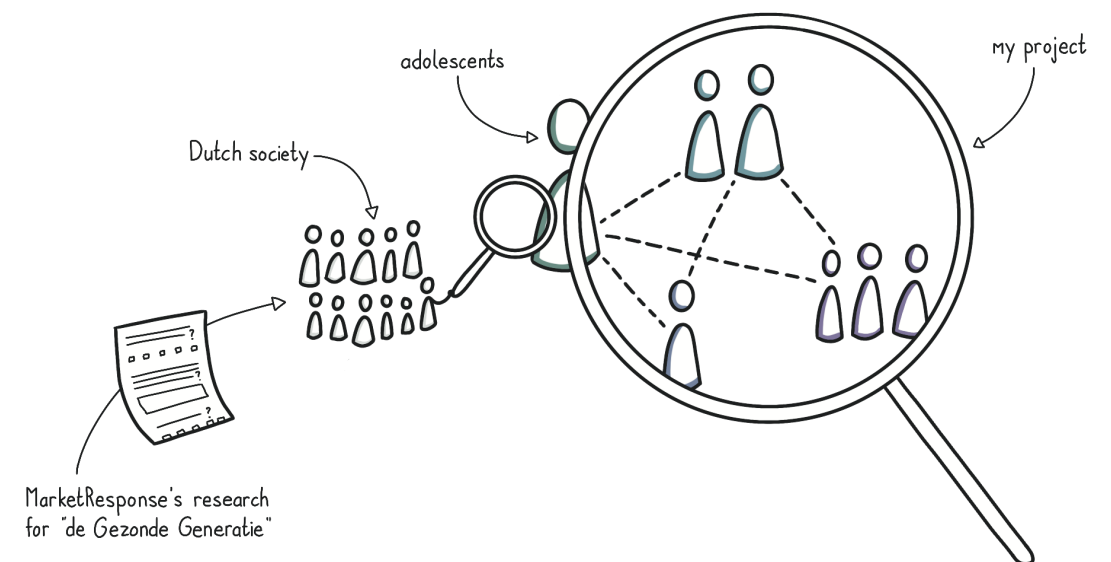
Figure 11. The difference in approach between MarketResponse's research for the SGF and my project.

data, but it is very different. The qualitative data will likely give me insight into stakeholder opinions and motivations, which are difficult to capture with quantitative data. Thus, I might have new insights in this context, which would complement the work already done and the insights already gained.

Participant selection

A third difference in approach between MarketResponse's research and my project is the choice of participants. In MarketResponse's research for the SGF, they asked the Dutch population what they think the status of mental health in youth is (Figure 11). This means that they measured the perceived mental health of youth and not the perspective of the youth themselves. For the goals of MarketResponse's research, this approach suited the goal but for my project it is important to include the youth's perspective, as it might differ from the observations of the Dutch population. Talking to youth directly

might also provide me with new insights in addition to the research MarketResponse did.

Age range

The last factor that influences the conclusions in MarketResponse's research is the large age range that they used in their research: youth until the age of 25. This large range gave them a wide variety of insights because this period includes a lot of different stages and experiences. The different schools they attend illustrate this well: from elementary school, to secondary school, to university (Figure 12). These different stages are hardly comparable, which might lead to generic conclusions. In contrast, for my project, I chose to specify the youth group more to 16-18-year-olds attending secondary school. In Figure 12, this is the grey area where it overlaps with secondary school, which is green. Summarizing, MarketResponse used a large age range to create an overall impression of the youth's experience which also means that their insights

might be generic. I chose to have a more specified age range so my intervention can be specific and has a higher chance of suiting well to the needs of the target group.

Figure 12. The school system in the Netherlands with the age range selected for this project indicated in grey. The arrows illustrate the routes students can take.

1.6 Design process

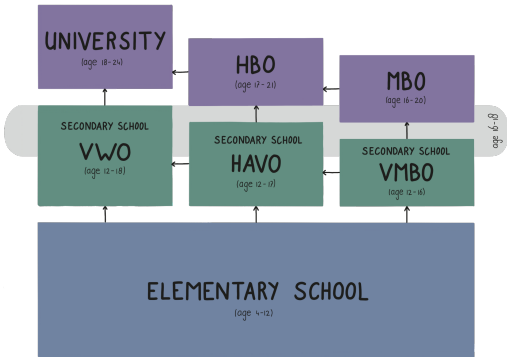In this Section, I will translate the theory of systemic design into phases for my design process using the steps from the systemic design toolkit (Jones & van Ael, 2022). Jones and van Ael developed this method as a way to co-create with involved stakeholders during the whole process. However, my project has a different approach and does not include co-creation in all phases. As a result, I will slightly adjust the methods as Jones and van Ael described them, but the overall phases will remain the same. These phases are similar to a 'normal' design process but describe them more systemically. Figure 13 shows the whole process, with my project's scope in darker grey. I used these phases to try to answer this main research question:

"How can the systemic design approach contribute to improving well-being among adolescents (ages 16-18)?"

To answer this research question, I have formulated sub-research questions that I will answer in the next

Chapters. The Chapters are connected to the phases, as illustrated by Table 1. Additionally, the Table contains an explanation of the relevance of the sub-research questions and the method(s) I will be using to answer them. The next paragraphs explain each phase and the role of the sub-research questions within that phase.

Phase 1: Framing the system

Jones and van Ael describe the first phase as setting the boundaries of the system in space and time and identifying the potential parts and relationships (2022). I did not set strict boundaries at the beginning of my project, however, I described the context at the beginning of this Chapter, the introduction. The scope I used is 'the system includes the life of adolescents and the elements (stakeholders, places, products, etc.) they interact with on a regular basis'. However, throughout my project, I did not maintain a very strict boundary, I zoomed in and out so the boundaries moved along each time. In Chapter 5,

SYSTEMS THINKING
infused with design thinking

DESIGN THINKING
infused with systems thinking

1 framing the system

2 listening to the system

3 understanding the system

4 defining the desired future

5 exploring the possibility space

6 planning the change process
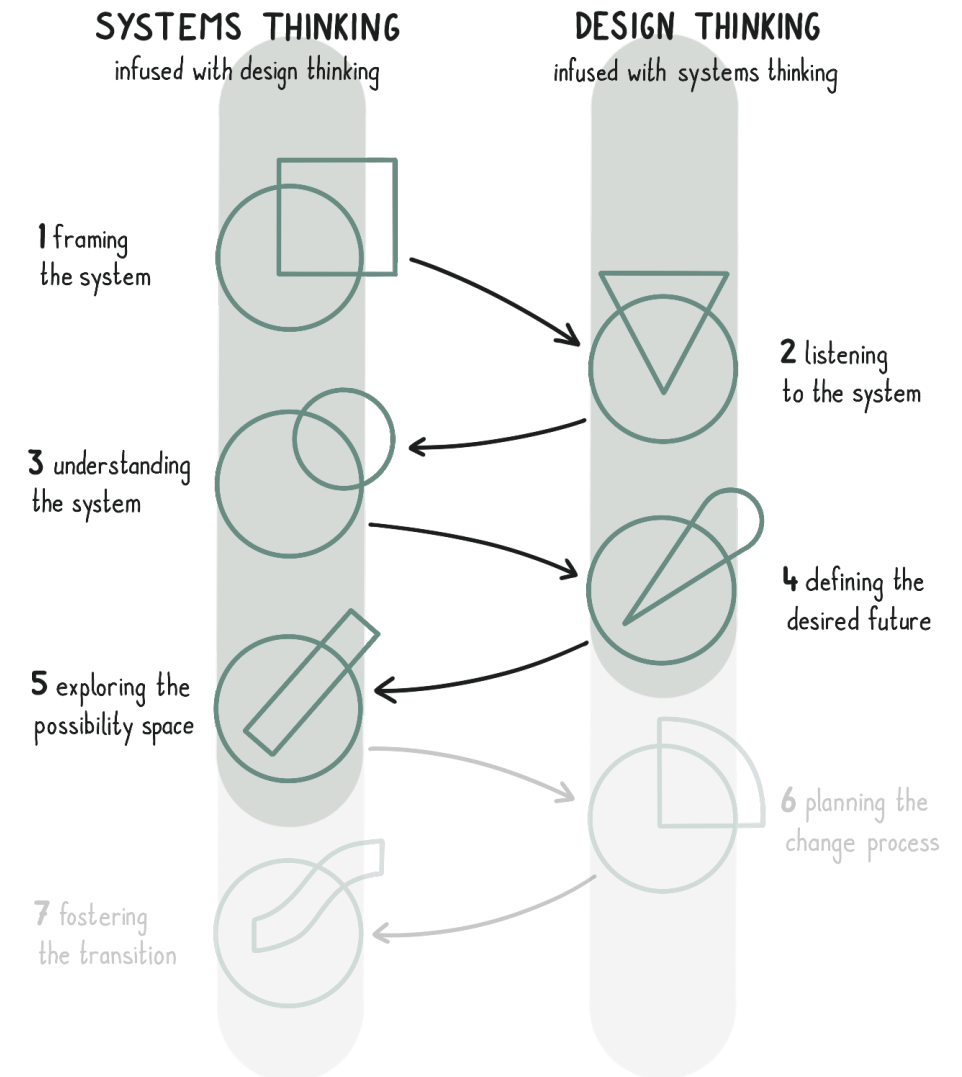
7 fostering the transition

Figure 13. The structure of the systemic design toolkit, with the scope of my project.

I will choose a more defined frame so I can design for a specific goal.

Phase 2: Listening to the system

The second phase is about observing the behaviours of the system. It involves listening to the experiences of people and discovering how the interactions lead to the system's behaviour (Jones & van Ael, 2022). I will do this by organising sessions with various stakeholders to understand their perspectives on (adolescents') well-being and the experiences they have. In Chapter 4 I will answer the following sub-research question:

"What are relevant stakeholders' perspectives on adolescents and adolescents' well-being and how are they connected to other stakeholders?"

Phase 3: Understanding the system

Phase three is about exploring how the parts and interactions create the system behaviour (Jones & van Ael, 2022). In Chapter 5 (Themes), I will describe different dynamics in the system using three different themes and eventually choose one theme. I will also explain the overall system behaviour I found during this phase. I will answer the following sub-research question in Chapter 5:

"What are tensions or patterns in the system concerning well-being among adolescents and how do different stakeholders relate to them?"

Phase 4: Envisioning desired futures

The fourth phase changes focus from the current system to the desired system. Jones and van Ael state that possible futures desired by system stakeholders are articulated in this phase (2022). I will describe the

future vision I chose in Chapter 6 (Design Direction), which is based on insights from stakeholder sessions from Chapter 4 (Stakeholders). In this phase, the following sub-research question will be answered:

"What future is desired in the context of adolescent well-being and how can it be realised?"

Phase 5: Exploring the possibility space

Phase five explores ways to move the system towards the desired future as defined in the previous phase. The exploration's goal is to create design interventions with the potential for system change (Jones & van Ael, 2022). In Chapter 7 (Intervention design) I will show my designed intervention which is based on earlier iterations and adjusted according to test insights. In this Chapter, I will answer this sub-research question:

"How can an intervention best convey the impact of preventive actions on

adolescent well-being?"

Phase 6: Planning the change process

Jones and van Ael describe phase six as a planning phase where abstract system models move into more concrete plans for organising. The aim is to plan how to (re-)organise and govern to deliver the intended value for the system (2022). As I have limited time for this project, I will only briefly describe this in Chapter 7 (Intervention design).

Phase 7: Fostering the transition

The seventh and final stage enables the actions to implement the interventions and strategy for the system transition (Jones & van Ael, 2022). This phase is out of scope for my project.

Table 1. The sub-research questions, their relevance, used method and Chapters.

			Phase 2: Listening to the system	Phase 3: Understanding the system	Phase 4: Envisioning desired futures	Phase 5: Exploring the possibility space
Chapter	2 Well-being	3 Adolescence	4 Stakeholders in the system	5 Themes	6 Design direction	7 Intervention design
Sub-research question	What is well-being and how is it achieved?	What are the main developments that adolescents go through and how does it influence their well-being?	What are relevant stakeholders' perspectives on adolescents and adolescents' well-being and how are they connected to other stakeholders?	What are tensions or patterns in the system concerning well-being among adolescents and how do different stakeholders relate to them?	What future is desired in the context of adolescent well-being and how can it be realised?	How can an intervention best convey the impact of preventive actions on adolescent well-being?
Explanation	*In order to know how systemic design can contribute to improving well-being, it is important to understand what exactly is well-being and what is necessary to achieve it.*	*The designed intervention should improve adolescents' well-being. Therefore, it is important to understand the challenges adolescents naturally face.*	*To know how systemic design can contribute to improving well-being in adolescents, I do need to use a systemic approach. In doing so, it is important to involve different stakeholders and understand their perspectives on adolescents and adolescents' well-being and the interactions they have with adolescents and other stakeholders.*	*To design a solution, it is first necessary to properly identify where the problems are. I will do this by looking for tensions and patterns in the system.*	*When designing an intervention, you need a specific goal. Therefore, in this Chapter, I look for a desired future, and what it takes to achieve it.*	*I set my goal in the previous Chapter, and in this Chapter I will explore how best to achieve that goal.*
Method	*Literature research*	*Literature research Interviews*	*Interviews Workbook Giga-mapping Empathy map*	*Giga-mapping Thematic analysis*	*Leverage pionts Creative session*	*Ideation Aesthetic disruption Testing*

Key takeaways

- Adolescents' mental health is poor, mainly because of the many pressures they experience.
- MarketResponse has conducted research for the SGF on youth's mental health and performance pressure, which was the starting point for this project. MarketResponse is interested in implementing a systemic design approach in their company.
- Adolescents' well-being is a complex challenge and systemic design is a suited approach to deal with complexity because it implements the 'probe, sense and respond' method that Snowden and Boone describe as appropriate for a complex context (2007).
- In my project, I will be using 'system-shifting design', where I will design an intervention to shift the system around adolescents' environment in order to improve adolescents' well-being.

2

Well-being

This project is about well-being among adolescents. This requires a deeper understanding of well-being as well as the target group: adolescents. In this Chapter, I will elaborate on well-being. I will explain what well-being means, how it relates to other relevant terms and ways to achieve it. I will answer the following sub-research question:

"What is well-being and how is it achieved?"

2.1 What is well-being

To explain well-being, I will use a framework proposed by Ryan and Deci (2001). In their framework, well-being is grounded in both hedonic and eudaimonic perspectives (Figure 14). The next two paragraphs will explain both of these perspectives.

Hedonic perspective

The first perspective is hedonic. It refers to feelings or emotional well-being. Feelings are perceived as a state of mind that may vary according to the situation (Stewart-Brown, 2017). The situation, and thus the feelings might not be in the control of the person experiencing them. When dealing with negative emotions, people can benefit from learning how to deal with them. Moreover, people can have a positive life experience when they have feelings of happiness, contentment, enjoyment, curiosity and engagement.

Eudaimonic perspective

The other perspective is eudaimonic and is related to individual functioning, both on a personal and social level. This form of well-being is achieved through the self-development of character traits and behaviour (Stewart-Brown, 2017). When someone functions well they might experience positive relationships, have some control over their life and have a sense of purpose.

FEELINGS + FUNCTIONING = WELL-BEING

Figure 14. The two components of well-being

mental illness

noun
an illness that affects the mind

mental health

noun
the condition of someone's mind and whether or not they are suffering from any mental illness

well-being

noun
the state of feeling healthy and happy

2.2 The difference between mental illness, mental health and well-being

To be able to understand the goal of this project and the subtle difference between stakeholders' perspectives, it is important to know the difference between three frequently used terms. That is what I will explain in this Section.

The definitions

Up until this point, I have used the term well-being. But two other terms are commonly used to talk about the mental state of people: mental illness and mental health. The dictionary meanings are written on the previous page to get a first idea of the difference between the terms. To further explain the difference, I will use the 'two continua model' that Keyes (2002) has developed. Before I do that in the next paragraph, I will first explain an important difference in definitions between Keyes' work and my project. The most commonly used definition of mental health is 'the absence of illness'. However, Keyes uses the term mental health to describe a set of symptoms of positive feelings and positive functioning in life. He refers to these symptoms as subjective well-being (Ryan & Deci, 2001; Keyes, 2002). To keep a clear distinction between the terms, I will use the term well-being for this description of mental health. This results in the model shown in Figure 15.

Two continua model

The horizontal axis shows the presence or absence of mental illness, and the vertical axis shows the presence or absence of well-being. The model thus includes well-being and mental illness, but mental health is not clearly present. However, since mental health is described as the absence of mental illness, you could argue that it is the moderate area on the right side of the model. In that area, there is no or low mental illness, but the person is also not doing great. "Doing great" in this model is called flourishing, which is the presence of well-being. The absence of well-being is called languishing. Both flourishing and languishing can be experienced with or without mental illness. This implies that well-being and mental illness are separate, but correlated concepts. In other words, the absence of mental illness does not imply the presence of well-being, or vice versa (Keyes, 2002). However, improvements in well-being have been associated with lower odds of mental illness (Keyes et al., 2011).
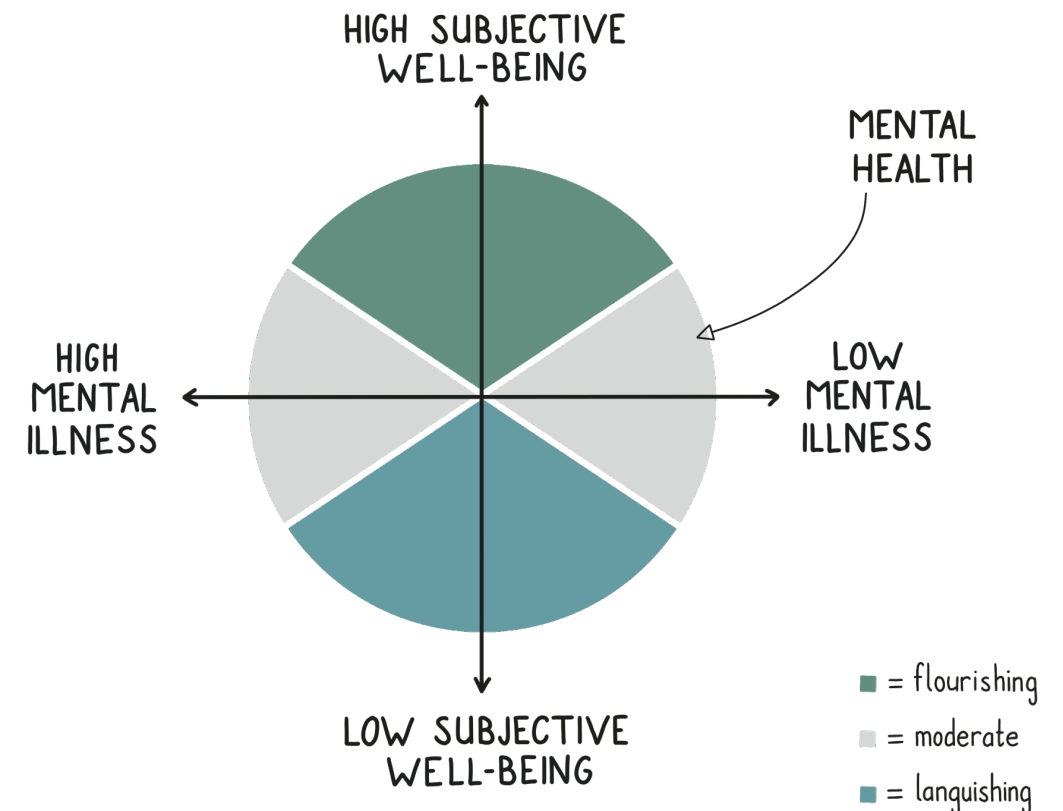

Figure 15. Keyes' adjusted two continua model (2002).

2.3 Obtaining well-being

In the previous Sections I explained the meaning of well-being and the difference between mental illness and mental health, but how do we obtain a good well-being? That is what I will explain in this Section.

Five ways to well-being

Multiple theories and methods exist to obtain good well-being, such as the PERMA model and mindfulness (Feng et al., 2020; Shapiro et al., 2008). However, I decided to focus on the 'five ways to well-being', which were developed by the New Economics Foundation (2008). These five actions are oriented towards individuals, meaning that these are things you can implement yourself to start feeling and functioning better. In my project, I will look beyond the individual to see what the influence of the environment is, but these five actions should provide a good basis to understand what is necessary for good well-being. The five actions are: connect, be active, take notice, keep learning and give (Aked et al., 2008). I will explain the actions separately and then show how they collectively contribute to well-being. The explanations are cited from Aked et all (2008).

Connect
With the people around you. With family, friends, colleagues and neighbours. At home, work, school or in your local community. Think of these as the cornerstones of your life and invest time in developing them. Building these connections will support and enrich you every day.

Be active
Go for a walk or run. Step outside. Cycle. Play a game. Garden. Dance. Exercising makes you feel good. Most importantly, discover a physical activity you enjoy and that suits your level of mobility and fitness.

Take notice
Be curious. Catch sight of the beautiful. Remark on the unusual. Notice the changing seasons. Savour the moment, whether you are walking to work, eating lunch or talking to friends. Be aware of the world around you and what you are feeling. Reflecting on your experiences will help you appreciate what matters to you.

Keep learning
Try something new. Rediscover an old interest. Sign up for that course. Take on a different responsibility at work. Fix a bike. Learn to play an instrument or how to cook your favourite food. Set a challenge you will enjoy achieving. Learning new things will make you more confident as well as being fun.

Give
Do something nice for a friend, or a stranger. Thank someone. Smile. Volunteer your time. Join a community group. Look out, as well as in. Seeing yourself, and your happiness, linked to the wider community can be incredibly rewarding and creates connections with the people around you.

How the five actions enhance well-being

The model in Figure 16 shows the relationship between the five actions and personal well-being. The five actions are designed to create their own positive feedback loops so they reinforce more behaviours that are good for well-being. For example, 'giving' by doing something nice for someone will probably provoke a thank-you, which increases a feeling of satisfaction and the likelihood of doing something nice for someone again (Aked et all., 2008). Huppert's (2008) research explains this and states that simply having positive emotions changes how people think and behave and enhances psychological resources like optimism and resilience. Furthermore, the model suggests that implementing the five actions enhances personal well-being by making a person feel good and strengthening their mental capital. The feedback loop between well-being and mental capital operates in both directions and represents various possible relationships between the

two. For example, feeling happy can lead to greater resilience, or higher self-esteem leads to greater feelings of satisfaction (Aked et al., 2008). Huppert summarises this as follows: positive emotions can lead to positive cognitions which in turn contribute to further positive emotions (2008).
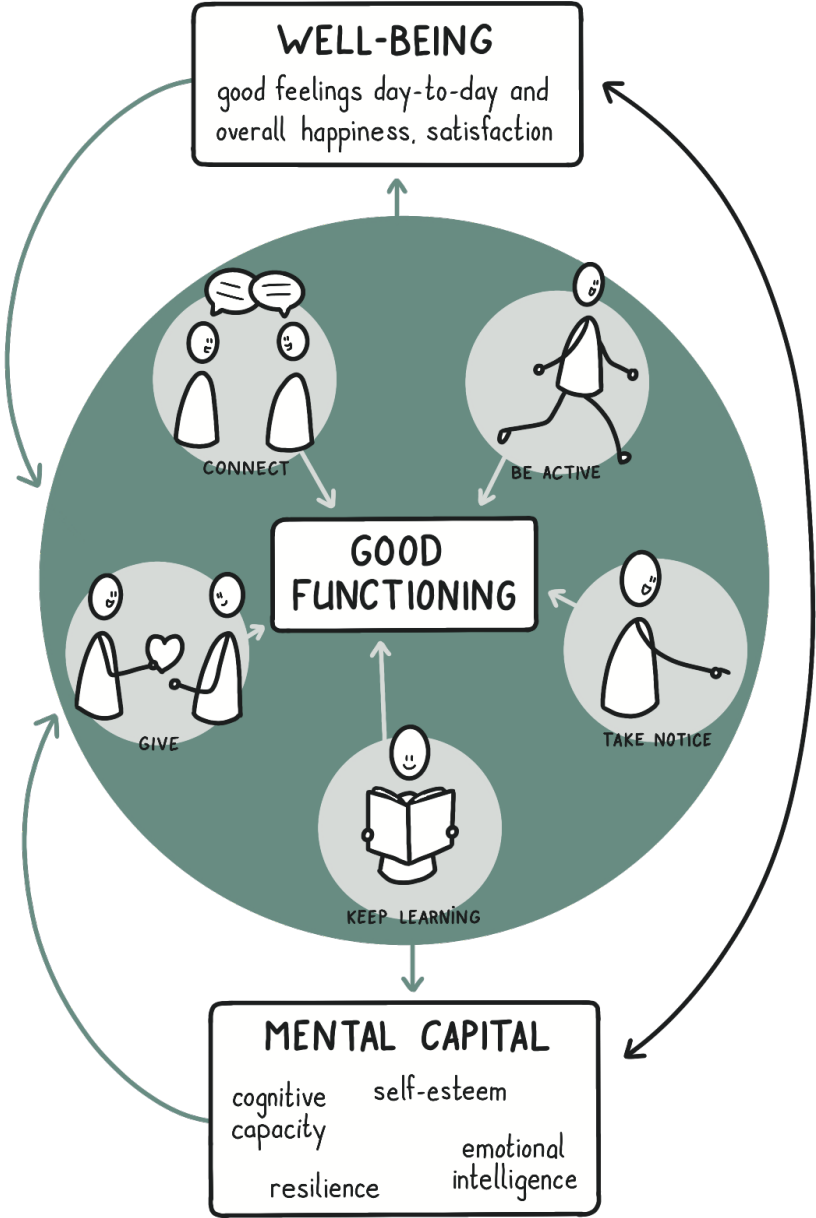
Figure 16. A model illustrating how the set of actions operates to enhance well-being. The arrows indicate positive effects.

2.4 Conclusion

To conclude this Chapter I will shortly answer the sub-research question that was asked at the beginning of this Chapter:

"What is well-being and how is it achieved?"

Well-being consists of two components: feelings and individual functioning. Feelings are a state of mind that can vary according to the situation. Individual functioning includes a personal and social level and is achieved through the self-development of character traits and behaviour. Good or high well-being can also be described as flourishing and can be achieved regardless of whether someone has a mental illness or not. Well-being can be achieved in many ways, described by different theories, but according to the theory of 'five ways to well-being' it takes five actions: connect, be active, take notice, keep learning and give. These are only individual actions which indicate what is necessary to obtain well-being. In the continuation of my project, I will also look into environmental factors, motivated by the systemic design approach.

Key takeaways

- Individual functioning is a component of well-being and can be achieved through developing character traits and behaviour.
- Mental health is not the same as well-being.
- An individual can take action to achieve well-being, but the environment also has an influence.

3

Adolescence

In the previous Chapter, I mentioned that this project is about well-being among adolescents. I explained well-being and now I will elaborate on the adolescents. I will explain what adolescence means and what periods it contains. Then I will explain the most important developments adolescents go through, and what consequences these developments have. It is necessary to understand the challenges adolescents naturally face, because they may impact their well-being. In this Chapter, I will answer the following sub-research question:

"What are the main developments that adolescents go through and how does it influence their well-being?"

adolescence

noun

the period of time in a person's life when they are developing into an adult

3.1 What does adolescence entail

In this Section, I will explain what the definition of adolescence is and the periods that adolescence can be divided into.

Definition of adolescence

The dictionary meaning of adolescence on the right is a first idea of what adolescence means. However, a more complete definition is: 'adolescence is the period of life that starts with the biological, hormonal and physical changes of puberty and ends at the age at which an individual attains a stable, independent role in society' (Blakemore, 2012). This is very ambiguous, so I will use the age range between approximately 10 and 25 years old to make it a little more concrete. This period of adolescence is further divided into different periods, which I will explain in the next paragraph.

Developmental stages of adolescence

Figure 17 shows the whole adolescence period, with the four shorter stages: early adolescence, middle adolescence, late adolescence and young adulthood (National Academies of Sciences, Engineering, and Medicine, 2019). Pickhardt explains that in the early adolescence stage (ages 10-12), the person no longer wants to be defined and

childhood **ADOLESCENCE** adulthood

| 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |

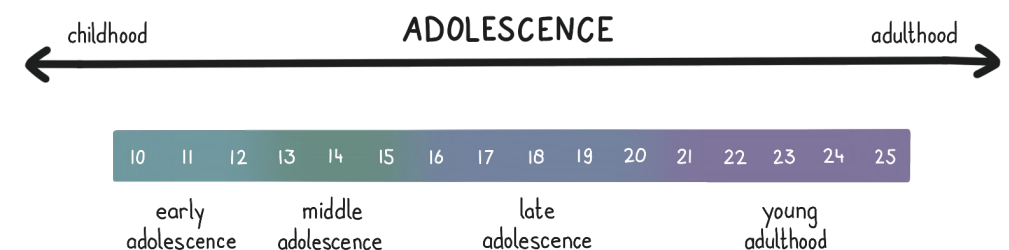early adolescence   middle adolescence   late adolescence   young adulthood

Figure 17. Developmental periods of adolescence.

treated like a child (2020). In the middle adolescence stage (ages 13-15) the person decides they need the company of peers to hang out with for social support and identity (Pickhardt, 2020). During late adolescence (ages 16-18), the person has more interest in grown-up activities and they want to be more experienced and worldly-wise (Pickhardt, 2020). Lastly, during young adulthood (ages 19-25), the person gets ready to move out of the family home and begin living on more self-sufficient terms (Pickhardt, 2020). My target group is 16 to 18-year-olds, which is approximately the middle and late adolescence stage. However, there are many developments throughout adolescence, and these cannot be strictly divided into the different stages. Therefore, I will give a somewhat broader overview of the changes that can take place within the 16-18 age group.

The main struggle

The period of adolescence can be summarised as 'identity versus role confusion'. This is the struggle to find a balance between the need to stand out and the need to belong. This is something adolescents go through themselves, but social changes also play a role. These social changes include changing dynamics and more mature relationships with parents, siblings and peers. Adolescents also start having peer relationships with adults (National Academies of Sciences, Engineering, and Medicine, 2019). Other changes in adolescents all play a role in the 'identity vs role confusion' struggle and can be divided into three categories: biological, neurobiological and psychosocial developments. The next three Sections will cover these developments.

3.2 Biological development

Physical changes

Biological development involves the maturation of primary and secondary sex characteristics during late childhood and early adolescence and is followed by the acquisition of reproductive maturity (Dorn and Biro, 2011; Natsuaki et al., 2015). Other physical changes include a growth spurt, changes in skin, body odour and the growth of pubic and axillary hair. These physical changes might affect an adolescent's self-image (National Academies of Sciences, Engineering, and Medicine, 2019). Additionally, the way others treat them and respond to them might influence their self-image just as much (Graber et al., 2010). A negative self-image will affect the adolescent's well-being, as illustrated by mental capital in Figure 16.

Stress sensitivity

Another physical change studies have found is heightened stress reactivity and delayed post-stress recovery in adolescents (Gunnar, et al., 2009; Stroud et al., 2004; Walker et al., 2004). This means that adolescents experience a faster and stronger reaction of stress, and take longer to recover from it. This implies that they are more sensitive to stress, which may lead to symptoms of depression and anxiety (National Academies of Sciences, Engineering, and Medicine, 2019).

3.3 Neurobiological development

Besides physical changes, a lot of neural changes in brain structures, functions and connectivity happen during adolescence, making them susceptible to change. These developments are necessary to prepare the brain to be able to respond to the demands and challenges of adolescence and adulthood, but they can also increase the vulnerability to risky behaviour and suffering from mental illness (Paus et al., 2008; Rudolph et al., 2017).

Types of neurobiological changes

Two important neurodevelopmental processes take place during adolescence: the change and maturation in regions of the prefrontal cortex, and improved connectivity within and between the cortical (i.e. inner) and subcortical (i.e. outer) regions of the brain. In the next paragraphs, I will explain what areas are involved in what changes and what the implications of those changes are.

Planning and decision-making

The prefrontal cortex (Figure 18) is part of the cortical region and is involved in executive functioning and cognitive- and impulse control capabilities (Crone and Steinbeis, 2017; Steinberg, 2005). In other words, it supports planning and decision-making. During adolescence, this not-yet-mature cortical system impacts their top-down cognitive abilities including planning, working memory, impulsivity control, and decision-making (Casey and Caudle, 2013). Thus, these skills are still developing, and can therefore be influenced by other people. If these skills are not developed properly, adolescents may suffer for a long time because they are harder to change after this period of adolescence.

Self-regulation

Cortical circuits also play a role in the connectivity between the cortical and subcortical regions. As this connectivity continues to develop
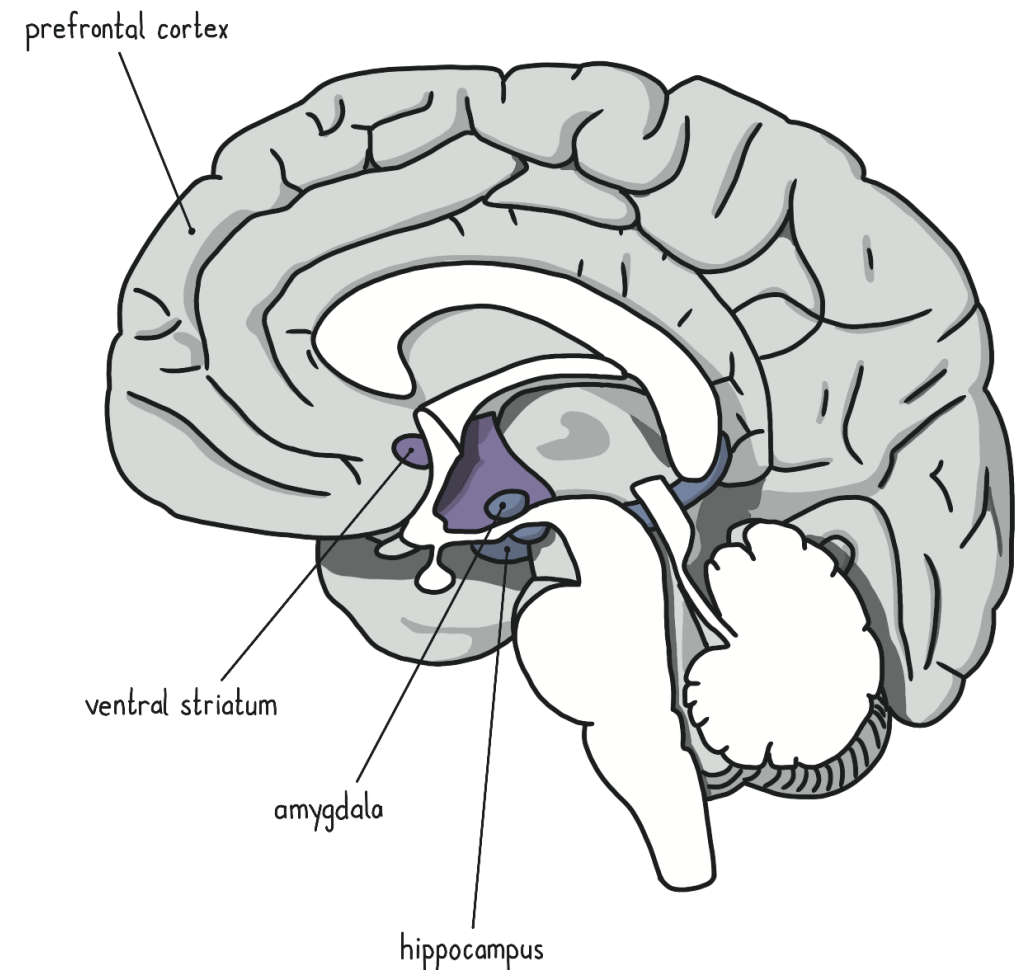

Figure 18. Indication of different regions in the brain. The inner regions have the colour white and the outer regions have the colour grey.

during adolescence, it enhances adolescents' capacity for self-regulation (Caballero & Tseng, 2016). This means that adolescents may still have difficulty understanding and managing their behaviour, and their reactions to feelings and other events around them. This may cause them to react unexpectedly or exaggeratedly, which may complicate interactions with other people.

Motivation and reward perception

In addition to the changes in the cortical region, puberty triggers changes in the limbic system region, which is the subcortical region of the brain. Part of that is the hippocampus (Figure 18), where adolescents display heightened activity compared to adults. This area plays an important role in motivation and perception of reward, which can be an explanation for their increased sensitivity to rewards. This contributes to a greater capacity for learning and habit formation, especially when they are stimulated with positive outcomes

(Davidow et al., 2016). However, this enlarged capacity can be used for both positive and negative habits. Thus, this skill has the potential to have a lot of impact on adolescents, both in a positive and a negative way.

Fearlessness

The changes in the hippocampus and amygdala may be responsible for suppressing fear responses in certain contexts (Pattwell et al., 2011). The amygdala is responsible for integrating emotional responses based on their relevance and impact in the context (National Academies of Sciences, Engineering, and Medicine, 2019). Fearlessness can help adolescents deal with changes as they explore new environments and make important and big transitions. However, a lack of fear can also make them do things that adults do not understand or disagree with, which can cause friction in communication.

Peer evaluation

Adolescents also become more sensitive towards peers, which can be explained by the activation of the ventral striatum (Figure 18), which is activated in the context of peer evaluation. This also implies that social status is more important for adolescents, compared to children or adults (National Academies of Sciences, Engineering, and Medicine, 2019). This development is strongly linked to the need to belong, which I mentioned earlier. As a result, peers can strongly influence each other, both positively and negatively. A possible consequence is that adolescents' self-esteem is affected, and thus their well-being.

3.4 Psychosocial development

In the previous Section, I explained that adolescents develop their cognitive abilities, which also helps them to grow in the psychosocial domain. This includes developing their own identity and capacity for self-direction, which I will elaborate on in the next paragraphs.

Identity development

Finding or developing your own identity is strongly connected to the need to stand out, which I mentioned earlier. Discovering yourself usually involves two important questions: 'Who am I?' and 'How do I see myself?'. Studies show that, for many adolescents, the sense of self and identity becomes more integrated, coherent and stable over time (Harter, 2012; Klimstra et al., 2010; Meeus et al., 2010). Moreover, theory backed up by empirical evidence, supports the idea that having a more "achieved" identity and integrated sense of self relates to positive well-being in adulthood and even throughout the course of life (Kroger and Marcia,

2011; Meca et al., 2015; Schwartz et al., 2011). In the process of developing that identity, adolescents are highly sensitive to social information. Adolescents gain more self-reflection skills, but may still heavily rely on peer feedback in self-evaluation. In addition to peers, parents still play an important role in supporting a positive sense of self, if they are aware of the adolescent's needs and match their high expectations with support (Harter, 2012).

Self-direction capacity

As mentioned, the questions 'Who am I?' and 'How do I see myself?' are important for discovering and developing your own identity. Alongside this, adolescents' growing cognitive abilities enable them to reflect on themselves in relation to a broader collective, which comes with questions such as 'What is my role in my school? In my community? In my society?'. As adolescents grow older, they have more opportunities to make their own choices in domains

that matter for future outcomes, and their capacity to make such choices also increases (National Academies of Sciences, Engineering, and Medicine, 2019). This again has to do with their need to belong: they can now make more decisions about exactly where they want to belong. To grow in this capacity for self-direction, three developments are important: autonomy, purpose and agency. These are not only capacities of the developing adolescent, but also resources or opportunities that they need from their environment to flourish as they transition into adults (National Academies of Sciences, Engineering, and Medicine, 2019).

Autonomy

As I mentioned earlier, adolescents are struggling with the balance between the need to stand out and the need to belong. This can also be described as finding a balance between autonomy and connection (McElhaney et al., 2009). Adolescents want to establish a level of independence and self-sufficiency, which usually involves separating from one's family. However,

acquiring a sense of autonomy does not mean that adolescents strive to become fully detached from their family, they just create a little more space between themselves and their family.

Purpose

Purpose has been defined as 'a stable and generalized intention to accomplish something that is at once meaningful to the self and of consequence to the world beyond the self' (Damon et al., 2003, p.121). A higher sense of purpose is generally associated with better well-being, a deeper sense of meaning, and fewer health-damaging behaviours (Burrow & Hill, 2011). Adolescents require some support as they develop a sense of purpose, especially while they are still developing their sense of orientation toward the future (Steinberg et al., 2009).

Agency

Adolescence is a very good time to allow for leadership and agency (Flanagan & Christens, 2011), as adolescents have growing capabilities

in awareness of- and concern with others and they have an openness to exploration and novelty (Crone & Dahl, 2012). Research with middle and late adolescents suggests that organising can promote skills of critical thinking and analysis, social and emotional learning and engagement in community leadership and action (Watts, 2018).

3.5 Conclusion

The sub-research question asked at the beginning of this Chapter was:

"What are the main developments that adolescents go through and how does it influence their well-being?"

A lot of developments that could influence adolescents' well-being were described and one of the most important ones is adolescents' search for their identity. Discovering their identity could boost their self-esteem and resilience, which has a positive effect on well-being as illustrated by Figure 16. Besides, if adolescents are more sure of their own identity, they probably have a good idea of what makes them happy, and if they also manage to act accordingly, it could positively impact their well-being as well. However, if adolescents struggle to discover their identity, it could also negatively impact their self-esteem and resilience, and thus their well-being. Another development that can strongly impact adolescents' self-image are the physical changes. Those changes can make them insecure, and if their peers highlight their

insecurities with negative comments, it may also influence their self-esteem. In addition, adolescents have an increased sensitivity to rewards, which contributes to a greater capacity for learning and habit formation. If adolescents manage to build positive habits, possibly with the help of others, they could profit from those habits in the form of good well-being. The same is true for bad habits, which can negatively impact their well-being. Lastly, adolescents have an increased sensitivity to stress due to physical changes, which may lead to symptoms of depression and anxiety (National Academies of Sciences, Engineering, and Medicine, 2019). These symptoms may impact their mental health more directly than their well-being, but depression and anxiety could make it more challenging to obtain good well-being. In conclusion, many of these developments can affect adolescents' well-being both positively and negatively. To ensure that it is predominantly positive, the adolescent's environment is very important. I will look further into this network in the next Chapter.

Key takeaways

- The main struggle of adolescents is finding the balance between the need to stand out and the need to belong: 'identity versus role confusion'.
- Physical changes can make adolescents insecure and influence their self-image, which can affect their well-being.
- Adolescents have an increased sensitivity to rewards, which contributes to a greater capacity for learning and habit formation. This provides an opportunity to learn good habits as well as bad ones.
- Adolescents become more sensitive towards peers, allowing them to strongly influence each other.
- Adolescents are discovering themselves, and finding their identity could contribute to positive well-being.

4

Stakeholders in the system

Listening to the system

In this Chapter, I will explain my process and insights from observing the behaviour of the system by listening to the experience of involved stakeholders and important interactions they have. In my explanation, I will answer this sub-research question:

"What are relevant stakeholders' perspectives on adolescents and adolescents' well-being and how are they connected to other stakeholders?"

The research methods I used to answer this question are stakeholder sessions and literature. The stakeholder sessions are supported by a workbook (for adolescents only), giga-mapping and an empathy map. The stakeholder sessions are a combination of an interview and giga-mapping. The empathy map was used as inspiration for answering the questions. The full procedure of the stakeholder sessions can be found in Appendix B. I will explain the workbook, giga-mapping and empathy map, followed by the insights I gained from the stakeholder sessions. For each stakeholder I will explain their role, how they are connected to adolescents and other stakeholders, what their struggles are and what goals they have. The quotes used are from the people I interviewed.

Workbook

Method
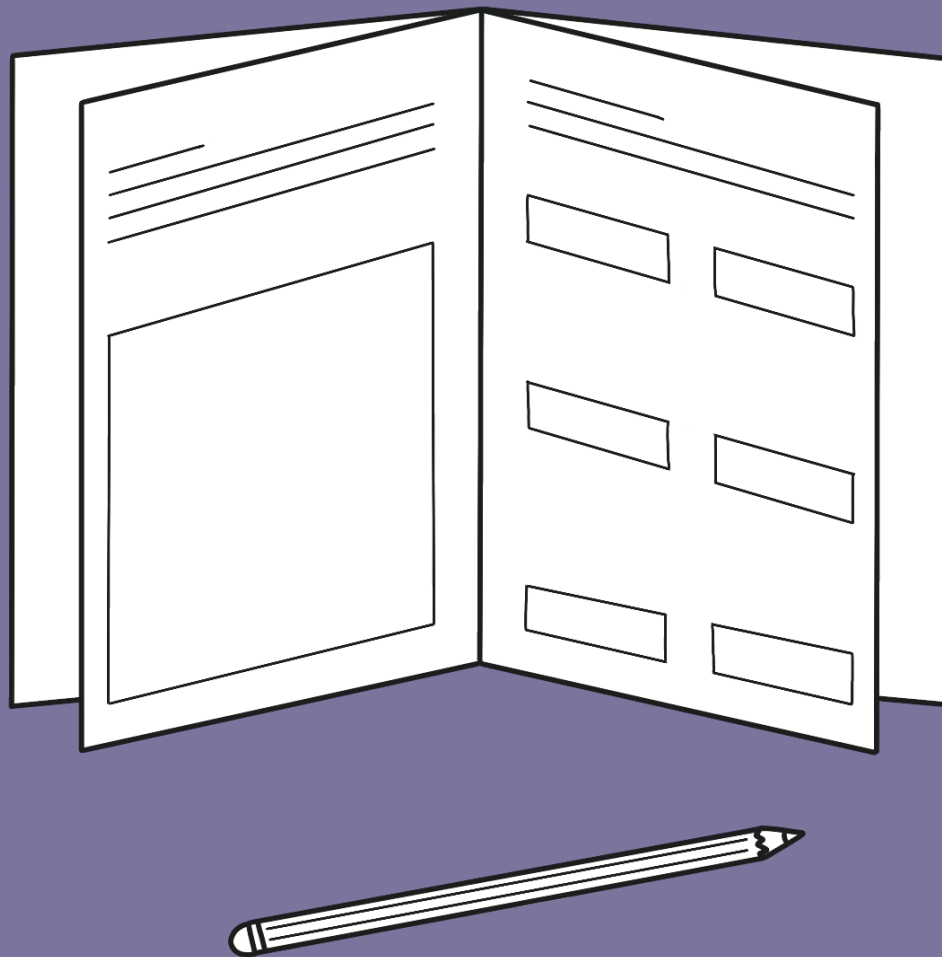
What is it?

A workbook is one form of a sensitizing tool and consists of one or more assignments intended to prepare the research participant for further research, for instance, in an interview (Sanders & Stappers, 2012). The assignments are meant as an introduction, to make the participant think about the subject in advance, so they don't feel overwhelmed when the interview starts. This should make them feel more comfortable and allow them to give more valuable answers.

When to use it?

A workbook is typically used as a homework assignment and thus given before the interview or session takes place (Sanders & Stappers, 2012). Subsequently, the workbook can be used as a basis for the interview. Additionally, assignments can be used in a session to generate deeper insights.

Why and how do I use it?

The goal I wanted to achieve by using this workbook is twofold: to get adolescents thinking about the topic before the interview and to gather information. The topic of mental health and well-being can be a pretty intense topic to think about, so I made a gentle build-up in the workbook assignments to ensure they were not overwhelmed. The workbook contained the following assignments (Figure 19):

- Make a weekly overview (what activities and how long)
- Connect emotions to your week's activities
- Highlight or write down the reasons for you to feel (mentally) down
- Highlight or write down the activities that help you feel good

I also used the workbook as a basis for the interview. The adolescents were able to share their insights with me, in the same order as the workbook itself.

What skills and mindset helped me?

It helped me to imagine myself participating in this study as an adolescent, and how I would think about this topic. It is intimate to talk about my mental health quickly, so I would want a gentle build-up. Besides, I was busy as a secondary school student, so I wouldn't want to spend a lot of time on this. I therefore made sure that the assignments in the workbook would not take up too much time.

Figure 19. The workbook to be filled in by adolescents before the interview

Giga-mapping

Method

What is it?

Giga-mapping is a sensemaking tool, meaning that it is used to better understand complex systems (Sevaldson, 2018). A giga-map includes different layers and scales, with a focus on the relations between categories and actors (van der Bijl-Brouwer, 2023). The goal is to grasp and embrace the complexity of the context or problem, and it is thus not a tool to create a clear overview. For this reason, a giga-map is usually not an appropriate communication tool. When giga-mapping is used as a communication tool, a lot of explanation is often required, and some prior knowledge of the subject is helpful. But giga-mapping is thus primarily for yourself or the team to better understand the context and the problem. It also helps to maintain the complexity of the problem throughout the project (Sevaldson, 2018).

When to use it?

Giga-mapping can be done individually, in a project group, or together with stakeholders. It can be used at different stages in the design process, where it has different purposes. Van der Bijl-Brouwer explained in her lecture that at the beginning of a project, giga-mapping can be used for learning, where you map prior knowledge to get a feel for the context, to make your assumptions explicit, and to find knowledge gaps (2023). Giga-mapping can also be used in the research phase, to organise research results. Another way to use it is to stimulate imagination in a generative and iterative design process where the designer(s) explore different ideas. Additionally, giga-mapping can be used as a management tool, to collaborate with the involved organisation(s). It is a way to gather a lot of knowledge from different stakeholders. Lastly, it can be a tool to pinpoint opportunities for innovation (van der Bijl-Brouwer, 2023). The giga-map can be used to identify places to intervene and innovate.

Why and how do I use it?

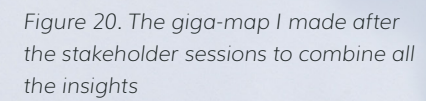I used the tool in three different ways and at different moments in

my design process. I used it at the beginning of my project, where my goal was to map out my knowledge and inform future decisions about the stakeholders I wanted to approach. This map can be found in Appendix C. I also used a simplified form of giga-mapping during my stakeholder sessions. The purpose of the giga-map at that moment was to better understand the stakeholder and their context, and the giga-map was also something visual to refer back to during the conversation. I learned that it is important to keep it simple, as the concept of giga-mapping might be hard to understand in a short period of time. We therefore mainly stuck with mapping related stakeholders or functions and goals that they had. I also chose to not focus on labelling the connections a lot, as this was hard for people to understand. After these sessions, I used giga-mapping to combine all the insights from the different sessions into one map (Figure 20). This way, I could make surprising connections or identify interrelated problems. I found that using giga-mapping helped me a

lot with focusing on relations between stakeholders. This is a very important aspect of systemic design, but not an approach that is natural to me, as I focused on one target group in previous projects I did. But knowing that I would make a giga-map after my sessions, I could structure my sessions in such a way that I was more likely to find relations between stakeholders. It forced me to think differently, which was very helpful in this project.

What skills and mindset helped me?

There are no strict rules for giga-mapping, which is why it can be used differently by every person trying it. I will explain how it worked for me, which might help to better understand how giga-mapping can work. The first thing that helped me is to not be afraid to make mistakes. A giga-map doesn't have to be neat, it can be messy. I reminded myself that it is not something I will show to communicate my insights, it is a tool for me to understand the context I

am working in. Another key aspect of giga-mapping is switching between zooming in and zooming out: details and the bigger picture. I know about myself that I am detail-focused, which is why I needed to remind myself to also look at the bigger picture every now and then. However, I could use my attention to detail in my favour: in giga-mapping, all information is interesting. So by focusing on details, I could create information richness, which is important for giga-mapping. And as I said before, a focus on relations helps with giga-mapping. Force yourself to label a line as you draw it, it as to have a meaning.

Figure 20. The giga-map I made after the stakeholder sessions to combine all the insights

Empathy map

THINKS

SEES

HEARS

SAYS

DOES

FEELS
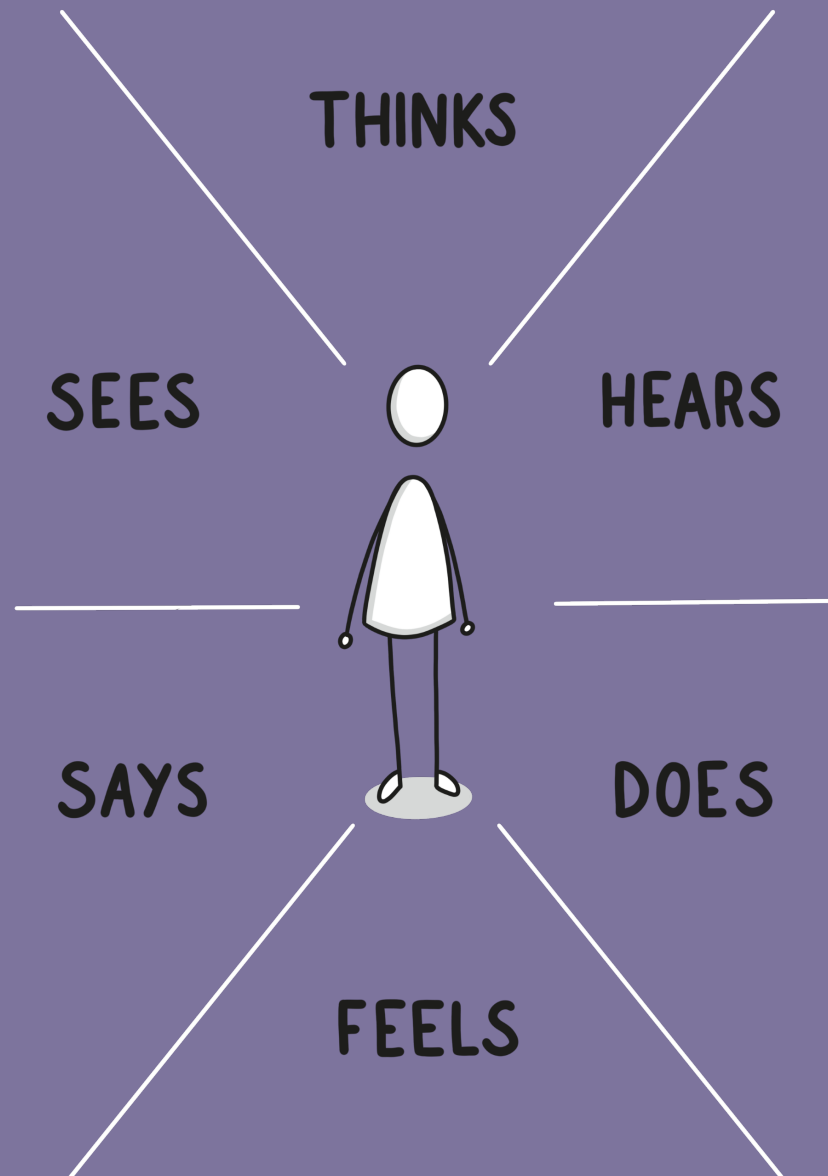
What is it?

An empathy map is a tool to empathise with people and understand their experiences or needs (Gray et al., 2010). In a project, these people are usually the current or future target group(s).

When to use it?

It can be used for different purposes, for example, to understand the target group at the beginning of a project, or to envision what a user would experience while using a new intervention (Gray et al., 2010). An empathy map can be used alone or as a tool in a session with stakeholders. The stakeholders can explain their own experience with the empathy map, or use it to empathise with other stakeholders.

Why and how do I use it?

The goal I wanted to achieve using the empathy map is to understand the needs and wants of the stakeholder in question. This allows me to better understand their perspective, which also helps with understanding the interactions within the system. I used the empathy map at the end of my stakeholder sessions, where I wanted them to think about an ideal future. I used the empathy map in two ways: to empathise with the adolescents in the ideal future and then to imagine their own ideal future. I clearly stated to the stakeholders that it is a tool, meaning they don't have to go by the words one by one, but they can use it as an inspiration to think about the future, as that might be quite abstract to think about without guidance. I noticed that with the use of the empathy map, stakeholders could bring up some new ideas for the ideal future and also substantiate those ideas better.

What skills and mindset helped me?

The empathy map can help to have new insights, either when you use it yourself, or when stakeholders use it. It is therefore helpful to be open-minded when using an empathy map. I tried to not have specific expectations about

the outcomes but to be open and really listen to what the stakeholders had to say. It was also helpful to not be strict in the use: stakeholders didn't have to cover all the aspects in their answer. This resulted in less pressure on the stakeholders to perform in this method, and I believe that they gave more valuable answers as a result.

4.1 Adolescent's perspective

I spoke to an adolescent, and together with literature research, this resulted in the following insights. The full procedure can be found in Appendix D, and the filled-in workbook is in Appendix E.

Their role and tasks

Adolescents at this stage are developing rapidly as I described in Chapter 3. Their main occupation is discovering their own identity and how they relate to the rest of the world. These are very important developments for adolescents, however, it seems as if they are not very conscious of them, as illustrated by this quote, which was an answer to the question of whether she is conscious about her well-being:

"*I am, I guess, a little more **conscious of what I like**. And that's reading my book, for example. I'm kind of conscious of that. But yes, I just do my thing. So you **don't think about it as much**, I feel like.*"

Their relationships

Adolescents have many different contacts, but most importantly, they can choose who is meaningful to them. These people can be parents, peers, extended family, teachers, sports coaches, people at their side job, people at a hobby, etc. Especially peers can be very important for adolescents, as this quote shows:

"*Well, I have a very good friend and she also puts a lot of pressure on herself. So **we keep a balance with each other** and say, hey, let's do something fun. And **with her I can talk about it very well**. Like, Hey, how do you feel about this?*"

Their goals

Adolescents especially need a safe environment so that they can develop and discover themselves. It is important for them to be able to make their own choices, but also to have people to talk to. These people can support them in their search for

their own identity. Adolescents may have other personal goals, such as performing well in school or being part of a certain group of friends.

Their struggles

Adolescents can face a lot of different struggles, and this is very personal. Some examples are: not being able to be yourself, performance pressure, FOMO (Fear Of Missing Out), comparing yourself too much to others, stress about study choices, low self-esteem, sleeping badly, putting too much pressure on yourself, stress from school, and poor future perspectives. Some of these struggles may be part of a natural process associated with the adolescence phase, but others also arise from environmental influences.
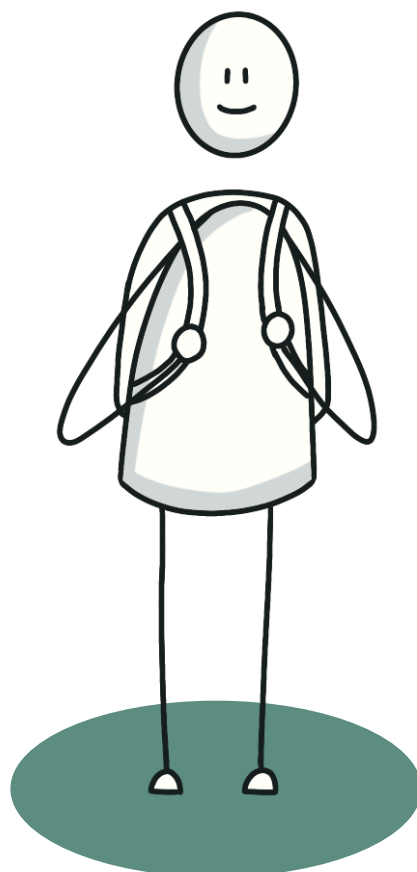
4.2 Parent's perspective

I spoke with two parents from two different cultures: one Dutch, and one Egyptian.

Their role and tasks

The role of parents is to raise their children and teach them things they consider important in life. The details of this are very personal, as is the way they want to convey it.

Their relationships

The most important relationship is with their children themselves. In addition, parents have contacts to arrange things for their children, although this often decreases as the children get older. These contacts are for example with school, the sports club, or with another hobby. Sometimes these may also be contacts with the child's friends, or their parents.

Their goals

Parents want the best for their child. But what they mean by "the best" can vary quite a bit. Most parents want their children to be happy; some also want their children to perform well. To support their children in their path, time is very important. Spending time together, really being together and paying attention to each other. This quote from the Dutch parent illustrates this:

"*I think it is very **important to make time for each other**. And the time that you have, that it's **real time**. So that you don't spend time on your cell phone. But that you also play a game once in a while, or go to the woods, or I don't know, go out to eat somewhere.*"

Spending time together can also help convey norms and values that are important to parents.

Their struggles

For parents, influences from society can be very complicated, especially seeing its effects reflected in their children. This can include performance pressures that children experience from society, while they themselves want to value their own identity and unique qualities that may not traditionally be seen as valuable. This quote from the Dutch parent illustrates the struggle:

"*I do hope I can teach my children that **it is okay to be who you are**. But then again, that sometimes **feels like a battle**, because very often in society, certain achievements are looked at and considered important.*"

This can also be about discrimination, which unfortunately, parents have to teach their children to deal with. The Egyptian parent explains:

"Sometimes there is **discrimination**, because they are Muslim, they are foreigner, so I always see that but I don't know what to do at that moment. ***My children suffer a lot, it's too much**.*"

In addition, the adolescence phase can be difficult for parents, as their children begin to turn against them, no longer sharing everything with their parents.

4.3 Teacher's perspective
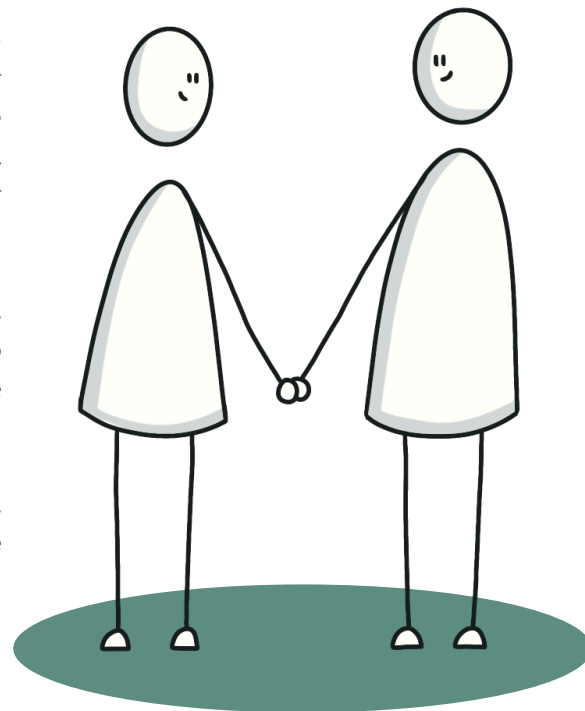
I spoke with two teachers, and both of them also had a mentor role for a class. In this Section, I will mainly describe the teachers' perspective, and occasionally the perspective of the school as a whole. The materials which were made during this session can be found in Appendix F.

Their role and tasks

Their main roles are teacher and mentor. The role of the teacher involves teaching students, preparing their classes, and grading their tests and assignments. The role of the mentor includes being the first contact for students in the mentor class and their parents. Apart from the official roles of teacher and mentor, teachers can also have the role of raising and guiding their students, but this depends on individual interpretation.

Their relationships

Teachers' main relation is with their students: their main job is to teach them. Besides the students, they also interact with parents about the students. Within the school, teachers have contact with colleagues, and if a student is not doing well, they can contact the care coordinator and pedagogical staff member.

Their goals

A goal all teachers have is to transfer knowledge to their students. Another goal is to contribute to students' development. Each teacher may differ in what kind of development they consider to be important. Some only focus on the cognitive part, whereas others find it important to contribute to students' social-emotional development as well. Most teachers value the collaboration between school, students and their parents and would like to strengthen that bond. A teacher explains:

"*If a student is not doing well, the first thing we do is **talk to the student**. If you notice that it is not going well, you also **seek contact with their parents**.*"

*Because I strongly believe in the **parent-child-school triangle**."*

In addition, many schools also aim to increase parent involvement in their schools.

Their struggles

Something all teachers have to deal with is phone use among their students. It is a major distraction and causes problems in the classroom. In addition, teachers have too many tasks and too little time, partly due to the teacher shortage. This lack of time also results in differences in the attention they can provide to their students, illustrated by this quote:
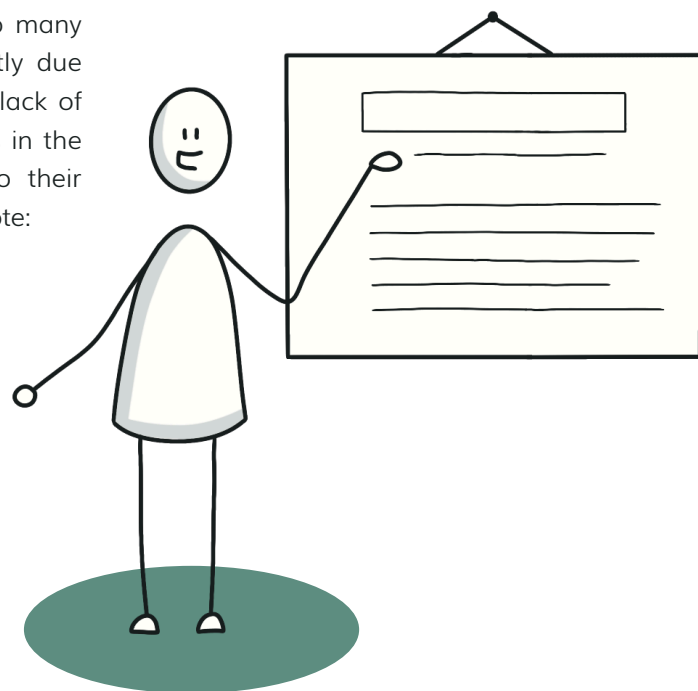
*"The **average student** now gets **too little attention**. Now you stand out, either by very negative behaviour or by very positive behaviour. That you think, I can hardly reach that positive student, because **I just don't have time for that**."*

Schools also experience performance pressure because of inspections' checks on progression rates and graduation rates.

4.4 Side job's perspective

I spoke with a store manager of the jumbo (Figure 21). In this Section, I will describe the jumbo's perspective, and not only the perspective of the store manager I spoke with.
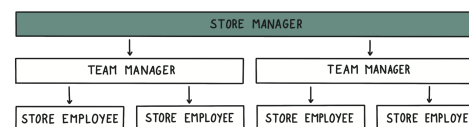
Figure 21. Different functions in a supermarket.

Their role and tasks

An important role of a side job (in this case the Jumbo), is to offer work, in addition to the service they provide to customers. In doing so, they have the role of teaching employee skills by for instance offering training.

Their relationships

The store manager does not have the most direct contact with adolescents, but he has regular contact with the team managers, who in their turn have more contact with the adolescents

who work as store employees (Figure 21). Besides the adolescents, the store manager usually does not have much contact with other stakeholders around adolescents.

Their goals

The Jumbo aims to attract more employees, especially at this time when they are experiencing many shortages. They are also trying to make and keep employees satisfied so that they keep working and perhaps introduce other people as the store manager explains:

*"We do everything we can to put those adolescents at ease as much as possible. They **need to feel comfortable**, at least to make sure that **they also encourage friends to come and work with us** as well."*

Besides the employees, of course, they also want to keep their customers happy. But the Jumbo is also just a company that wants to make a profit.

Their struggles

As already briefly mentioned, the Jumbo has an employee shortage, and they are not the only ones. It is currently very difficult to get (good) employees. On top of that, they face a very high turnover rate amongst their store employees. In addition, the branch manager sometimes has to deal with the arrogant attitude of adolescents.
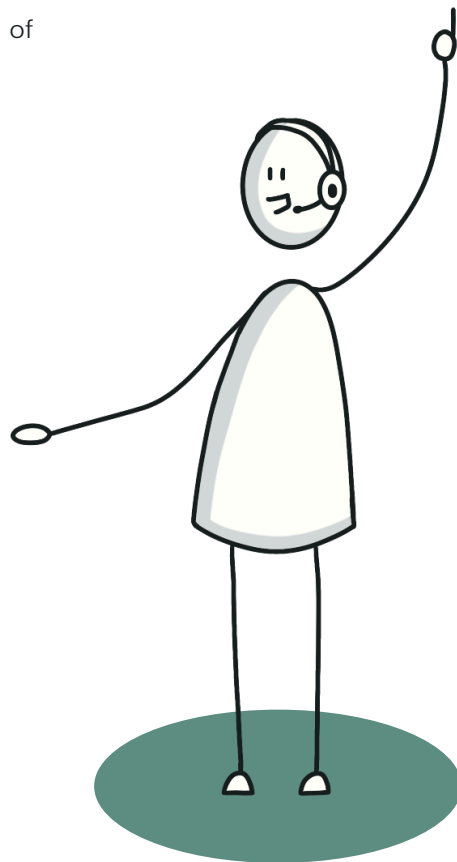
4.5 Sports club's perspective

I spoke with two sports coaches, one coaching only boys and the other coaching only girls. In this Section I will mainly focus on the perspective of the sports coaches themselves, and not that of the sport club as a whole. The materials which were made during this session can be found in Appendix G.

Their role and tasks

The main roles are trainer and coach. This includes tasks such as teaching sports skills, preparing training exercises and guiding games. More indirect roles may include parenting and mentoring adolescents. It varies from person to person if, and how, they want to fulfil these roles.

Their relationships

Sports coaches have a direct connection with adolescents: they teach and coach them in a sport. They also have contact with parents, whom they speak to primarily to arrange practical things. Sometimes the contact can also be about their children's behaviour.

Their goals

This is quite individual, but several goals occur. The first is to teach physical skills suited to the sport. In addition, they want to offer the sport as a positive distraction for adolescents. Most also find it important to create a safe environment so that the adolescents can practise social skills among themselves. Moreover, they hope to set a good example with their behaviour for the adolescents.

Their struggles

Sports coaches have to deal with frequent phone use among adolescents. They have set rules that adolescents are not allowed to use their phones during training and games, and have to monitor this. In addition, sports coaches sometimes experience very low attendance

during training sessions because adolescents cancel. They think this is because adolescents are very busy and less engaged in the sport, which makes them cancel more easily as illustrated by this quote:

*"Adolescents **cancel training easily** and don't show up. And that's a different view than what I had of how you experience and practice sports. And so I've been wondering why that is and how that has changed. And that has been a **societal shift**, I think. And I deal with that by **settling for a group of four girls who come to training**."*
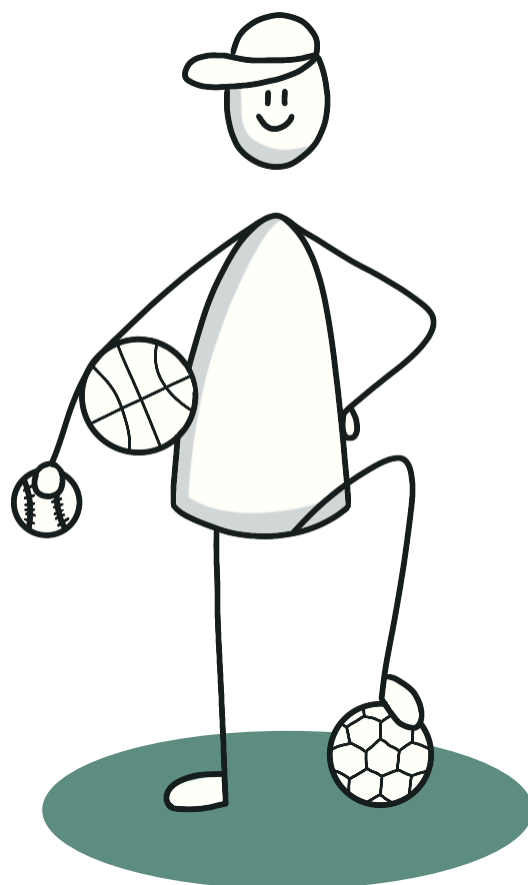
4.6 SGF's perspective

I spoke with a mental health advisor within the SGF. In this Section, I will describe both the perspective of the SGF the mental health advisor I spoke with. The materials which were made during this session can be found in Appendix H.

Their role and tasks

The SGF conducts research to inform its actions. Those actions include creating public campaigns and lobbying the government.

Their relationships

The SGF has many contacts with the health funds that are associated with them. They also have a lot of contact with the government for the lobby, where they attempt to influence policy. The SGF is indirectly linked to adolescents: they work to improve conditions for that group but have little direct contact. Adolescents do sometimes help with research, as do other groups, for instance, teachers.

Their goals

SGF's ultimate goal is that they won't exist anymore, because that would mean that the youth is healthy. To get there, SGF has a goal to improve the well-being of youth. To achieve this, they have a couple of sub-goals. One subgoal, for example, is to contribute to norm change, as the mental health advisor explains:

*"We are trying to make a **norm change**. So that it becomes more normal, that **parents don't have to do it alone**. It takes a village to raise a child. In other words, that we do it together."*

They want to achieve this norm change through public campaigns and by putting topics on the political agenda so that politicians will make different choices. Another sub-goal is to give young people a greater say in SGF's own process.

Their struggles

In their work, the SGF sees that there are many initiatives, but they are very scattered and thus not connected. This results in the initiatives having less impact. They also notice very strongly that the government thinks in terms of problems, thus in risk factors, instead of a focus on protecting factors which is the vision of the SGF. The mental health advisor explains this:

"It is still very **fragmented**. And too much is still done from **problem thinking**, so thinking from **risk factors**.

That results in a focus on youth care. While we think it should be much more about the **protective factors**.**"**
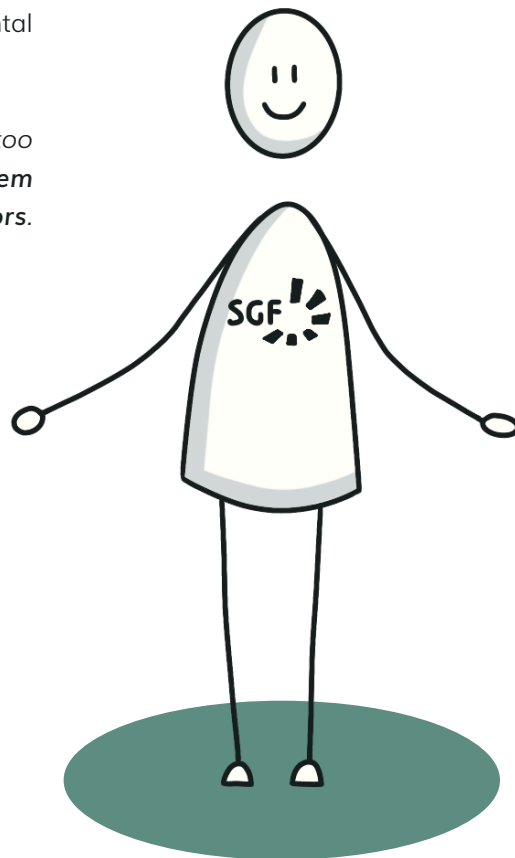
4.7 Municipality's perspective

I spoke to a policy adviser from the 'prevention and well-being' department within the municipality (Figure 22). In this Section, I will both describe the municipality's perspective and the perspective of the policy advisor I spoke with. The materials which were made during this session can be found in Appendix I.
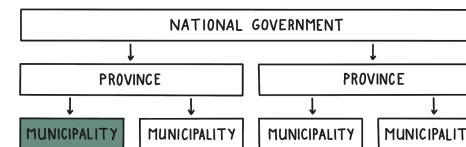
Figure 22. Structure of the Dutch government.

Their role and tasks

The municipality develops city policies around adolescents and their parents. They also provide subsidies to organisations to achieve certain goals. The municipality checks databases to see if the intervention requested by the organisation has shown to be effective.

Their relationships

The municipality has a lot to do with the organisations they provide subsidies to. They also have contact with the national government, from which they get money and sometimes instructions on how to spend that money. The contact that municipalities have with schools, parents and adolescents is more indirect via the organisations.

Their goals

The prevention and well-being department has four themes for which they have a subsidy framework: upbringing, substance use, socio-emotional skills and KOPP-KOV (children of parents with psychiatric problems or addictions). The themes were chosen because improvement on these themes would ensure an increase in adolescent well-being.

Their struggles

For this department, prevention and well-being, it is difficult to get the necessary resources from the national government every year. The policy advisor explains:

*"We get the resources from the national government, and it is very much **standing up for yourself** every year to argue that we want to keep that prevention budget. You see, we are talking about our three departments, and we do notice that the **national government wants a lot to go to the back, to protection and safety.** So intervening when things have already got completely out of hand. Youth care or care is deployed, of course, when there is already a problem and we would like to be in front of it to prevent problems from arising."*

In other words, the national government want to invest in care when adolescents already have problems, such as youth care. Something else the municipality runs into is that they are not allowed to monitor the impact of interventions they subsidise because of privacy reasons.

4.8 Psychologist's perspective
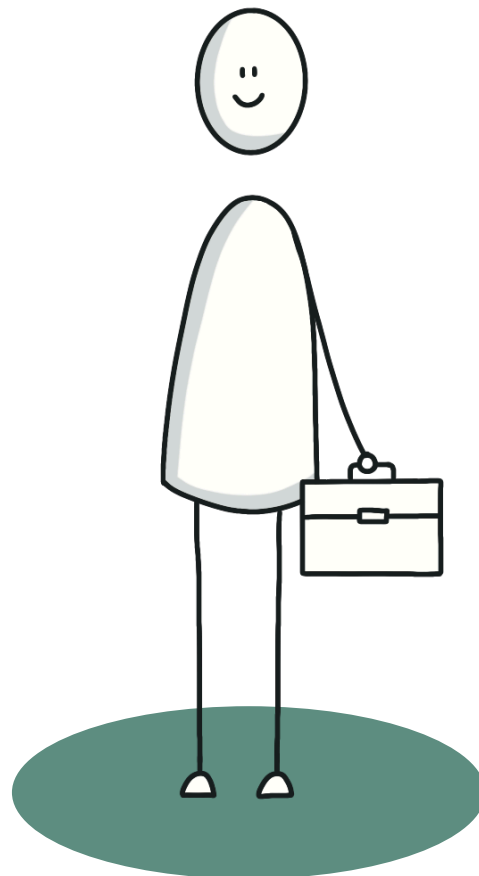
I spoke to a psychologist who works with many ages, but especially with children and teenagers, and thus also with adolescents.

Their role and tasks

A psychologist helps people with their (mental) problems. These may be problems to do with the stage of life they are in, anxiety problems, problems at home or problems from childhood that are now surfacing. The psychologist helps people in processing and gives them insights that help them handle their problems better.

Their relationships

The psychologist's main contact is with their clients, in this case adolescents. In addition, a psychologist may choose to work with the adolescent's environment, meaning they also work with parents and school. The psychologist has additional contact with other practitioners, for example, to forward adolescents if they need more specialised help.

Their goals

Their main goal is to help adolescents feel good again and give them tools so they can continue to feel good even when they stop visiting the psychologist. An important element in this is to support adolescents in finding their own identity and what their qualities are, so that they can make use of them. The psychologist explains:

*"I start with the basics. **What capabilities, skills, and qualities do you have?** Which you don't see, or don't see right now, or have never seen, but which are present. It goes like this, we are going to colour your colour palette. And then we are going to explore what your colour palette is. And then they think, huh, I have a problem, don't I? But you shouldn't dive straight into the problem. Because **the problems they encounter are often a result of an inability to***

*see what your personal attributes are. And how could you use those attributes to your advantage? And **creating space, to learn, or to fall, but then get up again**. So I actually always start everything with: Who are you? And what does your environment look like? And in what way are they supportive of you? And so primarily look for the healthy side first.*"

Their struggles

One of a psychologist's struggles is the long waiting lists at specialist psychiatrists when they want to refer a client. This forces them to offer 'bridging care' for longer, which is not sufficient for the adolescent. Another struggle is the limited number of hours you are allowed to spend with a client, which means you have to be selective in what you can and cannot do in treatment.
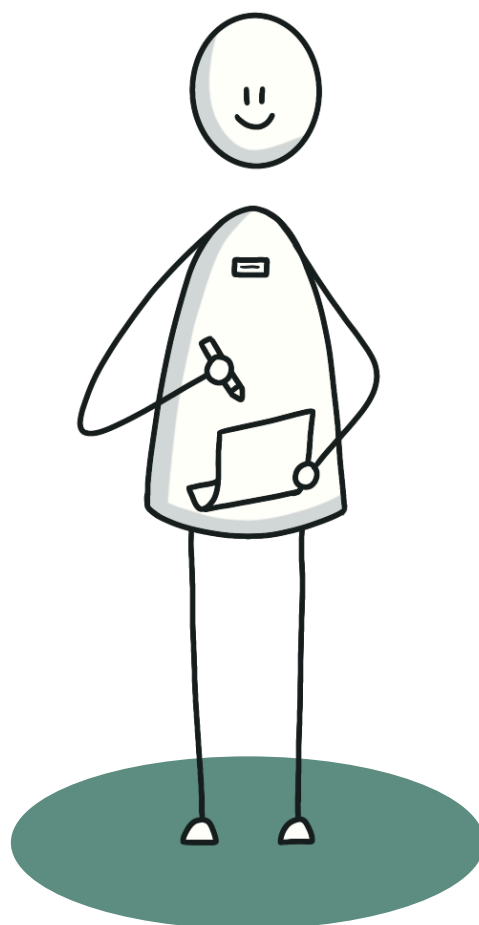
4.9 Conclusion

The sub-research question asked at the beginning of this Chapter was:

"What are relevant stakeholders' perspectives on adolescents and adolescents' well-being and how are they connected to other stakeholders?"

In the next two paragraphs, I will answer this question.

Relevant stakeholders' perspectives

After all the sessions I found an overarching perspective most stakeholders have, which I will explain using Figure 23. This Figure shows a system archetype called 'shifting the burden' (Jones & van Ael, 2022). The problem symptom in my project is adolescents' poor mental health. I found that many stakeholders have a focus on solving mental health issues that adolescents experience, which is a short-term or symptomatic solution (Figure 23). They want solutions for mental health care or train teachers

to recognise when adolescents have mental health issues. A symptomatic solution produces a side effect which diverts the attention from the underlying problem. The side effect also has a negative effect on the fundamental solution: it gets less attention or fewer resources. In the case of my project, this would mean less money, time and energy towards a
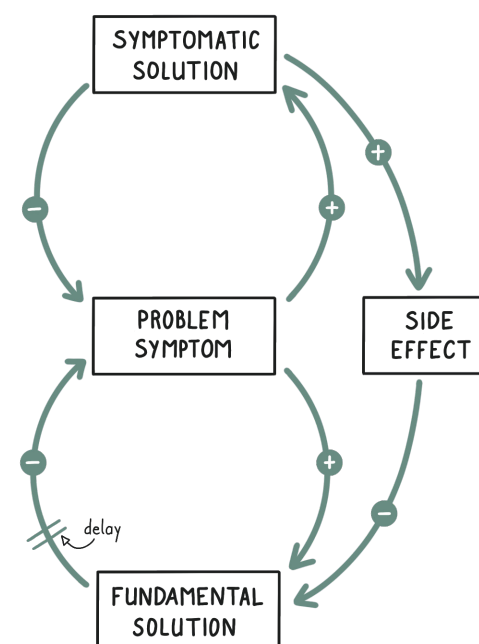

Figure 23. System archetype 'shifting the burden'.

fundamental solution. A fundamental solution in this case would be to invest in promoting well-being. However, it is harder for people to focus on a fundamental solution, as its effect on the problem symptom has a delay. In other words, it takes a while before a fundamental solution has a visible effect on the problem symptoms. The effects of a symptomatic solution show much faster effects on the problem symptom, which makes it a more appealing choice.

Connections between stakeholders

Figure 24 shows the answer to the second part of this question: how the stakeholders are related to each other. Three stakeholders are translucent: the side job, psychologist and sports coach. This is because those three stakeholders are not always present in an adolescent's life. However, the connections are still indicated because those three stakeholders can all be present. Three different line widths and transparencies are used for the lines to visualise the strength of the connection. The thickest and least transparent lines are the strongest connections. By strong connection I mean it is a relationship that is used regularly. These stakeholders see each other on a regular basis. The middle line thickness and transparency indicate the relationships that are used occasionally, but less frequently than the first. And the thinnest lines and most transparent are relationships that are rarely used. What is striking is that the lines between the adolescent and other stakeholders are especially strong. The remaining relationships between other stakeholders are less strong.

= target group
= close stakeholders
= distant stakeholders
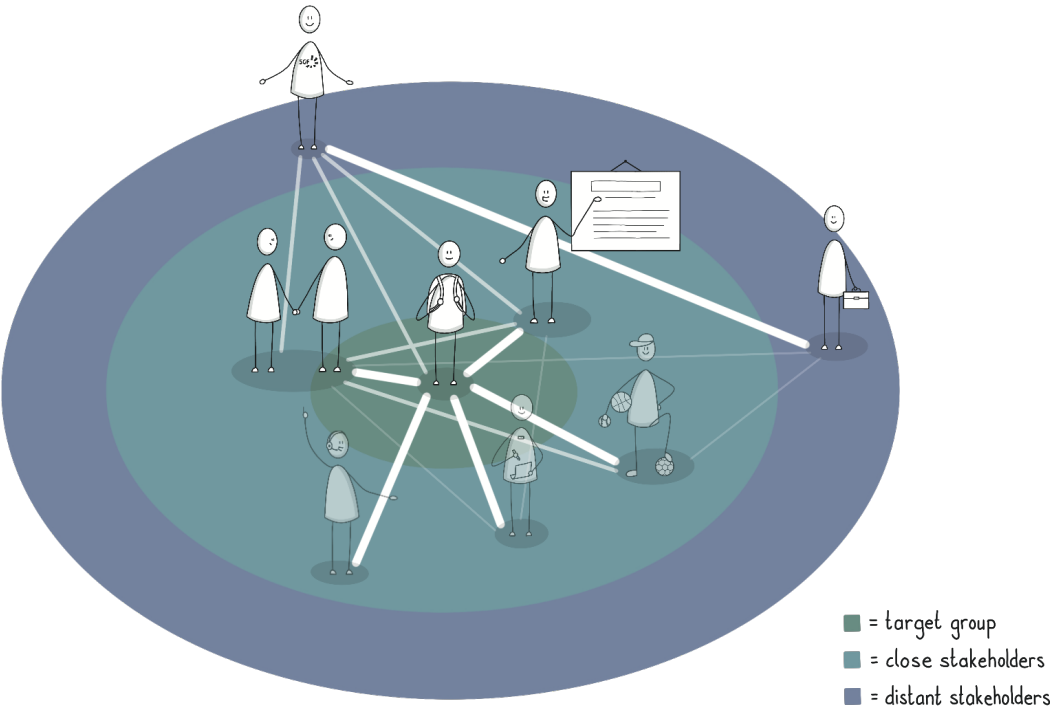
Figure 24. A stakeholder map with different line widths and transparencies indicating the strength of the connection. The translucent stakeholders are not always present.

Key takeaways

- All stakeholders want the best for the adolescent but have their own vision of what that is and how they can contribute to it.
- Most stakeholders have a focus on symptomatic solutions such as addressing adolescent mental health issues, rather than a fundamental solution such as promoting adolescent well-being.
- The connections between adolescents and other stakeholders are strong and frequently used, whereas connections between stakeholders are weaker and less frequently used.

5

Themes

Understanding the system

In this Chapter, I will describe the insights from my process of exploring how the stakeholders and their interactions create the system behaviour. I will introduce three themes that I formed using the giga-map, which I made with input from all the stakeholder sessions. Each theme is explained using a visual summary and quotes from the stakeholder sessions I did. Lastly, I will choose one theme which will be my main scope for the rest of my project. The research questions I will answer in this Chapter are:

"What are tensions or patterns in the system concerning well-being among adolescents and how do different stakeholders relate to them?"

Thematic analysis

Method
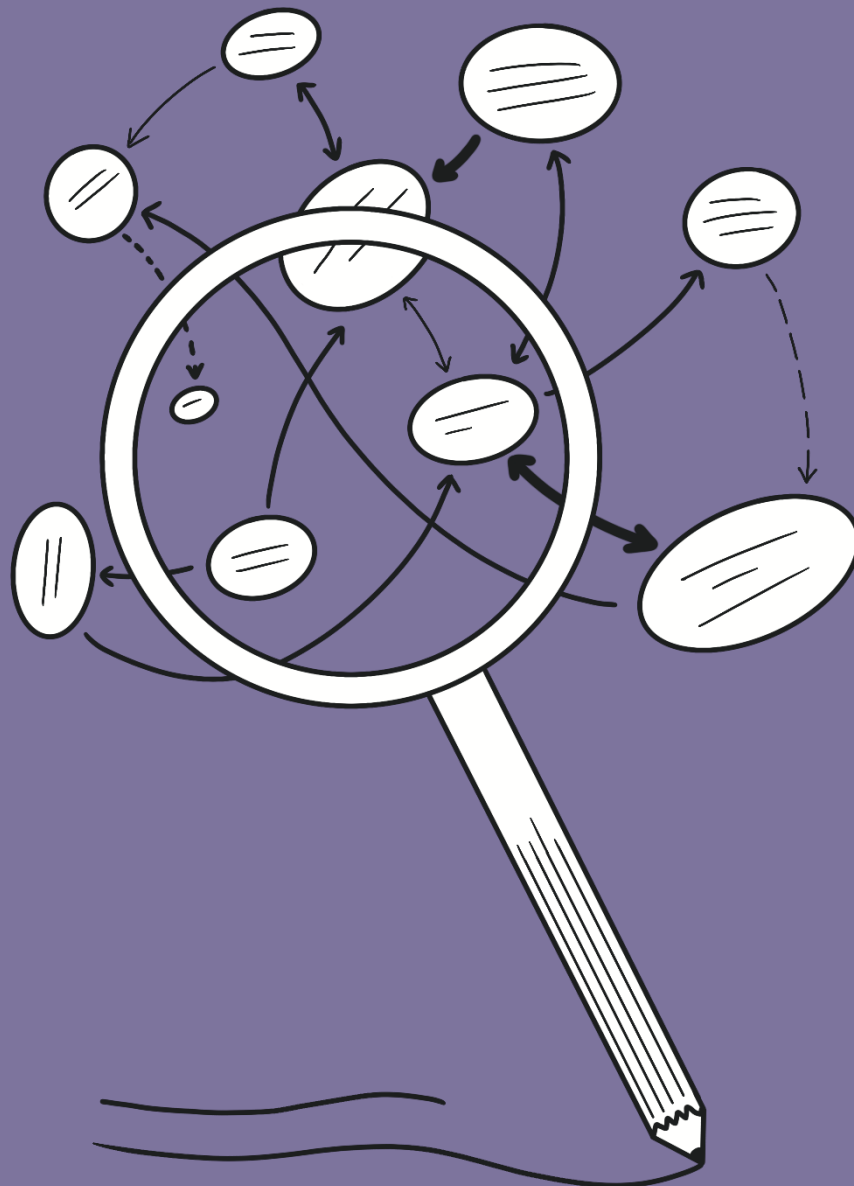
What is it?

Clarke and Braun describe thematic analysis (TA) as a method for identifying, analysing, and interpreting patterns of meaning (themes) within qualitative data (2017). Themes provide a framework for organising and reporting the analytic observations. A theme captures something important about the data in relation to the research question and consists of a patterned response or meaning within the data set. The aim of TA is not simply to summarize the data content, but to identify, and interpret key features of the data, guided by the search question (Clarke & Braun, 2017). This research question is not fixed and can evolve throughout the theme development. Braun and Clarke explain that TA is comprised of six steps: familiarizing yourself with your data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report (2006). Codes are the smallest units of analysis that capture interesting features of the data and are the building blocks for themes (Clarke & Braun, 2017).

When to use it?

Thematic analysis is done after collecting data through, for example, literature reviews, observations and interviews. Additionally, during data collection remarkable findings can already be collected, which can help form themes.

Why and how do I use it?

My goal with this method was to gain a better understanding my collected data and to find patterns. Themes are also a means for me to present my data in a comprehensible manner. I created the themes mainly on intuition, but I roughly followed the six steps as described by Braun and Clarke (2006). However, I did not use codes, but had my giga-map as a reference for interesting features of the collected data. Additionally, using the giga-map helped me to include the connections between stakeholders in my themes. This has ensured that my themes are interesting from a systemic point of view. Furthermore, I especially looked for tensions, or perspectives that felt contradicting.

What skills and mindset helped me?

It especially helped me to explain my insights to other people. These conversations helped me to organise my thoughts and during the conversation we could make connections together and identify themes. In addition, it also helped me to re-read quotes from sessions. This allowed me to empathize with the stakeholders again, which was inspiring for formulating interesting themes. Finally, it helped me to occasionally not think about forming themes for a while. During that time I was able to subconsciously process my thoughts, which often left me with good new insights afterwards.
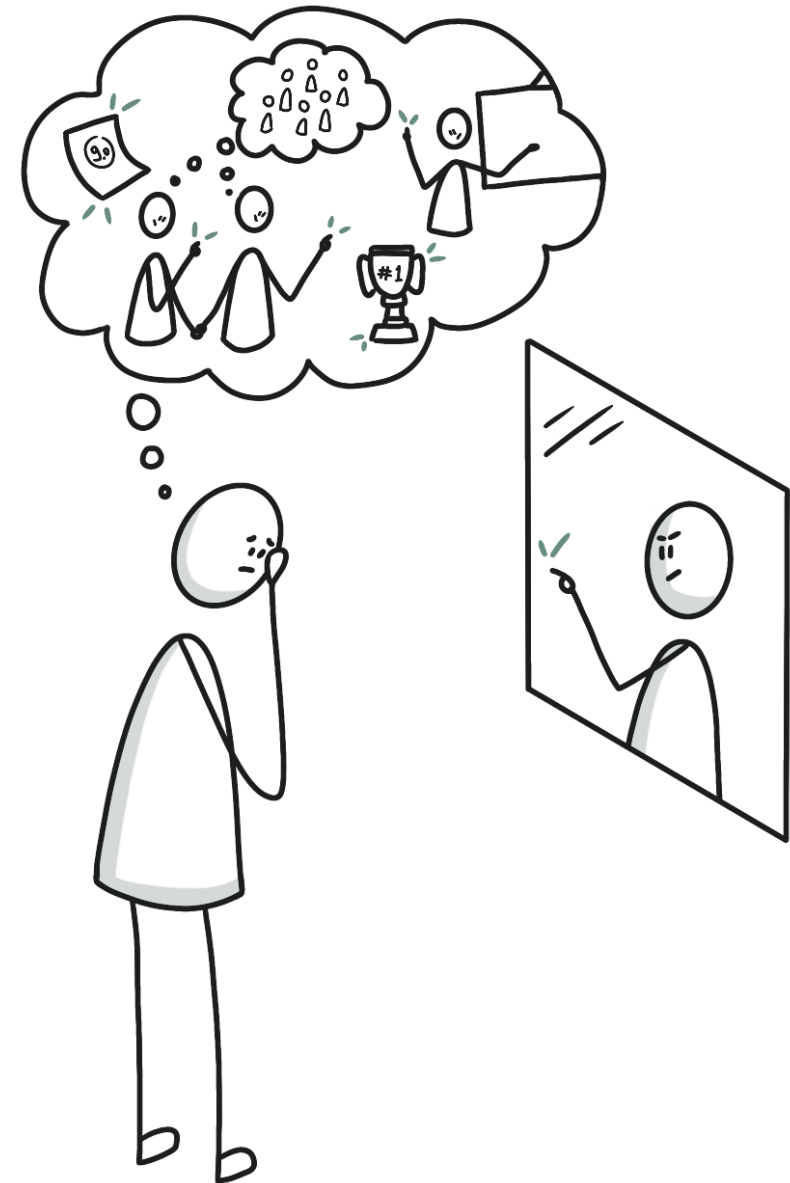
5.1 Performing vs feeling

Figure 25. A visual summary of 'Performing'.

Performing

Performing is really important in this society. More important, as it seems, than how people feel. This focus on performing is illustrated by physical objects, such as trophies in a sports canteen, but also measured in schools with tests and grades (Figure 25). The problem of performance pressure increases as children get older since more is expected of them and deviations are less tolerated, as a psychologist explains in this quote:

*"There are different stages of development. Infant, toddler, preschooler, child, adolescent, young adult. And at all those stages, a certain level of skill is expected of you. Of the areas of life. And what you see is that when the children are young, the fact that they lack some skills is still considered. But **the older they get, the clearer the rules, the requirements are on the table that they have to meet**. And that suddenly becomes a very big problem."*

Adolescents may feel pressure from their parents to perform (Figure 25). A teacher explains his experience:

*"You're still dealing with the performance pressure…. because you notice with those parents, that they think that everyone has to have finished an **HBO** to make sure that they can at least find a **somewhat normal job**, when of course that's absolutely not the case anymore."*

However, the parents' opinions might also be influenced by others. In addition, parents may set the example that needing to perform is normal, which is something they indirectly teach children, as illustrated by this quote from a parent:

*"What I see around me is that **people are incredibly busy**. They also worry a lot, making themselves busy, which is something else. They **demand a lot of themselves**, and that's **setting an example for their children**. That you should demand so much of yourself, or be allowed to demand so much. But they also put that pressure on their children. That **children have to perform in all areas**."*

Besides pressure from their parents, adolescents also say they pressure themselves (Figure 24), as an adolescent explains:

*"Well, I think I put that **pressure on myself a lot**, too. Very much so. But I think it's also school sometimes."*

But not only students feel pressure… schools as well, because of the inspection. A teacher explains this:

*"What I mainly encounter is that we as a school, when we talk about performance pressure, **we also have to perform as a school**. So we are also **observed more closely by the inspection** when we do not meet the targets. This is about **pass rates** and **success rates**. I find it strange that you are judged on that."*

The inspection only measures cognitive skills, which is because the government seems to value cognitive skills more than social-emotional skills. A mental health advisor from the SGF has experienced this and explains:

*"The **political parties** are now very focused on what they call **'basic skills'**. So they think there is a shortfall in reading, math and writing. And they think that those shortfalls should be caught up. So basically **all the attention is on those cognitive skills**. And they say, there is **simply no room for social-emotional skills** because the teachers are already so busy, it is all so difficult…. and the inspection only tests for cognitive skills and not social-emotional skills."*

Feeling

As it seems, there is little attention to feeling. And when there is attention to it, it is already late (figure 26). This is visible in schools, where a lot of people (care coordinator, pedagogical assistant, school doctor, school attendance officer) help students from the moment they have problems. But before that, there are no people with the official task to make sure students

Figure 26. A visual summary of 'Feeling'.

are doing well. The SGF also sees this attitude in the government:

"*There is still too much **thinking from the problem**, that is, from **risk factors**. That results in a focus on care. A focus on youth care, mental health care (GGZ).*"

However, teachers and students seem to understand that it is actually important how you feel. The SGF argues that social-emotional skills play a very important role. In the following quote, the mental health advisor explains their research:

"*We did a lot of research among **teachers**. I think, something like, **97% say they think it's important, those social-emotional skills**. But they also indicate that they don't know how to do it. And that there is not enough attention to it in the education. And we also did research among the **youth**. Almost **100% indicate that they want to learn this in school**.*"

A teacher also underlines that feeling safe is a very important requirement for adolescents to be able to learn:

"*A **child can only learn when he feels safe**. When he sees the perspective of school.*"

A parent agrees with this:

"*Well, in my opinion, **a child can develop if the situation is safe and trusting**. So I think that's a basic thing about a school. That it's safe there. And I don't just mean safe, no guns and no knives. But also a **safe social climate**. In which students are also challenged to practice certain social skills, both with teachers and with fellow students. And I think that's very important. And I also think that **if children are doing well socially and emotionally, then they are teachable**. Otherwise, that just becomes difficult.*"

A psychologist reiterates the importance of social-emotional skills in this quote:

"*A **misalignment in social-emotional development** is almost a **predictor***

that the child will get stuck. At school, anywhere. So it is an important indicator."

Thus, feelings and social-emotional skills are important but are currently not getting enough attention. What are the implications of that? Well, a downside of the lack of attention to feeling is that adolescents may not know what is normal to experience, which might lead them to think they have mental health issues when they do not. The SGF further explains this:

*"The Netherlands Youth Institute (Nederlands Jeugdinstituut) is now very much in the process of trying to **normalize** it more. Because life consists of ups and downs. So it's **normal to feel stressed**, to **feel insecure**, to **feel down sometimes**, to **experience setbacks**. So those are **not mental problems, that's part of life**. And I think that in ten years, for example, when it is much more normal, and young people also experience this, it will be part of life. That they will also be less likely to say: I have mental problems."*
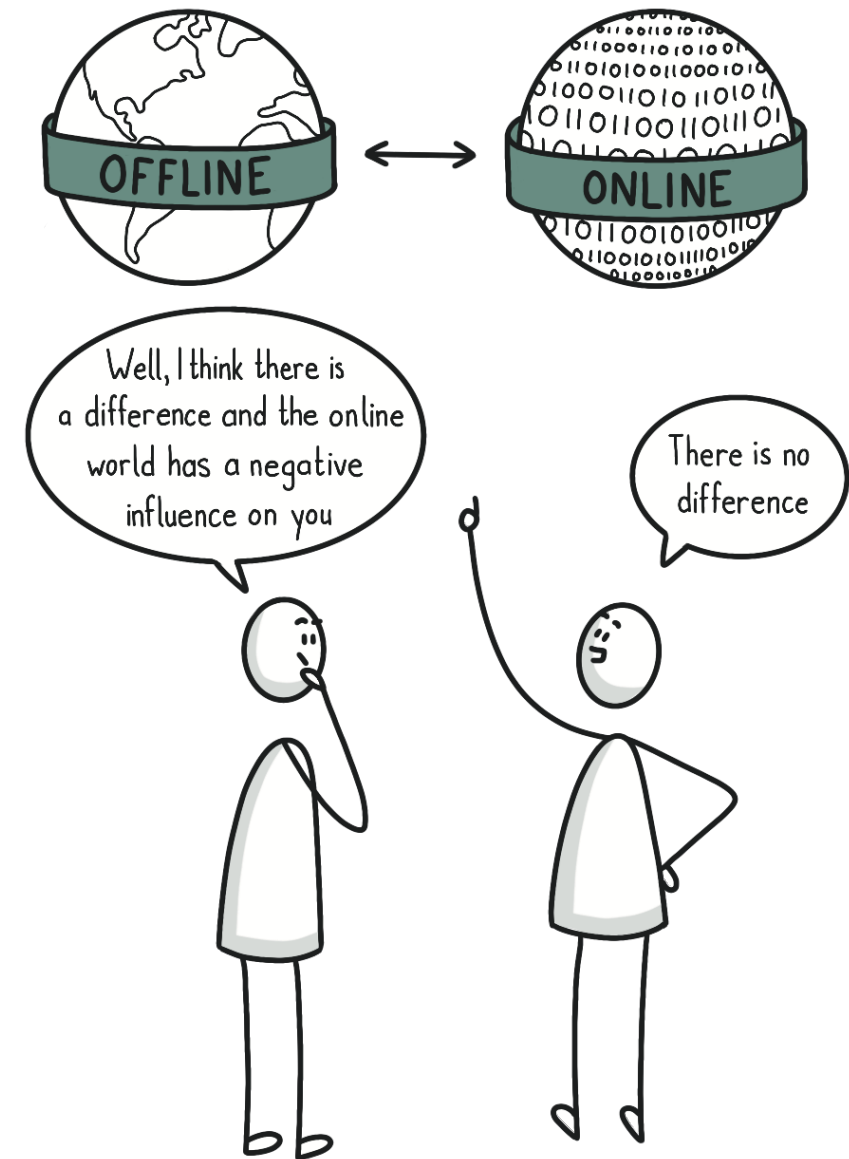
5.2 Merging worlds

Figure 27. A visual summary of 'Online and offline world'.

Online and offline world

With the introduction of the mobile phone and social media, a new world has emerged: the online world. Adolescents aged 16-18 have grown up with this combination of the online and offline world, which has resulted in them seeing these worlds as one, illustrated by Figure 27. A mental health advisor from the SGF explains this:

"*Young people don't mention social media as a problem because it's not a different world for them. When you refer to adults around you, it doesn't matter if they encounter them physically or online. **It's just one world**.*"

With a new world, new distractions arise. Both teachers and sports coaches see the consequences for adolescents. A teacher said:

"***Social media has a big impact on school**... Previously, if a child was **at school, they were at school**.*"

And a sports coach said:

"*What is going well ... That **it can't be done with a phone in your hand**.*"

A municipal policy adviser explains how much impact phones have on schools:

"***All schools struggle with social media use**. With taking photos and videos in lessons, and posting them online. So schools are very happy to ban the mobile soon after the Christmas break. That that's just not allowed at school anymore. But they also **notice that what goes on in class continues after school**. So they are truly very shocked about that.*"

But what are the consequences for adolescents, apart from the problems schools and sports coaches encounter?

Consequences

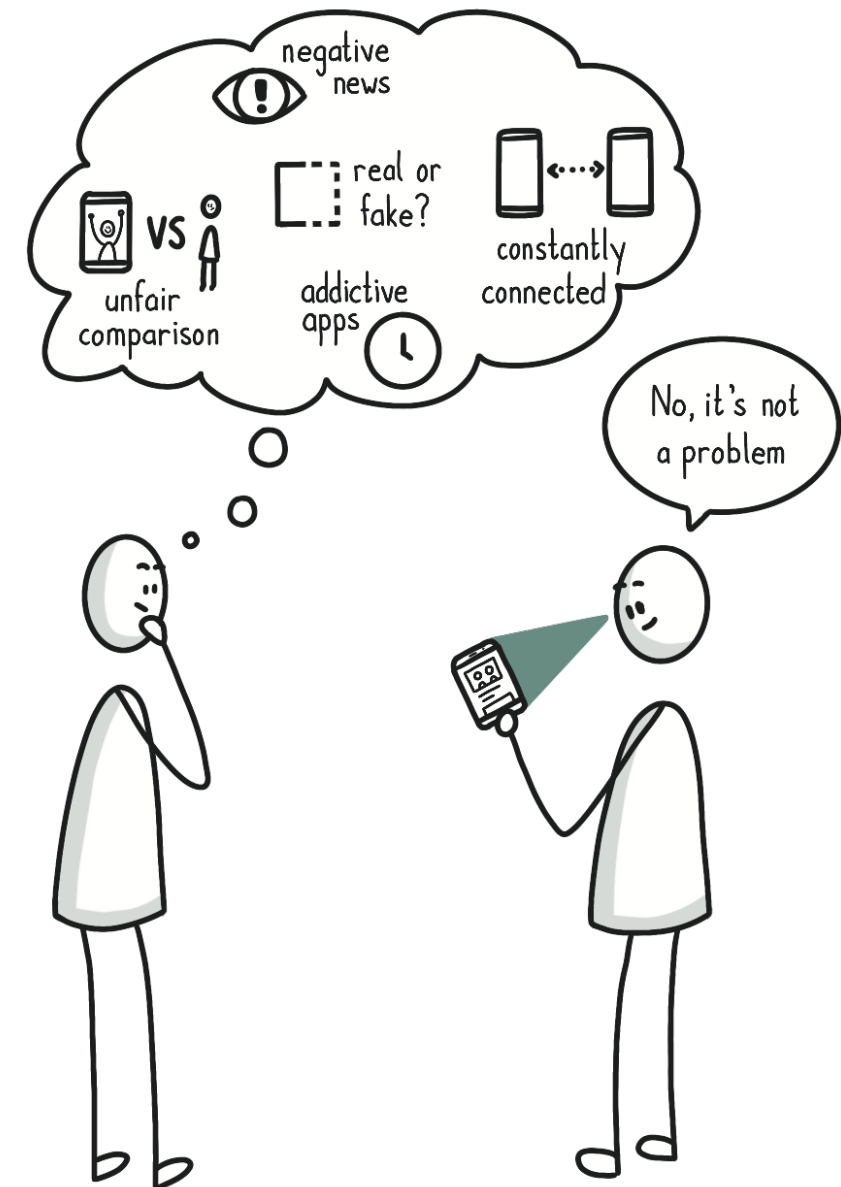One consequence is that it has become more difficult for adolescents to know

Figure 28. A visual summary of 'Consequences'.

what is real (Figure 28). Online, people often show only the best of their lives, and it's unfair to compare that to all parts of your own life. Teachers see this reflected in students, as illustrated by this quote:

"*And social media … that also has a very negative impact on the focus and concentration of, how happy am I. Because on **Facebook** and **Insta** and **TikTok**, **Snap** … **it all seems so fun** there. So **social media doesn't help with social well-being**.*"

Parents also see dangers in social media:

"*What could also play a big role is **social media**. Because, of course, a lot of young people are on there. There they are always just **showing how incredibly happy** everyone is. How **incredibly busy** everyone is. So maybe there are gains to be made if that other side of life would also appear on social media. If you don't just see, I'm walking around with three full bags, because I've been shopping, but I'm now lying on the couch. **Show that,***

*too. **Real life**. Instead of this, in my eyes, twisted, pretend-to-be-perfect life.*"

However, adolescents themselves often say that they are not affected by this (Figure 28):

"*But it's **not really that I'm influenced by social media** like…. Ah, I see they have a perfect life.*"

Another consequence of phones and social media is the increasing flow of information (Figure 27). This is something adolescents themselves have to deal with, for instance, because social media tempts them to keep watching. An adolescent explains:

"*But then I also rather quickly had **put that pressure on myself** again. So again, actually having that control of every morning at eight in the morning, I was eating my breakfast. I would **look through Instagram**. And then **I had to watch all of it**. And then at the end you could then get one of those check marks of, ah, you've looked at*

the last three days, so to speak."

Sports coaches also see that adolescents have a continuous urge or need for connection (Figure 28), sometimes encouraged by parents:

"*I think the fact that **children feel like they have to be constantly connected**. Because you can do that with that phone. You can continuously fix everything at the last moment. Then you can call your parent because the game is taking a little longer.*"

Not only do adolescents have to deal with the increased information flow, teachers have to deal with it as well. Much more news is coming in through phones, and they are expected to pay attention:

"*I used to not get when there had been an earthquake somewhere from… Guys, how are we going to discuss this in class? **Now I get offered a lesson right away. It comes in a lot more**, too.*"

5.3 Who is responsible

Parents have full responsibility for the upbringing of their children, including their social-emotional development and well-being

I just want to discover my way, without my parents

Figure 29. A visual summary of 'Social norm'.

Social norm

The current social norm is that parents are responsible for the upbringing and development of their children, as illustrated by Figure 29 and this quote from a mental health advisor from the SGF:

"*We are researching what the current norm is. The* **current norm is that you are responsible as a parent**. *So you chose to have children, so you figure it out. Work is more important, those kids are just a little on the side. So that's the current norm.*"

This is visible in the opinions of different stakeholders. For example, the mental health advisor explains that a lot of political parties say it's the parent's role and they don't want to be involved in character development:

"**A lot of political parties also say it's the parent's role**. *Parents should just teach social-emotional skills to their children. Or they say it's* **too close to character development**, *and the political parties don't want to tell what* someone's character should be.*"

The municipality says that they are not raising the children, but a lot of other stakeholders are important:

"*I think* **adolescents themselves** *should play a big role in change.* **We can facilitate**, *but ultimately they have to do it themselves.* **I am not raising those adolescents**. *The parents have an important role in that. Who is in your system, which is the parents, which is your school, free time, and more distant the government. But it's kind of at the back end, I think most of it just has to happen at home though, with the parents.*"

Teachers and sports coaches share the opinion that it's not their role to raise adolescents. A teacher said this:

"**We, of course, are not actually for parenting**. *We are for teaching those children certain knowledge. Educational knowledge. And that doesn't include parenting.*"

And a sports coach explained it like this:

"*I often choose the role of the trainer-coach. And try **not to take the position of the parent**.*"

However, as I mentioned in Chapter 3, adolescents are developing their own identity. This results in them taking some distance from their parents. In other words, other adult figures in their lives become more important. An adolescent I interviewed also said this:

"***People who can help in your development** are **teachers, sports coaches, people at work**, yes. **Parents as well** of course, but that's maybe **too close** sometimes, too.*"

A parent also acknowledged this, saying that there are certain things that adolescents cannot learn at home:

"*Some things **adolescents can't practice at home**. I think it's important that they also do that **with peers**. So*

then you can think about the school of course. A **sports club**, or a **music club**, or a cooking club that they're in. Some might learn it outside on the street because they spend a lot of time there. So especially with peers. That they can **learn certain social skills**.*"

A psychologist reemphasizes the importance of the system, and how multiple people in it can play an essential role in an adolescent's life:

"*The **family system** plays an incredibly important role. Besides the family system, also a **wider system**. I find that adolescents who have smooth **communication at home** are much more resilient. Or adolescents who have a very **positive school experience**. Because they have a **mentor they have good contact with**. Or that the **atmosphere at school** is so pleasant for them. So the system, both the family system and the more broad system, I find that very striking, what contribution it has.*"

As you may sense, these views are

rather conflicting. Adolescents need support figures outside their parents, but several people who could fill that role deny their responsibility.

Person-specific

Adults other than parents thus have a unique opportunity to really make a difference in the lives of adolescents, but they often do not acknowledge that responsibility. So are they not taking that responsibility at all? Well, they do take responsibility sometimes, but it depends on the person (Figure 30). This means that there are little facilities within the system to ensure the adolescent gets the support they need, and they are reliant on motivation and sense of responsibility of individuals. I will show two examples, from teachers and sports coaches. The following is from one teacher who connects to students, and thinks it is important to help students emotionally and socially:

"*And I think **a lot more of my colleagues** should follow my approach*

a little bit, to **connect with students** as well.*"

Then there is also the other teacher who does not acknowledge that responsibility:

"*There is also very often said by those parents... parenting happens at school. **No, parenting happens at home**. Parenting is done by the parents.*"

With the sports coaches, you can see the same thing: one teacher sees the parenting role they have, while the other doesn't. This is illustrated by two quotes. The first coach acknowledged the parenting role and said:

"You're not the parents of those kids, of course. But in my age group, **there's really such a parenting part**, too. How do you treat each other? How do you behave? How do you deal with adversity when you lose? And besides that, of course, kids have all kinds of things on their minds. And that also has an impact.*"

Figure 30. A visual summary of 'Person-specific'.
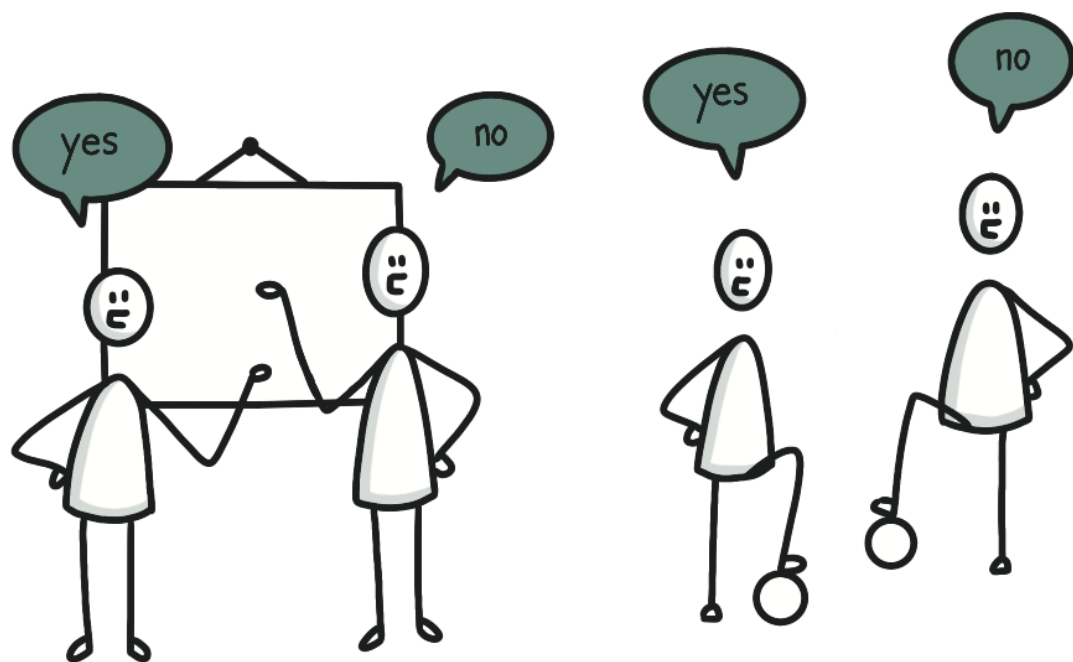
The other coach had a different opinion and said:

"*But I do see my role **primarily** as the one that...On Wednesday nights, **provides a distraction**. And the **fun of the game**. And the **sport**.*"

Not acknowledging the parenting role might have different reasons. For example, they might think they are not educated enough and don't know how to help. Another reason could be that they are scared of the parents' opinion, which is something the mental health advisor from the SGF discovered during projects:

"*Adults indicate that they support the children who are close to them. So their own children and, for example, their cousins. But the **children who are a little further away,** so other children you meet in the neighbourhood, or your students. That there **they don't know so well what their role can be, and how to do it**. Also because they are afraid of what parents might think of that.*"

Or, in the case of teachers, helping students emotionally and socially is seen as an extra, which means teachers have to sacrifice their own time, and maybe their own well-being, to help their students.

5.4 Conclusion

The sub-research question related to this Chapter is:

"What are tensions or patterns in the system concerning well-being among adolescents and how do different stakeholders relate to them?"

Each of the themes described tensions or patterns which occur in the context, and how different stakeholders relate to that, but this conclusion aims to provide a more overarching answer to this question. After describing the overarching tensions and patterns, I will choose one theme to focus on. This does not completely exclude the other two themes, but this one theme will be my main focus for the rest of the process and report.

Adults vs adolescents

In all these themes, a reoccurring tension is between adolescents and adults. Adolescents and adults experience the world differently, which can result in miscommunication. This is most apparent in the merging of online and offline worlds, and the question of who is responsible. Adults have their own ways of how they think about upbringing or phone use, which does not align with the adolescents' needs and wants. This can have two causes: adults have forgotten what it is like to be 16-18 years old, and/or adolescents now grow up in a different world than the world in which current adults grew up. This makes it harder for adults to empathize with adolescents, which is also reflected in the theme 'Performing vs feeling'. As mentioned earlier, adolescents struggle to find a balance between the need to stand out and the need to belong. External pressure further complicates this already difficult process because the choices the adolescent makes can be criticized more, adding more weight to the process.

Societal opinion

Another recurring theme is the role of 'society's opinion'. This is described in the 'who is responsible' theme, but it is also reflected in the other two themes.

In several interviews, stakeholders said we live in a performance society, which is reflected in the pressures adolescents experience. Mobile usage is also a big social issue on which everyone has an opinion, and it seems to widen the gap between adolescents and adults.

Chosen theme

I decided to choose the theme called 'Who is responsible' because it is systemically the most interesting one. As my project is about exploring how systemic design can contribute to promoting well-being in adolescents, I chose a theme that has the most systemic character. It is the most systemic because a lot of different stakeholders are involved and they all have different perspectives, values and beliefs. Currently, these differences can cause tensions between stakeholders and can result in non-optimal or negative experiences for adolescents. In the next Section, I will describe what my future vision is for this theme and also explain the scope of this project.

Key takeaways

- The current social norm is that parents are responsible for the upbringing of their children, including their social-emotional development and well-being.
- Adolescents aged 16-18 distance themselves from their parents, allowing other adults in their lives to play an important role.
- Within stakeholder groups such as teachers and sports coaches, there are individual differences about what their role is when it comes to promoting well-being in adolescents.

6

Design direction

Envisioning desired futures

In this Chapter, I will explain the desired future I formulated based on the insights from the stakeholder sessions I did and the themes I formed. I will also describe the method I used to find opportunities: leverage points. Lastly, I will share my design goal which is the start of designing interventions. The following sub-research question will be answered in this Chapter:

"What future is desired in the context of adolescent well-being and how can it be realised?"

Leverage points

Method

constants, parameters, numbers

buffering capacity

physical and digital structures

delays

balancing feedback loops

reinforcing feedback loops

information flows

rules and regulations

self organisation

goals

paradigms

transcending paradigms
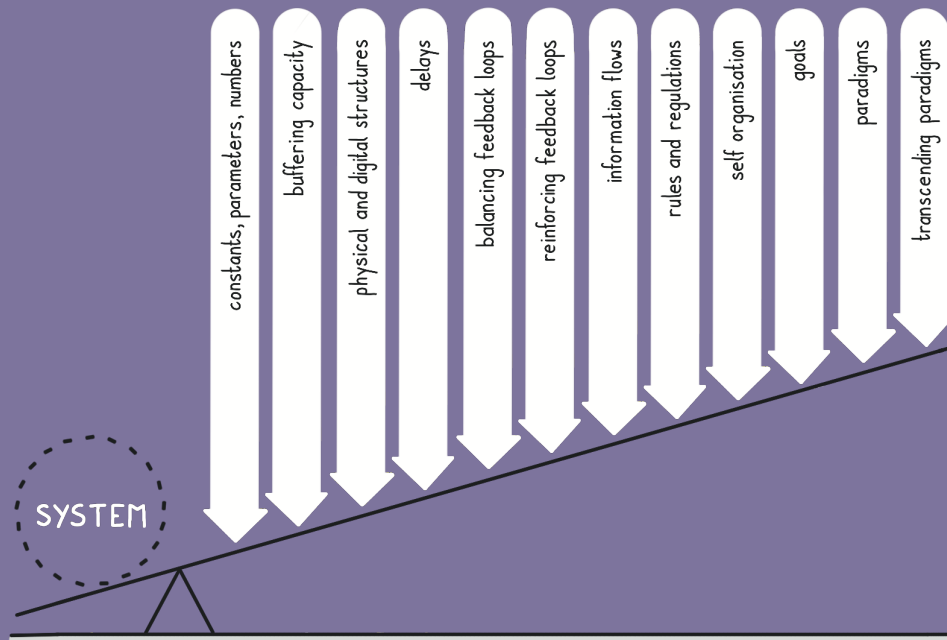
SYSTEM

What is it?

Leverage points are places within a complex system where a small shift in one thing can produce big changes in everything (Meadows, 1999). Meadows came up with a list of twelve leverage points, increasing in the amount of leverage, which are displayed on the left.

When to use it?

Identifying leverage points is usually done after you have developed an understanding of how the system works. Mapping the system could contribute to that understanding. Leverage points are used to achieve a shift in a complex system, which means that you need to know where you want the system to shift towards. However, this goal can change: experiments with interventions can be used to test whether the goal is still the desired direction.

Why and how do I use it?

My goal with using leverage points was to find potential places to intervene in the system, which is the start of my design statement and intervention design. I have used the theory on leverage points after I chose one theme. Within that theme, I looked for tensions, because the system would positively change if those tensions were resolved. Then I used the theory about leverage points to find potential, opportunities which could contribute to resolving those tensions. Testing and evaluating the intervention that I made will provide me with some insight into whether the leverage point I chose was indeed a good leverage point.

What skills and mindset helped me?

It helped me to try and find the root of the problem. Every time I found a tension in the system, I asked myself 'why is this tension here?'. I asked that question multiple times, which helped me to find the underlying problem behind the more easily visible problems and tensions.

6.1 Future vision

The quote on the left symbolises my future vision. In this Section I will explain more about 'the village', why I chose this quote and what the desired shift is towards this future vision.

'The village'

I chose this quote to symbolise my future vision because multiple stakeholders used it to communicate their desired future during the sessions. But what does it exactly mean? The exact origin of the quote is unclear, but the quote conveys the message that it takes many people ('the village') to provide a safe, healthy environment for children, where children are given the security they need to develop and flourish (Reupert et al., 2022). For children to develop and flourish, their voices need to be taken seriously by the 'villagers' (Gladstone et al., 2021). The 'villagers' are multiple people, for example, parents, siblings, extended family members, neighbours, teachers, professionals, community members and policymakers. All these 'villagers'

can provide care in two ways: directly to the children and/or support the children's parents (Reupert et al., 2022). For this village to work, it is important that 'villagers' are all able to ask for help from others and in turn provide help to others. In other words, the value of the village consists of the quality of connections the villagers have. So this is the ideal situation, but what changes are necessary to achieve it? That is what I will explain in the next paragraph.

The desired shift

The question 'How might we get from scattered islands to a connected village?' summarises the desired shift and is visualised by Figures 31 and 32. The previous paragraph argued why the quality of connections between 'villagers' is important, which is why connections play a central role in my explanation for the desired shift. To explain the shift, I will first elaborate on the current situation, which can be described as 'scattered islands' (Figure 31). In this situation, the different

"**It takes a village to raise a child**"

- African proverb

stakeholders are loosely connected. However, those connections are mostly used when the adolescent is not doing too well and are hardly used to promote the well-being of the adolescent. It is also typical for the current situation that the adolescent is the person who connects all the other people in their network: the other stakeholders don't have much interaction between themselves. These are insights I gained from my stakeholder sessions, but also from a session I did with two parents where we explored the current and desired future situation. The results from that session can be found in Appendix J. From that session, I also learned that the connections between stakeholders can have a very important role in promoting well-being in adolescents. This aligns with the explanation of 'the village' I described earlier. Figure 32 illustrates this connected village, which is a proverbial village in my project. This village exists because of the adolescents: they can decide which people they trust and want closer. Then, in the desired future, those people also communicate among themselves to help the adolescent to flourish. These insights change the theme of 'who is responsible' to 'everyone has a responsibility and should be open to fulfilling it'. To summarise, for the desired future to become a reality, stakeholders should communicate more among themselves and connections should be used to promote well-being.

How might we get from scattered islands...
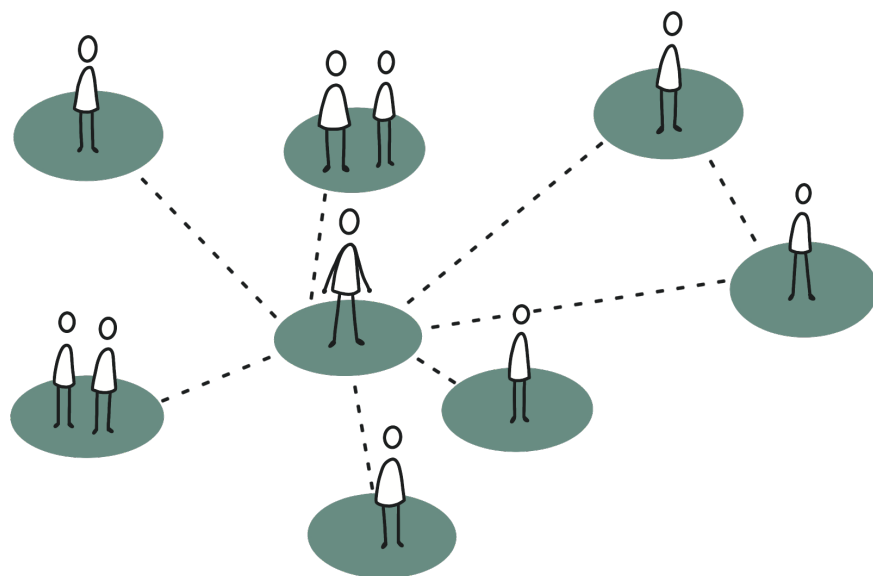

Figure 31. The islands as stakeholders are currently organised in terms of prevention

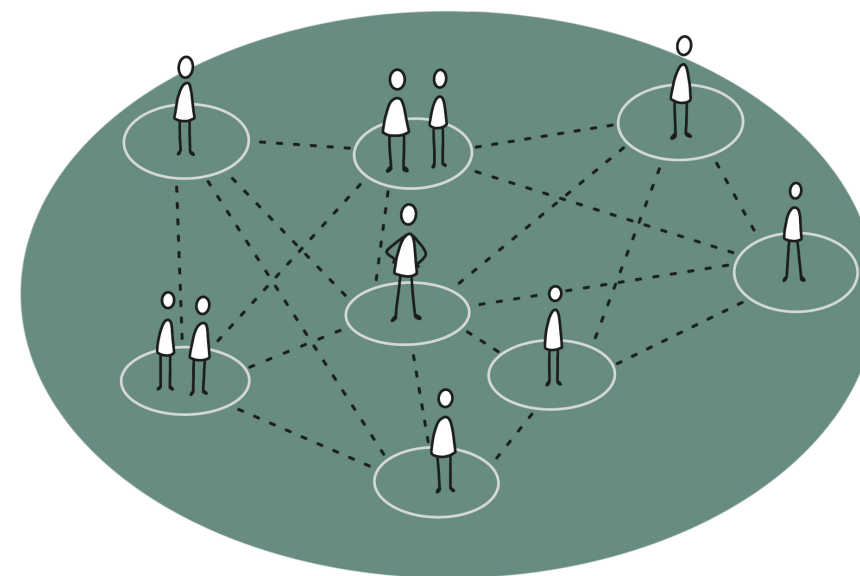## ...to a connected village?

Figure 32. The proverbial village in which stakeholders are more connected in terms of prevention.

6.2 Leverage points

In this Section, I will explain what leverage point I chose to realise the desired shift as described in the previous Section. I will also explain which stakeholder group I decided to focus on and why.

Leverage point: Mental models

In order to have the most impact on the system, I chose the leverage point 'paradigms' (Figure 33). Besides having a lot of leverage, it also fits with my chosen phase: trying to create awareness within a stakeholder group. Meadows describes this leverage point as: 'The mindset or paradigm out of which the system – its goals, structure, rules, delays, parameters – arises' (1999). I will refer to this leverage point as mental models, which are defined by Senge: 'mental models are actors' internal representations of the outside world through which their experiences are filtered (1990). Mental models are important because they not only determine how actors make sense of the world but also how they act in it (Senge, 1990). This means

that if an actor changes their mental model, they will also change their behaviour. That change in behaviour in turn influences the larger system, especially if more actors change their mental models so they align towards a common goal. There are different ways to try and influence someone's mental model, and I will demonstrate one in the next Chapter. Summarizing, mental models have the potential to produce big changes in the system because they influence actors' behaviour. In the next paragraph, I will explain which actors I chose to focus on and why.

Teachers' unique position

Secondary school teachers can have a very important role in adolescents' personal development and in this paragraph I will explain why. As mentioned in the theme 'who is responsible', adolescents can sometimes feel that their parents are too close to them, preventing them from effectively helping adolescents with their personal development.
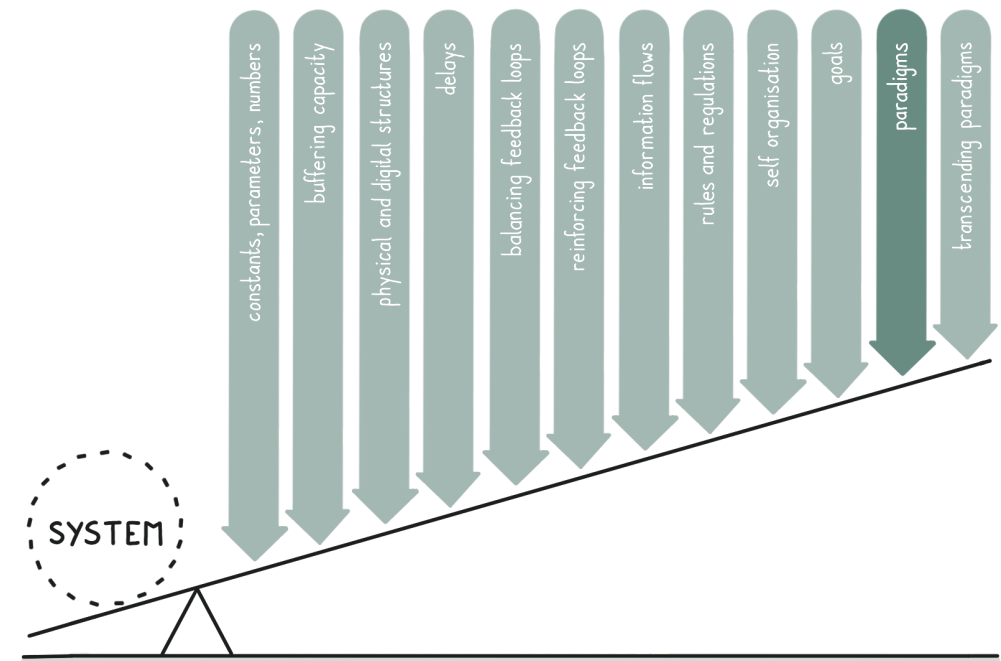

Figure 33. Leverage points according to Meadows (1999). The leverage point I chose for this project is highlighted.

A lot of people in the adolescent's network can provide that help, but there has to be a good connection and trust. In this project, I will focus on secondary school teachers, because my research showed they have a unique position for various reasons. First of all, adolescents are legally required to attend school, so they must have contact with teachers. Another advantage of this school setting is that adolescents have different courses, and thus different teachers. This increases the likelihood that they will have a good connection with one of their teachers. In addition, teachers learn about pedagogy during their education, which should equip them well to help adolescents. All of these reasons make the position of secondary school teachers unique and are a motivation for me to focus on them for the design phase of my project. A possible limiting factor is the current load on teachers: they already have many tasks and little time. However, I think the possibilities outweigh this disadvantage. I will, though, take into account that teachers are already very busy in

my design. In the next Section, I will specify my design goal and explain what exactly I want to achieve with the design phase of my project.

6.3 Design goal

"DESIGN AN INTERVENTION THAT MAKES TEACHERS REFLECT ON THEIR ROLE IN PROMOTING WELL-BEING AMONG ADOLESCENTS TO ULTIMATELY ACHIEVE THE PROVERBIAL VILLAGE. "

In the previous Sections, I explained what I want to change and how I intend to do that. My design goal summarises that into a statement which helps me to design an intervention. This goal has two sub-goals: creating value for the directly involved stakeholders, and creating systemic value (van der Bijl-Brouwer et al, 2024). I will explain these sub-goals in the next two paragraphs.

Stakeholder value

The stakeholder value concerns adolescents and teachers, and should increase when teachers change their mental models, which I try to achieve through reflection. I try to make teachers reflect on three topics: their role, promoting well-being rather than fixing mental health issues and connections as a means to promote

well-being. I will shortly explain each of these reflection topics.

Teachers' potential for impact
In the previous Section, I explained why teachers have the unique position to make a difference in adolescents' lives. Additionally, adolescents are trying to find their own identity and in that process they distance themselves from their parents, as I explained in Chapter 3. Despite this greater distance from their parents, adolescents still need help in their development. This can come from peers, but adult role models are also important. A psychologist I spoke with also explained this:

"Peers especially become more important at this age. *But if they struggle with that,* then just the *care coordinator or the teacher of a particular subject or a particular*

*direction, who they have a match with, who they click with and who gives a little more attention than just knowledge transfer. **That line can almost already make a student go to school instead of staying in bed**."*

With my intervention, my goal is for teachers to recognise they can be role models for adolescents, allowing them to support adolescents a lot in their development, and thus promoting their well-being.

Promoting well-being rather than fixing mental health issues

But why is promoting well-being so important? The main benefit for adolescents is that they can flourish instead of experiencing increasingly more issues, which can develop into mental health issues. The main benefit for teachers is that promoting well-being can eventually save them time and energy. This is because it takes them a lot of time and energy to help a student who experiences mental health issues. Whereas helping a student flourish takes smaller actions such as showing genuine interest,

listening to them, giving compliments and showing trust in them. These are small investments over time which can help to maintain good well-being in adolescents. However, these actions do not show immediate results, which is why they are usually valued less than actions to solve mental health issues. I think both of these approaches are necessary, and therefore I want to show teachers the impact of promoting well-being with my intervention, making them reflect on how they spend their time and energy.

Connections to promote well-being

This reflection topic is strongly connected to my future vision: the connected village. In the connected village, connections between different stakeholders are very important to promote adolescents' well-being. A psychologist I spoke with emphasised the importance of connections:

*"What you often see is when children get stuck at school, **parents stand in opposition to the teacher**. And it's the **beginning of the end**. I always*

*say, **you have to stand next to the teacher**, because you have **the same interest: that your child performs optimally and feels good**. That's the only interest you have mutually. Why are you going to stand in opposition, that's pointless. You really have to stand beside your child. Stand beside the teacher. And together look at who is this child, what characterises this child in qualities and what routing suits this child."*

With my intervention, I want teachers to experience the power of connections, and how they are influenced by behaviour. This allows teachers to reflect on this experience and perhaps adjust their behaviour.

Systemic value

I already spoke about the stakeholder value of promoting well-being rather than fixing mental health issues. Besides a stakeholder value, this approach also has a systemic value, because focusing on a fundamental solution rather than symptomatic

solutions can be very beneficial for long-term problem resolution, as I explained in the conclusion of Chapter 4 about the system's archetype: 'shifting the burden'. A focus on promoting well-being is a fundamental solution, whereas the most used current approach of fixing mental health issues is a symptomatic solution. When teachers manage to focus more on the fundamental solution and they spend more of their time and energy towards promoting well-being, it hopefully has an effect on other stakeholders. If the teachers make a shift in their mental model and behaviour, they will also act differently, not only to adolescents, but to other stakeholders as well. This could make other stakeholders reflect as well, and maybe also change their behaviour. And if more and more stakeholders are convinced of the value of promoting well-being and they all focus on that fundamental solution, a shift can be realised. To achieve a greater shift, more interventions are most likely needed. In facilities of the system, but also among other stakeholders. My intervention is therefore also part

6.4 Conclusion

of a larger portfolio, as explained in Section 1.3. In summary, with my intervention I want to show teachers the value of a fundamental solution, and when they adopt it, hopefully, it sets off a chain reaction with more people embracing and acting on this new vision.

The sub-research question asked at the beginning of this Chapter was:

"What future is desired in the context of adolescent well-being and how can it be realised?"

It is not possible to say there is only one desired future, but the proverb "it takes a village to raise a child" is considered desired by several stakeholders I spoke to, and it fits the desired shift from insularity to more connectedness among stakeholders, or in other words, a proverbial connected village. This village can be achieved by focusing on a more fundamental solution rather than symptomatic solutions. Again, there are many different possibilities, but for this project I chose to focus on mental models with the goal of making teachers reflect on three topics: their role, promoting well-being rather than fixing mental health issues and connections as a means to promote well-being. Achieving this goal should then provide stakeholder value and systemic value. The next Chapter displays the intervention I came up with to serve this goal.

Key takeaways

- The future vision for this project is: 'It takes a village to raise a child'.
- The desired shift can be summarized by this question: 'How might we get from scattered islands to a connected village?'.
- The chosen leverage point for this project is influencing teachers' mental models. My design goal is: 'Design an intervention that makes teachers reflect on their role in promoting well-being among adolescents to ultimately achieve the proverbial village.'
- The stakeholder value should be achieved by making teachers reflect on three topics: their role, promoting well-being rather than fixing mental health issues and connections as a means to promote well-being.
- The systemic value should be achieved by showing the teachers the value of a fundamental solution, and when they adopt it, hopefully, it sets off a chain reaction with more people embracing and acting on this new vision.

7

Intervention design

Exploring the possibility space

Method: Aesthetic disruption
7.1 The elements
7.2 The interaction
7.3 Implementation
7.4 Conclusion
Key takeaways

In this Chapter, I will present my final intervention design, 'OmDraaien' (= 'TurnAround') and explain the method I used to design it. This final intervention was created through initial ideas and multiple iterations of one idea, which became my concept, as illustrated by Figure 34. The initial ideas can be found in Appendix K and the two tests with students can be found in Appendix L and M. Additionally, I will explain the interaction and describe how this design can be used. This Chapter will answer the following sub-research question:

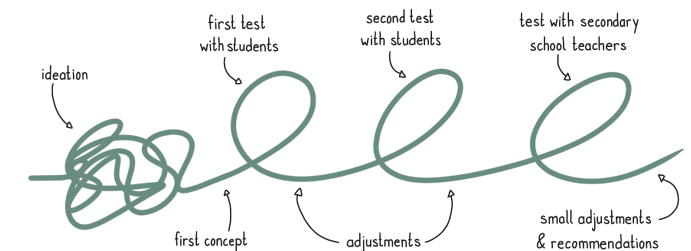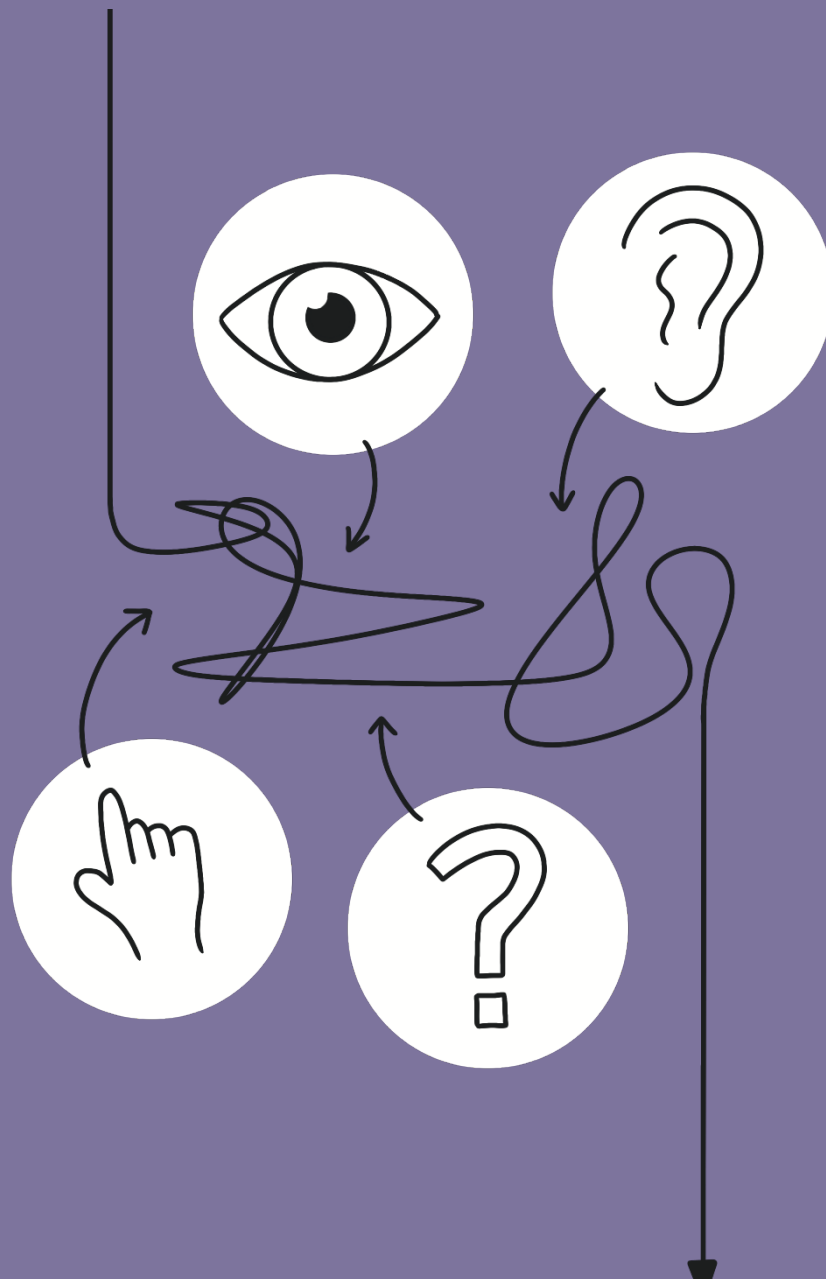*"How can an intervention best convey the impact of preventive actions on adolescent well-being?"*

Figure 34. The iterative process of developing my concept 'OmDraaien'.

Aesthetic disruption

Method

What is it?

Aesthetic disruption is a concept developed by Vink et al which is connected to altering mental models in social systems (2017). The four core components of designing for aesthetic disruption are: engagement of the senses, experience of dissensus, exposed assumptions, and reflexive actors (Vink et al., 2017). I will shortly explain each one.

Engagement of the senses

Fundamental to aesthetic disruption is the sensual, embodied experience of participants. It is the knowledge that participants gain and the emotions triggered by seeing, hearing, tasting, touching and smelling within a situation that sparks change through designerly practices (Stephens and Boland, 2014).

Experience of dissensus

By engaging with heterogeneous artefacts and ways of doing and making – especially those which are inadmissible – participants are confronted with their established frameworks of perception (Ranceire, 2011). This often feels uneasy and awkward for participants, but it is particularly these feelings that allow participants to illuminate previously taken-for-granted models they hold about how the world works (Vink et al., 2017).

Exposed assumptions

By explicitly working to surface and test participants' assumptions, designerly practices can support participants in understanding and re-shaping system behaviours (Senge, 1990). By recognizing the beliefs driving current system dynamics, and understanding them not as truths, but as social constructions, participants can tap into a powerful leverage point for change in social systems (Meadows, 2008).

Reflexive participants

The link between participants' experience and their detachment from existing mental models requires reflexivity. By intentionally creating space and time for individual and collective reflexivity, designerly practices can aid in supporting the paradigmatic shifts necessary for transformation in social systems (Sangiorgi, 2011).

When to use it?

The name already says it: this is a concept of designing for aesthetic disruption. So it's used when you start designing, which is usually after establishing a design goal.

Why and how do I use it?

Since aesthetic disruption is presented as a method to design for altering mental models, it fits my design goal. The name OmDraaien symbolizes this goal and the impact I want to achieve: the roles are turned around, in order to turn the way of thinking around. I used the theory and examples mainly as inspiration for my ideas and also to strengthen my concept. Appendix N shows the overview I made from the theory of aesthetic disruption to help me design.

What skills and mindset helped me?

Through my education, I gained design experience which helped in designing the intervention. In designing with this concept of aesthetic disruption, I was mainly inspired by the first two components. The theory on 'engagement of the senses' and 'experience of dissensus' were inspiring to me and I got a lot of ideas from that. Later I added the other components to the ideas. Also, the examples that Vink et al gave in their paper were inspiring to me (2017). When designing, it further helps not to judge ideas too quickly, but to first do a lot of associating and coming up with many ideas.

7.1 The elements

OmDraaien is best described as a serious game and Figure 36 shows the different elements OmDraaien contains. The elements come in a box shown in Figure 35. The elements are: an explanation sheet, ten connection pieces (rope), three role cards, three magnetic name badges, six input cards and five reflection cards. The next pages show the elements with a short description.

Figure 35. The box that contains all elements of OmDraaien

Figure 36. The open box displaying all elements of OmDraaien
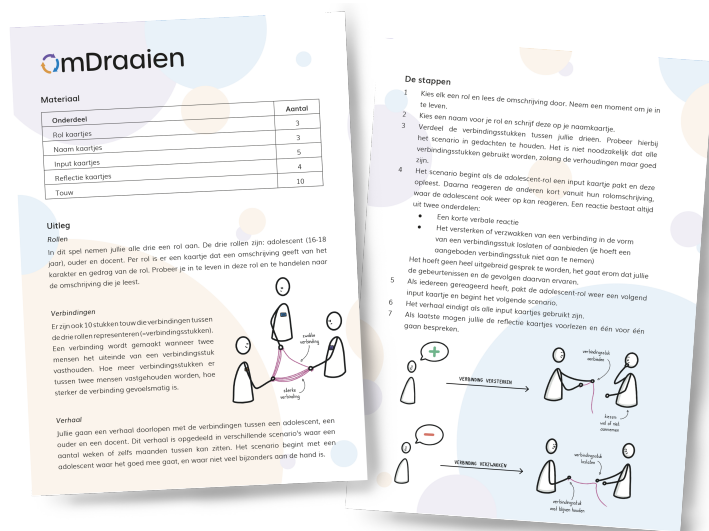
Explanation sheet

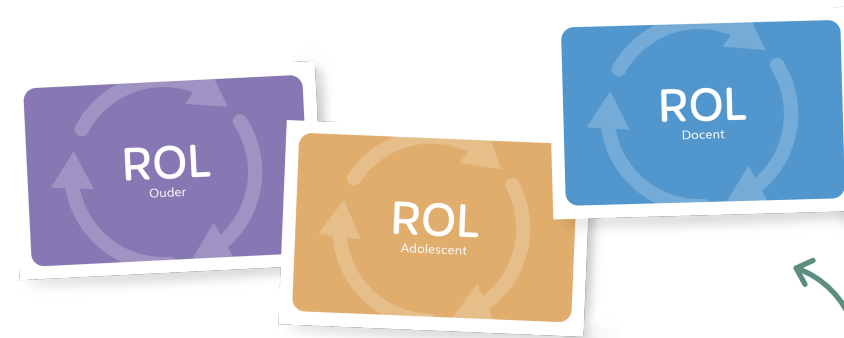This sheet is what the participants read first. It contains an explanation of the elements and the steps they will take during the serious game.

Magnetic name badges

Each role also has a name badge, which the participants can attach to their shirts using magnets. It has the role written on it so participants can easily remember it, and a space to write a chosen name.

Connection pieces

These 'connection pieces', are pieces of rope and they represent connections. These connection pieces are used during the serious game to visualise what happens to relations because of actions.

Role cards

Each of these cards describes a role: the adolescent, the parent or the teacher. The description is about the character and behaviour of the role.

Marker

To be able to write on the name badges. With this marker, the written names can be removed after the serious game is over.

Input cards

These cards contain a sentence which guides the storyline of the serious game.

Reflection cards

The participants use these cards after the storyline of the serious game is finished, to reflect on the experience they just had.

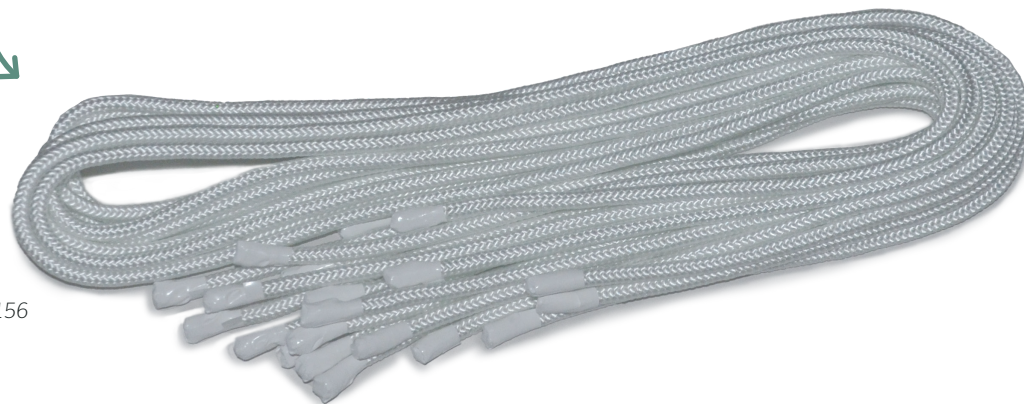# 7.2 The interaction

OmDraaien consists of three main activities: the setup, the interactive game and the reflection. Each of these activities will be explained in this Section.

Activity 1: The setup

The serious game starts by reading the instructions from the explanation sheet. The participants all choose a role and read the description on their role card (Figure 37). They take a moment to empathise with the role. During my second test, I found that this moment of empathising is really important to make the interactive game successful (Appendix M). After this moment, the participants choose

a name for their role, write it down on their name badge and attach the badge to their clothes using the magnets. As a final step in preparation, participants divide the connection pieces with each other. The intention is that the ends of a connection piece are held by two people. The more connection pieces are held between two roles, the stronger that relation feels (Figure 38). When dividing the connection pieces, participants should keep a normal situation in mind, with a regularly functioning adolescent. This setup is a visual representation of the context, which is also used in the 'Systemic organisational constellation (SOC) method'. The next paragraph will explain what SOC is.

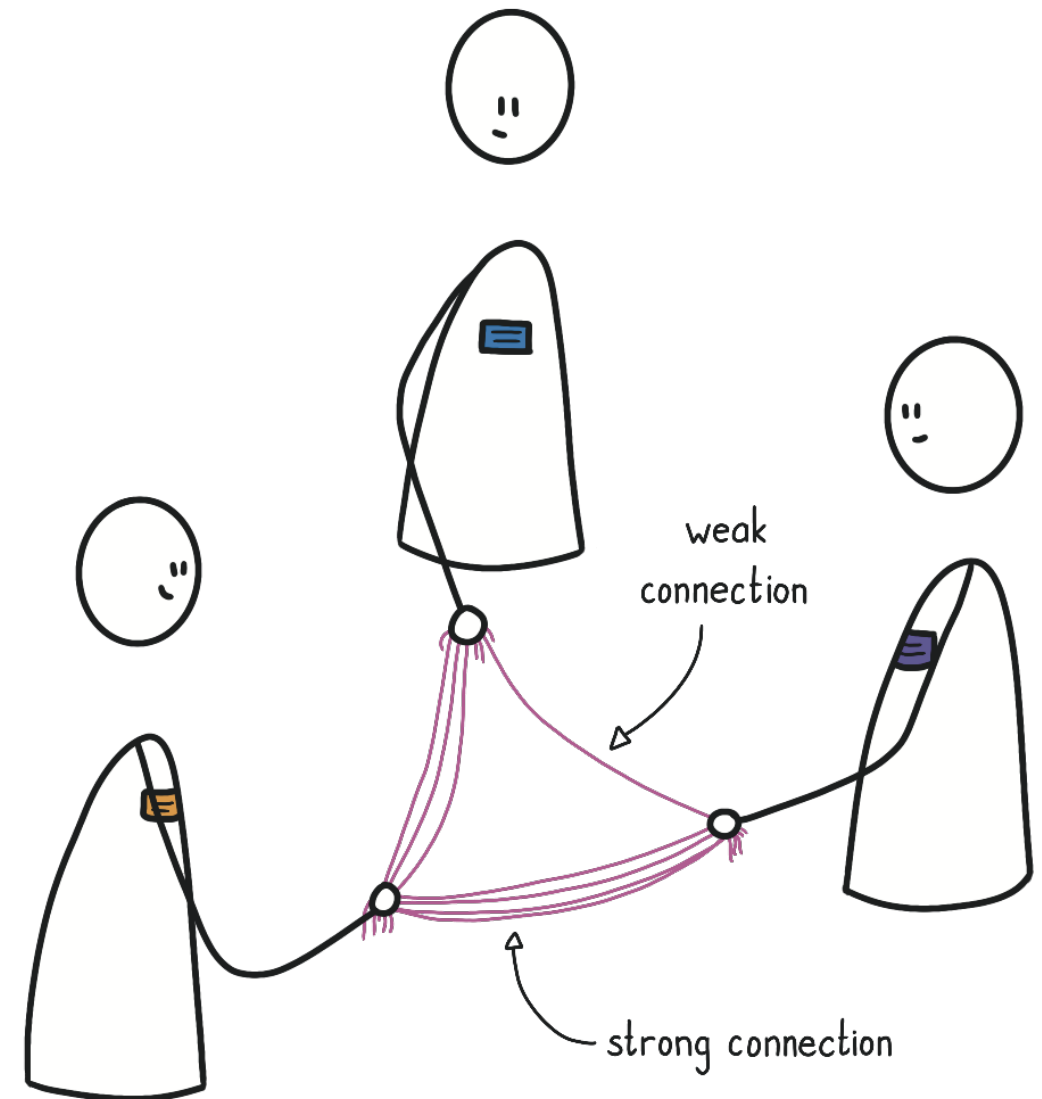Figure 37. The descriptions on the role cards.

Figure 38. An example of the distribution of connection pieces, with an explanation of the strength of the connection.

Systemic organisational constellation

Scholtens et al define the systemic organisational constellation (SOC) method as follows:

"The systemic organisational constellations method is a method to make the implicit, internal image an individual has on an issue within an organisation explicit by visualising this image and placing it within the larger social system context, using verbal and non-verbal information in order to explore the issue and develop new perspectives and insights on it."(2023)

The method thus aims to enhance individuals' awareness of their social contexts, such as organisations, and the associated implicit values, beliefs and structures. It also allows participants to explore perspectives other than their own in this social context. The systemic constellations are visual representations of the social system, created by a spatial arrangement of elements, using individuals or objects. An element can be a person, a function, or a role within the social system, groups or stakeholders, or concepts or societal aspects (Scholtens et al., 2023). OmDraaien uses three people who each have a role as a different stakeholder, and the connection pieces are the elements that visualise the relationships between the three stakeholders.
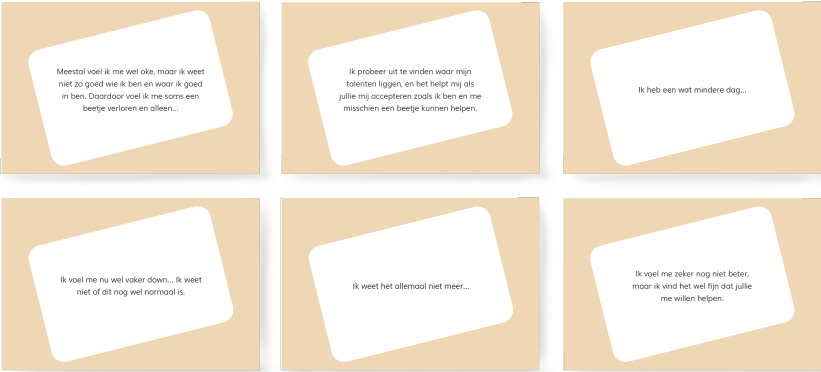
Figure 39. The input cards in order, from left to right and top to bottom.

Activity 2: The interactive game

The storyline starts when the adolescent role reads the first input card. The input cards can be found in Figure 39. After the adolescent-role has read the sentence on the input card, the parent-role and teacher-role can respond based on their role descriptions. The adolescent role can also respond to them again. A response always consists of two parts: a short verbal response and strengthening or weakening the relation by offering

Figure 40. The intended order of weakening and strengthening connection pieces.

Figure 41. Strengthening the relationship by offering a connection piece.

Figure 42. Weakening the relationship by releasing a connection piece.

or releasing a connection part, as illustrated in Figures 41 and 42. A participant does not have to accept an offered connection part. When every participant has responded to the input card, the next input card will be read, until all five cards have been played. Then the storyline is over and the participants move on to t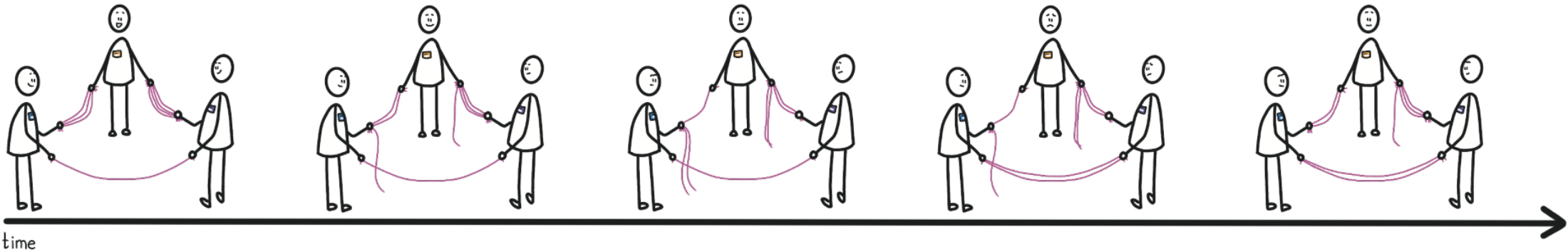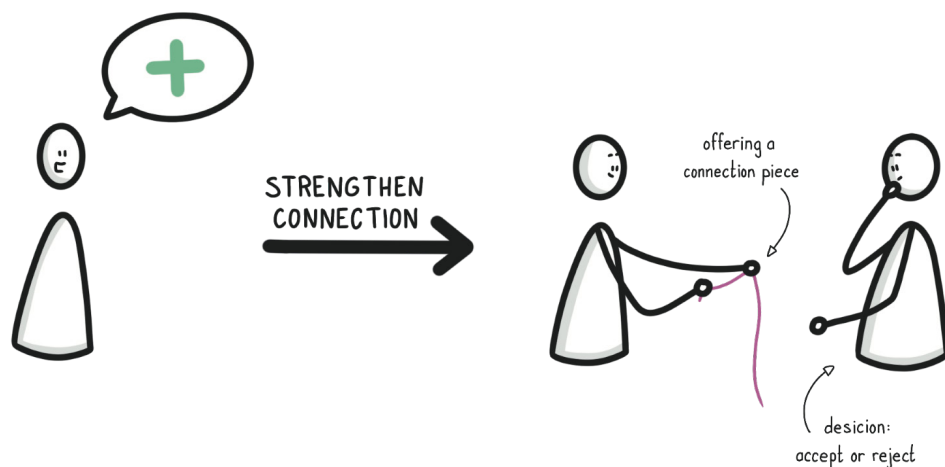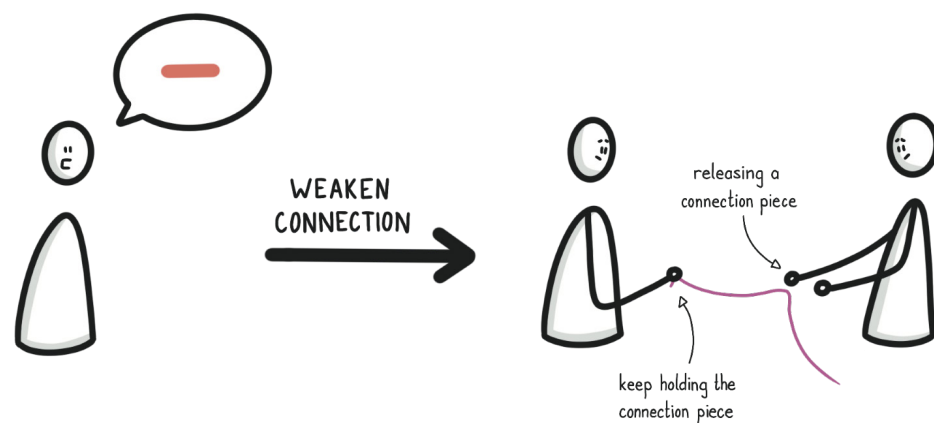he next part, the reflection cards. The input cards only contain a start for a scenario, to keep the conversation as natural as possible and allow the participants to really emphasize with their role. During test one I found that this is really important (Appendix L). Despite the freedom to respond, with the role description in mind, there is an intended order, as illustrated by Figure 40. This order is that in the beginning the adolescent wants the help of the teacher in minor things, but the teacher is too busy to provide that. Thus, the teacher weakens that connection. The parent does want to offer help at this stage, but the adolescent does not want to accept that help as they distance themselves from the parent at this age. That connection is thus weakened by the

adolescent. Later in the scenario, the adolescent's situation worsens, and the parent and teacher try to help improve the situation by making more connections. This should really communicate the value of connections. In this activity, the interactive game, two of the components of aesthetic disruption are used.

Application of aesthetic disruption

This interactive game contains the first two components of aesthetic disruption: engagement of the senses and experience of dissensus (Vink et al., 2017). The senses involved are: seeing, hearing and feeling. Seeing the role description and the other roles with the emotions they display. Hearing the reactions and perspectives of the other roles. And feeling the connection pieces between the different roles. The experience of dissensus is primarily facilitated by interactions with the connection pieces. These connection pieces visualise what is happening in interactions. Especially releasing a connection piece can feel uncomfortable, as participants can see and feel the effect of it falling. This

effect is enhanced by the thickness and weight of the rope, as you can hear it fall on the ground. I discovered that this was a valuable experience in test one, see Appendix L.

Activity 3: The reflection

The last part of OmDraaien is the reflection. The reflection cards are shown in Figure 43. The participants read them one at a time and discuss the content of the card. These are questions about the serious game they experienced and how that experience relates to their daily work. For this reflection to be effective, a facilitator must be present to help

the conversation and ask critical questions. This activity also contains two components of aesthetic disruption.

Application of aesthetic disruption
This reflection activity incorporates the last two components of aesthetic disruption: exposed assumptions and reflexive participants. The exposed assumptions component is less explicit in the game itself but can surface if the reflection part is properly facilitated. The reflexive participants component is clearly present in the reflection part: there is time and space for the teachers to reflect on the experience they just had and how it relates to their daily work.
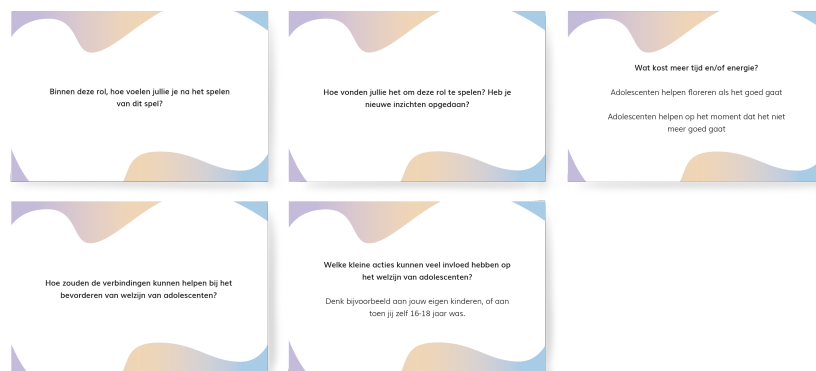
Figure 43. The reflection cards in order, from left to right and top to bottom.

7.3 Implementation

In the previous Sections, I explained what elements OmDraaien contains and how it works. Now I will explain how the teachers can use OmDraaien in practice. How and when do they use this?

How to use

Figure 36 shows that all the elements are delivered in a box. Ideally, there is a facilitator who is connected to OmDraaien, who knows what the intended interaction is and can ensure that the reflections go well. The facilitator can ask them critical questions, enabling deeper reflection. OmDraaien is made so that it can be used multiple times. A school can use this multiple times for different groups of teachers, or it can be used again for another school.

When to use

OmDraaien is supposed to be a one-time intervention and a 'studiedag' (study day) can be a suitable moment

for teachers to play this serious game. During a study day or study afternoon, teachers usually attend refresher courses and make plans for teaching. OmDraaien would be a great fit for such a day, and a teacher confirmed this during a test by saying this:

*"I do think it could be something that would be fine to use on a study afternoon with each other, to **especially include the teacher who feels much less like a mentor** or who **feels much less involved with the child,** to bring them into the whole process. And yes, I think it **can really add value to a school** if you just make this a **part of your study afternoon."**

7.4 Conclusion

The sub-research question related to this Chapter is:

"How can an intervention best convey the impact of preventive actions on adolescent well-being?"

I cannot give a definitive answer to this, as I only had time to test one intervention extensively. I can however conclude that making connections visible by using rope is very effective. The effect of a response is magnified: a negative or dismissive response leads to releasing a connection piece and a positive or helpful response results in an added connection piece. As a result, participants quickly become aware of the consequences of their actions. However, reflection after the game is essential to make the link to the importance of preventive actions over the care approach. Thus, making the consequences of certain actions visible can work well, especially when accompanied by reflection on those actions and their consequences.

Key takeaways

- Inspiration for OmDraaien came from the concept of designing for aesthetic disruption and the systemic organisational constellation method.
- OmDraaien consists of three activities: the setup, the interactive game and the reflection.
- In the interactive game, the ropes represent connections that demonstrate the effect of certain reactions to a situation in magnified form.
- OmDraaien can be used by teachers on a study day or study afternoon.

8

Evaluation

In this Chapter, I will show the evaluation test I did with three secondary school teachers. I will explain the setup and objectives, show the results and share my main insights. In the conclusion I will evaluate whether I succeeded in meeting my design goal. The design goal is:

"Design an intervention that makes teachers reflect on their role in promoting well-being among adolescents to ultimately achieve the proverbial village."

8.1 Setup and objectives

In this Section, I will explain the setup and the main objectives I wanted to achieve with this evaluation test.

Setup

I gave the teachers a brief introduction to the topic of my project. Then I asked the teachers two questions, which I asked again directly after the test, and again after a few days. Teachers answered these questions using a Likert scale (strongly disagree - disagree - neutral - agree - strongly agree). The first two times filling it in were on paper, and the last one was via a survey, so there may be some nuance differences in the answers. These were the two questions:

- I am consciously promoting the well-being of my students.
- I have significant influence on the well-being of my students.

In the classroom, I created an open space and arranged the different elements of OmDraaien on a table. Then I instructed the teachers to read through the explanation and said they could ask me questions if they didn't understand something. I mostly observed the rest of the interaction, and at the reflection part, I occasionally asked a question to encourage reflection. Figure 44 shows what the setup looked like.

Objectives

My first two tests were with students (Appendix L and M), and I mainly tested whether the game principle of OmDraaien worked. Since this is the first test with the real target group, my main goal was to know if OmDraaien did something with the teachers emotionally. For example, did they experience the feeling of dissensus as described by aesthetic disruption? The main questions I had for this evaluation test were:

- Does OmDraaien evoke an emotion in the participating teachers?
- Does a conversation occur during/after the reflection activity?

Figure 44. The setup of the evaluation test. The picture below left shows a connection being strengthened and the picture below right shows a connection being weakened.

- Does the principle of input cards work?
- Is the content of the input cards appropriate?
- Does reflection take place among the teachers?

8.2 Results

Figures 45-47 show the teachers' responses to the two questions which were explained in the previous Section. The next three paragraphs describe the results per role.

Participant with the teacher role

This is the most striking result. The first question shows that directly before and after the test the participant filled in 'agree', and a few days after the test the participant answered 'neutral' (Figure 45). Perhaps this can be explained by a realization that the participant was not as involved as previously thought. The second question shows a progression: first 'disagree', then 'neutral' and then 'agree' (Figure 45). This suggests that a reflection has taken place, which is also illustrated by the following quote from the reflection activity:

"*Actually, you are **more aware of the problem**, or you are **confronted** with what is going on.*"
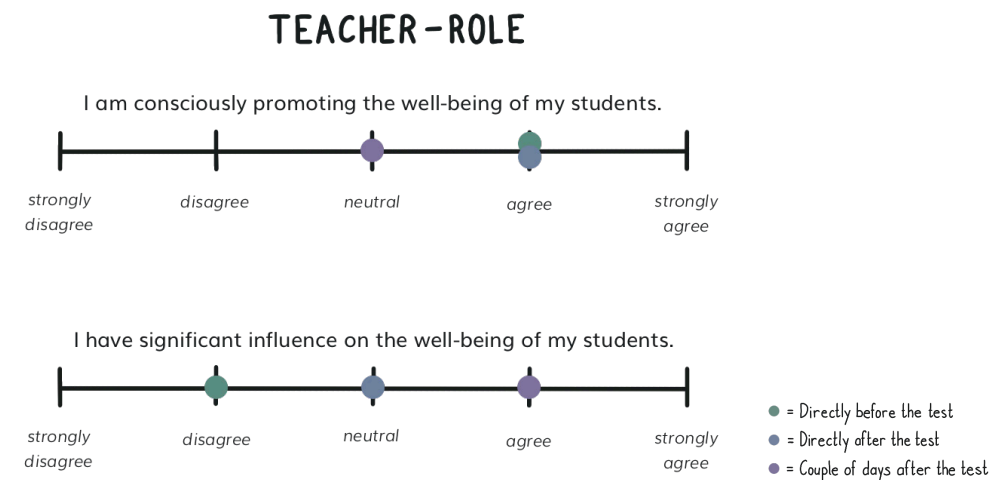
Figure 45. The results from the participant with the teacher role.

This quote, and especially the word 'confronted' also suggests that the teachers are emotionally affected by OmDraaien, which was one of my main objectives in this evaluation test.

Participant with the adolescent role

For question one, there is a slight improvement each time (Figure 46). This participant already finds themself very aware of the students' well-being before the test. This may

be explained by the fact that this participant is a care coordinator in addition to being a teacher. For the second question, the results fluctuate: first it is 'neutral', then it is between 'neutral' and 'agree', and then back to 'neutral' again (Figure 46). This could perhaps be explained by the fact that the last answer is digital and that the participant rounded the answer down because the middle was no longer possible. A change in opinion could also be the explanation, but I cannot verify that. However, this participant felt that the intervention was valuable,

as this quote from the survey shows:

"*This session can mainly contribute to the **goal of creating awareness among teachers**. I do find the element of having a **discussion (reflection) useful.*"**

Participant with the parent role

No change can be seen in these results (Figure 47). However, this participant did share that it was a valuable experience, as reflected in

these quotes from the reflection and survey:

"*I found it quite interesting, because you **don't have conversations like this on a normal work day**. And also with this game, it's fun because then you start **imagining that you have a different role**. Normally we always have the role of teacher, but now I was the parent.*"**

"*I learned that if you view the situation from **multiple perspectives** you can ultimately **act better.**"**

ADOLESCENT - ROLE

I am consciously promoting the well-being of my students.

strongly disagree | disagree | neutral | agree | strongly agree

I have significant influence on the well-being of my students.

strongly disagree | disagree | neutral | agree | strongly agree

● = Directly before the test
● = Directly after the test
● = Couple of days after the test
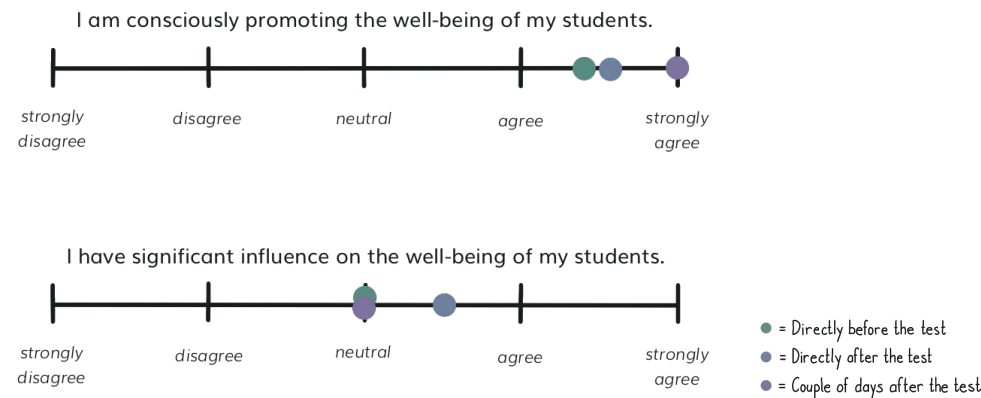
Figure 46. The results from the participant with the adolescent role.

PARENT - ROLE

I am consciously promoting the well-being of my students.

strongly disagree | disagree | neutral | agree | strongly agree

I have significant influence on the well-being of my students.

strongly disagree | disagree | neutral | agree | strongly agree

● = Directly before the test
● = Directly after the test
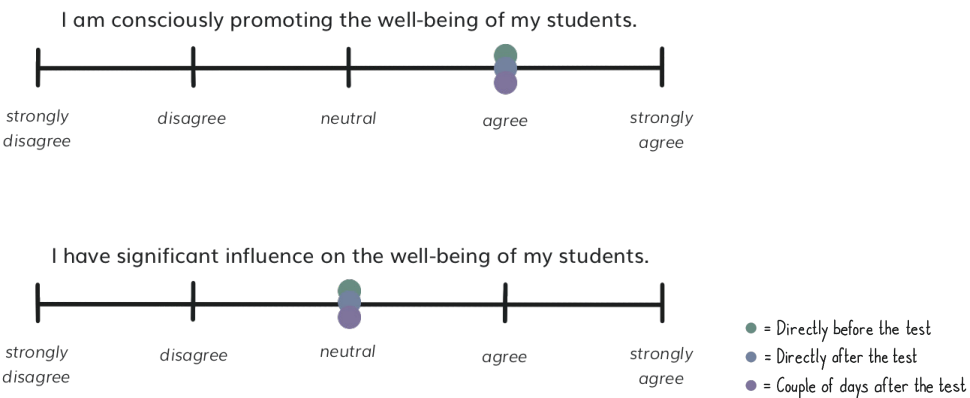● = Couple of days after the test

Figure 47. The results from the participant with the parent role.

8.3 Main insights

In this Section, I will describe the observations I made and the main insights I gained from the evaluation test. The observations and main insights are divided into the three activities of OmDraaien: set-up, interactive game and reflection. The next paragraphs explain the observations and main insights per activity.

Activity 1: Set-up

The participants read the instructions in silence, and at some point, they were unsure whether they could turn the explanation sheet around. This is not the most engaging start of the game, which could be improved. Additionally, the participants were confused as to how they needed to divide the connection pieces. The instructions maybe were not clear enough and this can be improved. Apart from these two points of improvement, the participants said the instructions were clear.

Activity 2: Interactive game

The participants had long conversations after one input card and quickly sought solutions. Because of this, the storyline they created did not align with the input cards anymore, causing the interaction to become somewhat repetitive. However, the participants were flexible and they found a way to continue their scenario with the new input. The intended interaction is to have a short conversation as a response to the input card, and then move on. The facilitator could guide this process more, which also ensures a shorter game. Something else that stood out was that only one participant continued to interact with the connection pieces. The other two participants mainly talked and didn't translate those verbal answers to changes in the connections. Again, the facilitator could remind the participants that a verbal reaction should also result in a change in the connection pieces. Perhaps this reduced interaction with the connection pieces was also the reason that the interaction with the connection pieces differed from what I intended. In the test, the connections were strong in the beginning and they weakened the connections near the end, whereas the intention is that the actions weaken the connections in the beginning, and the participants strengthen the connections near the end to try and improve the situation (Figure 42). However, the participants did have some valuable insights, which suggests the interactions with the connections pieces do not have to be as intended in order to be effective.

Activity 3: Reflection

It stood out that the participants seemed very open during this activity, sharing their experiences and opinions. That is what made this reflection a valuable part. However, I did notice that the participants were quick to say they have a signalling role, instead of the role of promoting well-being as they also discovered as valuable through the game. The reason the participants defaulted to the signalling role could be that, as teachers, they are used to this role because signalling when students are not doing well is something they already do. Thus, this is not particularly strange, and it would be unrealistic to expect OmDraaien to immediately make drastic changes in their methods and thinking right away. The reflection activity did allow the teachers to collectively reflect on their ways of working, and they also seemed to gain new insights. The survey also showed that teachers talked about OmDraaien after the test, and one participant even talked about it with teachers who had not participated in the test.

8.4 Conclusion

In this Section, I will conclude whether I achieved my design goal. My design goal is:

"Design an intervention that makes teachers reflect on their role in promoting well-being among adolescents to ultimately achieve the proverbial village."

In Section 6.3 I also described that achieving this goal should generate stakeholder and systemic value. In the next paragraphs, I will discuss both the stakeholder value and systemic value and assess whether I succeeded in achieving them. The stakeholder value will be discussed in the three parts I earlier mentioned: reflection on the teachers' role, reflection on promoting well-being rather than fixing mental health issues and reflection on connections as a means to promote well-being. Since these insights are based on only one test, there is not much certainty behind the conclusions, but these insights are an indication of whether OmDraaien is effective in achieving the design goal.

Stakeholder value

Teachers' role

It seemed like the participants reflected on this part during the reflection activity but also afterwards, as these two quotes from the survey show:

*"Through this session, **teachers and mentors** can become **more aware of students' well-being** and the **influence they can have** on it."*

*"**We can do more than we think** when it comes to the **well-being of our students**."*

I suspect this reflection comes from the interaction game, where the teachers became very aware of the consequences of their actions. It could also be that just the time and space to really engage in a conversation about their role already contributed to a reflection. As the teacher with the parent role said, they do not have these kinds of conversations often. The quotes do demonstrate well that the teachers thus reflected on their

roles, so this part of my design goal seems successful.

Promoting well-being rather than fixing mental health issues

As mentioned in the previous Section, the teachers spoke about this topic during the interactive game and reflection, suggesting that there was a reflection about promoting well-being in comparison to fixing mental health issues. However, the teachers are so used to focusing on solving mental health issues and signalling them, that it is hard to tell if they really see the value of promoting well-being. This quote during the reflection does show that at least one of the participants has experienced before what the possible impact of actions associated with promoting well-being can be.

*"Well, I notice with girls in particular... I think they also have a lot of need for social contact. That, the moment I indeed **show that person I see you**, and **I appreciate you**, and you know, **I have faith in you**, that that **usually works out very well**."*

Additionally, as an answer to the reflection question "Which takes more time/energy: helping adolescents flourish, or helping adolescents when they are no longer doing well?", one of the participants answered:

*"I think ultimately **in the long term, helping adolescents flourish takes the least amount of time**."*

I suppose that this shows that teachers see the potential value of promoting well-being. With that, it seems as if this part of my goal was also achieved.

Connections as a means to promote well-being

In the previous Section I mentioned that the process of connections went differently than I had intended. Nevertheless, this quote from the interactive game shows that at least one participant did experience the value of connections:

*"And don't forget, **I still have this rope with you guys**, so the school is not a care facility, but a school has*

*a very important signalling function, and can also mediate referral to other kinds of care, so that line is still kind of important, and **fortunately I'm still in the picture**."*

Thus, visualising the connections in the form of pieces of rope does seem to contribute to seeing the value of connections. In addition, a participant says this during the reflection:

*"I think a school cannot manage without parents. So no matter how problematic it is at home, I think it's just essential to involve parents in the adolescent's care. You **can't do it without parents**. But I do think, as I said, school has an important **signalling function**. I think as parents you can **support** that very well."*

This also shows that teachers do see the value of connections, although this seems to be especially true when there are already problems with the adolescent. It is also only about the connections between themselves, parents and students, which is a relation they already experience. This

does make sense since these are also the only roles now incorporated into OmDraaien. So to reflect on more connections, more roles would have to be added. Nevertheless, it does seem that the participants reflected on this topic as well, although less extensively than the previous two. So this part of the goal also seems to have been achieved.

Systemic value

I explained that the systemic value should be achieved by showing the teachers the value of a fundamental solution, and when they adopt it, hopefully, it sets off a chain reaction with more people embracing and acting on this new vision. In the previous paragraphs, I already concluded that OmDraaien managed to make teachers reflect on the value of promoting well-being rather than fixing mental health issues, which is a fundamental solution. However, I cannot validate whether the teachers adopt and implement this vision, and I also cannot assess if it initiates a

chain reaction where more people embrace and act upon this vision. This would require more time and I would have to speak to the teachers again. Also, a test with more teachers would then be more valuable because it is a more realistic scenario, therefore the longer-term effects will also be more realistic. The only thing I can conclude

is that teachers have been introduced to the value of a fundamental solution and that it remains to be seen if it has an effect in the system. If it does not, OmDraaien has to be adjusted to make it more effective or another intervention should be developed to achieve the desired effects.

Key takeaways

- The interactive game seems to help participating teachers have a good, open mindset, resulting in open conversation during the reflection.
- The stakeholder value seems to have been achieved: participating teachers reflect on their roles, promoting well-being rather than just mental problem solving, and connections to promote well-being, but it also seems difficult to quickly adopt and implement these new visions.
- The systemic value cannot be assessed in the timeframe of this project, but the first step, introducing the value of a fundamental solution, seems to be successful.

9

Conclusion

In this Chapter, I will answer the main research question I stated at the beginning of this process and report:

"How can the systemic design approach contribute to improving well-being among adolescents (ages 16-18)?"

To answer this research question, I used systemic design in my project to eventually design and evaluate an intervention. In short, I can conclude that a systemic design approach has helped to look at the broader system around adolescents and therefore can create value not only for individual stakeholders, but also for the system. In addition, a systemic design approach has allowed me to discover an underlying problem: stakeholders who just focus on symptomatic solutions rather than also on fundamental solutions. Systemic design thus leads to new possible solutions for this complex problem. I will elaborate on these conclusions in the next two paragraphs.

Stakeholder and systemic value

A systemic design approach can contribute to improving well-being among adolescents because, besides stakeholder value, it also aims to create systemic value. Systemic value is important because greater change can be initiated than what is possible when focusing on only one stakeholder group. Creating systemic value requires zooming out to understand the system. Understand the perspectives, needs and wants of the stakeholders in the system, and the interactions they have that shape the qualities of the system. Then you want to think about leverage points: where can you achieve the most impact and what consequences might that cause elsewhere in the system? The system around adolescents' well-being involves many stakeholders who together shape this system. When looking only at stakeholder value, an intervention is unlikely to have a greater impact on the system. In the case of adolescents' well-being, you might look for the solution in the target group: adolescents. But then you ignore that many other factors affect their well-being. Sometimes adolescents themselves are not the ones who can have the most impact on their well-being. In contrast, when using a systemic design approach, you reflect on the effect you might achieve in the system before you design and test an intervention.

In doing so, you increase the likelihood that you can achieve both stakeholder and systemic value with an intervention. In my project, I found that this system needed a shift in focus: from a symptomatic solution to a fundamental solution. In the next paragraph, I will explain why systemic design was important in this shift.

Fundamental solution

The systemic design approach allowed me to find the system archetype 'shifting the burden' where I discovered that most interventions aimed at improving adolescents' mental health were symptomatic solutions. An example is the money going to youth care, but the desired effect is not achieved: the number of adolescents with mental problems is not decreasing. When I discovered this through research, I saw the effect that it had on the system and decided to focus on a more fundamental solution. The focus on a fundamental solution is very important, as it has a great potential power to change the system. Therefore, one of the goals of OmDraaien is to get more people to see the value of a fundamental solution, thus promoting well-being instead of just fixing mental health issues. Recognising the value of a fundamental solution can hopefully change the system as more and more people adopt this view. If the well-being of adolescents is successfully promoted, they have less chance of developing mental health issues, which means they don't need help solving them. This means less work and energy for schools and youth care, which also saves the government money. Then, all the symptomatic solutions of more money for youth care and more resources or training for schools can be scaled down. Besides this, and maybe more importantly, adolescents can grow up flourishing, which is a much better experience than struggling, with or without mental health issues. Thus, if this fundamental solution turns out to be effective, it could, in the long term, have a big impact on the system.

10

Discussion

In this Chapter, I will reflect on various aspects of my project. I will reflect on the role of systemic design, and how I used it, what I learned about well-being among adolescents, what impact my intervention has and what limitations of this project are.

10.1 Role of systemic design

In this Section, I will reflect on the role that the systemic design approach had in my project.

Systemic design or my design skills

It is not entirely possible to say whether all my results and insights really come from the systemic design approach or whether they are also my own design skills. It is difficult to define and separate them, and the insights and results are probably because of a combination of systemic design and my own design skills. I am also not sure I have applied systemic design as intended, if there is any 'right' way. As I explained in the Introduction, systemic design is a relatively new field which is not tied to one specific theory or practice (van der Bijl-Brouwer, 2023). This occasionally made the process of applying a systemic design method somewhat abstract and vague to me. Because of this relatively undefined nature of systemic design, it is difficult to say whether I applied systemic design properly in my project because

it is still difficult for me to define what a good systemic design process is. So my project will be a mix of a systemic design approach and my own design style and intuition. However, I do think that systemic design really had an impact on my project, which I will describe further in the next paragraph.

Different way of thinking

The systemic design approach offered a slightly different way of thinking than what I was used to. What I learned during my master's was to mainly focus on one target group, and try to understand them to be able to design for their needs and wants. However, one of the most important aspects of systemic design is expansionism (van der Bijl-Brouwer, 2023): look beyond the initial scope to find other elements that might influence the problem (Figure 48). This also means looking at other stakeholders besides the main target group, to understand their perspective and their role in the system. And maybe even more important, look

at the interactions that occur in the system, and how those interactions contribute to the attributes of the system. For me, the giga-map was an important tool to keep this focus on a variety of stakeholders and the interactions between them. It was a reminder of what information I should pay attention to in sessions I had with stakeholders. This different way of looking at a problem had a strong influence on my problem-framing process as well.
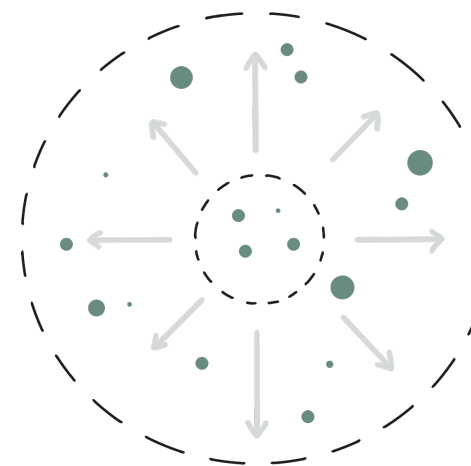

Figure 48. How expanding the scope leads to new intervention opportunities.

Importance of framing

Framing heavily impacts the design direction and possible interventions. Because I had looked at the bigger system, my themes also contained multiple stakeholders and tensions between their perspectives, needs and wants. These are themes I most likely would not have found if I did not use a systemic design approach, because I would have focused more on the adolescents themselves. The theme I focused on was then the frame in which I tried to design an intervention which could contribute to shifting the system in a direction where adolescents' well-being is actively promoted by not only adolescents, but also other stakeholders. This intervention, OmDraaien, is aimed at influencing teachers' mental models, which I probably would not have designed if I had chosen a different theme or frame. Thus, applying a systemic design approach made me think differently, leading me to a different frame, which also influenced my design direction and intervention.

10.2 Well-being among adolescents

In this Section, I will reflect on what I learned about well-being among adolescents and what role my design intervention OmDraaien plays in this.

Personal process

Through this project in which I did literature research and interviews with stakeholders, I learned that well-being is a very personal concept. It takes time and energy to figure out what works well for you and what you need from other people to obtain and maintain good well-being. This process is especially challenging for adolescents because they are at a stage where they are trying to discover their own identity. At the same time, this development is well suited to go along with developing good well-being: if you have a good understanding of who you are and what you like, you are also more likely to be able to maintain good well-being. Because this process is so personal, you cannot give someone an exact step-by-step plan for obtaining good well-being. All you can do is help someone, and in

this case adolescents, in the process of exploration. For example, by having attention and time for them, sharing experiences, listening to them and expressing confidence in them. In the next paragraph, I will explain how I tried to encourage this with OmDraaien.

OmDraaien

While good well-being is very personal, you don't have to go through the process of obtaining well-being all by yourself. As explained earlier, adolescents (ages 16-18) distance themselves from their parents, so other adults can play an important role in the adolescents' path to well-being. With OmDraaien, I try to make teachers aware of this role they can have. As a result, I hope that adolescents feel that they don't have to figure it all out by themselves, which makes the process of both exploring their own identity and obtaining good well-being, feel a little less alone and uncertain.

10.3 Intervention design

In this Section, I will reflect on the impact of my designed intervention, OmDraaien. The next two paragraphs explain the link between mental models and system structure, and how OmDraaien is part of a bigger portfolio.

System structure and mental models

An important question is whether my designed intervention OmDraaien has the ability to contribute to a system shift. In Section 8.4, I explained that this is difficult to validate. Apart from the difficulty of measuring this one intervention, it is unlikely that one intervention can shift the system. This is also due to the interconnectedness of mental models and the structure of the system. In my project, I chose to focus on influencing mental models. This is because a different mental model is necessary for behaviour change: if stakeholders do not see the value of acting differently, they will not change their behaviour. However, a change in the structure of the system

is also needed. Thus, if stakeholders want to act differently but the facilities are not there, they are resisted by the system and that generates frustration (Figure 49). However, if you start by changing the system's structure, the facilities created may not be used because stakeholders do not see their value (Figure 49). To summarise, both changes are necessary to bring about an effective shift in the system, as illustrated by Figure 49. This is why a portfolio approach as described in Section 1.3 is valuable.

Portfolio approach

This approach explains that multiple problem frames with different ideas and prototypes are required to design working interventions. It also needs testing to see what has an effect in the system (van der Bijl-Brouwer & Malcolm, 2020). In the previous paragraph, I explained the importance of changes in mental models as well as changes in the system's structure. My intervention OmDraaien is thus one route in the portfolio approach.
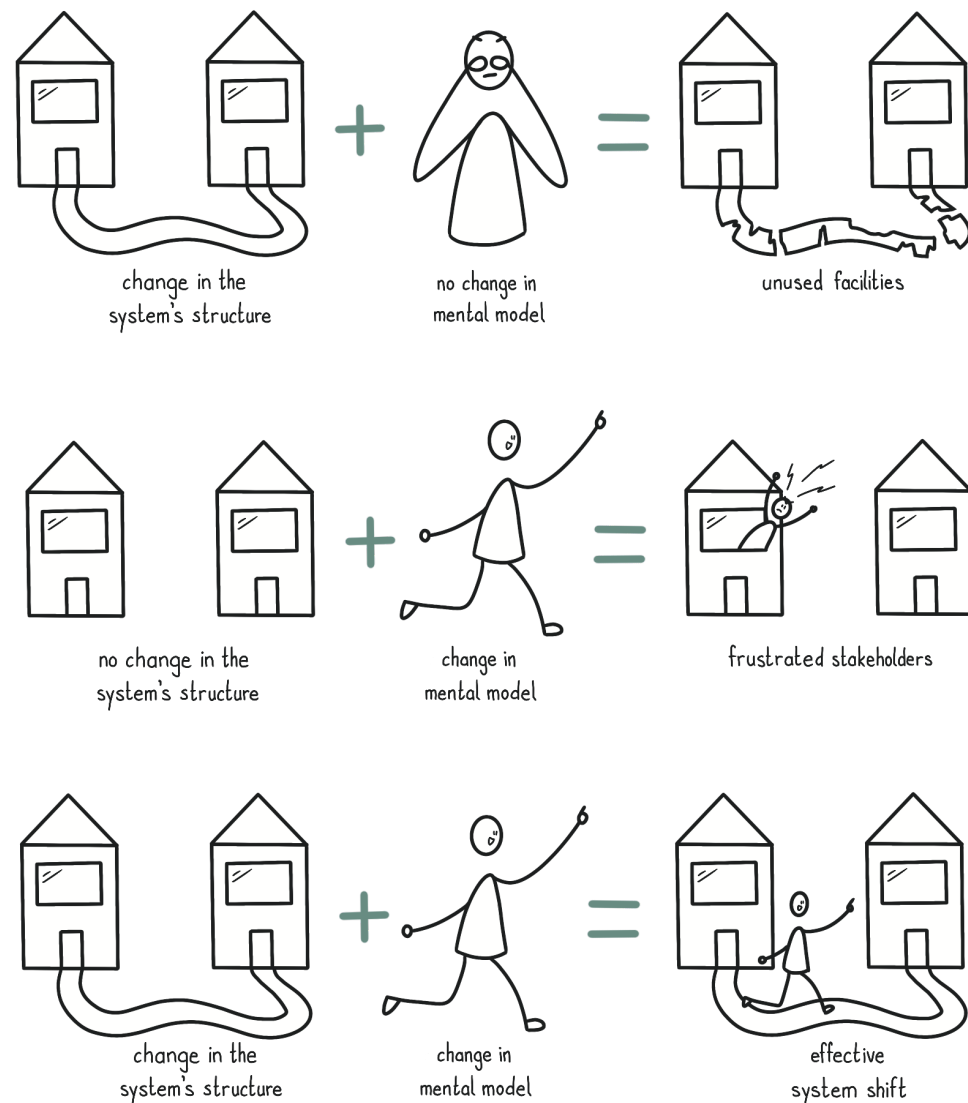
change in the
system's structure

no change in
mental model

unused facilities

no change in the
system's structure

change in
mental model

frustrated stakeholders

change in the
system's structure

change in
mental model

effective
system shift

Figure 49. The interconnectedness of mental models and the system's structure.

Other interventions could be targeted at the education system which is not properly equipped to facilitate connections between teachers and parents. This needs to be improved for teachers to be able to effectively act upon their new mental model in which they want to use connections to promote adolescents' well-being. In addition, there is the grade system in schools which does not contribute to the well-being of adolescents. Furthermore, besides teachers, many other stakeholders should take their roles and responsibilities in the proverbial village.

10.4 Limitations

Research

- In this report I showed all the insights I gained from sessions with stakeholders. However, I did not manage to speak to a lot of different people within one stakeholder group, so only one adolescent, two parents, two teachers, two sports coaches, a person working at a typical side job, one person from the SGF, one person working at the municipality and one psychologist. The aspect 'Person specific' in the theme 'Who is responsible' shows the relevance and importance of speaking to multiple stakeholders, otherwise, you cannot find tensions within one stakeholder group. Apart from missing potential insights, the people I spoke to are not really diverse, which is also a limitation because it can lead to the exclusion of certain perspectives. Because of this, my insights may lack nuance.

- I did talk to an adolescent, but that person was already 19 and therefore no longer within my target age group of 16 to 18 at that time. Consequently, this person had to look back on the past two years, rather than describe current experiences. This may have resulted in a difference in responses than if I had spoken to more adolescents who were 16 to 18 at that time.

- In Chapter 2 on well-being, I showed how important but also how difficult the differences in the meaning of the terms mental illness, mental health and well-being can be. It could be that the people I had sessions with, used a different definition of those words than I did, so I interpreted their statements differently than they meant them.

Design and evaluation

- Due to a lack of time, I have not been able to develop and test a lot of different ideas. As a result, I may have missed promising ideas. In contrast, I was able to do several iterations of the idea I chose.

- The two Likert-scale questions I asked teachers at three different times as part of the evaluation had different forms. The first two times these questions were on paper, which also allowed teachers to select a point between two options. The last time, these questions were via a survey and thus the middle between two options was not a possibility anymore. As a result, the answers may differ in nuance.

- The survey I just mentioned was sent to all participating teachers at the same time, but they did not all respond on the same day. This may have an impact on the results because they had a longer or shorter time to reflect on the test they took.

- Three teachers participated in the evaluation, but one of them was a care coordinator in addition to being a teacher. OmDraaien was originally designed for teachers only, and so this additional role impacted the test and the results. The role of care coordinator gave the teacher an advantage when it came to engagement with students and more knowledge about well-being than most teachers. Although it was not necessarily intended, it did provide valuable insights.

11

Recommendations

In this Chapter, I will share my recommendations for how I believe systemic design could be even better utilized to improve adolescents' well-being. I will also provide recommendations for further developing interventions, as well as my designed intervention, OmDraaien.

Systemic design to improve adolescents' well-being

- To better utilize systemic design for improving adolescents' well-being, I would recommend doing even more sessions with stakeholders, preferably also a session where several different stakeholders are together. This way they can firsthand hear each other's perspectives, which is also interesting for a giga-map and possible themes. It is also a good time to work together on a future vision. For example, by shaping a future village together using creative methods. How does everyone envision it?

- As explained earlier, working with a portfolio approach is part of systemic design. In my project, I was able to do one part of this: one problem frame with one tested intervention. A portfolio requires developing and testing multiple problem frames with multiple ideas and prototypes, so my suggestion is to continue working with the portfolio approach and develop and test more problem frames, more ideas and more prototypes.

- I have now done this project on my own, but I think using a systemic design method is even more valuable with a team. This ensures different visions in the project, and thus different ideas about a giga-map, theme, future vision, design directions, etc. Therefore, I would recommend doing projects using systemic design in teams.

Intervention design

- While speaking with the SGF's mental health adviser, I discovered that early childhood is very important in promoting well-being. Although I took a different scope in my project, this is an interesting phase to look at as well.

- More testing is required to validate whether OmDraaien actually achieves effective the design goal. This involves evaluating both stakeholder value and systemic value. These tests should also look at whether there really is a connection between OmDraaien and the reflections and insights teachers have. Validating the systemic value will also provide insight about the chosen leverage point, and whether that is indeed an effective leverage point.

Further develop OmDraaien

If OmDraaien is developed further, these are my suggestions to develop and test first. These suggestions are based on my testing and especially the evaluation test with teachers.

- Develop a concept where more roles are added. For example, adolescent's friends or extended family members. This makes the game more complex but might also provide more insight into the value of connections.

- Incorporate into OmDraaien that more people are attending the interactive game. Not everyone has an active role, but the teachers who have watched instead of participated may have very interesting insights to share in the reflection, which they gained from watching the game.

- It was a coincidence that the care coordinator participated in my evaluation test, but this person had such valuable insights to share, that I think the care coordinator should be present when the teachers play the interactive game. Because of the expertise this person has, they probably have very useful insights for the reflection.

- A facilitator is already somewhat present in OmDraaien, but I think it can add

value if the facilitator has a more active role. He or she can explain OmDraaien to the participants, which is a more engaging start than reading from an explanation sheet. He or she can also remind the participants of the 'rules', guide the interactive game and ask critical questions in the reflection.

- Playing the interactive game twice, but with different role descriptions. The first role descriptions would be the same as they are now: the teacher is busy and delays helping as much as possible, the adolescent wants help from the teacher but not from their parent, and the parent wants to help their child as much as possible. In the second role descriptions, only the teacher's role changes: they want to help way sooner. Comparing these two scenarios may provide additional insights into the teacher's role and the value of promoting well-being in comparison to only playing the first one.

- To make the impact of promoting wellness rather than solving mental problems even more clear, you could use some kind of coins. These coins are used to 'pay' for the connections. Removing a connection is one coin, however, making a connection is two coins. This highlights the value of making connections and illustrates the resources such as time and energy to do it.

- Add an activity after the reflection in which the teachers make some kind of artefact together as a reminder of this session. This does not have to be something particularly complex, but it might make the insights from the session stick around longer.

MarketResponse

In the introduction of MarketResponse in Section 1.2, I explained that the company's work includes societal projects in addition to commercial ones. These include assignments on mental health for the SGF, for example, but also on Translink's future role in the world of mobility and public transport. I think a systemic design method can be of additional value in these societal projects. One of the main tools that would be useful for MarketResponse is giga-mapping. Therefore, the following recommendations are about ways MarketResponse could use giga-mapping.

Giga-mapping
- A giga-map contains multiple stakeholders, and that leads to the first recommendation for MarketResponse: involve multiple stakeholders in a project, rather than choosing one target audience.

- It is very valuable to use giga-mapping with stakeholders or clients because it provides a different way of looking at the problem or context, and during the session or interview you have something visual to refer to. However, it is advisable to keep the giga-map simple. The labelling of relationships is a complex concept to understand, so I would recommend keeping it to a minimum. You might also consider drawing the giga-map yourself during the session with the stakeholder's input, that way you instantly check if you understood the stakeholder's input correctly.

- MarketResponse could use giga-mapping at different stages in the a project, for example: to capture existing knowledge with client during the kick-off, while doing desk research/trend research, during fieldwork/interviews/focus groups, analysis and reporting, during a creative session, and to explore and test solutions.

- Giga-mapping is particularly suitable as a method for a project where different teams work together. This is because a giga-map has several layers and can also combine different sources of information such as qualitative and quantitative data. Currently, different teams within MarketResponse still collaborate to

a limited extent within a project. Using a giga-map could encourage this collaboration.

- Giga-mapping can be used as a database for different projects that have the same topic or the same client. The giga-map is then expanded each time a new project is working on that same topic or for the same client. In doing so, the giga-map can provide surprising insights because it contains more information and a broader context about the topic.

- If employees struggle with the freedom of the giga-mapping method, it may help to start a giga-map with mapping stakeholders or a timeline, which gives the process some structure. The giga-map can also be divided into different phases which are carried out with different stakeholders. For example, you could start at the topic together with the main target group, and then look at other important aspects with the client.

Themes and insights
In addition, I also think there is room for improvement at MarketResponse when it comes to presenting themes or insights. Therefore, I have recommendations for this as well.

- Try to visualise themes, because visuals are a powerful way to communicate insights and a tool for the team to be concrete. If you remain vague, you cannot draw or visualize it. It can thus help in forming better themes. There are many ways to visualise: you can draw, make a mood board, or maybe use sound or video. These forms all add something compared to only using text and make a theme less ambiguous and more concrete. Furthermore, visualization is not only of value when communicating themes or insights, but also, for example, at the start of a project, development directions, conclusions and recommendations.

- Always try to speak to several people within a stakeholder group. This is because there may also be major issues within a stakeholder group that you won't find as quickly if you only speak to one person from that stakeholder group.

Design as a research method
Something that MarketResponse may be further away from is using design as a research method. In this process, you quickly create prototypes that do not have to look like a finished product, which you then test with the target group. From this test you gain new insights, from which you can iterate further. Even though this method is somewhat more distant from MarketResponse's way of working, I do think it is very valuable and therefore want to include it as a recommendation.

- Testing a design with a target audience can provide a lot of new information about them. Information that may be harder to find out by doing interviews. It does not have to be a very complicated design, but designing something small and taking it to an interview with a stakeholder can provide valuable insights. This can also be a bit of a provocative design, to see how the stakeholder reacts to it.

Personal reflection

The project overall

I enthusiastically started this project with a great interest in the topic of well-being among adolescents. This enthusiasm stayed and really helped me through this project. And this project, to my surprise, went smoothly overall. Of course, I had some ups and downs, but no real big breakdown. This is thanks to all the people I mentioned in my preface, but also because of the design and life experiences I have had so far. That does not mean I did not learn anything during this project. On the contrary, I learned a lot.

Learning through doing

For instance, I learned a new approach during this project: systemic design. Besides a block course of two weeks, I had no experience with systemic design. It was both fun and challenging to learn a new approach and try to find a balance between my own design style and knowledge about designing for interaction. This process of 'learning whilst doing' meant more uncertainty at times, which sometimes made me insecure. However, I have learned that when I just do it, just have the interview, just make a design and test it, I will always gain new insights which inspire me to continue. So a message to myself: always keep moving.

Learning over perfection

Additionally, this project constantly pushed me to choose learning over perfection. As I just mentioned: keeping moving is important. Because this project deals with quite a tight schedule, I sometimes had to rush some tasks more than I liked. However, this showed me, time and time again, that a process does not have to be perfect to gain good insights and get to a good result.

Multiple stakeholders

Through this project, I also learned how valuable and inspiring it is to speak to multiple stakeholders involved in an issue. The resulting complexity provides a nice puzzle, and I found it a nice challenge to connect the pieces. To do this effectively, I learned that I need time and space. Ideas have to be in my head for a bit before I can articulate or visualize them. In this time it helps to explain my thoughts to people (with or without design knowledge) or just take a walk. These are valuable insights that I will take with me for future projects.

Future projects

About future projects: this project confirmed for me that projects with a societal issue are really what I enjoy working on. Therefore, I hope that I get to work on these types of projects more often in the future.

Message to myself

Lastly, I want to end this reflection and project with this message to myself: I am proud of you! You did a good job, and you have come a long way. I really hope you can look back on this project with pride and joy, because you worked hard for it!
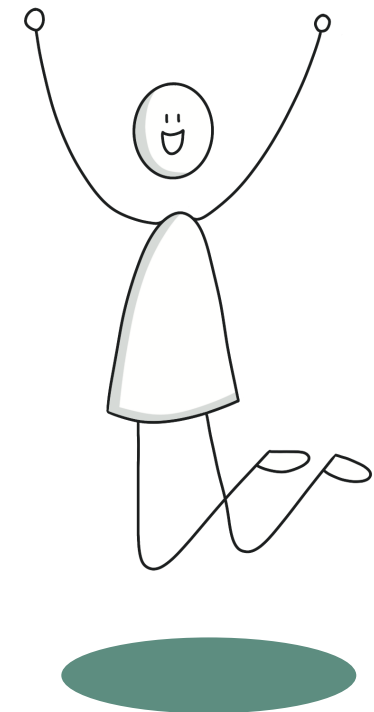
References

A

aan het Rot, M., Mathew, S. J., & Charney, D. S. (2009). Neurobiological mechanisms in major depressive disorder [figure]. *Canadian Medical Association Journal, 180*(3), 305-313. https://doi.org/10.1503/cmaj.080697

Ackoff, R. L. (1999). *Ackoff's best: His classic writings on management*. John Wiley & Sons.

Aked, J., Marks, N., Cordon, C., & Thompson, S. (2008) Five ways to wellbeing. *New economics foundation.* https://neweconomics.org/2008/10/five-ways-to-wellbeing

B

Blakemore, S. J. [TED]. (2012, 17 September). *Sarah-Jayne Blakemore: The mysterious workings of the adolescent brain* [Video]. YouTube. https://www.youtube.com/watch?v=6zVS8HIPUng

Boer, M., de Looze, M., Brons, H., Monshouwer, K., ter Bogt, T., & Stevens, G. (2022). *Gezondheid en welzijn van jongeren in Nederland*. Zalsman Zwolle.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology, 3*(2), 77-101.

Burrow, A. L., & Hill, P. L. (2011). Purpose as a form of identity capital for positive youth adjustment. *Developmental Psychology, 47*(4), 1196–1206. https://psycnet.apa.org/doi/10.1037/a0023818

C

Caballero, A., & Tseng, K. Y. (2016). GABAergic function as a limiting factor for prefrontal maturation during adolescence. *Trends in neurosciences, 39*(7), 441-448. https://doi.org/10.1016/j.tins.2016.04.010

Capra, F. (1997). *The Web of Life: A New Synthesis of Mind and Matter*. London: Flamingo

Casey, B. J., & Caudle, K. (2013). The teenage brain: Self control. *Current Directions in Psychological Science, 22*(2), 82–87. https://doi.org/10.1177/0963721413480170

Centraal Bureau voor de Statistiek. (2023, May 12). *1 916 zelfdodingen in 2022, 54 meer dan in 2021*. https://www.cbs.nl/nl-nl/nieuws/2023/19/1-916-zelfdodingen-in-2022-54-meer-dan-in-2021

Clarke, V., & Braun, V. (2017). Thematic analysis. *The journal of positive psychology, 12*(3), 297-298. https://doi.org/10.1080/17439760.2016.1262613

Crone, E. A., & Dahl, R. E. (2012). Understanding adolescence as a period of social–affective engagement and goal flexibility. *Nature Reviews Neuroscience, 13*(9), 636–650. https://doi.org/10.1038/nrn3313

Crone, E. A., & Steinbeis, N. (2017). Neural perspectives on cognitive control development during childhood and adolescence. *Trends in Cognitive Sciences, 21*(3), 205–215. https://doi.org/10.1016/j.tics.2017.01.003

D

Damon, W., Menon, J., & Cotton Bronk, K. (2003). The development of purpose during adolescence. *In Beyond the Self* (pp. 119-128). Routledge.

Davidow, J. Y., Foerde, K., Galván, A., and Shohamy, D. (2016). An upside to reward sensitivity: The hippocampus supports enhanced reinforcement learning in adolescence. *Neuron, 92*(1), 93–99.

Dorn, L. D., & Biro, F. M. (2011). Puberty and its measurement: A decade in review. *Journal of Research on Adolescence, 21*(1), 180–195. https://doi.org/10.1111/j.1532-7795.2010.00722.x

F

Feng, X., Lu, X., Li, Z., Zhang, M., Li, J., & Zhang, D. (2020). Investigating the Physiological Correlates of Daily Well-being: A PERMA Model-Based Study. *The Open Psychology Journal, 13*(1). 169-180. http://dx.doi.org/10.2174/1874350102013010169

Flanagan, C. A., & Christens, B. D. (2011). Youth civic development: Historical context and emerging issues. *New Directions for Child and Adolescent Development, 2011*(134), 1–9. https://doi.org/10.1002/cd.307

G

Gladstone, B., Exenberger, S., Weimand, B., Lui, V., Haid-Stecher, N., & Geretsegger, M. (2021). The capability approach in research about children and childhood: a scoping review. *Child Indicators Research, 14*(1), 453-475. https://doi.org/10.1007/s12187-020-09766-0

Graber, J. A., Nichols, T. R., & Brooks-Gunn, J. (2010). Putting pubertal timing in developmental context: Implications for prevention. Developmental Psychobiology: *The Journal of the International Society for Developmental Psychobiology, 52*(3), 254–262. https://doi.org/10.1002/dev.20438

Gray, D., Brown, S. & Macanufo, J. (2010). *Gamestorming – A playbook for innovators, rulebreakers and changemakers*. Sebastopol, CA: O'Reilly Media, Inc.

Gunnar, M. R., Wewerka, S., Frenn, K., Long, J. D., & Griggs, C. (2009). Developmental changes in hypothalamus-pituitary-adrenal activity over the transition to adolescence: normative changes and associations with puberty. *Development and Psychopathology, 21*(1), 69–85.

H

Harter, S. (2012). *The Construction of the Self: Developmental and Sociocultural Foundations* (2nd ed.). New York: Guilford Press.

Huppert, F. A. (2008). Psychological well-being: Evidence regarding its causes and consequences. *Applied psychology: health and well-being, 1*(2), 137-164. https://doi.org/10.1111/j.1758-0854.2009.01008.x

J

Jones, P. H., & van Ael, K. (2022). *Design Journeys through Complex Systems: Practice tools for systemic design*. Amsterdam: Bis Publishers

K

Kessler R. C., Berglund P., Demler O., Jin R., Merikangas K. R., Walters E. E. (2005). Lifetime Prevalence and Age-of-Onset Distributions of DSM-IV Disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry, 62*(6) 593-602. doi:10.1001/archpsyc.62.6.593

Keyes, C. L. M. (2002). The Mental Health Continuum: From languishing to flourishing in life. *Journal of Health and Social Behavior, 43*(2), 207-222. https://doi.org/10.2307/3090197

Keyes, C. L. M., Dhingra, S. S., & Simoes, E. J. (2011). Change in Level of Positive Mental Health as a Predictor of Future Risk of Mental Illness. *American Journal of Public Health, 100*(12), 2366-2371. https://doi.org/10.2105/AJPH.2010.192245

Kleinjan, M., Pieper, I., van Dorsselaer, S., & Tuithof M. (2020). *Geluk onder Druk?* UNICEF.

Klimstra, T. A., Hale, W. W., Raaijmakers, Q. A., Branje, S. J., & Meeus, W. H. (2010). Identity formation in adolescence: Change or stability? *Journal of Youth and Adolescence, 39*, 150–162.

Kroger, J., & Marcia, J. E. (2011). *The identity statuses: Origins, meanings, and interpretations*. In S. J. Schwartz, K. Luyckx, and V. L. Vignoles (Eds.), Handbook of Identity Theory and Research (pp. 31–53). New York, NY: Springer.

M

MarketResponse. (2023, January 19). *Inzicht in prestatiedruk: door het Nederlandse publiek*. Internal MarketResponse report: unpublished.

McElhaney, K. B., Allen, J. P., Stephenson, J. C., & Hare, A. L. (2009). *Attachment and autonomy during adolescence*. In R. M. Lerner and L. D. Steinberg (Eds.), Handbook of Adolescent Psychology, Volume 1: Individual Bases of Adolescent Development (3rd ed.). Hoboken, NJ: Wiley.

Meadows, D. H. (1999). *Leverage points: Places to Intervene in a System*, 19, 28.

Meadows, D. H. (2008). *Thinking in Systems: A Primer*. (D. Wright, Ed.). chelsea green publishing.

Meca, A., Ritchie, R. A., Beyers, W., Schwartz, S. J., Picariello, S., Zamboanga, B. L., & Crocetti, E. (2015). Identity centrality and psychosocial functioning: A person-centered approach. *Emerging Adulthood, 3*(5), 327–339. https://doi.org/10.1177/2167696815593183

Meeus, W., Van De Schoot, R., Keijsers, L., Schwartz, S. J., & Branje, S. (2010). On the progression and stability of adolescent identity formation: A five-wave longitudinal study in early-to-middle and middle-to-late adolescence. *Child Development, 81*(5), 1565–1581. https://doi.org/10.1111/j.1467-8624.2010.01492.x

N

National Academies of Sciences, Engineering, and Medicine. (2019). *The Promise of Adolescence: Realizing Opportunity for All Youth.* (Chapter 2). Washington, DC: The National Academies Press. https://doi.org/10.17226/25388.

National Research Council, & Institute of Medicine. (2009). *Preventing mental, emotional, and behavioral disorders among young people: Progress and possibilities.* National Academies Press

Natsuaki, M. N., Samuels, D., & Leve, L. D. (2015). Puberty, identity, and context: A biopsychosocial perspective on internalizing psychopathology in early adolescent girls. *The Oxford Handbook of Identity Development*, 389–405.

Nederlands Jeugdinstituut. (2019, 19 August). *'Meerjarenplan nodig voor herinrichting jeugdzorg'.* https://www.nji.nl/nieuws/meerjarenplan-nodig-voor-herinrichting-jeugdzorg

P

Pattwell, S. S., Bath, K. G., Casey, B. J., Ninan, I., & Lee, F. S. (2011). Selective early-acquired fear memories undergo temporary suppression during adolescence. *Proceedings of the National Academy of Sciences of the United States of America, 108*(3), 1182–1187. https://doi.org/10.1073/pnas.1012975108

Paus, T., Keshavan, M., & Giedd, J. N. (2008). Why do many psychiatric disorders emerge during adolescence? *Nature reviews neuroscience, 9*(12), 947-957.

R

Ranceire, C. D. R. (2011). The Thinking of Dissensus: Politics and Aesthetics. In P. Bowarn & R. Stamp (Eds.), *Reading Ranciere* (pp. 1–17). London and New York: Continuum.

Reupert, A., Straussner, S. L., Weimand, B., & Maybery, D. (2022). It takes a village to raise a child: understanding and expanding the concept of the "Village". *Frontiers in Public Health, 10*, 424. 10.3389/fpubh.2022.756066

Rudolph, M. D., Miranda-Domínguez, O., Cohen, A. O., Breiner, K., Steinberg, L., Bonnie, R. J., Scott, E. S., Taylor-Thompson, K., Chein, J., Fettich, K. C., Richeson, J. A., Dellarco, D. V., Galván, A., Casey, B. J., & Fair, D. A. (2017). At risk of being risky: The relationship between "brain age" under emotional states and risk preference. *Developmental Cognitive Neuroscience, 24*, 93-106. https://doi.org/10.1016/j.dcn.2017.01.010

Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic wellbeing. *Annual Review of Psychology, 52*(1), 141–166.

S

Sanders, E.B.N., & Stappers, P.J. (2012). *Convivial toolbox: Generative research for the front end of design.* Amsterdam: BIS.

Sangiorgi, D. (2011). Transformative services and transformation design. *International Journal of Design, 5*(2), 29-40.

Scholtens, S., Kiltz, L., Boer, H., Konkolÿ Thege, B., & Fleer, J. (2023). Conceptualisation of the systemic organisational constellation method and a procedure for its application in coaching. *Coaching: An International Journal of Theory, Research and Practice*, 1-15. https://doi.org/10.1080/17521882.2023.2222013

Schwartz, S. J., Beyers, W., Luyckx, K., Soenens, B., Zamboanga, B. L., Forthun, L. F., & Whitbourne, S. K. (2011). Examining the light and dark sides of emerging adults' identity: A study of identity status differences in positive and negative psychosocial functioning. *Journal of Youth and Adolescence, 40*(7), 839–859. https://doi.org/10.1007/s10964-010-9606-6

Senge, P. M. (1990). *The Fifth Discipline: The Art and Practice of the Learning Organization.* New York: Doubleday.

Sevaldson, B. (2018). Visualizing Complex Design: The Evolution of Gigamaps. In Jones, P., & Kijima, K. (Ed.) *Systemic Design* (1) (pp. 243-269). Tokyo: Springer. https://doi.org/10.1007/978-4-431-55639-8_8

Shapiro, S. L., Oman, D., Thoresen, C. E., Plante, T. G., & Flinders, T. (2008). Cultivating mindfulness: effects on well-being. *Journal of clinical psychology, 64*(7), 840-862. https://doi.org/10.1002/jclp.20491

Simon, H. A. (1968). *The Sciences of the Artificial* (third edition). Cambridge, MA: MIT Press.

Snowden, D. J., & Boone, M. E. (2007) A Leader's Framework for Decision making. *Harvard business review 85*(11), 68.

Steinberg, L. (2005). Cognitive and affective development in adolescence. *Trends in Cognitive Sciences, 9*(2), 69–74. https://doi.org/10.1016/j.tics.2004.12.005

Steinberg, L., Graham, S., O'Brien, L., Woolard, J., Cauffman, E., & Banich, M. (2009). Age differences in future orientation and delay discounting. *Child Development, 80*(1), 28–44. https://doi.org/10.1111/j.1467-8624.2008.01244.x

Stephens, J. P., & Boland, B. J. (2014). The Aesthetic Knowledge Problem of Problem-Solving With Design Thinking. *Journal of Management Inquiry, 24*(3), 219–232. doi:10.1177/1056492614564677

Steven Brant. (2010, 23 October). *If Russ Ackoff had given a TED Talk...* [Video]. YouTube. https://www.youtube.com/watch?v=OqEeIG8aPPk

Stewart-Brown, S. (2017). Population level: Wellbeing in the general population. In M. Slade, L. Oades, & A. Jarden (Eds.), *Wellbeing, recovery, and mental health*. (Chapter 18) Cambridge, MA: Cambridge University Press.

Stroud, L. R., Papandonatos, G. D., Williamson, D. E., & Dahl, R. E. (2004). Applying a nonlinear regression model to characterize cortisol responses to corticotropin-releasing hormone challenge. *Annals of the New York Academy of Sciences, 1032*(1), 264–266. https://doi.org/10.1196/annals.1314.034

V

van der Bijl-Brouwer, M. (2023, 18 August). *Systems thinking + design = ? Medium.* https://medium.com/@miekevanderbijl/systems-thinking-design-72209d534c4c

van der Bijl-Brouwer, M. (2023, 4 September). *Designing for Complexity: Introduction workshop.* [lecture]

van der Bijl-Brouwer, M. (2023, 5 September). *Designing for Complexity: session 2.* [lecture]

van der Bijl-Brouwer, M., Celik, s., de Koning, J., Nieuwborg, A., & Tromp, N. (forthcoming). "Systemic Design Reasoning", paper accepted for publication at DRS2024 *Design Research Society International Conference*, June 2024, Boston USA.

van der Bijl-Brouwer, M., Kligyte, G., & Key, T. (2021). A co-evolutionary, transdisciplinary approach to innovation in complex contexts: Improving university well-being, a case study. *She Ji: The Journal of Design, Economics, and Innovation, 7*(4), 565-588. https://doi.org/10.1016/j.sheji.2021.10.004

van der Bijl-Brouwer, M., & Malcolm, B. (2020). Systemic design principles in social innovation: A study of expert practices and design rationales. *She Ji: The Journal of Design, Economics, and Innovation, 6*(3), 386-407. https://doi.org/10.1016/j.sheji.2020.06.001

Vink, J., Wetter-Edman, K., & Aguirre, M. (2017). Designing for aesthetic disruption: Altering mental models in social systems through designerly practices. *The Design Journal, 20*(sup1), S2168-S2177. 10.1080/14606925.2017.1352733

VZinfo (n.d.). *Wat is preventie?* Retrieved November 6, 2023, from https://www.vzinfo.nl/preventie/wat-is-preventie

W

Walker, E. F., Sabuwalla, Z., & Huot, R. (2004). Pubertal neuromaturation, stress sensitivity, and psychopathology. *Development and Psychopathology, 16*(4), 807–824.

Watts, R. J. (2018, June). *Powerful Youth, Powerful Communities: The Youth Development Benefits of Community Organizing*. Presentation to the Committee on the Neurobiological and Socio-behavioral Science of Adolescent Development and Its Applications. Available:; https://sites.nationalacademies.org/cs/groups/dbassesite/documents/webpage/dbasse_188004.pdf.

Appendices

Appendix A: Project Brief

IDE Master Graduation Project

Project team, procedural checks and Personal Project Brief

DESIGN FOR our future

TUDelft

In this document the agreements made between student and supervisory team about the student's IDE Master Graduation Project are set out. This document may also include involvement of an external client, however does not cover any legal matters student and client (might) agree upon. Next to that, this document facilitates the required procedural checks:
- Student defines the team, what the student is going to do/deliver and how that will come about
- Chair of the supervisory team signs, to formally approve the project's setup / Project brief
- SSC E&SA (Shared Service Centre, Education & Student Affairs) report on the student's registration and study progress
- IDE's Board of Examiners confirms the proposed supervisory team on their eligibility, and whether the student is allowed to start the Graduation Project

STUDENT DATA & MASTER PROGRAMME
Complete all fields and indicate which master(s) you are in

Family name	Vos	6888
Initials	KA	
Given name	Vos	
Student number	4809661	

IDE master(s)	IPD ☐	DfI ✔	SPD ☐
2nd non-IDE master			
Individual programme (date of approval)			
Medisign	☐		
HPM	☐		

SUPERVISORY TEAM
Fill in he required information of supervisory team members. If applicable, company mentor is added as 2nd mentor

Chair	Mieke van der Bijl-Brouwer	dept./section	DOS/MOD
mentor	Gijs Huisman	dept./section	HCD/HICD
2nd mentor	Koen van der Wal		
client:	MarketResponse		
city:	Utrecht	country:	Netherlands
optional comments			

! Ensure a heterogeneous team. In case you wish to include team members from the same section, explain why.

! Chair should request the IDE Board of Examiners for approval when a non-IDE mentor is proposed. Include CV and motivation letter.

! 2nd mentor only applies when a client is involved.

APPROVAL OF CHAIR on PROJECT PROPOSAL / PROJECT BRIEF -> to be filled in by the Chair of the supervisory team

Sign for approval (Chair)

Mieke van der Bijl-Brouwer
Digitally signed by Mieke van der Bijl-Brouwer
Date: 2023.10.12 16:47:40 +02'00'

Name Mieke van der Bijl-Brouwer   Date 12 Oct 2023   Signature

---

CHECK ON STUDY PROGRESS
To be filled in **by SSC E&SA** (Shared Service Centre, Education & Student Affairs), after approval of the project brief by the chair. The study progress will be checked for a 2nd time just before the green light meeting.

Master electives no. of EC accumulated in total _____ EC

Of which, taking conditional requirements into account, can be part of the exam programme _____ EC

★	YES	all 1st year master courses passed
☐	NO	missing 1st year courses

Comments:

Sign for approval (SSC E&SA)

Robin den Braber
Digitaal ondertekend door Robin den Braber Datum: 2023.11.07 09:20:07 +01'00'

Name Robin den Braber   Date 7 nov 2023   Signature

APPROVAL OF BOARD OF EXAMINERS IDE on SUPERVISORY TEAM -> to be checked and filled in by IDE's Board of Examiners

Does the composition of the Supervisory Team comply with regulations?

YES	★	Supervisory Team approved
NO	☐	Supervisory Team not approved

Comments:

Based on study progress, students is …

★		ALLOWED to start the graduation project
☐		NOT allowed to start the graduation project

Comments:

Sign for approval (BoEx)

Monique von Morgen
Digitally signed by Monique von Morgen Date: 2023.11.07 10:04:00 +01'00'

Name Monique von Morgen   Date 7 Nov 2023   Signature

Personal Project Brief – IDE Master Graduation Project

Name student Kirsten Vos

Student number 4,809,661

PROJECT TITLE, INTRODUCTION, PROBLEM DEFINITION and ASSIGNMENT
Complete all fields, keep information clear, specific and concise

Project title Exploring how a systemic design approach contributes to improving mental-wellbeing among high school students.

Please state the title of your graduation project (above). Keep the title compact and simple. Do not use abbreviations. The remainder of this document allows you to define and clarify your graduation project.

Introduction

Describe the context of your project here; What is the domain in which your project takes place? Who are the main stakeholders and what interests are at stake? Describe the opportunities (and limitations) in this domain to better serve the stakeholder interests. (max 250 words)

This project will be done for MarketResponse. MarketResponse has conducted research into mental health among youth, specifically the pressure to perform in schools. One of their insights can be seen in Figure 1.
They have done this research for "De Gezonde Generatie": a multi-year program, where 22 health funds collaborate to create a more healthy generation in the future. As a part of this program, MIND and the Hersenstichting work on strengthening the resilience of young people and promoting a mentally healthy learning environment.
Their work is needed and research shows why: 20% of all high school students are worried about their future (Kleinjan et al., 2020), which can result in less life satisfaction more emotional problems. A wide range of factors can contribute to this issue: pressure at school, social pressure, social media, high expectations of parents and the pressure to perform at all areas of their life: school, side job, free time, sports, music, friends, etc. (MarketResponse, 2023; Boer et al 2022; Kleinjan et al., 2020). All of these factors combined lead to mental-wellbeing problems for youth, but two factors stand out. Firstly, the pressure at school: research from HBSC shows that 45% of high school students experience a lot of stress because of schoolwork (Boer et al., 2022). Secondly, the smartphone and social media. Research from HBSC shows that satisfaction of Dutch children's lives has significantly decreased since the smartphone was invented (Boer et al, 2022). Some effects of smartphone and social media use among youth can be seen in Figure 2.

Boer, M., de Looze, M., Brons, H., Monshouwer, K., ter Bogt, T., & Stevens, G. (2022). *Gezondheid en welzijn van jongeren in Nederland*. Zalsman Zwolle.

Kleinjan, M., Pieper, I., van Dorsselaer, S., & Tuithof M. (2020). *Geluk onder Druk?* UNICEF.

MarketResponse (2023, 19 January). *Inzicht in prestatiedruk*.

Van Teutem, S. (2023, 29 August). *Smartphones verzieken de mentale gezondheid van jongeren. Wanneer grijpen we in?* De Correspondent. https://decorrespondent.nl/14753/smartphones-verzieken-de-mentale-gezondheid-van-jongeren-wanneer-grijpen-we-in/4f5a6809-1891-0962-384a-a2050479d2b7

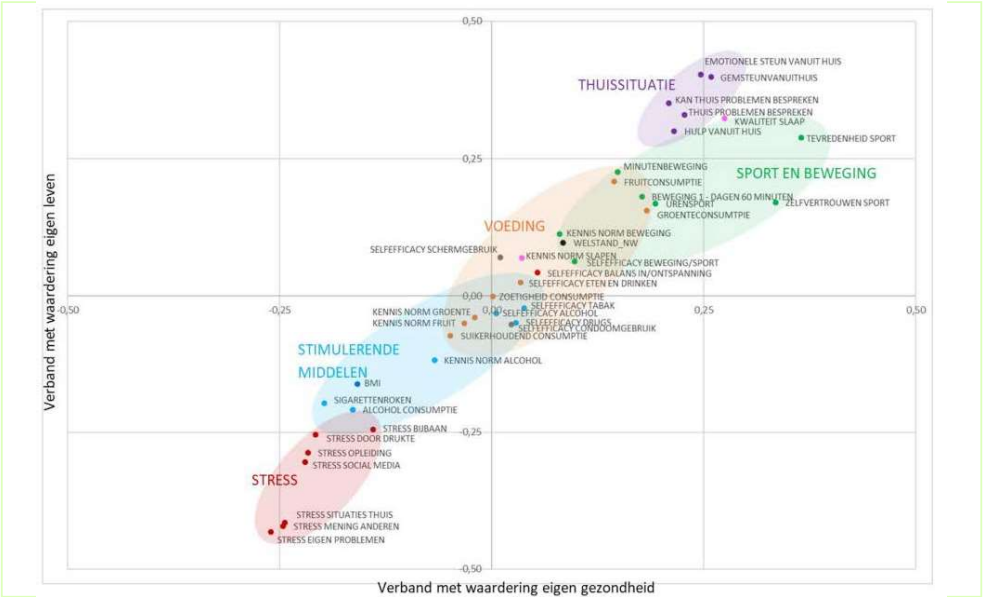➜ *space available for images / figures on next page*

image / figure 1   Experiencing stress correlates negatively with judgements of one's own health and life satisfaction.

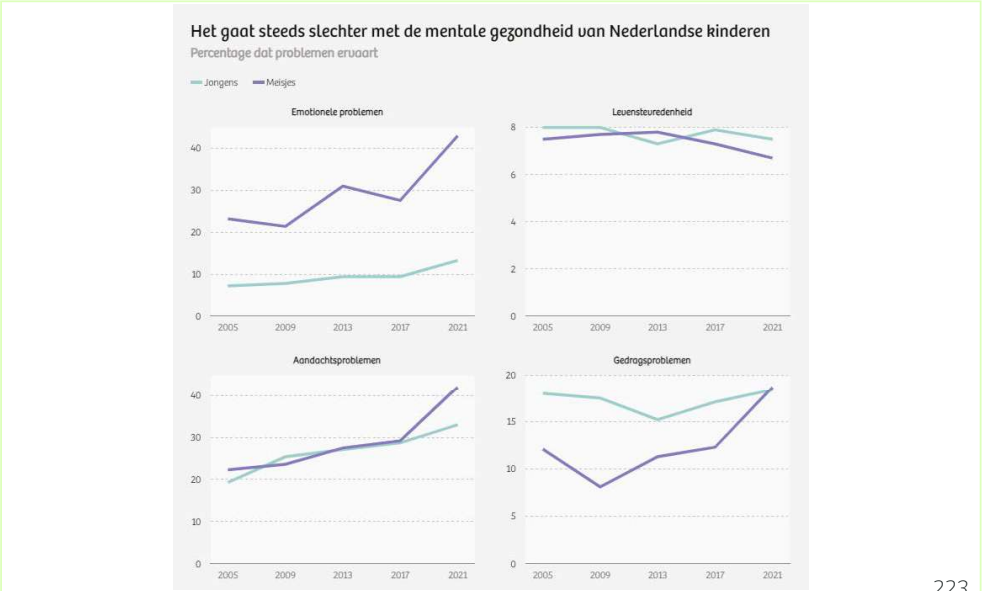image / figure 2   Dutch Children have more emotional-, attention-, and behaviour issues, and less life satisfaction.

TUDelft

Personal Project Brief – IDE Master Graduation Project

Problem Definition

What problem do you want to solve in the context described in the introduction, and within the available time frame of 100 working days? (= Master Graduation Project of 30 EC). What opportunities do you see to create added value for the described stakeholders? Substantiate your choice.
(max 200 words)

MarketResponse's research was focussed on the pressure to perform on schools and was mainly quantitative research. Their primary focus was on the youth as a stakeholder.
However, this challenge of mental well-being among youth is a complex context, which requires a different approach (Snowden & Boone, 2007). In this project I will use a systemic design approach to look at different stakeholders and their relations. The systemic approach aims to shift the system towards a certain direction. In this case, trying to improve the mental well-being among youth. After gaining more insights, I will determine more precise system boundaries. These are not objective, but it will define the scope of this project.
To design, I will identify leverage points (Meadows, 1999) and design different interventions, possibly for different stakeholders or relations. It will have the structure of `probe, sense, respond`: design a safe-to fail experiment (intervention), sense what happens, and respond accordingly.
The overall goal is to improve mental well-being among youth, and stress is a big factor in that. Research shows that school related -and general stress are higher in the higher school levels. It also shows that stress increases when the youth gets older (Kleinjan et al., 2020). This is why my project will focus on 16-18 year olds who attend HAVO and VWO schools.

Meadows, D. (1999). Leverage Points: Places to Intervene in a System. *Sustainability Institute, 19*, 28

Snowden, D.J., & Boone, M.E. (2007) A Leader's Framework for Decision Making. *Harvard Business Review. 85*(11), 68.

Assignment

This is the most important part of the project brief because it will give a clear direction of what you are heading for.
Formulate an assignment to yourself regarding what you expect to deliver as result at the end of your project. (1 sentence)
As you graduate as an industrial design engineer, your assignment will start with a verb (Design/Investigate/Validate/Create), and you may use the green text format:

Investigate how systemic design can help to design interventions to improve mental-wellbeing for high school students.

Then explain your project approach to carrying out your graduation project and what research and design methods you plan to use to generate your design solution (max 150 words)

Research
The research questions are:
- How do high school students experience the influence of main factors (stakeholders, locations, information) on their mental well-being?
- How are the stakeholders related to each other, and (how) are they currently trying to positively impact the mental well-being of high school students?
- What are other elements and how are they related to stakeholders, how can these relations be described?
A tool I will use to understand the context better is giga-mapping. I will use it in interviews with stakeholders and for myself to create an overview. For the high school students I will create a toolbox to gain insights in their life and how they view mental-wellbeing. After that, I will have interviews with them where we evaluate the toolbox.

Designing interventions
I will start with identifying leverage points (Meadows, 1999), which will be the starting point to ideate about design interventions. I want to design multiple interventions to be able to test them and evaluate their effectiveness with the stakeholders. I will test the ideas in the form of safe-to-fail-experiments.

Developing the final concept
Here I will choose one design intervention and further develop that. I will also do one final test and evaluation.

Project planning and key moments

*To make visible how you plan to spend your time, you must make a planning for the full project. You are advised to use a Gantt chart format to show the different phases of your project, deliverables you have in mind, meetings and in-between deadlines. Keep in mind that all activities should fit within the given run time of 100 working days. Your planning should include a **kick-off meeting**, **mid-term evaluation meeting**, **green light meeting** and **graduation ceremony**. Please indicate periods of part-time activities and/or periods of not spending time on your graduation project, if any (for instance because of holidays or parallel course activities).*

Make sure to attach the full plan to this project brief.
The four key moment dates must be filled in below

Kick off meeting	3 okt 2023
Mid-term evaluation	22 nov 2023
Green light meeting	6 feb 2024
Graduation ceremony	12 mrt 2024

In exceptional cases (part of) the Graduation Project may need to be scheduled part-time. Indicate here if such applies to your project

Part of project scheduled part-time	
For how many project weeks	
Number of project days per week	

Comments:

Motivation and personal ambitions

Explain why you wish to start this project, what competencies you want to prove or develop (e.g. competencies acquired in your MSc programme, electives, extra-curricular activities or other).

Optionally, describe whether you have some personal learning ambitions which you explicitly want to address in this project, on top of the learning objectives of the Graduation Project itself. You might think of e.g. acquiring in depth knowledge on a specific subject, broadening your competencies or experimenting with a specific tool or methodology. Personal learning ambitions are limited to a maximum number of five.
(200 words max)

During my study so far I have discovered that I am really passionate about improving mental health. This is a topic I am working on in my personal life, but during my master and internship I also have worked on projects that are related to this topic. This is the main reason I wanted to do my graduation about mental health, and I think teenagers are an interesting target group.

I want my work to have an impact on society, but mainly on the target group. There are a couple of skills that I would like to develop in this project that I think will help me achieve this impact:
- Systemic design and thus focussing on relations between stakeholders and expansionism.
- How to manage multiple stakeholders and their (conflicting) interests.
- Co-create with stakeholders and facilitating sessions to do so.

Other skills can always be improved, but I believe these skills, amongst others, are ones I have and will help me in this project: empathising with stakeholders, analysing insights, visualising insights, ideate and prototyping.

Appendix B: Procedure of stakeholder sessions

Objectives

The most important things I wanted to find out during these sessions were:

- What is the role of this stakeholder in the system of adolescent well-being?
- What are the stakeholder's most important resources, methods and connections?
- What is the stakeholder's perspective on adolescent well-being?
- What struggles does the stakeholder experience?
- What struggles does the stakeholder notice in adolescents?
- How does the larger system work around adolescents (in relation to well-being)?

Procedure

To find the answers to these questions, I did a session with the different stakeholders. Sometimes with one person, sometimes with two people from the same stakeholder group at the same time. I asked them the questions shown in Table 2, but I did not follow them strictly. It was a guide for me to get the answers to the questions I had. I used multiple tools during the session: interview questions, an empathy map and giga-mapping or stakeholder mapping. The sessions were with a couple of different stakeholder groups, so the questions varied a little bit. But most of the questions were the same for all groups.

Table 2. The questions asked and tools used during stakeholder sessions.

	Vragen	Tool
Algemene informatie		
1	Hoe zou u jullie rol omschrijven? Wat zijn de belangrijkste taken die jullie doen?	Giga-map
2	Wat zijn de middelen/methodes die jullie hebben om die rol/taken uit te voeren?	Giga-map
Welzijn onder adolescenten		
3	Welke term gebruiken jullie om te beschrijven hoe het (mentaal) met iemand gaat? (mentale stoornis, mentale gezondheid, welzijn)	Vraag
4	Welke factoren hebben volgens jullie de meeste invloed op het welzijn van adolescenten?	Giga-map
5	Zien jullie (grote) verschillen in het welzijn van adolescenten in de afgelopen jaren?	Vraag
Eigen rol in het systeem		
6	Hoe zijn jullie verbonden aan de adolescenten? Hoe kan je die relatie omschrijven? (hoe vaak zien jullie ze, op wat voor manier, in welke verhouding)?	Giga-map
7	Proberen jullie op dit moment bij te dragen aan het verbeteren van mentaal welzijn onder adolescenten? Zo ja, hoe?	Giga-map
8	Welke middelen/methodes zetten jullie daarvoor in?	Giga-map
9	Wat is jullie motivatie om bij te willen dragen aan het welzijn van adolescenten?	Vraag
Kijk op de huidige situatie (in het systeem)		
10	Wie of wat is er nog meer relevant in deze context?	Giga-map
11	Wat gaat er goed (vanuit jullie perspectief/in jullie rol)?	Vraag / Giga-map
12	Wat kan er beter (vanuit jullie perspectief/in jullie rol)?	Vraag / Giga-map
Toekomstvisie		
13	Hoe zou de ideale toekomst eruit zien voor adolescenten (in het kader van welzijn)?	Empathy map
14	Wat kunnen jullie doen om daaraan bij te dragen?	Giga-map
15	Hoe zouden jullie de ideale toekomst voor jullie rol beschrijven (in deze context)?	Empathy map
16	Wat is er nodig om die toekomst te bereiken?	Giga-map
17	Wie kan/moet er een grote rol hebben in het teweegbrengen van grote veranderingen?	Giga-map

Appendix C: Giga-map as an initial exploration of the context

I made the giga-map in Figure 50 at the beginning of my project, to collect my knowledge and assumptions about the context at that moment. It gave some direction for the stakeholders I wanted to involve and pushed me to think broader than I initially would.
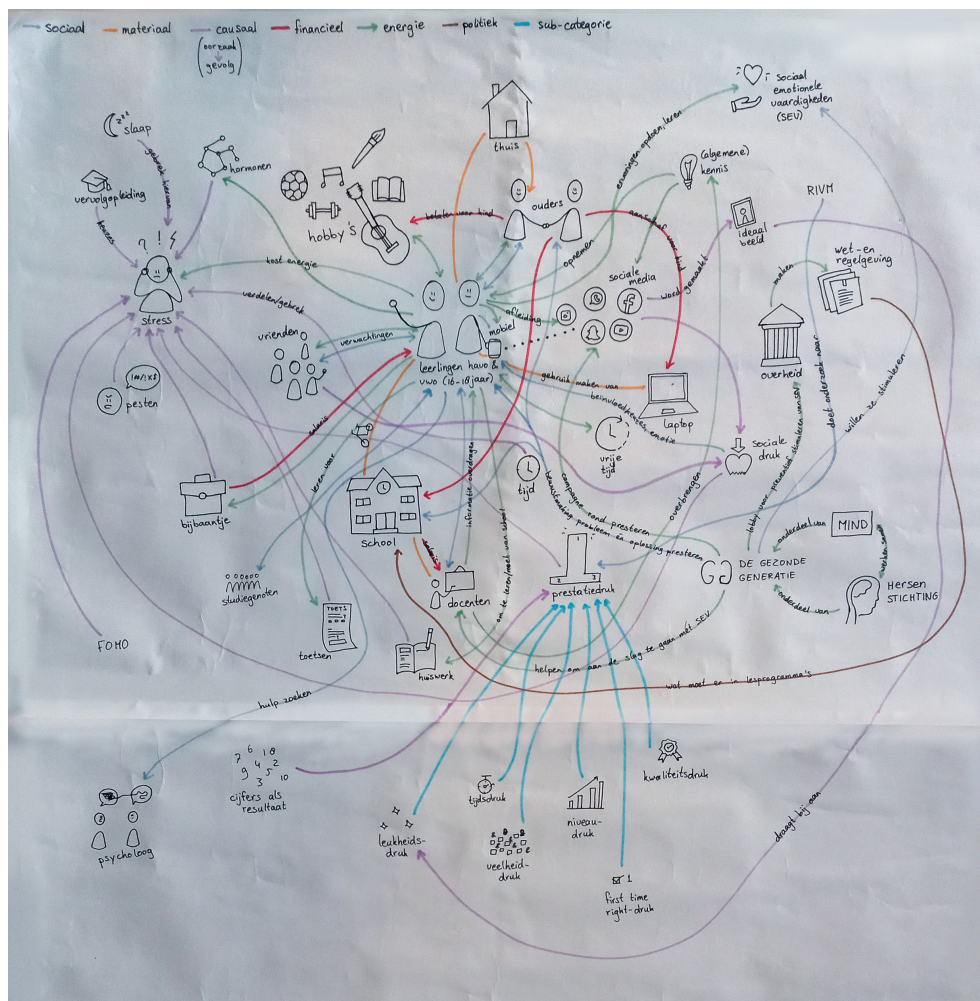

Figure 50. The giga-map I made at the beginning of my project.

Appendix D: Procedure of sessions with adolescents

Objectives

The most important things I wanted to find out during these sessions were:
- How do adolescents interpret mental health/well-being?
- Are adolescents actively engaged in their own health? If so, how?
- What is the status of mental health/well-being among adolescents?
- Is this visible in their daily life?
- Who or what has an influence on their mental health/well-being?

Procedure

To find the answers to these questions, the procedure consisted of two parts: a homework assignment in the form of a workbook, and an interview using the workbook. The workbook is displayed in Figure 51, and Table 3 shows the questions I used to guide the interview. I did not strictly follow these questions, but they helped me to get the information I wanted to learn.

Figure 51. The workbook to be filled in by adolescents before the interview

Vragen		Tool
Algemene informatie		
1	Hoe oud ben je?	Werkboek bekijken (1+2)
2	Vielen jou zelf dingen op? Verschillen de emoties door de week heen?	Werkboek bekijken (1+2)
Welzijn onder adolescenten		
3	Vielen jou zelf dingen op? Welke problemen spelen de grootste rol? Wat vind je daarvan? Hoe ga je daarmee om?	Werkboek bekijken (3)
4	Vielen jou zelf dingen op? Welke activiteiten helpen jou het meest om je goed te voelen? Wat zijn dingen die je wel zou willen doen maar die niet lukken? Waarom lukken ze niet?	Werkboek bekijken (4)
5	Zou je zeggen dat je bewust of veel bezig bent met je (mentaal) welzijn?	Vraag
6	Praat je wel eens met mensen over je (mentaal) welzijn? Zo ja, met wie? En hoe?	Vraag
Toekomstvisie		
7	Hoe zou jouw ideale toekomst eruit zien (in het kader van (mentaal) welzijn)?	Vraag Empathy map
8	Wat is er nodig om die toekomst werkelijkheid te maken?	Vraag
9	Wie kan er helpen om die toekomst werkelijkheid te maken?	Vraag

Appendix E: Adolescent's workbook

Figures 52 – 56 show the filled-in workbook of an adolescent. During the interview, we used the workbook as a guide and reference to talk about the different topics.

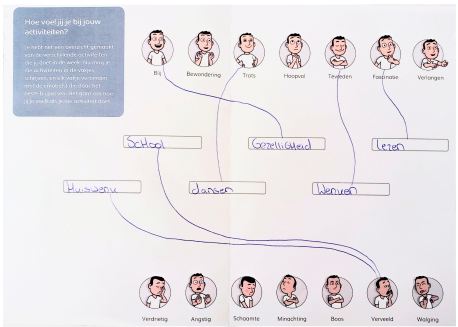Figure 52. The first assignment of the workbook, which is about the average week.

Figure 53. The second assignment of the workbook, with the emotions connected to the various activities.
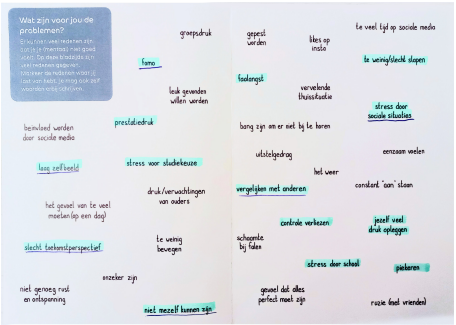

Figure 54. The third assignment of the workbook, which is about the difficulties the adolescent faces.
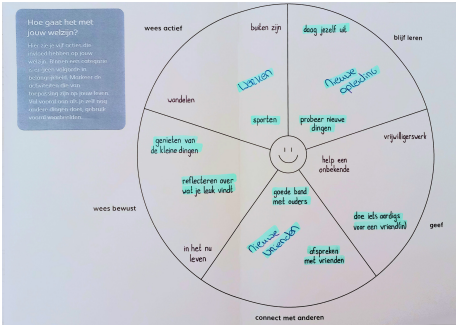

Figure 55. The fourth assignment of the workbook, which is about well-being and the activities the adolescent does to feel good.
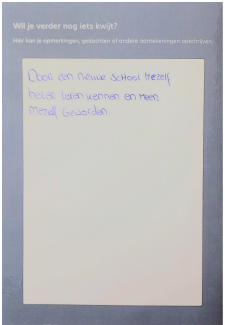

Figure 56. The last assignment of the workbook, which an open space for the adolescent to share what they want.

Appendix F: Teachers' map

Figure 57 shows the map that two teachers made during the session. This map, together with the answers the teachers gave during the session were input for my combined giga-map.
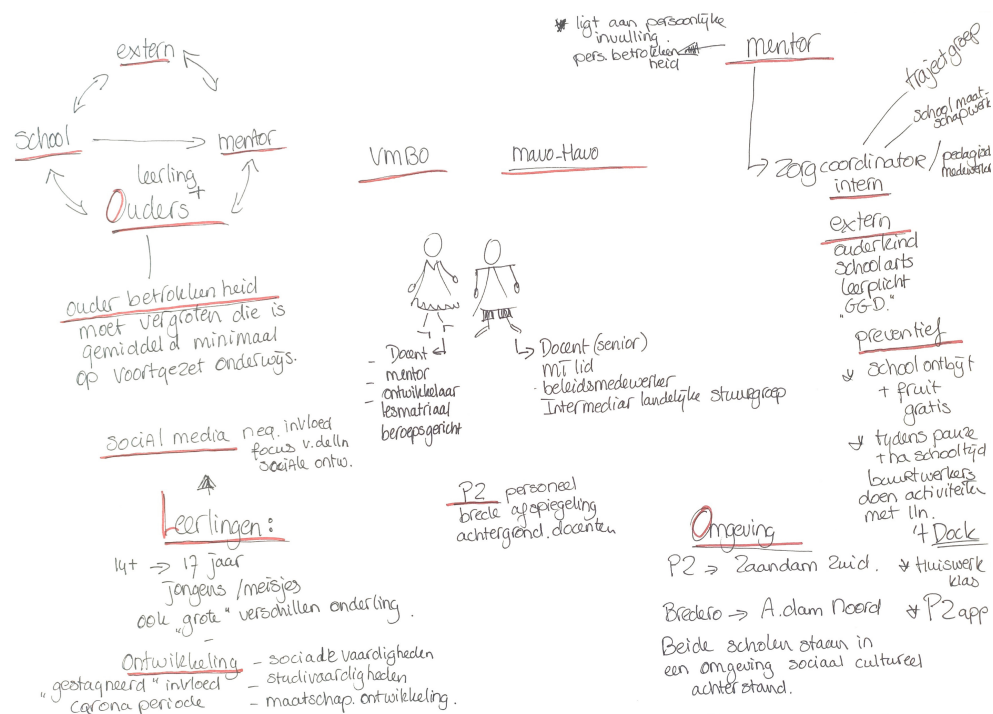

Figure 57. The map that two teachers made during a session.

Appendix G: Sports coaches' map

Figure 58 shows the map that two sports coaches made during the session. This map, together with the answers the sports coaches gave during the session were input for my combined giga-map.

Figure 58. The map that two sports coaches made during a session.

Appendix : SGF's map

Figure 59 shows the map that a mental health advisor from the SGF made during the session. This map, together with the answers the mental health advisor gave during the session were input for my combined giga-map.
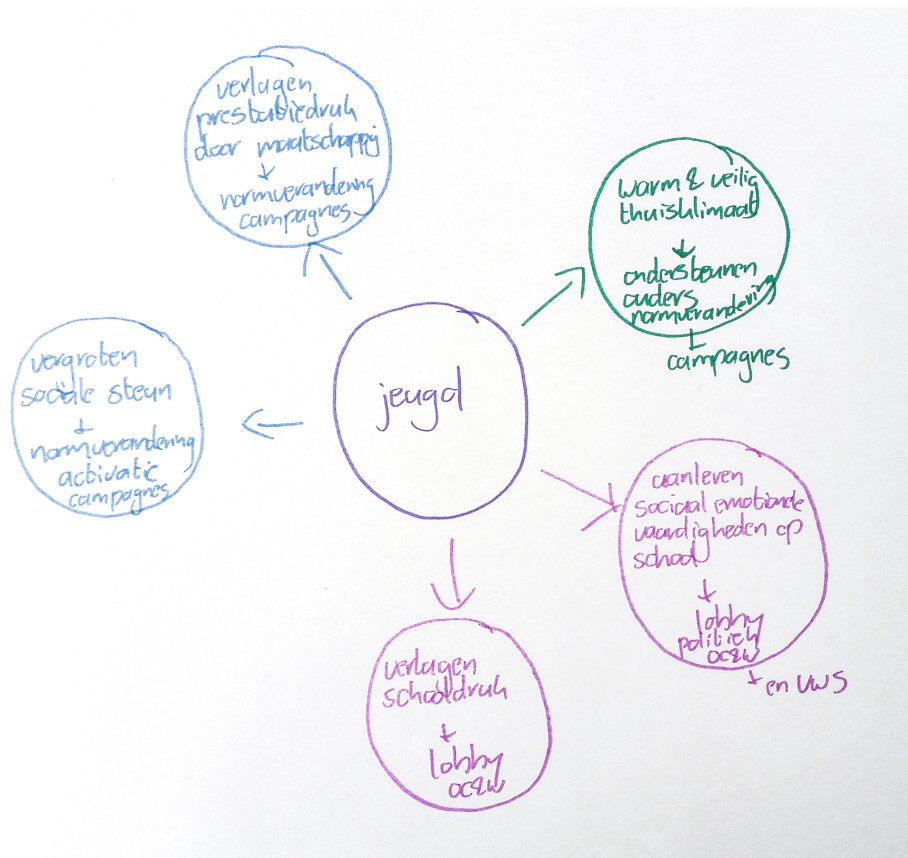

Figure 59. The map that a mental health advisor made during a session.

Appendix I: Municipality's map

Figure 60 shows the map that a policy advisor from the Municipality made during the session. This map, together with the answers the policy adviser gave during the session were input for my combined giga-map.
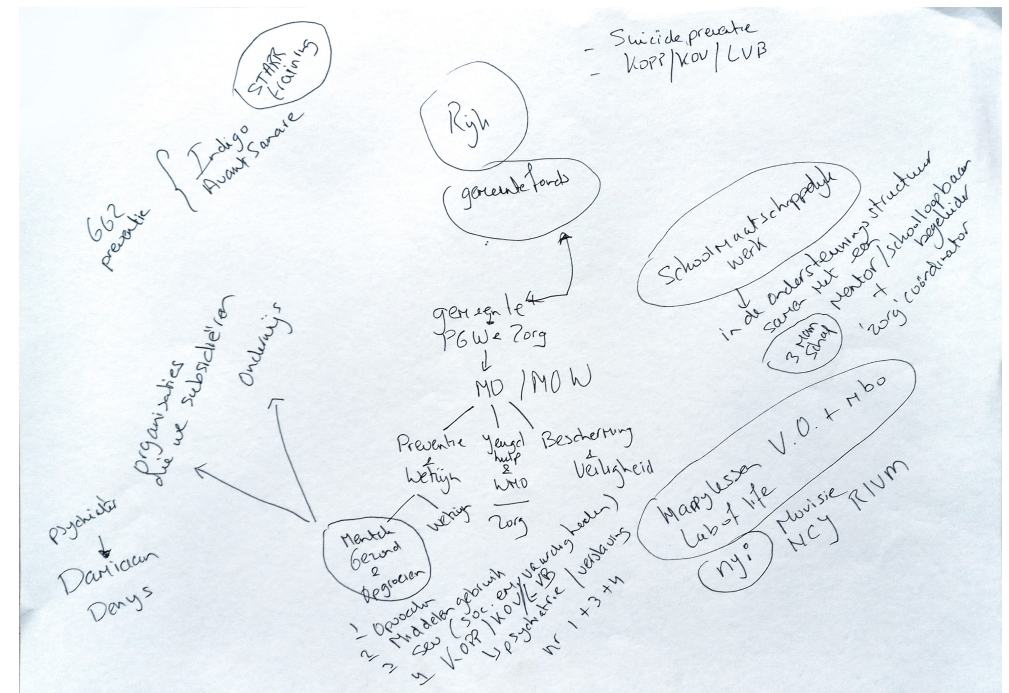

Figure 60. The map that a policy advisor made during a session.

Appendix J: Creative session with parents

Objectives

I did this session with two parents, two men from different families. The main questions I wanted to explore in this session were:

- What should the ideal village look like in the future?
- How can we adapt the current system to get closer to that village?
- What must be true for this village to become a reality?

Visualising the current system

In order to explore possible answers to these questions, the session contained two activities: visualising the current system and making a future vision. The current system the two parents made is in Figure 61 and served as a starting point to develop ideas. It created a concrete context to work from. In the Figure, the lines of wool represent the connections between stakeholders, and the distance illustrates the closeness of that relationship. This representation is an average of the two parents, and thus not exactly true for either one of them. An important note the parents made is that some of these connections only emerge or intensify when their child is not doing well.

Making a future vision

With the current situation in mind, I asked the parents to create a future vision for the village. I brought lots of pictures they could use and asked them to create a mood board (Figure 62). As part of this, I asked them questions such as: Which feeling is important? What should the village look like? What should not happen? And what should happen? After they had some time to make the mood boards, they both explained their work (Figures 63 and 64). We discussed them and I asked
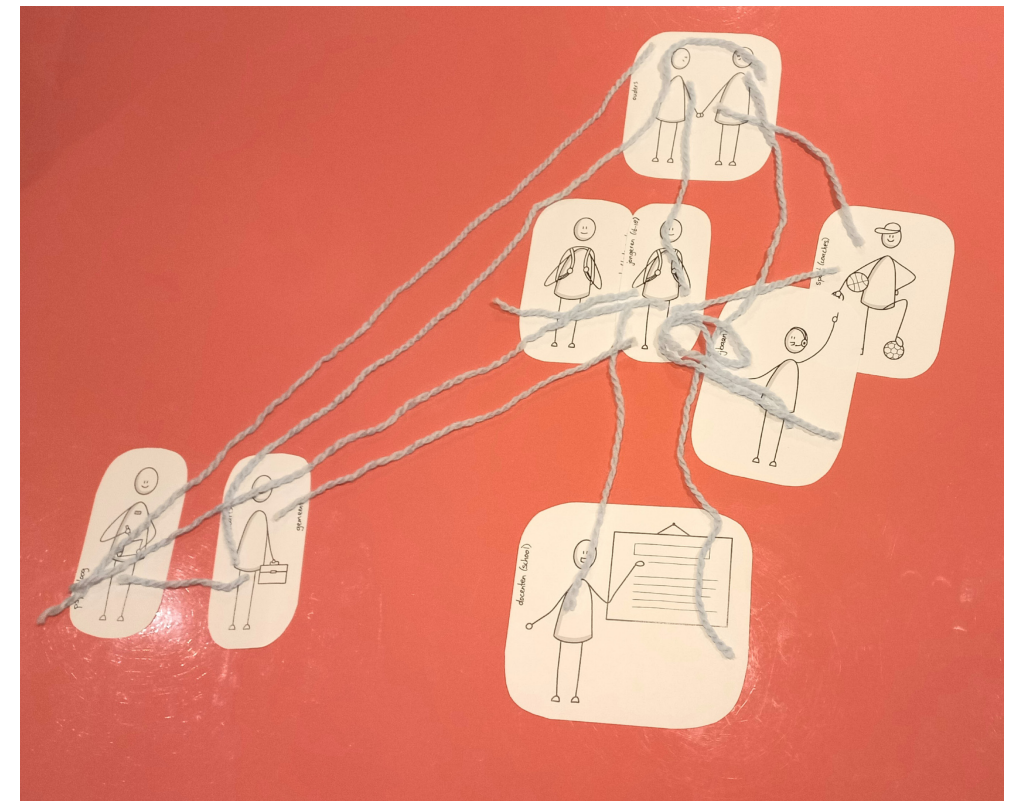

Figure 61. The stakeholder map that the two parents made.

Figure 63. Moodboard of the village that one of the parents made.

Figure 64. Moodboard of the village that one of the parents made.

them what they think is necessary to realise these villages. They said that it is important that adolescents can discover and develop themselves, and the network should support them in doing so. The network may encourage curiosity and self-discovery, but the adolescents are in the lead. It is also important that adolescents have people around them to show them possible paths. It is important that there is diversity within that group, and that they have genuine attention. For this, they need to be able to listen, and there needs to be room for both joy and sadness. Providing structure is also very important.

Figure 62. The two parents creating their future visions.

Appendix K: Ideation

Figure 65 shows the first ideation I did with peers and Figure 66 shows the ideas I generated.
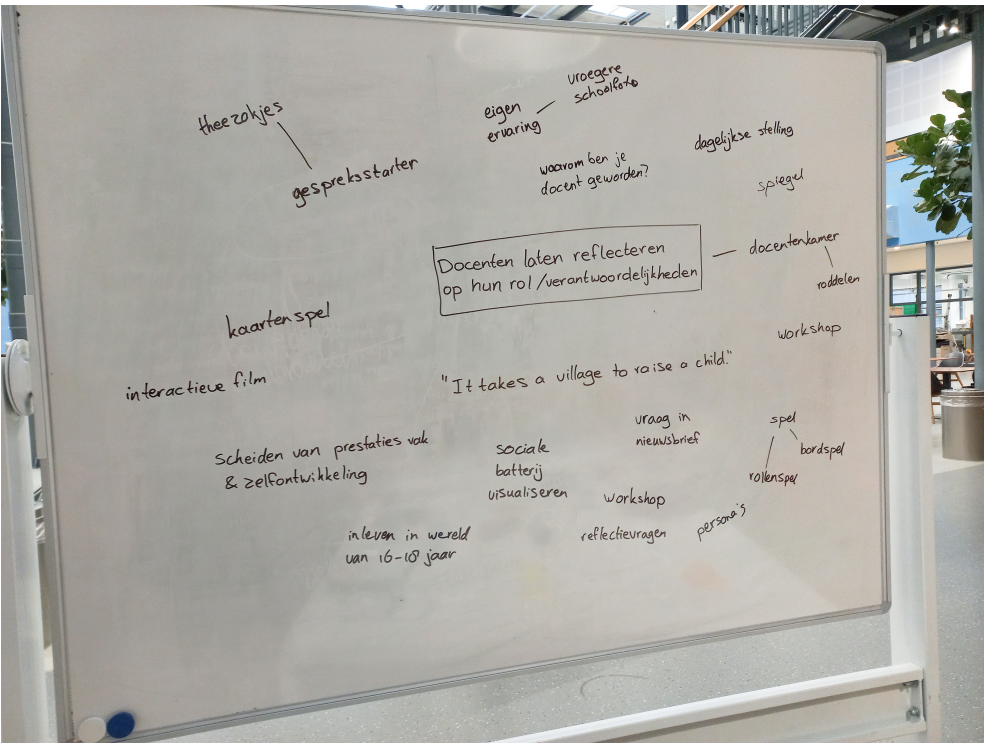

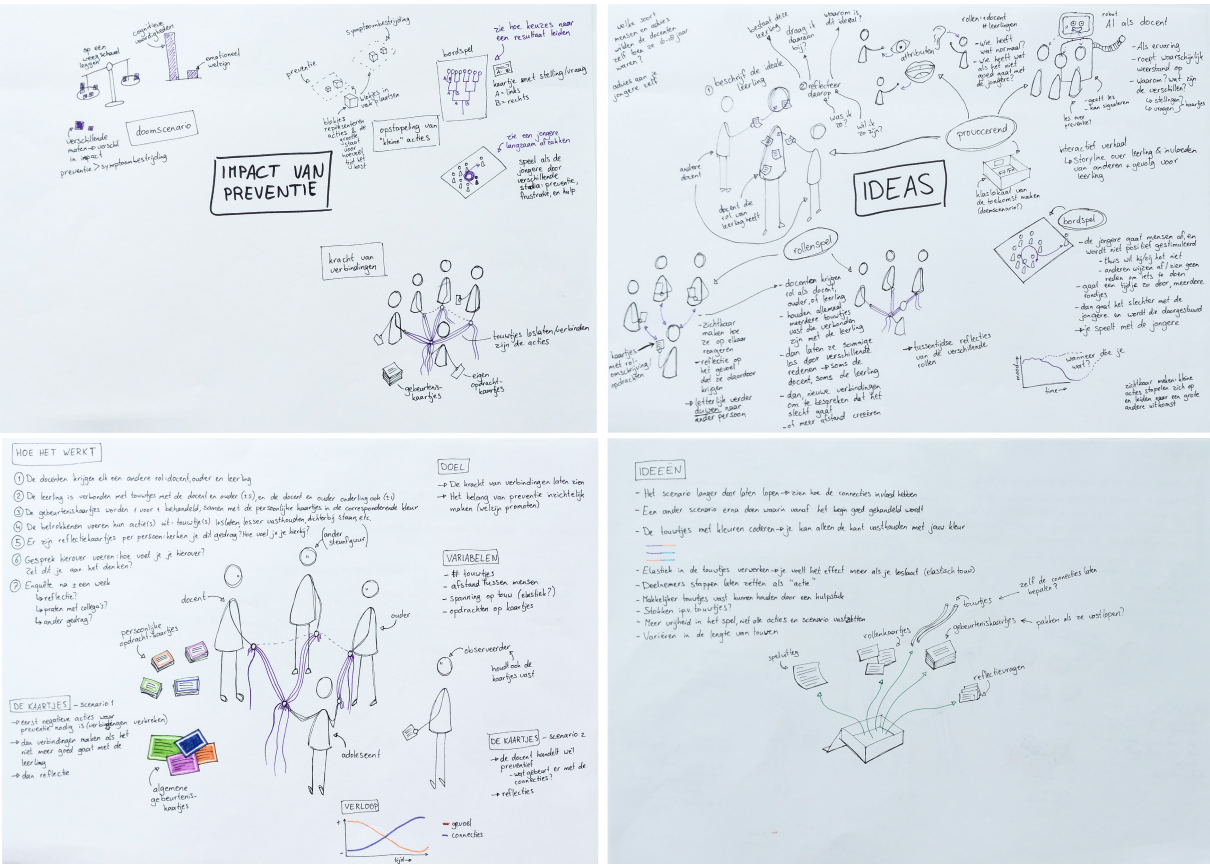Figure 65. The first ideation I did with peers.

Figure 66. My ideas.

Appendix L: Iteration 1

Figure 67 shows the materials I used for this test. In the next paragraphs, I will explain the following: the concept, the objectives for the test, the setup of the test, the questions I asked directly after the test, my observations, feedback from the participants and ideas for improvement.

Figure 67. The materials used for this test.

The concept

Three people participate in this concept, and they each have a different role: the teacher, the parent and the adolescent. They hold the rope which represents the connections between them (Figure 68). The cards have full sentences on them, and the participant who had the role corresponding to the card on top read that card out loud, and followed the instructions on the action to take. The action would be: 'release a piece of rope', or 'offer a rope to ...' (Figure 67). Between these cards were two reflection cards, which asked how the participants were feeling at that moment.

Objectives

- Explore whether this concept evokes emotion and initiates a conversation.
- Exploring whether the principle with the ropes works and whether the assignments on the cards are suited.

The setup

The participants were design students who are familiar with the topic of my project, so I only explained the setting of this test to them. This explanation was along these lines:

"You may imagine for a moment that you are teachers at a secondary school, and that you teach 16 to 18-year-olds. Today is a study day, and this activity is one of several on this day. For this activity, all three of you are given different roles: one plays an adolescent, another plays a parent, and the last one plays a teacher. In front of you is a pile of cards, and the person/role whose card is on top takes it. You read out loud the part that says 'share', and if it also says 'action', you execute it. Are there any questions?"

Evaluation questions

- What did you think about this?

- How do you feel about this?
- Did it make you think?
- Did you understand the principle?
- What did you think of the reflection moments in between?
- Do you have ideas on what would make it better/ more intense?

Observations

- Participants play with the ropes during the explanation, swinging them back and forth.
- There is a delay in the game. Especially offering the rope and taking it or not taking it is tricky because the reaction of taking it or not taking it is only on the card after it. The other delay is caused by picking the card up and reading it out loud.
- There are quite a few uncomfortable silences.
- After the game, a conversation ensued quickly, even without my help.

Feedback from the participants

- It took us a while to get into our roles.
- The ropes are somewhat static which makes it difficult to detach them from each other.
- The game does provoke reflection. It raises questions such as: How do you relate to your role? Do you agree with it?
- It would be nice to have more freedom to react to the situation, that would also help to identify more quickly with the role and already reflect during the game.
- Reducing ropes does evoke an emotion. It does not feel good to see how a

connection weakens over time. A quote from the person with the adolescent role illustrates this:

"I do feel a little lonely right now."

Figure 68. Participants interacting with my prototype during the test.

Ideas for improvement

- To avoid playing with ropes: do the explanation first, and then use the ropes.
- Use other rope so that it is no longer static and the ropes can be loosened more easily. Best to choose rope which is thicker and heavier too, then it makes noise when it hits the ground, making the effect more dramatic than the soft falling of the wool during this test.
- Making it increasingly dramatic to drop a rope. For example, by using colour or weight.
- Giving participants more freedom by not writing out their responses. Perhaps I can give them some kind of identity card so that the participants know what role to play.
- Maybe put choices on the cards so that you have more influence on your role.
- Maybe go through two scenarios. First the negative scenario, and then a positive scenario, so you can notice the difference.
- Starting to see this game more as a warm-up/sensitizer for another session after that. In that session, participants can then reflect on how small actions accumulated have a lot of impact. That session should also ensure that teachers do not feel they have to do more.
- Making a souvenir together or individually, reminding you of this session with associated insights.

Appendix M: Iteration 2

Figure 69 shows the materials I used for this test. In the next paragraphs, I will explain the following: the concept, the objectives for the test, the setup of the test, the questions I asked directly after the test, my observations, feedback from the participants and ideas for improvement.

Figure 69. The materials used for this test.

The concept

The principle of the concept has not changed after the first test. In this version, there are still three participants who each get a role (teacher, parent, adolescent). Only in this version, each role has a role description which contains information about their character and behaviour (Figure 70). The participants are expected to take a moment to empathise with this role, and act according to this description during the game. Another change is the cards for the scenario. They no longer have full sentences, but they are now 'input cards' for the adolescent, and then they are all free to respond to that card. The input cards are displayed in Figure 71.

After this game is over, they read the reflection cards to have a conversation about the experience they just had and how it relates to their job or opinions (Figure 72). Figure 73 also shows that the rope is now thicker in comparison to the previous concept.
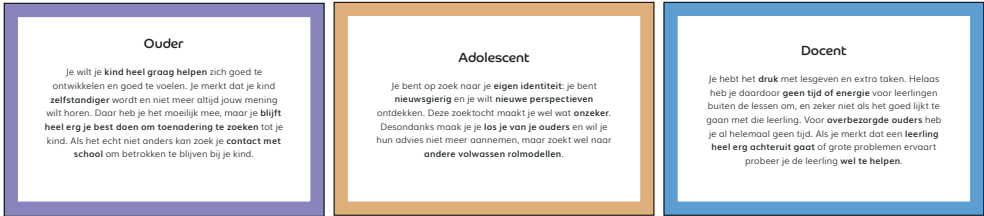

Figure 70. The descriptions on the role cards.

Figure 71. The content of the input cards.

Figure 72. The content of the reflection cards.

Objectives

- Does conversation emerge after this game and the reflection?
- Does the game principle with light guidance from the input cards work?
- Are the input cards appropriate as starters for the conversation in the game?

The setup

The participants of this test were design students. See Figure 72 for the setup. Not all participants were familiar with my project, so I first gave them a brief explanation of the subject. Then I gave them roughly this explanation:

"You may imagine that you are teachers at a secondary school. Today is a study day and this game is one of the activities. The rest should be self-explanatory, just let me know if there are any questions."

Evaluation questions

- What did you think about this? (role descriptions, input cards, reflection cards)
- How do you feel about this?
- Did it make you think?
- Did you understand the principle?
- Do you have ideas on what would make it better/ more intense?

Observations

- Reading the instructions is in silence and takes relatively long.

- In the beginning the teacher plays the role really involved, the participant actively seeks to strengthen connections, while that is not in line with the teacher's role description. About halfway through, the participant with the teacher role acts more distant. This is also the opposite of what the role description said.
- The adolescent acts passive after reading the input card, he/she does not really interact with the other two participants anymore. The participant also does not interact with the ropes to weaken or strengthen connections.
- The participants lay down the rope together when they weaken a connection. This implies that weakening the connection is a mutual decision. However, the intended interaction is that one person releases their end of the rope, while the person on the other end keeps holding their end of the rope.
  At the end of the game, the participants decide it is better when the adolescent
- and parent figure things out together before they involve the teacher. This is quite the opposite of the message I tried to convey.
  To improve the adolescent's situation when he/she is not doing too well in
- the game, the parent and teacher suggest to involve external people, with professional knowledge.
  While the game is still in progress, the participants have already started to
- discuss the consequences of certain actions. Also illustrated by this quote from the participant with the teacher role:

"It is quite dangerous when you isolate yourself."

Feedback from the participants

- The interaction with the ropes is really visual, which is nice. It is a new experience to actually see the connections and what happens to them.
- The participant with the adolescent role: it was unclear that I could also respond to the other roles after the input card.

Ideas for improvement

- Really take a moment to empathise with the role, maybe do a little exercise with it to better remember in the game.
- Introducing the setup of the game (who holds how many pieces of rope) in a different way, to ensure that all participants have a shared understanding of the purpose of the game.
- Using coins to further empathise the impact of connections. If you want to weaken a connection, it costs one coin, and if you want to strengthen a connection, it costs 2 coins. This 'paying method' illustrates the difference in time and energy it takes to weaken or strengthen a connection.
- Clarify that the input card the adolescent role reads, is only the start. After that, the adolescent role can also actively participate in the conversation and interact with the ropes.
- Use visuals in the explanation sheet to clarify that the ropes should be released by one participant, while the other participant keeps holding on to the rope.

Figure 73. Participants interacting with my prototype during the test.