MÕMMI: Enabling students to have mental support in stressful situations with personal objects

MA Degree Project Report

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Abstract

Approximately 10-20% of children in Estonia today experience mental health problems. In addition to that, the spread of mental health issues is rising. Half of the mental health problems develop by the age of 14.

My general goal was to lower the chance of this happening. With that in mind, my focus was on the prevention of mental disorders by enabling students to have mental support by practising good mental habits.

My research was conducted in parallel and in conjunction with the Estonian Public Sector Innovation Team (Innoteam) which is run under the Government Office. As an intern in one of Innoteam's project teams, I had weekly meetings with experts in the fields of government, education and health. I also participated in meetings with experts in other related fields like psychology, school management, etc.

Interviews and research put the focus on "enabling mental well-being in students through trustworthy relationships" but it was out of scope for this master's project so I narrowed it down to "enabling mental support in stressful situations with personal objects".

For the design artefact, I created a design concept with instructional assets for the teachers that enable students to find mental support in stressful situations while in school. It is highly personalizable and has a strong emotional aspect to it. With further testing and evaluation, this concept can become something that is part of students' everyday school life.

Kokkuvõte

Umbes 10-20% lastest täna Eestis kogevad vaimse tervise probleeme. Lisaks sellele on vaimse tervise probleemid tõusuteel. Pooled vaimse tervise probleemidest kujunevad 14. eluaastaks.

Minu üldine eesmärk oli vähendada selle tekke võimalust. Seda silmas pidades oli minu fookus vaimsete häirete ennetusel võimaldades tudengitele vaimset tuge läbi heade vaimsete harjumuste harjutamise.

Minu uurimus oli tehtud paralleelselt ja koos Eesti Avaliku Sektori Innovatsioonitiimiga (Innotiim), mida juhitakse Riigikantselei alt. Praktikandina ühes Innotiimi projektitiimides, olid mul iganädalased kohtumised oma ala ekspertidega nii valitsuse, hariduse kui tervise alal. Lisaks sellele osalesin kohtumistel ekspertidega teistelt seotud aladelt nagu psühholoogia, kooli juhtimine, jne.

Intervjuude ja uurimise tulemusel paigutus mu fookus "vaimse heaolu tudengitele võimaldamise läbi usalduslike suhete", aga see oli see oli selle magistritöö projekti skoobist väljas seega ma piirasin seda "vaimse toe võimaldamisele stressirohketes olukordades läbi isiklike esemete".

Disainiartefaktiks lõin disainikontseptsiooni koos instruktsiooniliste lisadega õpetajatele, mis võimaldab tudengitel leida vaimset tuge stressirohketes olukordades koolis olles. See on väga isikupärastatav ja tugeva emotsionaalse omadusega. Lisa testimise ja hindamise tulemusel võib sellest kontseptsioonist saada midagi, mis on osa tudengi igapäeva koolielust.

Table of Contents

1 Introduction

1.1 Starting point

The initial topic of 'child in need' or 'children's mental well-being' was suggested to me by my mentor Daniel Kotsjuba in December of 2020 and I took the offer in the second half of January 2021 to work with and alongside Innoteam on this matter. I had my doubts about changing my topic midway and working in a team while doing my degree project but I also had doubts regarding the broad topic of 'how to get more people to help each other?' that I had at hand. I decided to jump at the opportunity to work with experts in the field and have their knowledge at hand at all times and also work with the topics of education and mental health that are very important to me.

As this is a context-specific (related to students in Estonia) topic I will have some images with Estonian words on them but this is due to the nature of this project and I will describe what is said underneath the images if necessary.

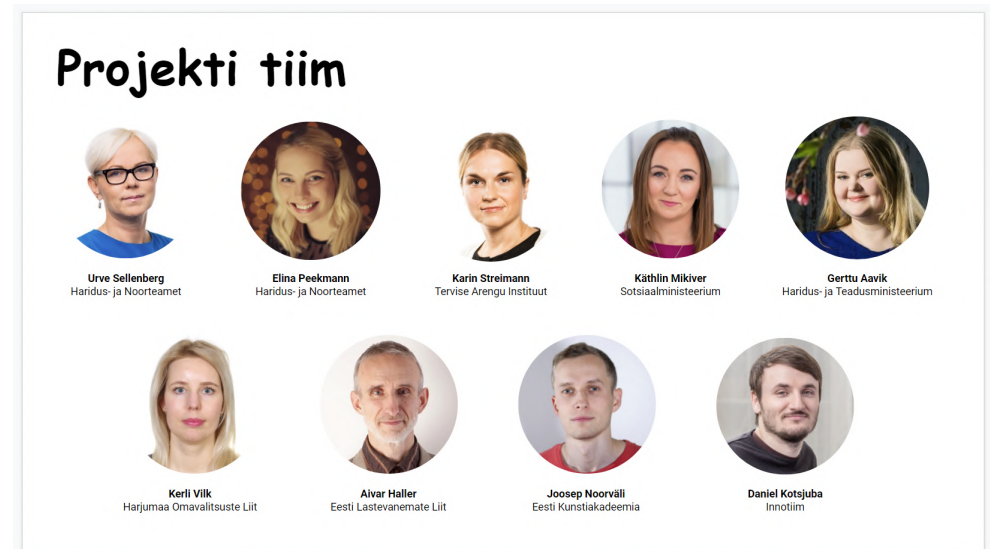**The project team I worked with:**

Figure 1. Screenshot of the Innoteam
(*from a presentation by Daniel Kotsjuba*)

Team members as seen on the screenshot:

— **Urve Sellenberg** - The Education and Youth Board (Haridus-ja Noorteamet, HARNO)

— **Elina Peekmann** - The Education and Youth Board (Haridus-ja Noorteamet, HARNO)

— **Karin Streimann** - The National Institute for Health Development (Tervise Arengu Instituut, TAI)

— **Käthlin Mikiver** - Ministry of Social Affairs (Sotsiaalministeerium)

— **Gerttu Aavik** - Ministry of Education and Research (Haridus- ja Teadusministeerium)

— **Kerli Vilk** - Harju County Local Government Association (Harjumaa Omavalitsuste Liit)

— **Aivar Haller** - Estonian Parents Association (Eesti Lastevanemate Liit)

— **Joosep Noorväli** - Estonian Academy of Arts (Eesti Kunstiakadeemia)

— **Daniel Kotsjuba** - Estonian Public Sector Innovation Team (Avaliku Sektori Innovatsioonitiim, Innotiim)

Working alongside Innoteam

I was there as an intern and worked as a full-fledged team member. In addition to my mentor Daniel Kotsjuba who led the Innoteam project as a designer, I was the only interaction designer in the team. The rest of the members were subject matter experts. In this paper, I will point out exactly what parts were done by me and what was the effort of the team. Throughout this cooperation, I worked on my direction and focus for the master's project (later) codenamed MÕMMI. For Innoteam, I provided my perspective as a designer, my expertise about design methods, helped to gather and organize research and to work through it and to collect insights from all the research we did within the team.

1.2 Personal motivation

Childhood motivation - mental health

My motivation to work with this project comes partly from my experiences in my middle school years. I have dealt with bullying and domestic violence at the same time and that led me to my first battle with depression. Although I managed to pull through, it is something that keeps coming back after a while. This is why trying to prevent mental health issues is the only way to go from my perspective.

Present motivation - education

At this moment, I am also very interested in education and learning in general because it is one of the core things in everyone's life. I have been teaching in the Estonian Academy of Arts for the second year now and this is my fifth year of studying there as I have also finished Graphic Design BA previously. I have experience with Tallinn University of Technology (TalTech) as well but it was short-lived. This has helped me to see and experience the differences between formal Higher Education systems. I also have my lived experience of the lower levels of the education system but this was the first time I was working with that part of the educational system directly.

1.3 Goals

As I did not have much knowledge about mental health issues and education in general my main goal being in Innoteam was to absorb as much knowledge as possible and pivot my focus from the team when I reached the point where I needed to pick a focus.

Some other smaller objectives/goals:

Personal
— Help the younger me.

General
— Create something meaningful.
— Help others on my journey.
— Learn something new.
— Finish the Interaction Design MA program.

1.4   Meaning of project–related terms

Throughout this report, I will be using some important terms related to this topic of mental health and my project in general and I will describe them here. Those which I got from outside sources have references.

Child in need

A child that needs outside help from someone or something else for their (mental health) problems.

Mental well-being

Having a balance between key aspects of one's life. Aspects like socializing, diet, rest, exercise, work, relationships etc. (combined from answers from user research and Innoteam discussions)

Supportive factors

Properties that enable the desired situation to occur. (e.g. you have friends so you have higher mental well-being.)

Risk Factors

Properties that influence the desired situation in a negative way. (e.g. you have no friends so you have lower mental well-being.)

Anxiety disorders

Anxiety is the body's natural reaction to stress. Like taking a test and feeling anxious is unpleasant but may motivate you to work harder. In case of a disorder, it might be debilitating and you won't even be able to write anything (Healthline, 2018).

Depression

Depression is a common and serious medical illness that negatively affects how you feel, think and act (American Psychiatric Association, 2020).

Mood tracking

Taking note of your mood each day on some scale (e.g. Green=Good to Red=Bad or 1-10). There are paper forms and apps that do this.

Mnemonic device

It is a learning technique that helps you remember and retrieve information. (e.g. ABC song). (Wikipedia, n.d.)

Prospective memory

Form of memory that involves remembering a planned action or an intent to do something at a future date. Prospective memory tasks range from mundane to life-and-death situations. (e.g.

remembering to close the door and fire escape procedure)

(Wikipedia, n.d.)

Anchoring

Is adding or having triggers to that bring about a certain behaviour or desired response (Institute for Cognitive Behavior Management, n.d.),

The Whole-day School (Kogupäevakool)

A type of program to extend the school and school day to incorporate hobby education within the school space (Pärismaa, 2017).

2 Background

2.1 Current state of things

Approximately 10-20% of children in Estonia today experience mental health problems. In addition to that, the spread of mental health issues is rising. **Half of the mental health problems develop by the age of 14** and 75% before the age of 24 (Estonian Ministry of Social Affairs, 2020).

Most prevailing mental health problems in Estonia (Estonian Ministry of Social Affairs, 2020):
— 5-14-year-olds: behavioural disorders (**32%**), attention and hyperactivity disorders (**22,7%**) and anxiety disorders (**22,6%**)
— 15-19-year-olds: anxiety disorders (**18,5%**), behavioural disorders (**17,3%**) and depressive disorders (**14,9%**)

Negative moods
— Around **33%** of youth have experienced **sadness and depressive moods**.

— The mental health of 13-15-year-olds has significantly worsened, whom which **every fifth has thought about suicide** (Mental Health Green Book, 2020).

Intentional self-harm and suicide
Intentionally has harmed themselves approximately a third of Estonian students (32,9%), which is higher than the European average of 27,6% (Eesti-Rootsi Vaimse Tervise ja Suitsidoloogia Instituut, 2015).

Internet addiction
Approximately **half of 11-15 year-olds spend 5+ hours in front of the screen on schooldays**. Continuous usage of electronic media shortens sleep on school days and longer screen time affects students mental health, well-being and studying (Mental Health Green Book, 2020).

So there is plenty to do in the realm of prevention by working on reducing these numbers.

3 Design approach

One of the most important design approaches I got from my formal study in the Interaction Design program was to go in not deciding on anything beforehand. I found it to be a good approach when the topic isn't super specific and you do not have expert information about how to solve the topic. This is the general design approach I used for this project.

3.1 Methods

Double diamond

I decided to follow a similar path with Innoteam in regards to the design method and use the Double Diamond method that was initially developed by the Design Council (Design Council, 2004).
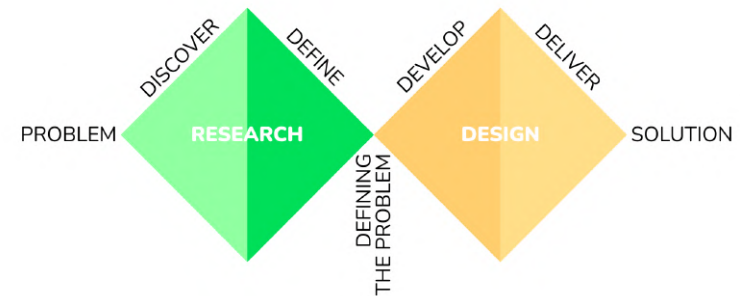

Figure 2. The Double Diamond. (concept by *The Design Council*)

The Double Diamond method comprises of four distinct stages:

1. Discover

The first stage was to go wide and understand the topic by reading about it and speaking to people that know or are affected by the topic. I learned about the children's mental well-being through desktop research and doing interviews with stakeholders (students, parents, teachers) and also experts in the fields (government and education). I learned about how they see mental well-being and what they know about it.

2. Define

The second stage was there to narrow down the topic by going over the insights gathered in the previous stage and define the problem or find the focus going forward. I grouped the insights and put them on the individual, intrapersonal and structural levels.

3. Develop

The development part was for collecting as many ideas as possible and prototype some of the better ones. For this, I did ideation with fellow designers but also got to use up all the brainpower in the Innoteam.

4. Deliver

This part was to go forward with a few ideas to test them out with the focus group, iterate on the ones that work and continue developing them until they become a solution. I spent the least amount of time in this stage as I got to it rather late but I will be doing it in parallel with Innoteam until the end of their project.

Semi-structured interviews

For user research and expert interviews, I used semi-structured interviews as they allow me to have some questions prepared but also to go into topics that are loosely connected to find fascinating and more valuable aspects of the problem as they enable finding novel and relevant directions that are unexplored.

Prototyping

In my view, this is a form of ideation by creating something. I find this phase to be one of the most insightful as it enables research by designing and possibly also work with my hands. I used it to explore the direction I got after the discovery phase.

Workshop

A workshop is an event where people are engaged in some pre-planned exercises to achieve a certain goal or work together towards it. I used it to engage my target group and have their ideas and experiences also be reflected in the designed artefact.

Socio-ecological model

For organizing user research and looking for points of interference, I used the socio-ecological model — a simplified version with 3 levels instead of 5 to understand what is on the individual, on the interpersonal (microsystem) level and what extends beyond that.
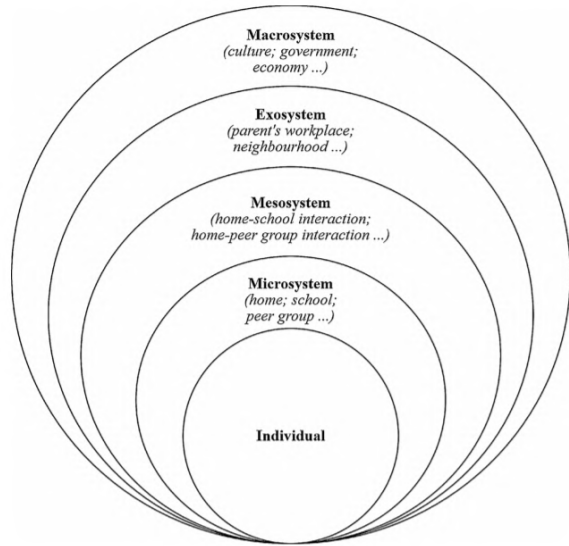
Figure 3. Socio-ecological model. (Aldridge, McChesney, 2018)
(based on Bronfenbrenner, 1994; Garbarino, 2014)

4 Research

4.1 Scope

Target audience

I chose to focus on Estonian students, aged 10-17, as this was the age group Innoteam and I had conducted studies through interviews and focus groups. I also did a workshop with the same focus group participants.

Theme

This project's main theme is mental well-being and the prevention of mental health problems. For this, I looked into the topic of mental health support theory, where to get mental health help, how stakeholders see the current situation and from what vectors I have the ability to get to test my design concept.

But I also looked into what good school programs are out there, mood tracking, tricks for mental well-being, anchoring, etc.
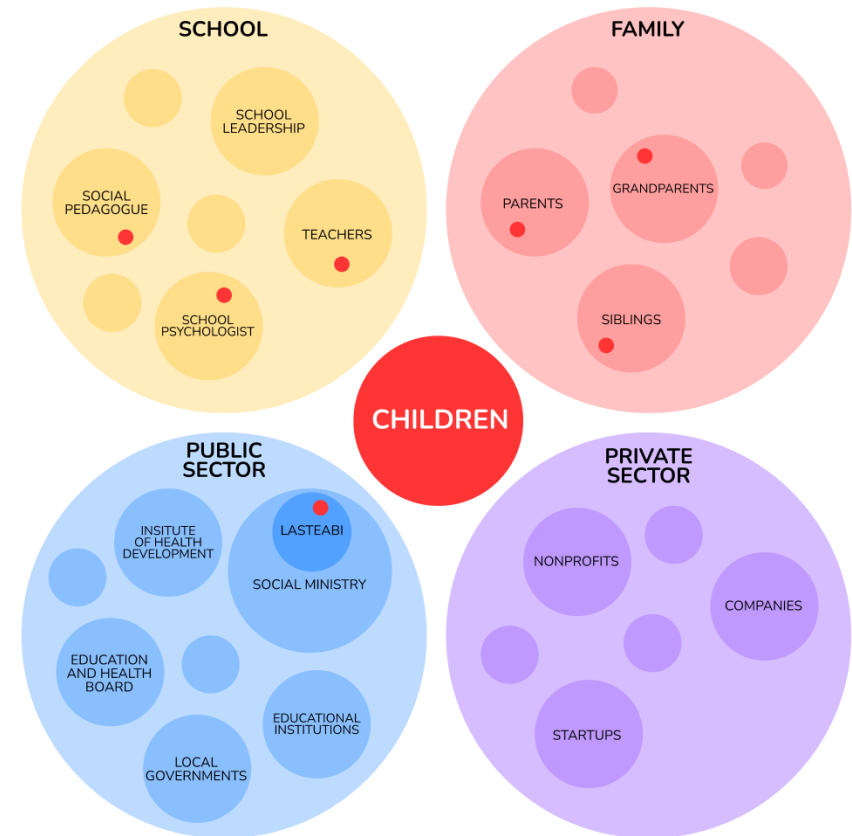
4.2 Desktop research

Stakeholder mapping

Figure 5. Simplified stakeholder map for children in need.
(Red dots mark where children know to get help from that came from the user research)

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Generally speaking, everyone is a stakeholder as children are the future. As this is connected to Innoteam which is run under the Government Office, there was a long list of public sector stakeholders that came with the initial Innoteam project documentation that I simplified heavily for the stakeholder map. Honourable mention goes to Rajaleidja which is run by the Education and Youth Board and provides simple material to find mental help.

Mental health determinants

There are mental health determinants that benefit or inhibit mental health. These determinants can be summed up by this table (Noorteseire, 2020):

MENTAL HEALTH DETERMINANTS	MENTAL HEALTH SUPPORTIVE FACTORS	MENTAL HEALTH RISK FACTORS
INDIVIDUAL LEVEL	Positive self-esteem Good coping skills Good family relationships Social skills Good physical health	Low self-esteem Low self-efficacy Poor coping skills Insecure close relationships in childhood Special needs (developmental/educational)
SOCIAL LEVEL	Good experience from early relationships Supportive and caring family Good communication skills Supportive relationship network A sense of belonging Participation in community activity	Abuse and violence Divorce and loss of loved one Lack of friends, exclusion Social isolation
STRUCTURAL LEVEL	Safe living environment Financial safety Good educational experience Employment Access to support services	Violent, crimilan neighbourhood Poverty Unemployment or economic insecurity Homelessness Social or cultural discrimination Inadequate support services

Figure 6. Mental health determinants.

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Positive childhood experiences also help to reduce the effects of depression and/or poor mental health in adulthood (Bethell et al., 2019). There is overlap between the previous table and the list, but that only reinforces these points.

Some of these positive childhood experiences are as follows

(Braman, 2021; Bethell et al., 2019)

— Ability to talk with family about feelings.
— Felt experience that the family is supportive in difficult times.
— Enjoyment in participation in community traditions.
— Feeling of belonging in high school.
— Feeling of being supported by friends.
— Having at least two non-parent adults who genuinely care.
— Feeling safe and protected by an adult at home.

Good school programs in Estonia that support mental health

VEPA Käitumisoskuste Mäng (Good Behavior Game, GBG)

VEPA is a set of methods and instructions to help teachers (and also students) to encourage a positive and supportive atmosphere. There are tools with names like 'hand signals', 'name sticks', 'timer', 'vision', 'praises', 'grandma's tricks' and a harmonica is used to get children's attention.

Kiusamisvaba Kool (KiVa Antibullying program)

Focuses on prevention, intervention and monitoring of bullying. There are KiVa classes and web games.

Liikumakutsuv Kool (Inviting-to-move School)

A program that encourages moving in every situation: in classes, at breaks, when coming to school and in school. From movement breaks to active learning to biking to school.

Tallinn University Meie Maailm program (Our World)

Set of games for 2nd-year students that the teacher can use to improve the learning experience. These games include listening to the radio, character drawing, social interaction cards, etc.

Tallinn University Tuleviku Kool (Future School)

The steps for schools that join this program are:

— choosing topic based on student needs
— directing change a team of teachers and leadership
— collect data and analyze the process with the support of the university

— create new solution and methods together

— learn from the experience from other schools

4.3 User research

Interviews

The general questions for interviews were created together with the Innoteam as the interview questions for children needed to be evaluated and confirmed by the Ethics Committee. It was a rigorous process of fixing oversights within the questions as well as the consent forms for their parents. We also consulted with experts within the mental health sphere to know how to approach children when doing these interviews.

The focus of the interviews was primarily on the children (and youth) and how they see, feel and experience the world. As children grow up in different environments, be it a family, kindergarten or school they learn valuable social and behavioural skills. They develop through relationships with other people.

What was under interest was what makes them sad, what makes them happy and how they are doing. To extend that we also tried to get an overview of how teachers and parents see the children's well-being and mental health.

In conjunction with the Innoteam, I found and interviewed a parent and a teacher and did a talk about moods and feelings with my nephew. I also observed focus group interviews that were conducted by Aivar Haller and Daniel Kotsjuba.

In total, the Innoteam did a total of 22 individual interviews (my interviews included) and 2 focus group interviews — one with 10-14 year-olds and the other with 15-17 year-olds. I had the opportunity to observe one of the focus groups and do the transcription and organizing of notes for the other one. From my observations, the students present were very well-spoken and willing to share their stories quite openly. They also had some good suggestions on what to do next in the project. From collecting experience stories to showing what they can do themselves.
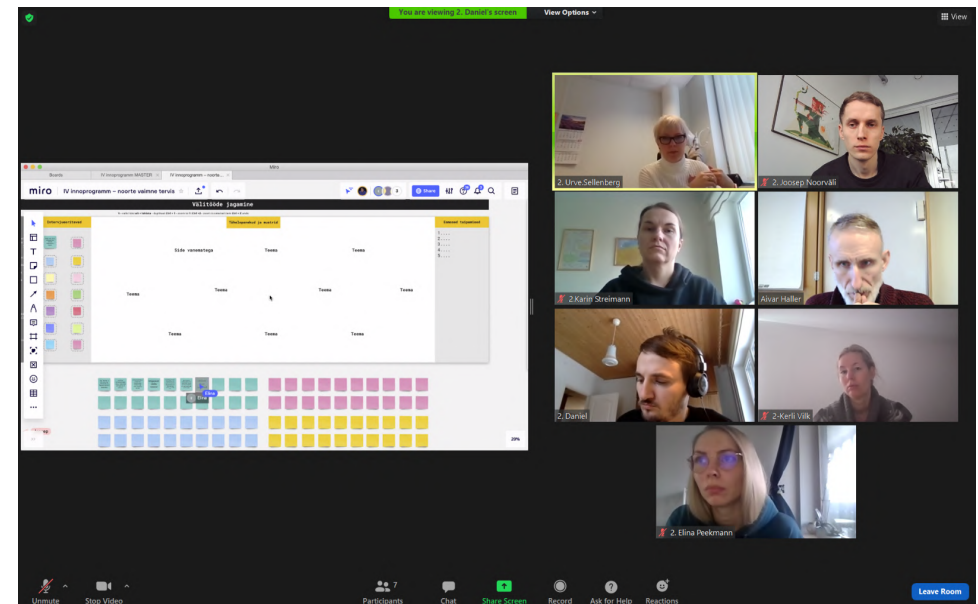
Figure 7. How the Innoteam meetings looked like.

In the meetings where we shared the interviews, we had 4 roles. One talked about the interview, the second one wrote down notes, the third one organized the post-its onto the board and the rest listened and tried to find something new and interesting within the interviews. I managed to go through all the roles a few times. This process continued for a few weeks until we had done enough user research for all the user groups (children/parents/teachers). After

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sharing each interview many insightful conversations enabled the insights to bubble up while the process was happening rather than just coming to them after this research stage of doing the interviews was over.
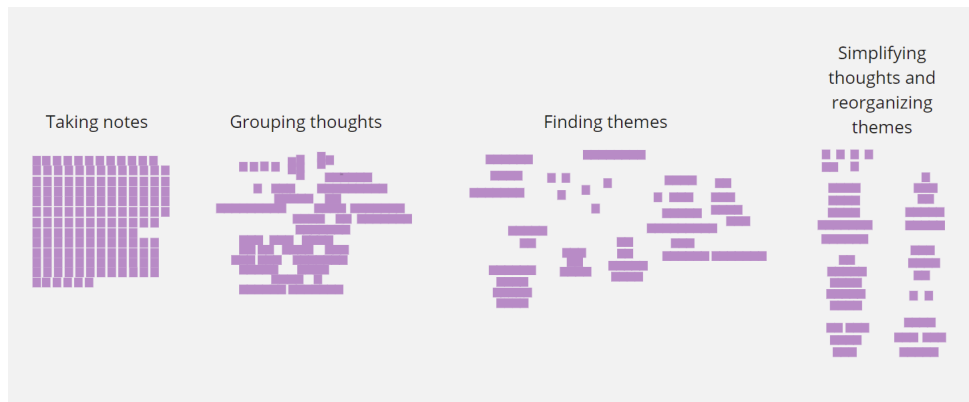
Figure 8. How I worked through my interview notes.

I worked through my interviews in stages. First I transcribed it on post-its in Miro. Then I grouped the post-its into stories. After that, I grouped the stories into themes and as a final step, I simplified and shortened the stories a bit and reorganized them to be ready for putting on the board.

Figure 9. Organized teacher interview notes based on an example and the socio-ecological model.

One of my tasks in Innoteam was to organize the teacher's board to be ready for insight finding and creating personas. Going through all the teachers' interview notes was quite a time-consuming task as I needed to re-evaluate long-forgotten post-its and their themes.

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The bird's-eye view I got by working through all of them was priceless though.
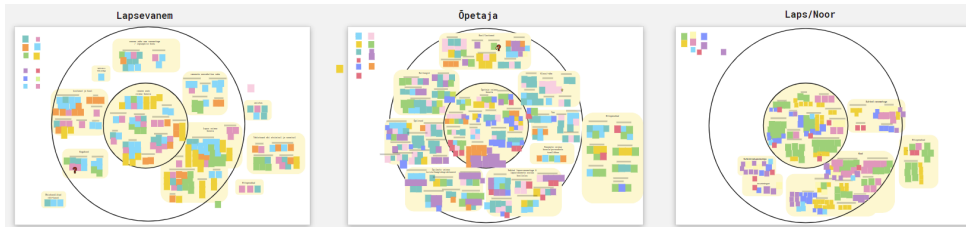
Figure 10. Parent, teacher and child interview note boards.

4.4 Insights
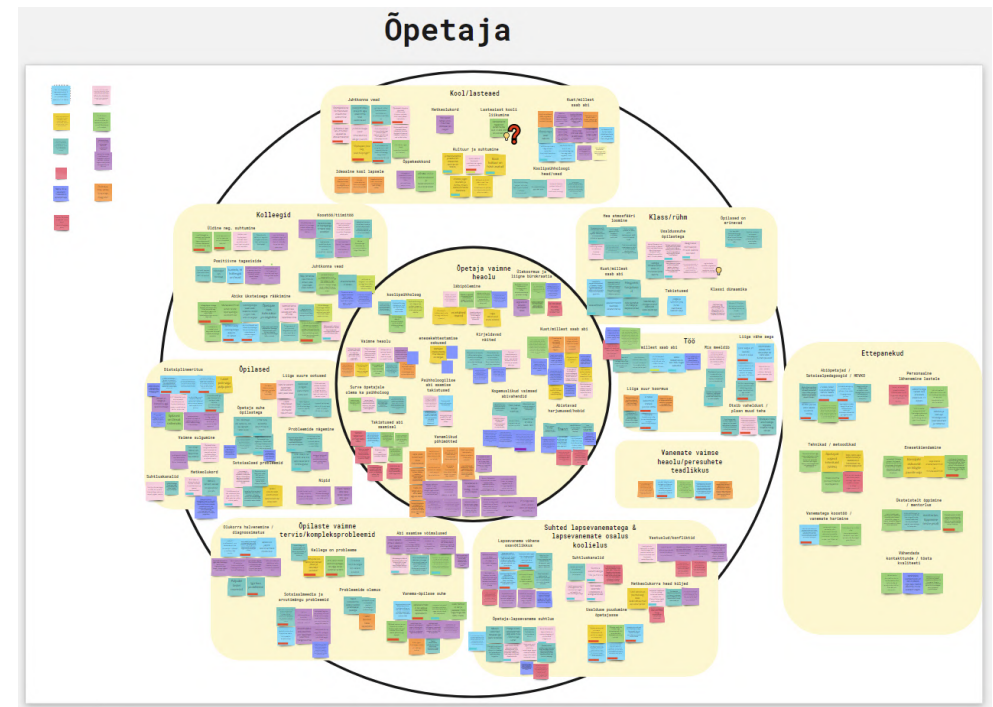
So what influences children's mental well-being? To bring this out I will show personas we developed in Innoteam and provide some quotes and themes. The underlying theory was mainly provided by Karin Streimann who created these divisions from parental models for the parent and the teacher. The personas themselves are not your traditional personas but more like "stages of development" or "states of being". A parent or a teacher can be in one state in one situation or one time and another state in another situation or another time. This can be influenced also just by stress.

Children

The 2 "personas" or just "states" of "a happy child" and "a sad child" were a good simplification to have when I was going forward as they provided a clear cut view of what to increase and what to decrease. As every child is unique the thought of defining personas on the select few children we had as personas instead of these 2 states was not an applicable one.

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Figure 11. The child's states of being.

Main themes and insights from childrens' interviews:

— **Distance learning**

This was brought up by the children as one of the main things influencing them in a bad way right now. COVID-19 and its limitations regarding both their school and home-life. Also, they can't see their school friends that much. There is more schoolwork in some cases as well.

— **Relationships with their parents**

Children are also highly influenced by the stresses and moods of their parents. They are also the children's primary person of trust, but not always. As their parents are working from home, together with the children, it brings about even more stress, conflict and bad moods within the family.

— **Their teachers**

Children pick up on the mood of the teacher as well. And this influence goes both ways. Children also brought up in interviews that they like when teachers know how to teach well, explain how to learn something and give tips. Students don't trust their teachers much with mental health issues

— **School environment**

Children like that they can meet their friends in school. That is the main reason they want to go to school. Children want the lunch break to be longer and to have more space and time to play.

— **Relationships with peers**

Children are concerned that they would not see their friends anymore if they finish school. Also mentioned that friends are

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more close to them than some family members.

— **Obstacles when finding help**

There are plenty of avenues for the children to get help from but there is a lack of knowledge and trust. Knowledge of all the avenues plus what calling a helpline or going to a psychologist means and what happens next. The trust is limited to a selected few within the family circle and a teacher or two. Also, children talk to specific people based on the problems. Sometimes they can't talk to their parents about family issues.

Parents

The parents are divided into scales of "how demanding they are" and "how supportive they are". Being demanding is wanting their child to do well in school and life while constantly adding pressure to the child. Being supportive is how much help they provide along the way.

An **authoritative parent** may be very demanding but they are low on supportiveness. So they might require you to act or behave in some way but provide little or no help.

While an **open and adaptive parent** is very supportive while also being demanding a lot from the child. This is a more balanced approach to being demanding as it enables the child to also ask for help.

A **non-committed parent** is someone who is both non-demanding and non-supportive. They would say that the child grows up on its own and they don't need to do much of anything.

And an indulgent **parent** is supportive but non-demanding. They provide the child all the support they need but do not require the child to have any goals to strive for.
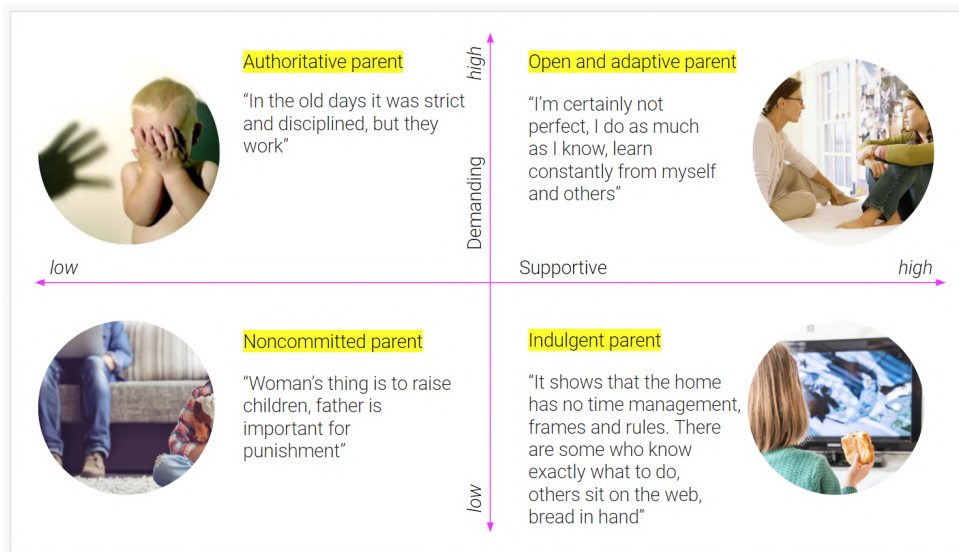
Figure 12. The parent states of being.

Main themes and insights from parents' interviews:

— **Childhood home**

Parents own values and beliefs are developed in their own childhood homes. So this is where they somewhat get their understanding of how to raise a child, how to address mental health issues and how to create mental well-being.

— **Relationship between spouses**

Parents also need to take time for their spouses and talk to them about issues when they arise. Single parents need to have a good relationship with the other parent as well to influence children's mental wellbeing.

— **Children's mental health**

Parents see it as being rather good but worsened due to COVID. They essentially talk about how bad their situation is through their child or their child talks about how bad their parents' moods or stresses are.

— **Kindergarten and school**

Parents noted that there are big classes and a lot of noise sometimes. They also don't understand why teachers sometimes use candy to get students to behave or other methods that have unclear reasons.

— **Community**

Parents value the community as an avenue where to learn about how to raise a child. They use social learning to learn from examples other parents have done. They also learn this through social study groups where a trainer can be there to

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guide a situation through.

— **Obstacles when finding help**

Parents do not usually say they have bad mental health so this is the main barrier to having a conversation with them about mental health.

Teachers

For the teachers, the two scales they are divided upon are "self-efficacy" and "subjective well-being". Self-efficacy in this case means their ability to lead the class. Subjective well-being means how they see themselves or feel about how they teach or manage the class.

So an **overworked teacher** can be both high on self-efficacy as they are capable and knowledgeable on the best ways of teaching children but low on subjective well-being as there are just too many children and not enough time to do their best for every child.

An **open teacher** is both high on self-efficacy as well as subjective well-being. They can teach well without being overworked as they also often have a smaller class somewhere in the smaller towns.

While a **burnt-out teacher** is someone with low self-efficacy and low subjective well-being as they have given up on and are not able to deal with both the stresses and the class overall in that situation.

An unsure **teacher** is someone with low self-efficacy but high subjective well-being as they are incapable of managing the class well without punishment they still feel good about their actions and capabilities.
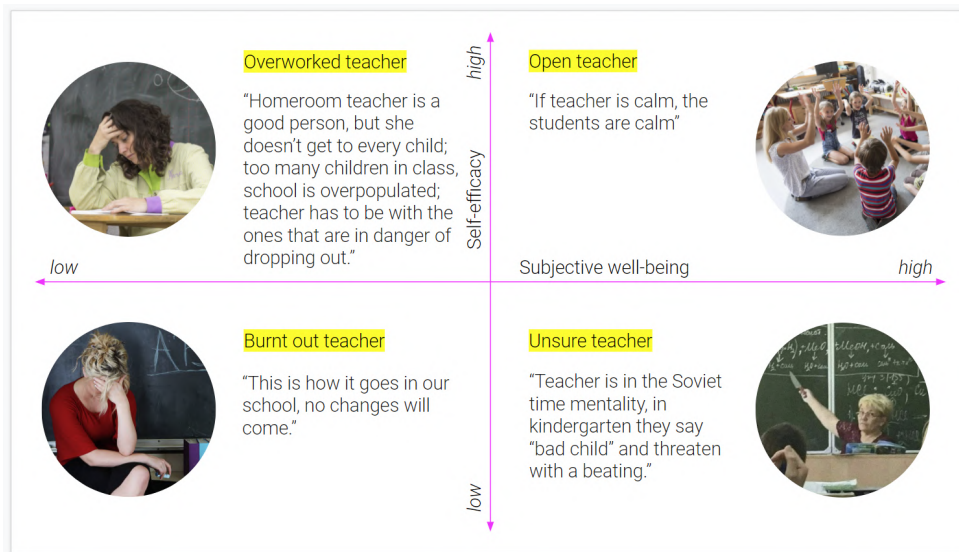
Figure 13. The teacher states of being.

Main themes and insights from teachers' interviews:

— **Colleagues**

This is the core to the teacher's mental health that the collective is working well together. Teachers said they find help and support in their colleagues and can vent in the teacher's lounge while on break.

— **Children's mental health**

Closely related to the teacher's mental health as most often than not they are teaching because of the children. They talked about how children's mental health is mainly related to relationships and social issues.

— **Relationship with parents**

Teachers and parents need to get along and work together to boost children's mental well-being. They mentioned that it is quite hard for some parents to get along. The same was for parent's talking about teachers.

— **Kindergarten's / school's leadership and structure**

The leadership culture needs to be such that the leader would show weakness if necessary thus creating an environment where teacher's feel they can go and talk about their problems. Even to the support person meant for teacher's to go to if they have mental health problems.

— **Teacher's class or group**

The workload was the main concern related to the teacher's

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class/group size. Also, that certain students take most of the time out from others, so there is very little time for the rest. They expressed the need for an assistant teacher or social pedagogue. A good atmosphere in class is dependent on the abilities of the teacher.

— **Obstacles when finding help**

It is still somewhat of a taboo to go to a mental health professional and there is often a lack of support for

4.5 Focus

The Innoteam ended up focusing on "good relationships". The initial wording was also focused on the trust part of a relationship. There is where the word "friend" also comes from on the figure as it describes a good trustworthy relationship.

The core of the focus is figure 14. In a school environment, children have these 3 relationships that enable them to be happy.
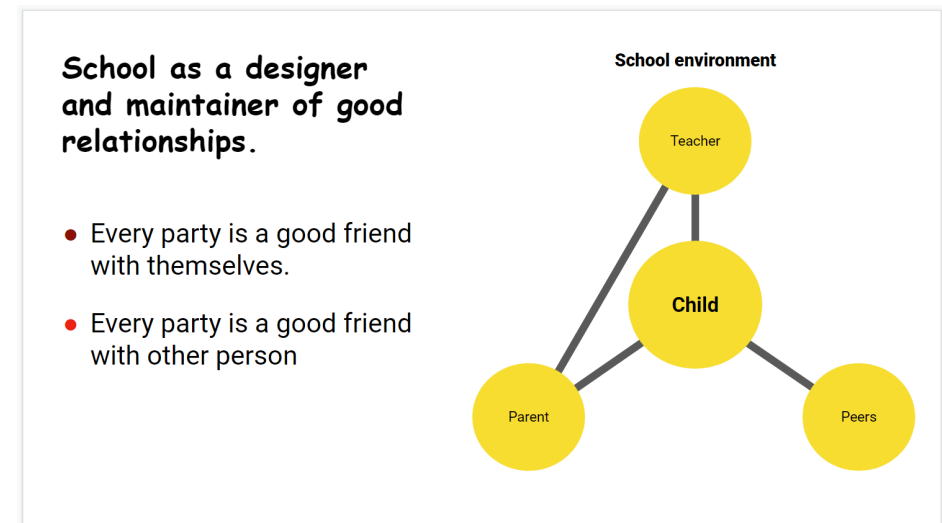
Figure 14. The support triangle of a student.

I found this focus to be too wide as it can be anything and everything at the same time. It enables you to focus on any of these parties but also doesn't focus enough to be able to go wide in the next stage. For a systemic change, this kind of focus might be good to not forget the important parts but it was way out of my scope.

I ended up focusing just on the children and the relationship part at this point and was trying to focus even more.

5 Concept development

5.1 Ideation

I collected my ideas throughout the process just to see if anything makes sense after the research is done and also worked through. Ranging from a youth party that caters to those that can't vote yet to donating mental health.

Figure 15. My best ideas from the idea parking lot.

Ideation with Innoteam

There were 2 sessions done by Innoteam. One within the Innoteam and one with the extended group of the Innoteam who are working on other projects in parallel to the 'child in need' team where I am. In that event, there also was an audience so approximately 150-200 people were at our disposal.

Our internal and external ideation both were conducted using thinking caps. A thinking cap is an ideation method that puts you in a different role, for instance, "the Chinese government" where you have infinite resources and rule of law to make changes and with that in mind, you propose ideas. This is a modification of the original method that enables focusing on different parts of the problem using different types of thinking hats. (de Bono, 1985)
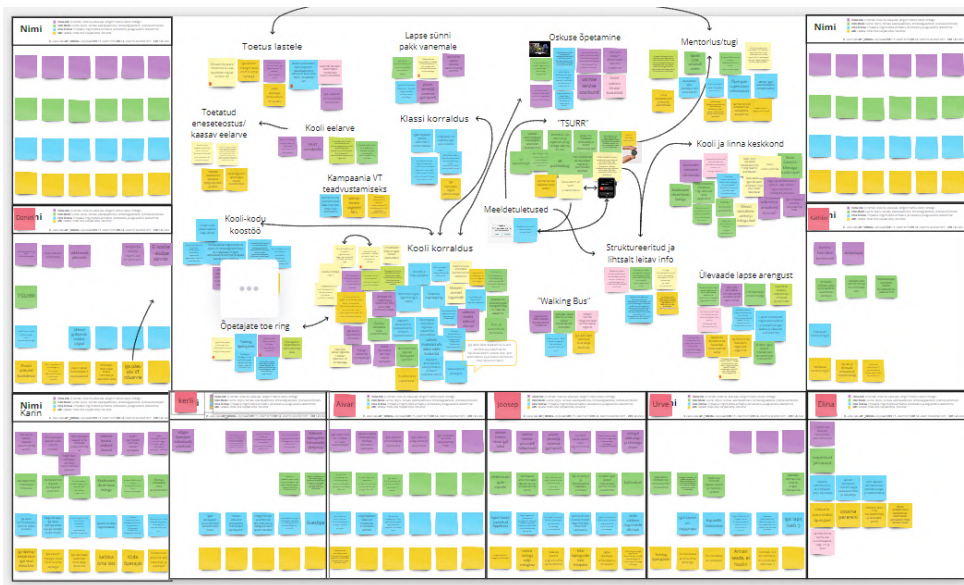
Figure 16. Initial ideation within Innoteam.
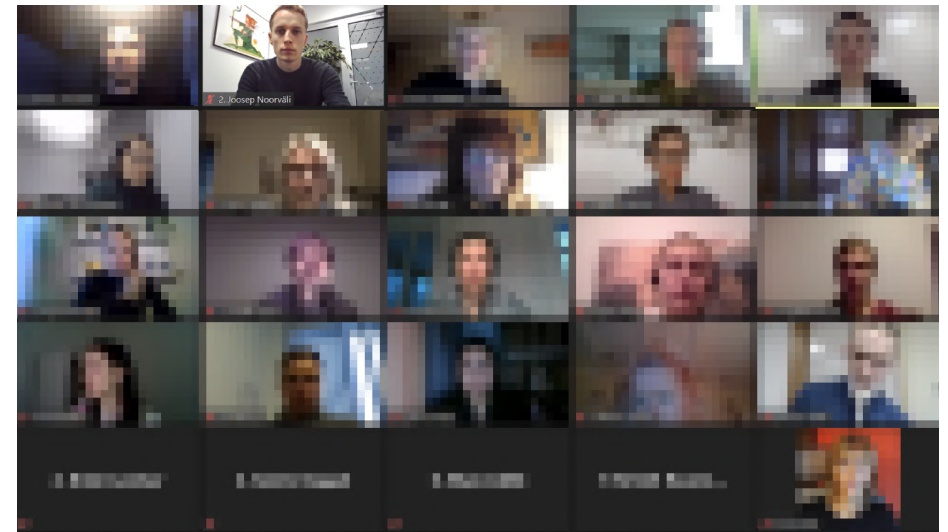
Figure 17. The extended group of Innoteam working on different topics sharing progress in 50+ person meetings.

We ended up with hundreds of different ideas from different ideation techniques and different sessions and different inputs and made these into a large board to combine ideas and all this input.

For my evaluation I used Notion to write down notes of the directions that sounded most promising and here is the list that I will briefly go over as well.

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Figure 18. Ideas from the extended group of Innoteam.
(done with the thinking caps method and Google Sheets.)

Figure X. Screenshot of idea evaluation from my Notion page.

The most promising ideas through Innoteam and my input

— 3rd parent OR (mental health) support person for every child.

— Mood sensors

— Bring Mindfulness to schools.
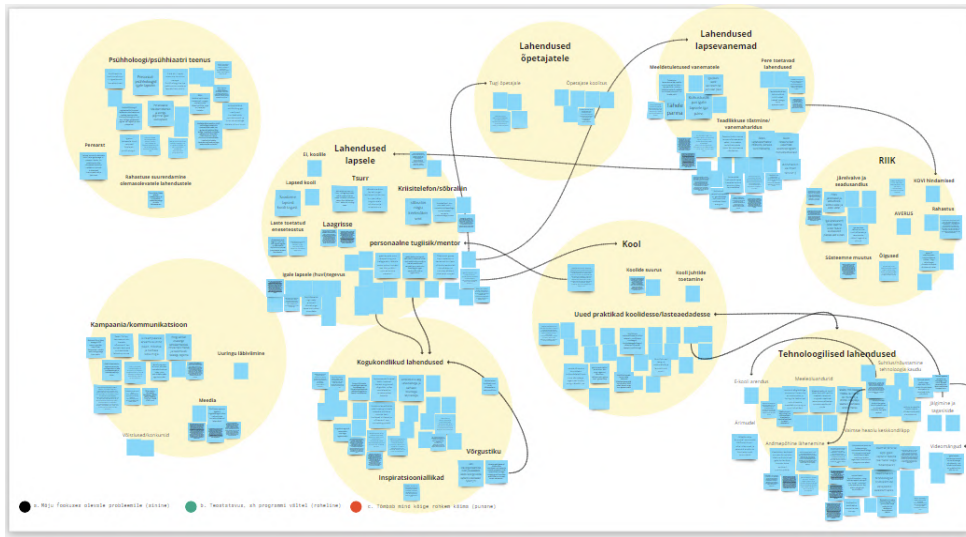
— Network the mental health organizations.

— Experience stories/counsellors

— Continuous education of parents (like there is before birth but extended even after child becomes teenager)

— Improve connection to nature

— Education through computer games (Roblox, Minecraft, Fortnite etc.)

— Weekly satisfaction/mood survey in schools

— Donating mental health

Ideation by fellow designers

I also did ideation with my peers from the Interaction Design curriculum after one of the checkpoints we had. I ended up sending out 19 invitations to a Google Form that had the description of the exercise and ways for them to send me their input (both in text and image form). I also created design principles to help them out with

their ideation. Design principles are a tool in a list form to simplify understanding of a topic to a few simple guidelines based on interview insights that enable to reduce the cognitive load (Interaction Design Foundation, n.d.). I also gave them a refocused How Might We (HMW) question of "how might we provide children trustworthy relationships that enable mental wellbeing?" and that became the problem they were trying to find solutions to. A How Might We question helps to find many creative ideas as it is an open-ended question with enough focus and is based on the insights I had from the interviews (Nielsen Norman Group, 2021). I used Google Sheets to collect the input and gathered a different perspective on my project.

The design principles:

— **Provide self-regulation/self-assessment.**
    (To empower children to take care of themselves and be able
    to provide support for others)

— **Enables aid from others.**
    (Builds a community that can notice and provide support
    when necessary)

— **Doable within the timeframe and the means.**
    (That creating the practical component is possible and it
    provides real measurable value)

— **Personalised for every child.**
    (Every child is different and every problem is context-specific
    as well, so this needs a level of personalization)

— **Creative approach.**
    (Personal requirement, as it keeps me in the process and
    enables me to not get stuck)

As the ideation with my fellow designers was remote and passive with no enforcement only 3 out of 19 people responded. But it was enough to open up new doors. I also got confirmation of some other ideas that were already written by the extended group of Innoteam. The ideation technique I used was The Crazy 8's. It is a fast and visual technique that enables you to get the first and most ridiculous ideas out within a very limited timeframe of 1 minute per idea (Design Sprint Kit, n.d.).

Figure 19. The Crazy 8's by Nata Kostenko.

Figure 20. Some better ideas from my coursemates.

Donating mental health

This idea essentially boils down to giving your time for the benefit of someone's mental health. I liked this idea so much that I ended up trying out job shadowing and letting students shadow me in April. It was part of the Back to School program (Tagasi Kooli) that had this job shadowing month in April and I ended up having 15 of my 15 proposed job shadowing times filled quite quickly but a few forgot and a few overbooked so I ended up only having 9 job shadows. They were all hour-long sessions as prescribed by this job shadowing project.

What I learned was that the students have quite different situations that stress them out. One mentioned a situation where they felt pressured to do what the group was doing and usually they try to work through the problematic situation themself. Another mentioned they had trouble being motivated to do something (which is also very normal).

I also did some of them just with the focus of benefitting the student's mental health as there were few determined to study art/design afterwards and this is where the value lied in those job shadowing sessions.

5.2 Initial prototyping

"Don't tell us where to go for help, rather tell us what we can do for ourselves to feel better"
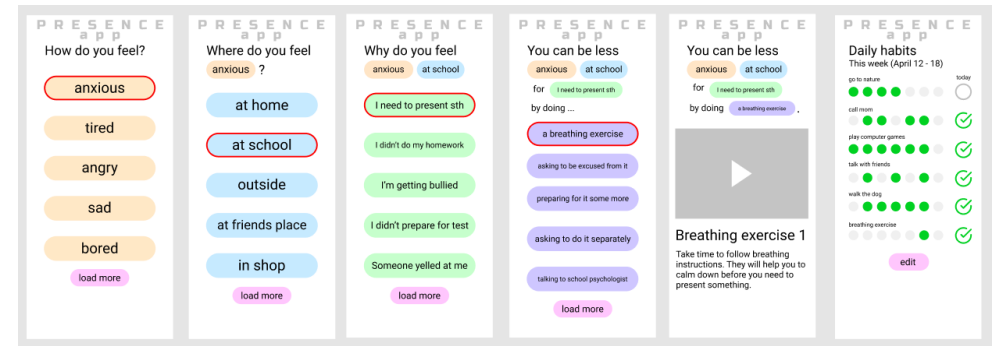
  - a focus group participant

Figure 21. My initial prototype.

I went In the direction of having students be able to do something themselves and I went with mood tracking. From the ideas it connected well to going to nature, meditation, mood sensors/surveys, having support for every child, building trust, defining what is normal, what can a child teach a parent and also networking mental health organizations.

I started with the idea of mood tracking also because it enables the students to simplify their feelings and act upon the feelings themselves. I tried to create steps where the student can describe a situation and choose an activity they want to try out to mitigate this feeling. This form of prototype allows students to build good mental health habits and observational skills for their feelings.

I started with the question of 'How do you feel?' and then the app provided commonly chosen answers to that question from a pool of negative emotions, then asked for a location, reason and provided a list of helpful activities that the student can do in the situation. This is then added to the list of already chosen activities for other mentally challenging situations you have used this app for. All to build a list of good habits to bolster your mental well-being.

Right after this, I had one of the feedback meetings with supervisors who gave me direction to alternatives and different technologies so I went a bit wider.

5.3 Analogous examples

As I had already briefly looked into mood tracking I went in and looked for examples already on the market. One of the most similar to my initial prototype was the Daylio app which had the general components of what I wanted to do but also some weird ones like Tarot Cards, ads and bad usage of gamification.
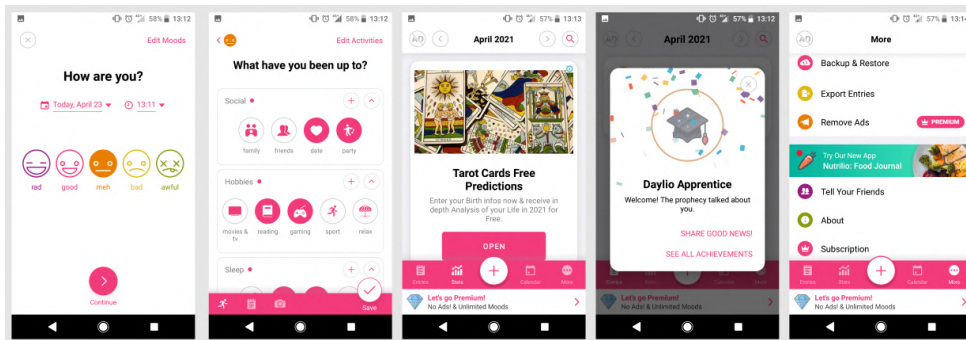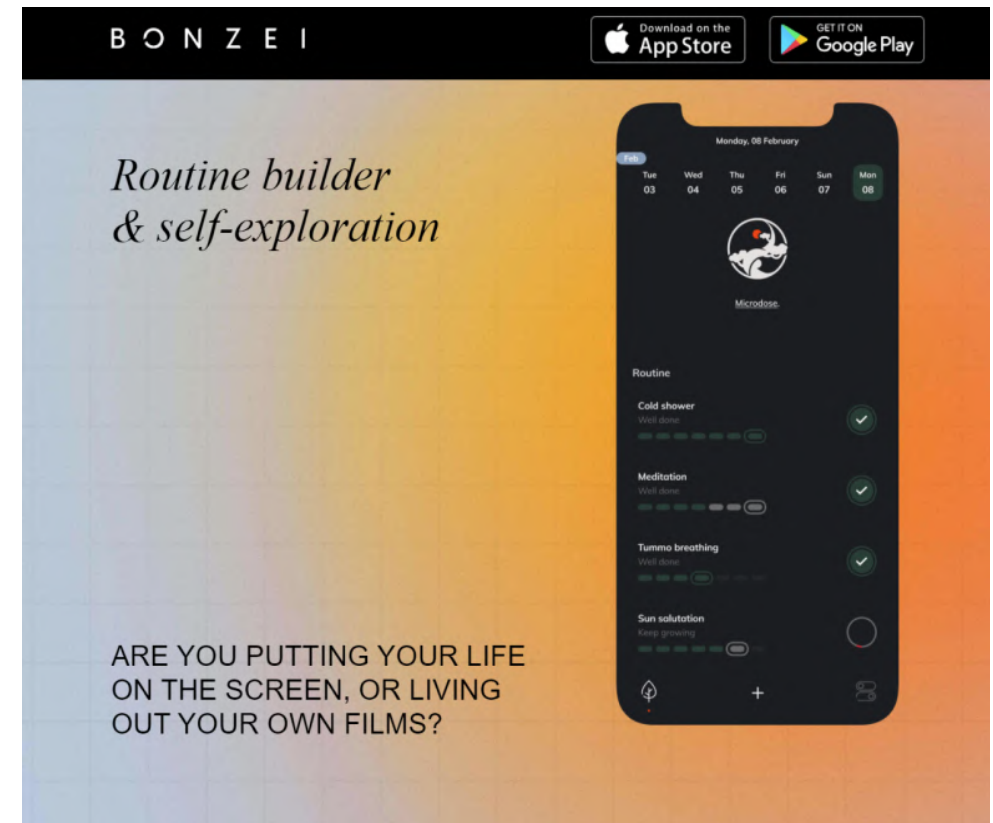

Figure 22. Daylio app mobile screens.

Figure 23. Screenshot of BONZEI app website.

Another example was BONZEI which was similarly a routine or habit builder but felt more like a cool lifestyle app than a meaningful tool for building good mental health habits.

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A more promising direction that I liked was the paper-and-pen direction of these analogue mood tracking examples ranging from simple tables and squares you colour in, to doughnuts and jellyfish that you can colour with many colours to show the variety of moods within a day. Although these mostly did not provide any actions you can take or knowledge on how to deal with bad moods they still give a nice overview of how you are doing.

The app Urbanmind is in its core a research app for the Institute of Psychiatry in King's College London but provides a good way for people to use it to explore their surroundings and connect it to how they feel. It did assessments of participants and collected both visual and audio data that the users recorded. I would say the green pictures make me quite a bit happier compared to the other colours (one of their insights as well).

Figure 24. Collection of analogue mood tracking examples I googled.

Figure 25. Collection of shared images on Urbanmind app. (Photo from urbanmind.info)

I would say that Vroom is the most simple and most actionable app I encountered that provides tips as simple as "read a bedtime story". Although these tips are meant for the parent of a 1-5-year-old child, it is addressing two core issues — the connection between parent and the child and the education of the parent on how to bring up a child that will have good mental health.
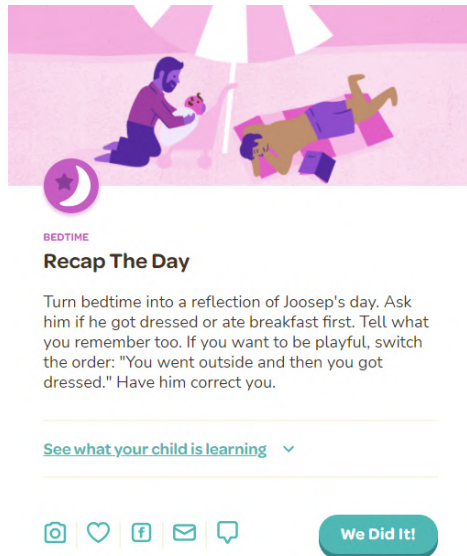

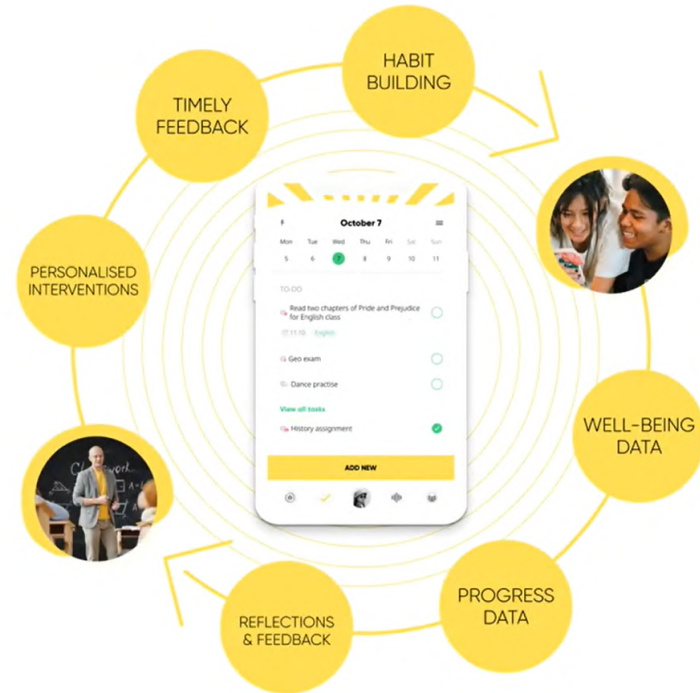
Figure 26. Screenshot of a Vroom tip.

Figure 27. How ClanBeat works

Clanbeat is an Estonian startup that by their own words: "We'll help your students build positive learning habits with our regular reflection nudges, work planner and goal setting features." They are also doing mood tracking and habit building and are targeting teachers as the main users. They are trying to do many

things and speak like they are changing the world but it is not evident exactly what is novel. (Noorkõiv, 2021)

Figure 28. Triumf Health app.

Another Estonian app related to mental health is Triumf Health. In their own words, it is a mobile health game for children's well-being. This app works in the computer games realm so it is

highly desirable for the students to at least try and play it as an alternative to have a regular class.

Figure 29. Supsik character and puzzle for group exercises. Meie Maailm (Our World) program from Tallinn University.

For an expert meeting in Innoteam, we had 2 program leaders of the Tallinn University Meie Maailm program. The program itself works similarly to the VEPA program that I will describe next. It has certain tools and games that the teacher can use to engage children and teach them practical social or mental skills.
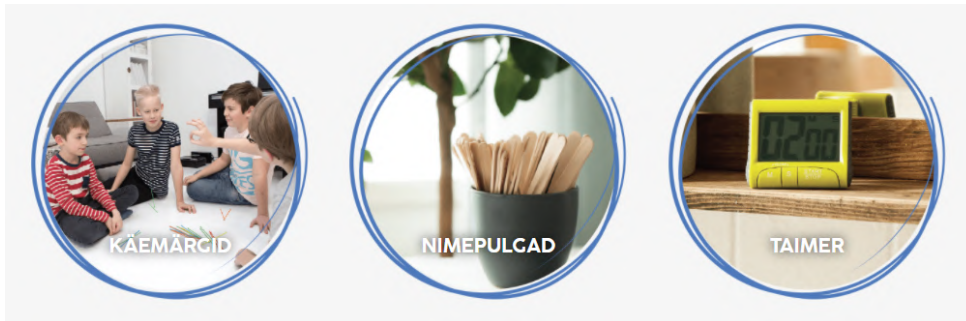
Figure 30. A few VEPA program tools.

As I already wrote in the research part of the report, VEPA is a set of methods and instructions that enable the teacher and through the teacher also students to create a positive atmosphere. I find it most interesting the fact that these tools and games from these school programs often assign new meaning to already existing objects.

Teachers can with a blow of the Harmonica arrive at an attentive and cooperative class, as the other tools support this to create little pockets of fun for the students throughout the class.

5.4 Workshop with students

"As long as the solution doesn't mean we do another app" is a paraphrase of what Aivar Haller said in one of the last weekly Innoteam meetings and it hit home. I was initially focused on doing an app but not anymore. I had used 'no app' as a design principle before and in another school project related to nurses and caregivers explored the idea of using the tools they use and ended up with creating a feedback board to empower their communication to leaders as they were using different kinds of marker-boards or analogue pen-and-paper communication constantly.

This 'no app' mindset led me in the direction of doing something physical and to see what these physical objects were I needed to talk to students again. I contacted Aivar Haller to get in contact with the focus group interviewees and did a workshop with them who were between the age of 10 and 14. It is the age that prevention is still possible and I had already determined the fact that they are willing to participate and communicate their ideas well from the focus group interviews.
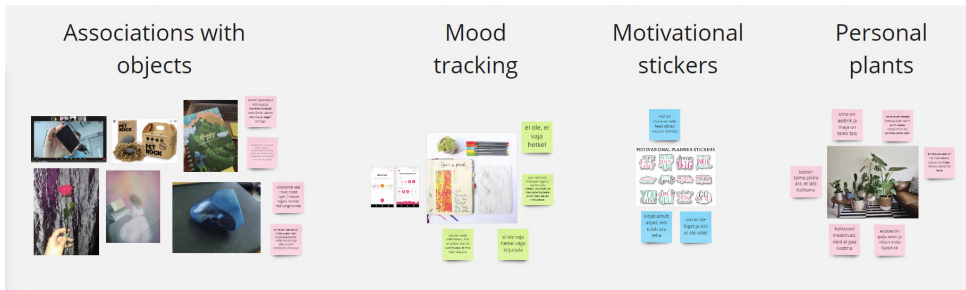
Figure 31. What the workshop looked like.

The workshop had three stages:

Warm-up

For the warm-up, we did an exercise involving Mindfulness where we focus on not thinking and see what thoughts still float around in our head. Even if it was just related to vision. And then we put the thoughts down on post-its. After it was done, we organized them by how they occurred (by "seeing something", "hearing something", "just a thought", "something they need to do", etc.).

The second warm-up exercise was a loose association 'hot potato'. where you tried to say a word related to the last one and the game went round and round for some rounds.

Figure 32. Workshop warm-up games.

Figure 33. Exploration of different concepts.

Figure 34. Brainstorming and linking.

Exploring concepts

After that, we explored some concepts that connected the physical world and ideas I had gathered previously to see if there is any merit to them and to set the workshop participants up to think along those lines when we get to the last part of the workshop. The concepts I had gathered were "pet rock", "mood tracking", "motivational sticker" and "personal plants".
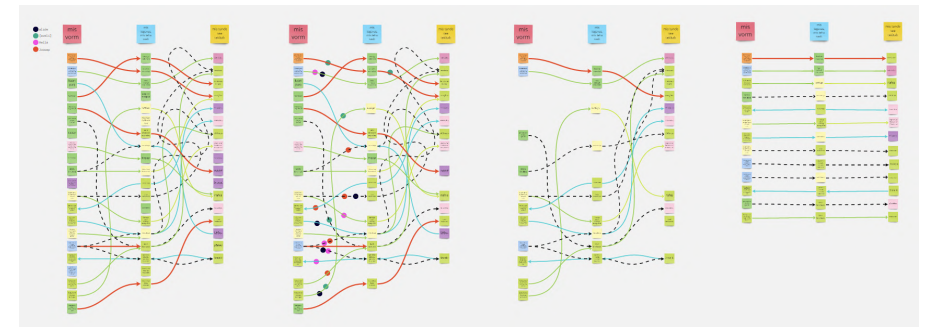
Brainstorming

It is a technique to gather ideas fast and without any inhibitions (Wikipedia, n.d.). We did it for three categories: form (e.g. paper, stress ball, etc.), activity (e.g. say a good thing, hobby, etc.) and good feeling (e.g. safety, happiness). This was to have components necessary to form some kind of an idea that has a form, action and a feeling associated with the idea. We also connected these categories to form the ideas and voted on the best ones.

Few quotes I liked from the workshop:

— *"I felt sorry for the pocket of sand."*

— *"Above my bed there hangs a pink angel, since 2 years ago, creating a good light feeling.*

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"I have a chestnut (kastan) in my pocket that comes with me each spring and autumn, it brings luck, I sometimes put it down and talk to it."

Conclusions

— There were 2 types of people there, ones who value emotion in their object, others who value practicality and function.

— There are meaningful stories related to the items and memories of people giving them specific items or they have created and kept something between a notebook.

— No one does mood tracking but one mentioned she is doing journaling.

— No one uses motivational stickers.

— The combinations were rather simple and also about nature, family, calmness and just being happy.

— From forms, I liked the concept of a container: a jar or a bag. So you have something in it that you take out. (e.g. pocket sand)

— Some activities that were proposed and chosen but are also doable within school time: go to nature, laugh, meditate, say one kind thing daily, hobby, put down good thoughts.

— **The good feelings they chose: calm, peace, happy, glad, energetic, joy of life, motivation, safety.**

5.5 Finalizing design concept

This workshop led me to work on a much more specific direction of using items that are both personal and/or emotional to enable them to feel better even if the pressure to perform or act becomes too much. The student can look at them, touch them or hold them to increase this feeling. These objects can also act as a measuring device for the teacher on how the student is doing. Just look at this example of a weather rock and you can understand all the possibilities even an inanimate object like a rock can portray.

Figure 35. Weather Forecasting Stone. Photo by Tim Rogers.

By comparison, this is the list of things a teacher should notice about each child (Peaasi.ee, n.d.):

ei järgi instruktsioone	tujutus
segab teisi	kurvameelsus passiivsus
teeb tunnis midagi muud	viha ja agressiivsus
õpib alla oma võimete	ärrituvus ja pahurus
olulised muutused toitumises	eemalviibiv olek
välimuses	järsud meeleolumuutused
kehakaalus	suurenenud aktiivsuse ja lõbususe suunas
riietuses	lootusetuse tunne
ekstreemsed muutused riietuses	minnalaskmine
meigis	käegalöömismeeleolu
isiklikus hügieenis	ärevus, mis takistab klassi ees või suulist vastamist
konfliktid, kiusamine	eksameid ja kontrolltöid
raskused teiste kõne mõistmisel	hääle või käte värin
suhtenüansside mõistmise raskused	vastamiste vältimine
ei mõista nalja, saab teistest erinevalt aru	sage haigestumine
kiusamine või kiusamise ohvriks olemine	iivelduse kurtmine
konfliktid õpilaste või õpetajatega	väsimus, kurnatus
ignoreerimine teiste poolt	püsimatus, nihelemine
ei suhtle	unisus või unepuudus
ei vasta küsimustele	koolist puudumine, hilinemine
ei hoia silmsidet	peavalud, pingetunne, muud ebaselge põhjusega valud
mingite stereotüüpsete tegevuste kordamine	õpitulemuste langus
riietega keha varjamine,	keskendumisraskused tunnis
vigastused kätel, jalgadel, kehal	ei saa tunni ajal asju tehtud
muu silmatorkav raskestiseletatav käitumine	ei tee kaasa

Figure 36. List of things to notice about a child.

Ranging from a change in body weight to not communicating to using clothes to cover the body to not covering the body with clothes. This list is rather overwhelming.

Connection with my personal items

I also have some personal items from my childhood. They enable me to be linked to a certain memory, a feeling, an identity and ground me in reality. I don't look at these specific ones all too often anymore but at the time I had them around myself or was holding or touching them occasionally.

Figure 37. My personal items: running medals, toy car, army pocket knife.

The toy car I have from early childhood when I was about 5 years old. I've played with it in the sand, traded it off, traded it back, peeled off the colour, lost it, found it and currently it is in a small leather pouch my mother gave me when I was a child. It reminds me of timeless play into the late summer nights I had as a child in the sandpits in Nõmme.

The medals are from middle school when I still managed to run at a fast pace. They remind me of a time in school when it wasn't all that bad and that I could run as fast as anyone else.

The Estonian army pocket knife was from a national defence class orientating competition in high school where I performed well enough to warrant a prize. It has gone through all of my army duty and retraining and still comes along sometimes when I go on trips. When I got it, it was a glimpse of light in an overall grey time.

The acceptance of these personal items within the school can be acted out similarly to what Waldorf schools do with children before the start of the school year. In Waldorf schools, students are interviewed (reviewed) by the teachers to see if they are a fit for both the teacher and the school. (Tallinn Free Waldorf school,

2018) So once the child has chosen an object or objects they can be reviewed similarly to determine which of them can perhaps be used right now (or at a later date).

Mnemonic device

The personal object in principle will be a mnemonic device. This is if a property or a memory about this object specifically enables it to become this kind of object.

A mnemonic device is a method to remember something. For instance this knuckle-month example.
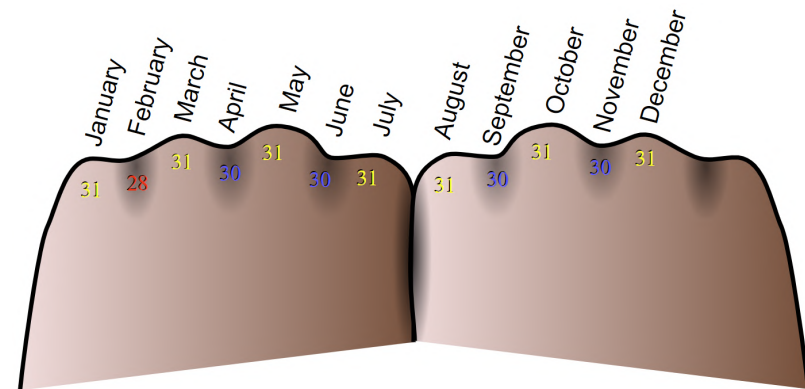

Figure 38. Mnemonic device. Knuckle mnemonic for the number of days in each month (Tijmen Stam, CC BY-SA 3.0).

There are other ways it can be used. Like remembering your ABCs through the ABC song or having your favourite personal object that you got for Christmas remind you of your father, a calm winter morning or a certain bell sound that rang when your mother picked up the present.

In psychological research, mnemonic functions of objects have received some mention on the use of props for prospective memory (Habermas & Paha, 2002). Prospective memory means that you use it to remember something you need to do later on. So having an object to remind you of something you need to do after a certain situation occurs is what this project is all about.

Anchoring

As the saying goes: "heal lapsel mitu nime" (good child has many names; meaning that something good has many names) Anchoring is also a way to assign meaning or behaviour to some object but by a trigger. A trigger can be anything but most likely needs to be trained. In comparison to mnemonics where some practice or remember might be required but the object or connection created itself has the answer. Anchoring is more automatic and linked to the repetition of a said trigger than mnemonics. If the trigger is

strong enough it can potentially be a one-time thing as well but this goes in the realm of non-ethical things.

Examples of anchoring:

— anticipating behaviour from someone's (previously 'learned') tone of voice
— anticipating the next event in a previously remembered sequence
— associating a 'theme' tune with a particular TV show

(Institute for Cognitive Behavior Management, n.d.)

So what you need is the student, a personal object, the teacher to act as an early mediator of the process and a mnemonic object or a trigger.

I will use an already worked-through-by-experts list of mental health vitamins and some breathing exercises (Peaasi.ee, 2015; 2021) as the anchored actions to the child's personal object.

Here is a few of them to get the meaning:

— **Do gratitude exercises: every day, write down 3 moments**, things or thoughts you feel grateful for. Express gratitude

towards someone whose existence you've taken for granted. Write a sincere thank you letter to them. Think about what you've gained from things that didn't go your way.

— **Breathing exercise: deep breathing** (teacher can use the video example already present)
— **Muscle relaxation** (teacher can use the video example already present)
— **Try to find 3 positive things right now.**
— **Start your day with something fun**: read the comics in a newspaper first or watch some funny videos on Youtube. Did you know that it has been scientifically proven that humour decreases stress, increases psychological wellbeing, and helps cope with stressful events? Truly, laughing is healthy!
— etc.

6 Final concept

6.1 Design component

As a solution to the given problem, I propose MÕMMI - a behaviorally modified personal object to enable support in stressful situations.

I'll let the images tell the story. Watch it in full screen, please.

MÕMMI

Martin is not always happy

MÕMMI

Or not always smart

MÕMMI

And dreams of leaves

MÕMMI

And remembers

MÕMMI

It's all in his head.

Photo by Taylor Wilcox on Unsplas

6.2 How it works

The final design artefact consists of 3 things

1. The design concept description or "How it works" (Appendix 1)
2. The instructions for the teacher (Appendix 2)
3. The personal object (not included)

Concept description (How it works)

1. This concept is sent to school via email and can be printed on location.

2. Preliminary instructions are given with it and a demo is made for teachers at location.

3. The teachers choose a student to learn it with.

4. The student's personal object is chosen in connection to the mental issue that is going to be addressed and its trigger.

5. Either the mnemonic or anchoring method is used depending on the connection of the object and the mental health issue or its trigger.

6. The situation is played out in reality.

7. Teacher addresses the student in the situation and instructs the student to use the object and a chosen mental health tip.

8. Teacher proceeds to monitor the process.

9. Repetition. Repetition. Repetition.

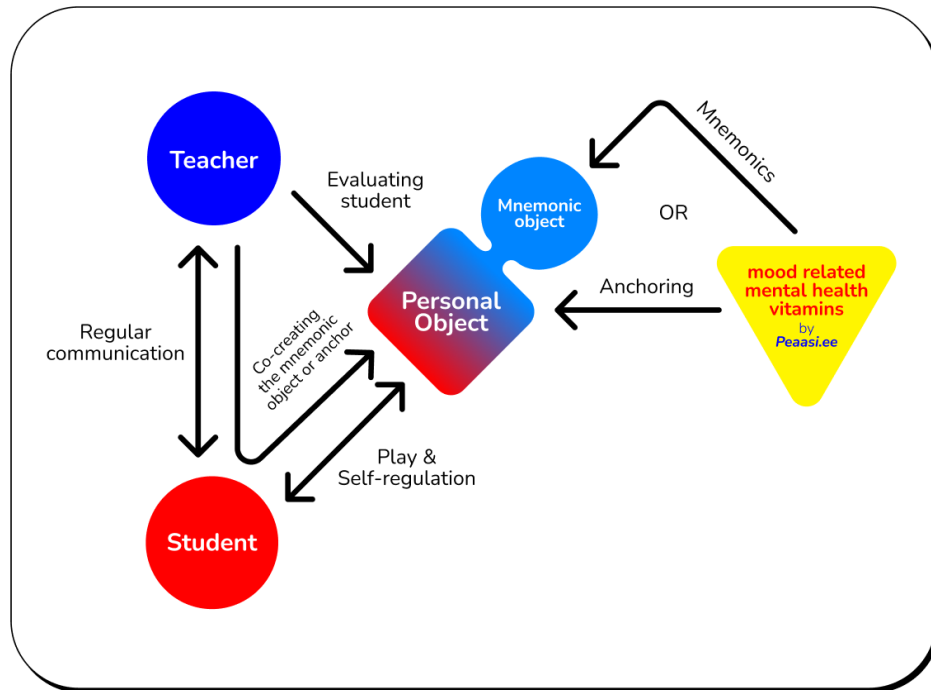10. Child can act upon the trigger on its own and diminish the effects of the mental issue.

Figure 39. Project MÕMMI schematic.

6.3 Conclusions

As this is still a design concept and more research, testing and validation are needed. For instance, if the concept has the effect I am aiming for, whether or not the students accept this behavioural change, whether there would be peer pressure associated with this, whether the teachers accept to use this and/or have time for it, etc.

Connection to my research

The design concept fits with the insights I gather throughout the research as all the design principles can be ticked off:

✓ **Provide self-regulation/self-assessment.**
   Once learned, the student can use this to guide himself through stressful situations.

✓ **Enables aid from others.**
   The teachers can use this one point of contact instead of many other aspects like behaviour, changes in appearance etc.

✓ **Doable within the timeframe and the means.**
   Although untested and still needs validation, the concept as a form, technology, size and so on is doable by any means.

✓ **Personalised for every child.**

This is what a personal object means.

✓ **Creative approach.**

The simplicity of the concept can perhaps be categorized as creative but it still lacks something that is even a step further.

Fit with Innoteam's directions

If Innoteam will go forward with its idea of whole-day school (extending school to incorporate hobby classes etc.) then this fits there nicely as it enables children to have more connection to home while at school. It also provides a tool for teachers to evaluate the students' state of mind.

List of school programs

I also have the list of different school programs that have simple actionable analogue tools for the teacher to work together with the students where this might fit in as an addition to the list of tools.

Link to video:

https://vimeo.com/joosep

7 Reflections

7.1 Design process

As to my choice of methods, I would say that The Double Diamond works just fine although it never looks like a diamond in the end and more like a crystal or a drill head.

I noticed that the Design Council has also reconsidered their approach a bit recently and published a Medium post detailing that the design process doesn't end at the solution but is extended to infinity and there are many connections/relations to every that you can't possibly explore and in the end, there is also a story to tell. (Drew, 2021)

This is how my Double Diamond ended up looking like
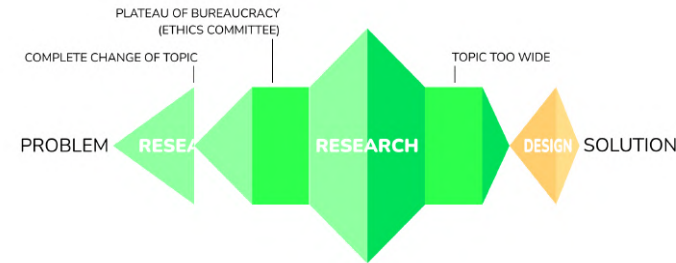

Figure 40. The Diamond Drill. © Joosep Noorväli

I did a restart to my double diamond as I had previously researched the topic of 'how to get people to help each other more?'. The Discover phase on the new topic went mostly according to plan. There was a big hiccup when we were almost ready with questions and we needed to go through the ethics committee with our questions for children. We came out of it a bit sooner when we realised that we can start with just 'talks' closely related children like our sons/daughters/nephews/nieces.

In the 'define' phase I also stayed too wide with the How Might We question as I was obsessively determined to work alongside the

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Innoteam throughout the research phase and they had quite a wide HMW question they arrived at. It was a strong HMW and embedded in the research but also not applicable to my scope and I didn't notice it soon enough.

7.2 Future developments

This is not the end of this project as I have months to go with the Innoteam and can test, iterate and validate my project in parallel with the ideas Innoteam itself will pilot. From an Innoteam Meeting, an expert in education Kristiina Treial from Tallinn University mentioned that they used the existing curriculum to their advantage by incorporating their Whole Day program into the rather underused subject of human development. This might be an avenue I get to test my project as well — that I use a currently underused school curriculum part or a good school program I described in the research part as a vessel to have my project piloted in the real school environment.

I can also apply with a team to the Accelerate Estonia program that has mental health as one of their focus areas for this funding cycle.

This topic has also the possibility to evolve into the Tangible User Interfaces (TUI) field as physical objects have much higher affordances (Norman, 1988) in comparison to digital objects on the screen or elsewhere. This can decrease the need to learn a new user interface and enhance human-machine interaction in general (van den Hoven & Eggen, 2004).

7.3 Personal observations

COVID-19

I didn't want to take it into the design process as it is hopefully passing. That is why I will briefly touch upon it here in the personal reflections part. COVID-19 did limit my interactions with coursemates and other acquaintances from school quite a bit. Although I tried to initiate a weekly meeting with my course it soon faded as I got busier with work and school, I didn't work on the content of the meetings and didn't promote it enough. COVID-19 also didn't help me with testing or let me have a more hands-on approach to the research.

My mental health

From the beginning and at the very end I also had quite a bit of anxiety because of the time constraints of this project (~3.5 months for me). During this project, I managed to improve the way I deal with anxiety and depression by replacing some less desirable habits (computer games) with more desirable ones (taking walks, putting together a puzzle, dancing, etc.). I also started to keep tabs on my depression by looking at how well my plants are doing. I took note of the dry tips of the leaves, the wetness of the soil, blooming or not or dropping leaves.

Figure 41. Collage of some of my plants.

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8 Acknowledgements

9 References

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10 Appendixes

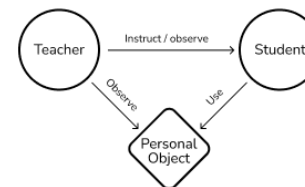## 10.1 Appendix 1: How it works

HOW IT WORKS

1. This concept is sent to school via email and can be printed on location.

2. Preliminary instructions are given with it and a demo is made for teachers at location.

3. The teachers choose a student to learn it with.

4. The student's personal object is chosen in connection to the mental issue that is going to be addressed and its trigger.

5. Either the mnemonic or anchoring method is used depending on the connection of the object and the mental health issue or the its trigger.

6. The situation is played out in reality.

7. Teacher addresses the student in the situation and instructs the student to use the object and a chosen mental health tip.

8. Teacher proceeds to monitor the process.

9. Repetition. Repetition. Repetition.

10. Child can act upon the trigger on its own and diminish the effects of the mental issue.

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10.2 Appendix 2: Instructions for the teacher

INSTRUCTIONS FOR THE TEACHER

1. When the situation occurs, address the student to practice the behaviour.

2. Focus on using the mental health tip from start to the end, preferrably let the student do it on their own.

3. Once finished repeat if necessary and continue with the class.

4. Repeat this process until it is an activity they can practice on their own.

5. Observe the student and the object when they do it independantly.

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