

# **INTROSPECTION BY DESIGN**

Expanding the activity-based need profiling method with introspective activities through two case studies

*a graduation project  
by marinka roest*

# Introspection by design

Expanding the activity-based need profiling method with introspective activities through two case studies

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# Preface

When I graduate, at the end of August, it has been almost a year exactly since Siyuan Huang and I first met up to discuss a research project. Over a cup of coffee, we discussed her work with the typology of fundamental needs and the relationship between fundamental needs and the opportunities for design. I brought up the notion that even though fundamental needs are universal, we all express them in different ways, and she suggested we use these expressions to create a design method. The rest is history.

During the research project we spent a lot of time talking, bouncing off each other's ideas and writing on whiteboards in the Studiolab. What was first a rough idea, quickly turned into an actual design method with a step-by-step process and supporting materials.

After five months of working together, it was up to me and my graduation project to continue further with the insights and experiences we gained in the research project. The result of which is what you are about to read.

So, first of all, I would like to thank Siyuan for giving me the opportunity to do a research project together and trusting me with our method in this graduation project. I would also like to thank my supervisors, Pieter and Haian, for their feedback, advice and knowledge, but also for their trust in me, my ideas and the direction I was choosing for the project. Special thanks go out to the participants who joined my user tests and design workshops, who helped me to improve the method, on multiple levels.

And to Paulien, thank you for drinking an endless amount of coffee with me, for being my sounding board and for making me feel like I wasn't alone in this whole thing. I hope I have done the same for you. To all my family and friends, thank you for your checkups and interest in my graduation project. Now, after eight years, it is finally time for some closure! Most of all, I would like to thank Thobias, who has been very good at keeping me with my two feet on the ground. You are the moss to my May.

Now, let me send you on your way with this quote by Jones (1975), which, I have to say, summarises the whole project quite well.

*"Better to use one's design ability to design a process by which the object can be shaped by the users and by the whole situation"*

# The project in a nutshell

This graduation project describes the expansion and revision of a human-centred design method through the integration of introspective activities. The expansion is supported by an explorative, individual case study and a validating, collaborative case study.

In a previous research project, Siyuan Huang and myself developed an initial version of the activity-based need profiling method. The activity-based need profiling method investigates an activity (activity-based) through which fundamental needs are fulfilled by the experience of the activity (need profiling). The goal of the design method is to provide a way for novice designers to become familiar with the typology of fundamental needs by Desmet and Fokkinga (2020) and to apply this abstract typology in a concrete design process.

The addition of introspective activities in the data collection phase of the design method could add more richness and nuance to the data. It was also expected to add extra value to the design method, by broadening the reach and introducing novice designers to another way of collecting data. In this graduation project, I set about investigating the value of these introspective activities and how they could best be integrated in the design method, through two case studies.

In the first case study, I introspected for two weeks on which fundamental needs were fulfilled in what way in the context of food-preparation related activities in my own home kitchen. I used this introspective data to create a set of narratives, that were the source of a set of design briefs and concepts. These concepts were evaluated in a user test to ascertain the value of the revised design method.

In the second case study, I used the insights from the first case study to make an iteration on the design method. I evaluated this version of the method with its target group of novice designers in two design workshops. The workshop participants introspected on food-preparation activities in their own kitchens and took the resulting narratives to the design workshop, where they collaboratively designed concepts through the process of the proposed design method.

Both case studies showed the value of the addition of introspective activities, enriching the data with nuance and authenticity. The results from the case studies were integrated in the initial design method, which yielded the following five phases of the revised and expanded activity-based need profiling method (figure 1).

- **The preparation phase**, where designers familiarise themselves with the design method and identify an activity to investigate.
- **The data collection phase**, where designers collect information on need fulfilment within the activity, either introspectively or through external participants. They investigate which needs are satisfied and which are harmed and why this is the case.
- **The data overview phase**, where designers create both a visual overview as well as a more detailed overview of the collected data.
- **The exploration phase**, where designers use three strategies, or play modes, to translate the data into design briefs.
- **The realisation phase**, where designers create design concepts based on the design briefs, validate them and iterate on them.

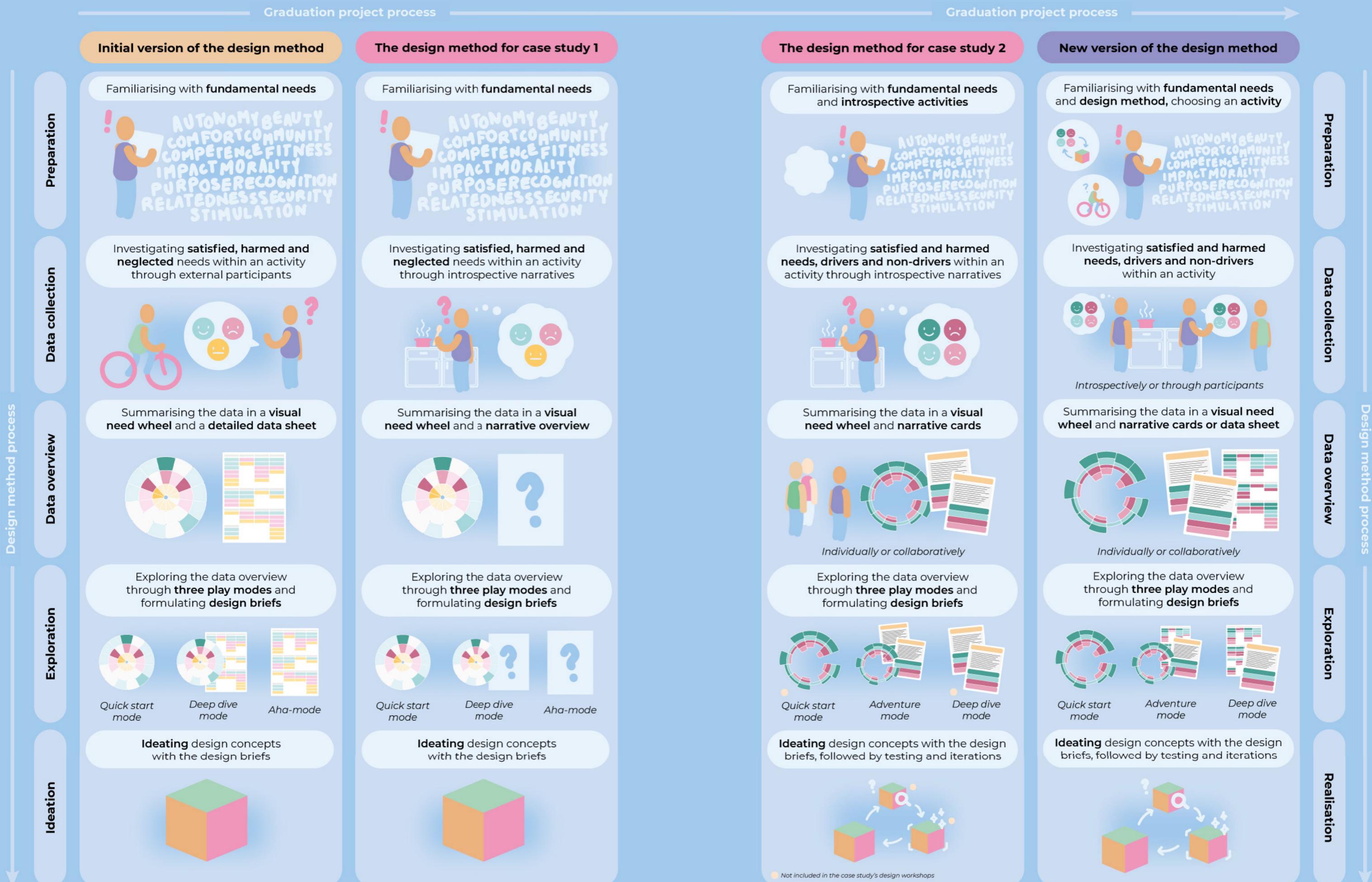


Figure 1 Evolution of the activity-based need profiling design method

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# Introduction

## The project's context

Last weekend, I went to visit my parents. It was a cloudy and rainy day, but occasionally, the sun shone through and gave a small confirmation that it was indeed summer. In the previous months, my parents had been renovating their garden and last weekend it was, finally, more or less done. During the inevitable garden-tour, my mum showed me the repaved paths towards the chicken coop, the freshly sown grass and their 'fruit lane' where raspberries, apples and pears would grow. But she was clearly happiest with their new pond, which had been designed in an eco-friendly way and would develop its own ecosystem over time. She told me about all the kinds of animals that lived there, that she had already seen lots and lots of salamanders and that she was happy to see that the water plants had grown to reach the surface. Frankly, ponds have never been an interest of mine, but I was suddenly very invested in the activities of water snails, all because of my mum's enthusiastic explanations. Once the garden tour was over, we went inside to drink some tea. I could see my dad returning from his bike ride through the kitchen window. He had cycled around the IJsselmeer with a group of his friends. When he came in, we were of course eager to know how it went and whether he had had fun. He started to tell us about all sorts

of things; the best techniques for cycling in a group, how to beat the windy conditions on the dikes and that he might have to adjust his bike's settings a little. Once again, I was invested in his story and could empathise with it, even though doing a long biking tour is not at all something for me.

I wonder whether my parents realise that, while keeping up with life in the pond and doing long bike tours are wildly different things, they have both been fulfilling their needs for competence and stimulation through these activities. Viewing these activities through their relationship with my parent's needs can help to understand the subjectiveness of their highly personal experience and use these nuanced stories as a rich basis for human-centred design and design for wellbeing. In a previous research project, I have developed, together with Siyuan Huang, a design method that translates these different experiences and need expressions into novel and out-of-the-box design concepts. In this method, subjectivity and personality are seen as strengths and actively used throughout the design process. However, I have only observed my parents' enthusiasm regarding their hobbies as an outsider. How rich would their stories be if I could look inside their heads?

## The project's goal

This six-month graduation project aims to integrate introspective activities to enrich the data used as input in the design method (appendix A). With introspection, designers document their own feelings, thoughts and emotions and use these experiences as input for their design process. The graduation project builds upon the existing design method by Siyuan and myself, keeping its strengths in terms of the application of fundamental needs, its room for personality and intuition and its flexibility. Though, I believe these aspects could benefit from an expansion in the form of introspective activities, and through this project, I aim to find out whether this is true.

To investigate and validate the value of the addition of introspective activities into the existing design method, I will adjust the method to support introspection in the data collection phase, and design several concepts using this adjusted version of the method through a case study. This case study will also give me the chance to

make an iteration on the design method. The results from this case study will tell me more about the value for introspection, as well as give me suggestions for improvement. Whether the revised design method is also suited for its target group of novice designers, will be investigated through a series of design workshops, where members of the target group will validate the addition of introspective activities along with my other revisions.

I realise that this is a highly personal project, as a significant part of the process relies on my own feelings, thoughts and emotions. These experiences might be different from those of someone else, due to me being autistic. I decided I did not want to ignore these differences, but highlight them instead. Through my graduation project, I hope to show the value of neurodiversity and inspire other designers to embrace this and recognise the value it can bring to the design field.

## The project's structure

This graduation report is structured in a chronological way. Chapters start with a short summary of that chapter and are concluded with a list of key insights from the chapter and implications for the following phases of the graduation project. Each chapter ends with a personal note, where I zoom out and reflect on the contents of the chapter from my point of view as an autistic designer.

The first chapter describes the project background, where I introduce the typology of fundamental needs, the initial version of the design method and the value of introspection. The second chapter shows the process of the first case study, where I expand and revise the design method with introspective activities through reflections and iterations. The third chapter summarises the second case study; the validation of the revised design method through a set of design workshops, attended by novice designers.

The fourth chapter describes the expanded version of the design method, after its validations in the first and second case study. The fifth and final chapter contains the general discussion, recommendations for further research and the conclusion.

# 1

## Setting the table

Existing frameworks, the initial design method and opportunities for expansion

### Chapter summary

This first chapter describes the background information of the graduation project and the initial version of the design method. An introduction to introspection and the insights from background information provide a starting point for the revision and the expansion of the design method (figure 2).

The design method uses the typology of thirteen fundamental needs by Fokkinga and Desmet (2020) as a framework and provides a concrete way to apply the theory of the typology in a design process. The typology is developed for the design field and describes thirteen fundamental needs: autonomy, beauty, comfort, community, competence, fitness, impact, morality, purpose, relatedness, recognition, security and stimulation. These thirteen needs are considered universal, and their fulfilment can have a positive effect on people's feeling of wellbeing.

Huang and Roest (2023) developed a design method that draws on the abstractness of the fundamental needs and the nuance of different ways in which people fulfil their needs. The activity-based need profiling method investi-

### Chapter takeaways

The **addition of introspection** to the design method is a valuable direction to investigate in this graduation project, but it needs a certain structure to maintain transparency.

Combining **introspective data in a collaborative way** is another direction with potential, which will be investigated further in the second case study (chapter 3).

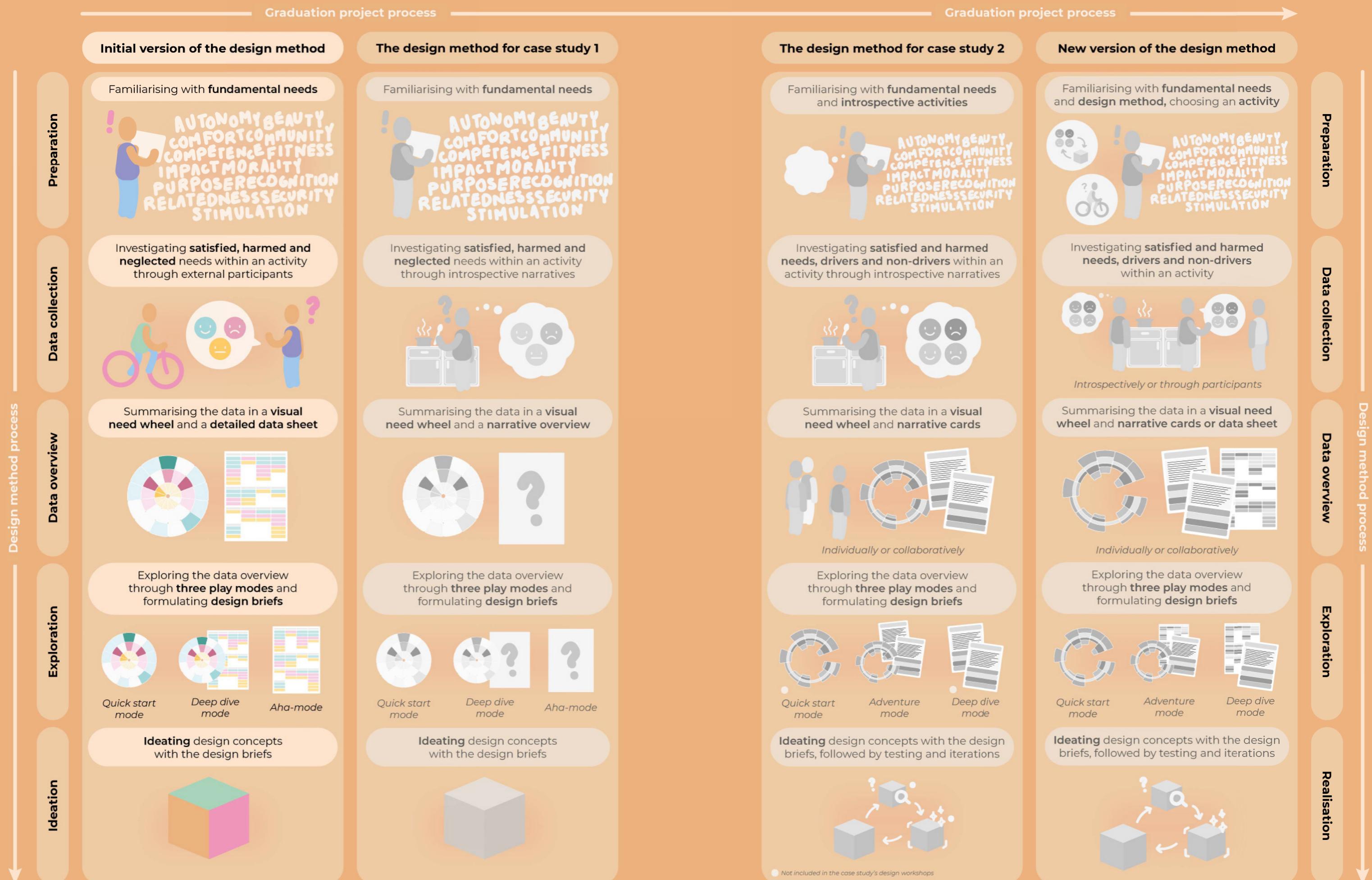
gates an activity (activity-based) through its relation with need fulfilment (need-profiling). This initial design method consists of five steps:

1. **Preparation**, in which designers familiarise themselves with the thirteen fundamental needs.
2. **Data collection**, in which an activity is investigated through the fundamental needs it satisfies, harms and neglects.
3. **Data overview**, in which designers bring the data together in a visual need wheel and a detailed data sheet.
4. **Exploration**, in which designers use three play modes (quick start, deep dive and aha mode) to translate the data overview into design briefs.
5. **Ideation**, in which designers use the design briefs to develop design concepts.

In the research project, one of the evaluations showed the potential of the addition of introspective activities in the data collection, mainly because of the rich, nuanced and detailed information it could provide about an activity and its need fulfilment. Narratives could be a good way to shape this introspective data.

When doing introspective activities, designers will be a user, a researcher and a designer. It is of importance for designers to be aware of these **different roles**.

**Narratives** are to be used as a medium for introspective data.



**Figure 2** Evolution of the activity-based need profiling design method, with a focus on the initial version of the design method

The graduation project aims to expand a design method. This chapter describes the background and the fundamentals on which this method and its expansion have been based. These fundamentals consist of:

- The **theory of the typology of fundamental needs** by Desmet and Fokkinga (2020), which acts as a framework for a design method.

## The typology of thirteen fundamental needs: a framework for a design method

The graduation project and its related design method find its basis in the theory of the typology of fundamental needs, developed by Desmet and Fokkinga (2020).

The typology describes thirteen fundamental needs, which can be used in human-centred design processes. These thirteen needs (figure 3), are considered universal, which means that they apply to every human being and everyone can relate to it in a way. People rely on these needs to motivate their choices and their actions, consciously or unconsciously.

Therefore, these needs affect a wide variety of different behaviours in many different circumstances. Knowing this, the typology could provide a good starting point for human-centred design, as designing for the fulfilment of these needs could improve the understanding of people's experiences and their wellbeing.

In turn, the typology of fundamental needs is based on the psychological model of needs by Maslow (1943), more commonly

- A **research project by Huang and Roest** (2023), which provided an initial version of the design method.
- An **introduction to introspective activities**, which were to be integrated into the design method in this graduation project.

The chapter is concluded by the key insights gained from these materials and an overview of implications for the further process of this graduation project.

known as Maslow's Hierarchy of Needs. The model is often visualised as a pyramid, which emphasises the idea that some needs cannot be reached until a previous layer of needs has been fulfilled. Next to this statement, Maslow proposes seven other key propositions about human need fulfilment and motivation, some of which Desmet and Fokkinga (2020) adopt and some of which they let go. For example, they argue the proposition that when a need is fulfilled, it no longer motivates people's actions and behaviours. This should mean that designers should only focus on people's problems, or harmed needs, but in the current understanding of human-centred design, this would neglect a valuable source of design opportunities, as positive experiences can also be a great motivator for behaviour. Next to that, Desmet and Fokkinga disagree with the structure of a hierarchy. There is no proof that people who haven't fulfilled their so-called lower level needs are incapable of pursuing the 'higher level' needs, such as love or morality. This means that in the typology of fundamental needs each need

is equal and not one has more priority or is more important than another.

To further relate the typology of fundamental needs to the design practice, Desmet and Fokkinga propose three design opportunities or strategies.

- **Strengthen current needs.** This strategy recognizes the opportunity to strengthen the needs that are already fulfilled by a certain product, context or activity.
- **Introduce new needs.** Some products, contexts or activities are more related to certain needs than to others. This can provide designers with the opportunity to use these need gaps to design for a need that hasn't been recognized before.

- **Reduce need harm.** In doing certain activities or using certain products, needs can be harmed. This design opportunity aims to identify these harmed needs and to design to reduce this harm.

The typology of fundamental needs also provides a framework for designers to investigate a topic, such as a product, behaviour or activity. Desmet and Fokkinga shortly mention Höök and Löwgren's (2012) concept of intermediate-level knowledge, which is the space between a theory on the one hand and a design prototype on the other hand. The typology of fundamental needs together with some guidelines or a visual need profile could assist designers in navigating the more abstract framework of fundamental needs and the more concrete aspect of people's actual contexts, behaviours and experiences.

**Autonomy** Being the cause of your actions and feeling that you can do things your own way.

**Comfort** Having an easy, simple, relaxing life

**Competence** Having control over your environment and being able to exercise your skills to master challenges.

**Impact** Seeing that your actions or ideas have an impact on the world and contribute to something.

**Purpose** Having a clear sense of what makes your life meaningful and valuable.

**Relatedness** Having warm, mutual, trusting relationships with people who you care about.

**Stimulation** Being mentally and physically stimulated by novel, varied, and relevant impulses and stimuli

**Beauty** Feeling that the world is a place of elegance, coherence and harmony.

**Community** Being part of and accepted by a social group or entity that is important to you.

**Fitness** Having and using a body that is strong, healthy, and full of energy.

**Morality** Feeling that the world is a moral place and being able to act in line with your personal values.

**Recognition** Getting appreciation for what you do and respect for who you are.

**Security** Feeling that your conditions and environment keep you safe from harm and threats.

Figure 3 An overview of the typology of fundamental needs (Fokkinga and Desmet, 2020)

# The initial activity-based need profiling method: a practical application of fundamental needs

Inspired by the typology of fundamental needs and its source of opportunities for human-centred design, Huang and Roest (2023) set about finding a way in which novice designers could apply the typology in their design processes and to add the typology to their designer toolbox. They found that while the typology itself provided valuable information regarding people's experiences, the bridge between the abstract theory and the more concrete design process could be strengthened. Enter the activity-based need profiling method.

## Fundamental needs and activities as design method inspiration

The activity-based need profiling method investigates the experience of an activity (activity-based) through its specific relation to the fulfilment of fundamental needs (need profiling). In the previous paragraph, I discussed the value of the typology of fundamental needs as a more abstract framework in combination with more concrete experiences and actions. The intersection between this abstractness and concreteness lies in the individual need expressions, which provide novice designers with the opportunity to design concepts with a clear connection to human experience.

The thirteen fundamental needs are considered universal, but every individual has their own way of fulfilling (or harming) these needs. As I described in the introduction, my parents both fulfil their needs for stimulation and competence

in different ways, either by taking care of the pond ecosystem or by going on a bicycle tour with friends. This individuality provides inspiring design opportunities, because they are personal and specific. Relating these individual experiences back to the larger framework of fundamental needs can be a good way to investigate what motivates people within a certain context or in this case, an activity. Activities are especially interesting, as they are not necessarily bound to specific products, contexts or interactions, but they include all of these within the larger scope of 'activity' (figure 4). The way all these aspects are connected to each other through the activity, relates to Jones' (1980) definition of a systems approach, with which he does not mean a rigid, practical system, but a system which sees the world as an inspiring, interacting system. When formulating a project scope using an activity, designers have a lot of freedom to consider multiple design opportunities, while still being clear as to where the borders of the scope lie.

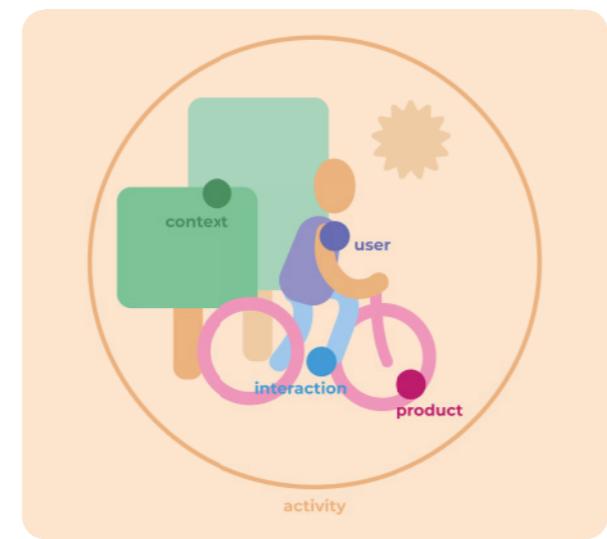


Figure 4 An activity contains the context, the user, the interaction and the product

Within the development of the activity-based need profiling method, freedom and flexibility were recurring keywords. Huang and Roest (2023) felt that it was important to provide a guideline for applying the typology in a design process, but also understood that designing is highly subjective and personal, dependent not only on the type of project and the topic under investigation, but also on the designer themselves. This resonates with thoughts that Jones (1980) has on design and his views on how design relates to our surroundings, our experiences and our past. He mentions design processes and resulting designs that are "sensitive not only to his present ideas but to his past, and to the past activities and lives of others". The activity-based need profiling method is a complete process, and designers are able to follow it from beginning to end to create a design concept, but it is by no means required. Inspired by Jones' (1980) notion to "make the design process more sensitive to life", designers are free to adapt, adjust and change the design method to suit both their personal and their project's goals, and it is of importance that the design method accommodates this freedom and flexibility. These values of freedom and flexibility are also the reason why this design method is targeted to novice designers, such as design students and junior designers who have just started working in the design field. These designers might not have much design experience yet, and could benefit from the guidance that the activity-based need profiling method provides. While following the process, they might want to add some aspects to their designer's toolbox, while letting others go. The design method encourages them to do so, as it functions as a starting point for novice designers to build their design experience and become familiar with different ways of designing.

## The activity-based need profiling method: a step-by-step overview

The use of fundamental needs and their fulfilment, as well as the investigation of the experience of an activity provide the basis for the process of the activity-based need profiling method. The design process consists of five steps, supported by a set of materials. An overview of the process of the design method can be found in figure 5. A more detailed description of the step-by-step process can be found in the guide booklet that accompanied the initial version of the design method (appendix B).

### Step 0: Preparation

In the preparation phase of the design method, designers are encouraged to (re) familiarise themselves with the typology of fundamental needs. The fundamental needs are threaded through every step of the process, and sufficient knowledge about the needs will ensure a smoother and more efficient process.

### Step 1: Data collection

The first step of the process is the data collection phase, in which information on need fulfilment in a predetermined activity is gathered. Designers are particularly looking for needs that are considered satisfied, harmed or neglected by people engaging in the activity. It is important to also understand why these needs are fulfilled in such a way, as this provides information on the individual need expressions, as mentioned earlier. During the research project, the data was collected through a survey, which asked participants to identify their most satisfied, their most harmed and their most neglected need in the activity of bike riding. The participants also provided a short explanation why they felt this way.

## Step 2: Data overview

In the second step designers combine the gathered data in a data overview, which consists of a visual need wheel and a more detailed data sheet. The need wheel provides a more direct overview of the need fulfilment of the activity, while the data sheet provides more information on the underlying motivations of participants. In the research project, the need

wheel contained an overview of the needs and their categories that the participants had filled out in the survey. The data sheet consisted of an overview of short statements that explained the reasons for the participants' particular need fulfilment.

## Step 3: Exploration

During the third step, designers make sense of the data through three strategies,

or play modes; quick start mode, deep dive mode and aha mode. The play modes are supported by several approaches, or focuses. The three play modes and their focuses are summarised in figure 5. The play modes are based on the three design opportunities proposed by Desmet and Fokkinga (2020), and they use the data overview in different ways. Following these play modes will lead designers to a design

brief. Design brief cards guide designers through the process of going from data to insights to design brief.

## Step 4: Ideation

The fourth step is the ideation phase of the process, in which designers use their newly formulated design briefs to come up with relevant and inspiring design concepts.

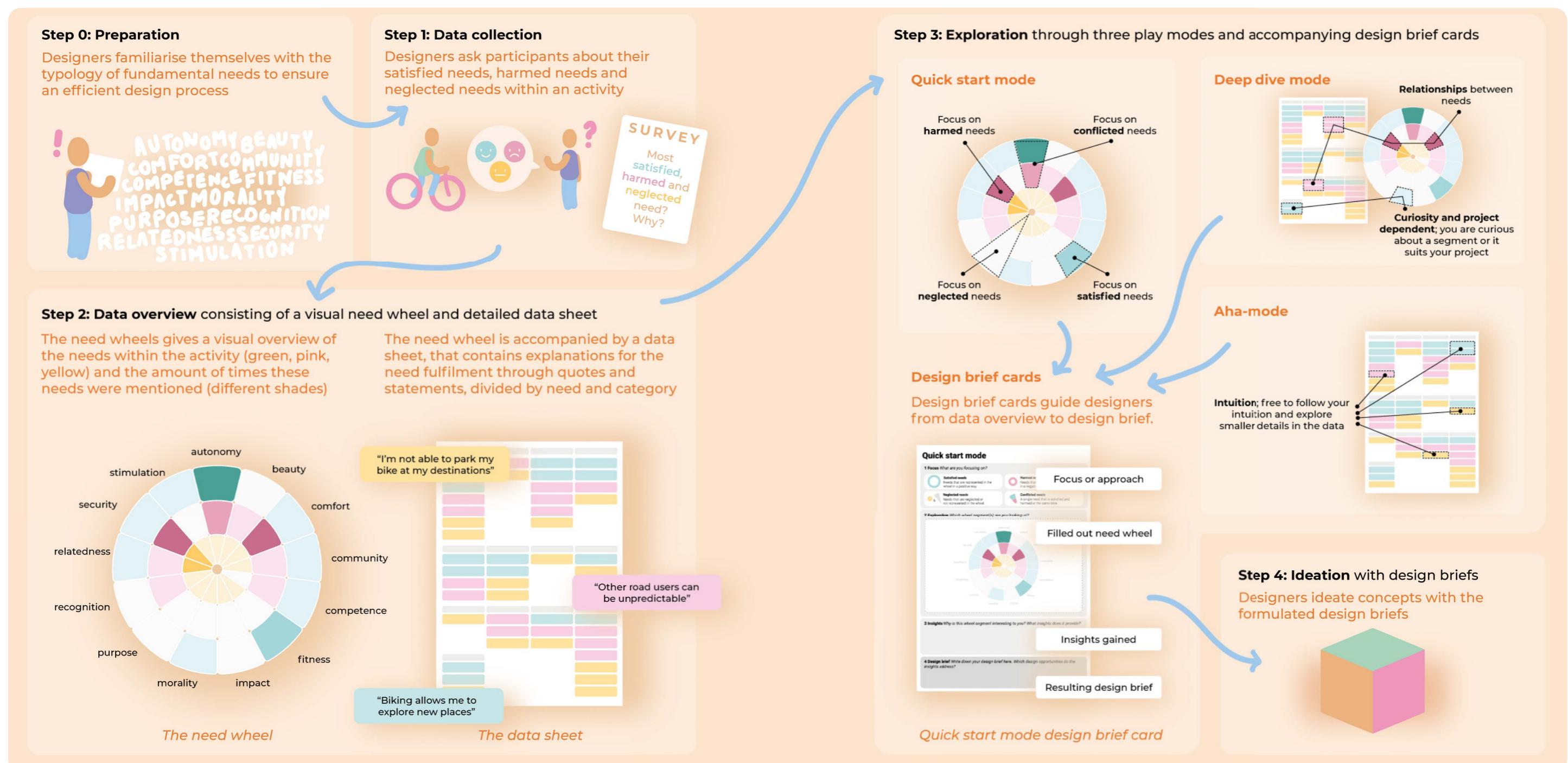


Figure 5 An overview of the design process of the initial activity-based need profiling method. The topic used as example is the activity of bike riding. (Huang and Roest, 2023)

## Opportunities for expanding the activity-based need profiling method

The initial design method is supported by two case studies. The first case study explored the shape of the design method and the materials needed to guide designers through the process (figure 6). The second case study was conducted after the initial development of the method and investigated the opportunity of expanding the activity-based need profiling method by integrating introspective activities into the data collection phase of the process.

The first case study collected data in the shape of short statements or quotes. This type of data was excellent for the development of the method itself, but the amount of detail in the statements was limited and the researchers had to interpret what the participant had meant. It was hypothesised that when the collected data contained more details and specifics, the inspirational value would be higher, which would result in more innovative design concepts.

The second case study included introspective data collection to investigate how these statements on need fulfilment could be expanded to include more detail.

## Introspective activities: an opportunity for expansion

This paragraph dives deeper into the theory of introspective activities, different types and strengths and limitations, in order to understand and evaluate the opportunities these activities could provide for the activity-based need profiling method.

In a four-hour workshop, students from the 'Introspective Design'-elective were asked to reflect on their own experiences while biking, and to use those reflections to design their own concepts. They collected their data in the form of narratives. To create design concepts out of their collected data, they shared their narratives in small groups and used four strategies, based on the aforementioned three play modes to create innovative concepts. Despite the time constraints of the case study, the design concepts seemed to benefit from the personal and detailed aspects of the introspective narratives.



Figure 6 The initial design method in use (Huang and Roest, 2023)

Introspective activities cover ways in which researchers use their own experiences, thoughts, feelings and other subjective, personal data as input for their studies or research projects. There are multiple ways of introspecting, ranging from guided introspection, where the researcher guides participants to introspect, to researcher

introspection, where the researcher is the only subject in the study, introspecting on their own experiences, thoughts, feelings and behaviours (Xue and Desmet, 2019).

Introspection is a subjective way of collecting data, and has often been dismissed by the scientific community for not being objective enough. In truth, introspection has been used by researchers for a long time, for example by (unconsciously) including their own data in their dataset or by interpreting their gathered data (Xue and Desmet, 2019). In his article on autoethnography, which can be considered part of the family of introspective methods, Rapp (2018) poses the question whether it would not be more transparent to engage in introspective activities and report this in the publication of the study. This would give the audience an opportunity to properly judge and process the information given and enhance the validity, reliability and credibility of the study. Rapp proposes introducing an introspective strategy to give space to researchers to engage in introspective activities, while also providing a structured approach to do so.

Some of the strengths of introspection are data accessibility, richness and depth. When the researcher is acting as subject, introspecting on their own experiences, they are in control of what they collect. When they collect it, they can tap from a detailed, complex, endless and direct source of thoughts, feelings and experiences. Introspection allows researchers to investigate topics that are difficult to access otherwise, and they are able to include instances of the experience over a longer period of time (Rapp, 2018)(Xue and Desmet, 2019). Researchers, especially if they are acting as designers as well, can decide how to present the gathered data and how it would be most useful in the larger scope of their project. Often, in human-centred design, designers look

for subjective data specifically, for which the collection of data through introspective activities could be exactly what they are looking for. This subjectivity often supports their design ideas (Fulton Suri, 2003), which also corresponds with Desmet and Xue's (2019) statement that projects about feelings, emotion and experiences are well suited for introspection, because this concerns topics that are more difficult to investigate otherwise. Rapp (2018) and Holbrook (2006) introduce narratives to present their introspective data, which was also the approach that was used in the aforementioned case study with Introspective Design-students.

Aside from strengths, there are also limitations to using introspective activities, such as the trustworthiness of the results, the documentation and the generalisability of the data. It is widely assumed that leaning on memories to accurately portray an event is not a very trustworthy approach. The same is true for introspection. When doing introspection retrospectively, that is to say, collect reflections after the experience has been experienced, there is a risk of the data not being accurate. An approach to counter this is concurrent introspection, which collects data during the experience. Other considerations include the issue of documentation, in which a researcher-introspector relies on a series of undocumented experiences rather than a structured approach, as was mentioned earlier by Rapp (2018). It is also important for researcher-introspectors to consider the generalisability of the result of their research, which is especially relevant for designers working on a design concept for the larger public (Xue and Desmet, 2019). Lastly, Xue and Desmet (2019) mention that introspection takes practice and that training and guidance can enhance introspective skills.

# Key insights and project implications

Several insights can be gathered from the information on the typology of fundamental needs, the research project on the activity-based need profiling method and introspective activities. Each of these

## The value of expanding the activity-based need profiling method with introspective activities

### The value of introspective activities

The activity-based need profiling method applies the fundamental needs in a concrete, step-by-step design process, which aims to support novice designers in navigating between the concreteness of people's experiences and abstractness of the theory of the fundamental needs. The addition of introspective activities that this graduation project aims to validate, could broaden the reach of the method to different types of design projects. Along with the typology of fundamental needs, introspection could be a tool that novice designers will be able to add to their designer's toolbox to use in all sorts of projects. The design method can provide the first step in building introspective skills.

insights are valuable to this graduation project and contribute in their own way. These key insights and project implications are listed below.

### Integrate introspective activities into the design method

The integration of introspective activities in the data collection phase of the activity-based need profiling method is a suitable and valuable starting point for this graduation project. In a first case study within this current project, the initial version of the design method will be adjusted to accommodate introspective activities.

## Narratives as a manifestation of introspective data

### Introspective data as narratives

Incorporating introspection into the activity-based need profiling method could yield detailed and personal narratives as result of the data collection phase. The narratives could not only benefit the innovativeness of the design concepts, but also help designer-researchers identify the fundamental needs experienced in the activity. Narratives provide a more nuanced explanation as to why and how certain needs are experienced, which is valuable in the following steps of the design process.

### Collect introspective data as narratives

In the revised version of the activity-based need profiling method, narratives will be used as a manifestation of the introspective data collection. In turn, these narratives will influence the data overview in the second step of the process. Currently, the data sheet only supports sentence-long statements, but it should be able to support the complexity and nuance of narratives.

## The value of collaboration

### The value of collaboration in introspective activities

The second case study of the research project by Huang and Roest (2023) showed that through sharing the collected narratives in a group, design students were inspired by each other's stories. This also increased understanding of each other's experiences in a certain activity, which is also described in Xue and Desmet's (2019) paper.

### Further validate a collaborative, introspective design process

In the first case study of this graduation project, the activity-based need profiling method will be developed further through its integration of introspective activities, in an individual design project. In the second case study, this revised version will be evaluated by members of the target group. It is the intention that these evaluations will be done in a collaborative workshop, to validate whether these insights hold true.

## Different roles of a designer when introspecting

### A designer's roles in an introspective design process

When doing introspective activities as part of a design process, designers fulfil many different roles; user, research participant, designer, researcher, researcher introspector. When working on a design that includes researcher-introspection, it is important for the designer to realise which role they are fulfilling at which parts of the process.

### Structure the introspective process

To keep these roles separate and to be able to structure the research in a transparent way, a plan or procedure will be developed to collect the data in a useful way. As Rapp (2018) describes, this also supports the credibility of the project. My specific roles will be mentioned throughout the project as well.

## Susceptibility of projects for the activity-based need profiling method

### Subjective projects are suitable for introspective activities

Not all projects are susceptible for introspective activities, as Xue and Desmet (2019) describe. As this project is about activities and their relation to fundamental needs, which are based on people's experiences and behaviours, I would say that introspection will fit quite well.

### Add guidelines for determining the susceptibility of an introspective project

It is advisable to determine whether the activity-based need profiling method and its introspective data collection is a suitable approach for a design project. Guidelines for this could be added to the preparation phase of the activity-based need profiling method.

## On a personal note

I enjoy working with the typology of fundamental needs, because of the different facets it encompasses. The theory behind the typology concerns the abstract concept of need fulfilment; a way to explain, understand and generalise the experiences of people through a common goal. While, the way that people try to reach this common goal of need fulfilment is very personal and different for every individual. As I explained in the introduction, my parents both have wildly different ways of fulfilling their needs for competence and stimulation. This realisation formed the very beginning of the activity-based need profiling method. I wanted to be able to use these personal expressions of need fulfilment in my way of designing, because for me, the details that these personal stories bring are often my biggest source of information.

In my previous work as a designer, I have always been inspired by the most mundane things; things people have incorporated into their daily lives without really thinking about it. In my opinion, designing for the mundane can have a big impact on a person's feeling of wellbeing, due to people's frequent yet unconscious engagement. I have also always been interested in people's misuses of products, knowing that these misuses can tell me something about a design that could be improved, or even better, ways in which misuses can be integrated into a design.

I am happy that the activity-based need profiling method creates room for these mundane activities and misuses, and that it actively uses these aspects of life as inspiration for design concepts. I am happy that the design method creates understanding about different personalities and interests. The design method doesn't judge, it treats every single speck of data as equally important, accepting that each experience is valid, valuable and worth designing for.

I felt motivated to add introspective activities to the design method, as I believe these could provide an even deeper level of personality and authenticity to the data. During some previous design projects, I have felt limited by which types of data I was 'allowed' to use. When I followed the Introspective Design-elective a few years ago, it felt as if I had discovered a whole new range of possibilities. Though, introspection did not feel entirely unfamiliar to me. Due to my disability and the therapy I receive for it, I have learned to introspect almost constantly. Listening to my body, actively monitoring my feelings and learning to recognise my emotions has helped me to cope with unexpected situations and acting accordingly, which can sometimes be a challenge as autistic person. So, while I don't claim to be an expert whatsoever, and this project is also a learning experience for me, I do feel working with introspection suits me quite well.



## An introspective and explorative case study



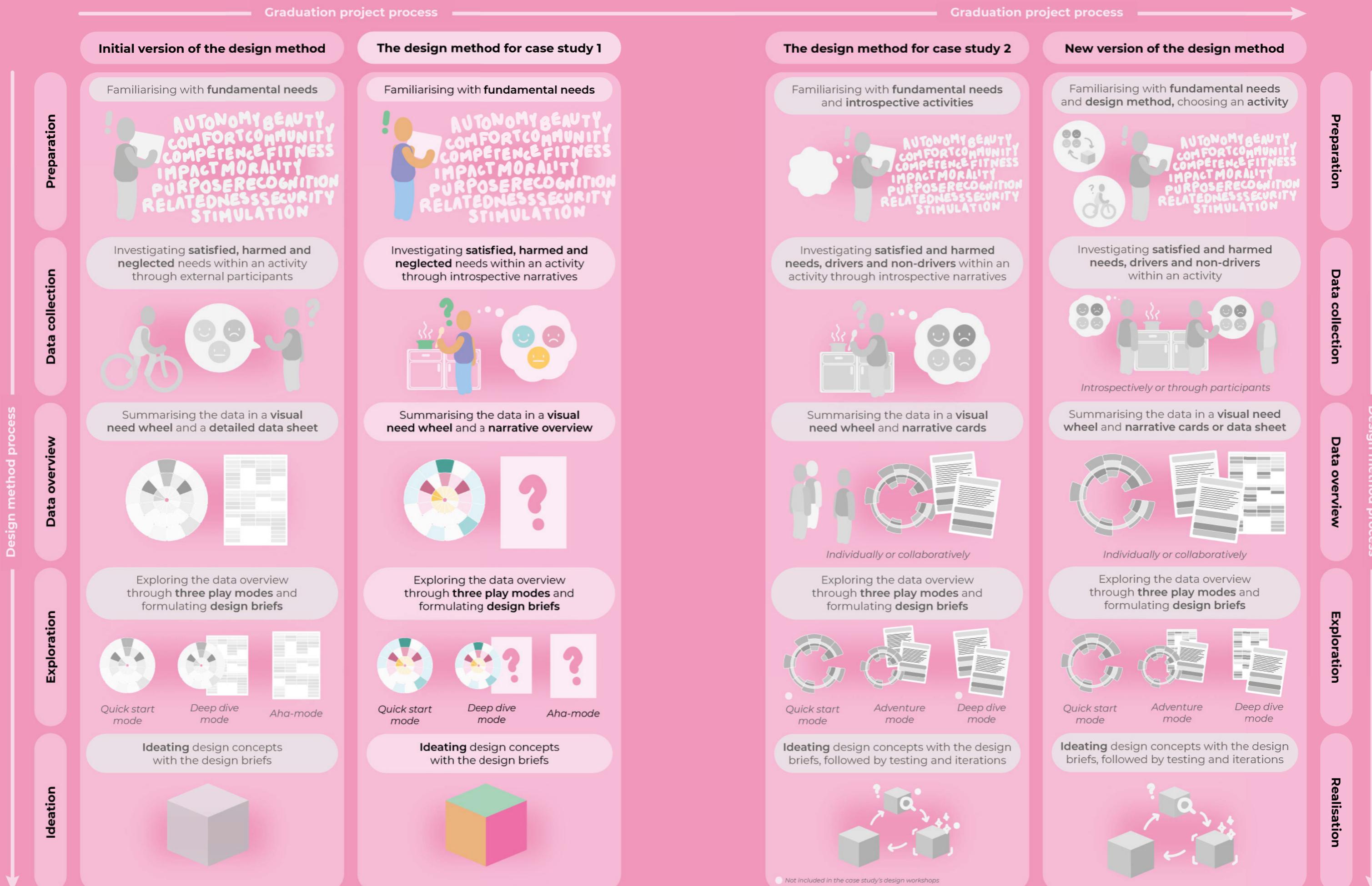


Figure 7 Evolution of the activity-based need profiling design method, with a focus on the first case study version of the design method

This chapter describes an introspective, individual case study, which aimed to investigate and evaluate the use of introspective activities and narratives in the data collection phase of the activity-based need profiling method. At the start of this case study, I developed a revised version of this design method. I followed the process of this revised method and adjusted and iterated upon its steps and materials based on my own experiences and reflections. This 'developing-through-designing'-approach gave me the opportunity to directly assess the function and use of the design method, and identify points for improvement.

During the process of this case study, I fulfilled several different roles throughout the process; user, researcher-introspector and designer. When describing the steps I will make clear which roles I fulfilled.

## A design method prototype

This paragraph describes the revision and prototype of the design method to be used in this case study. In the previous chapter, it became clear that it would be of interest to investigate the integration of introspective activities. The addition of introspective activities meant a revision of the initial version of the design method, and a corresponding design method prototype for this case study.

### Identifying points of interest for the design method prototype

To develop a design method prototype for this case study, I identified points of interest through two sources: a review of the research project by Huang and Roest (2023) and an expert discussion. The previous chapter describes this review of the research project and the implications for this case study and graduation project.

The chapter follows a chronological structure, where I first describe the development of the version of the design method to be used in this case study. After this, I kick off the design project. I follow the process proposed by the design method through the five steps: preparation, data collection, data overview, exploration and ideation. The next step of evaluating the design concepts is not included in the initial design method, but is necessary to validate the ability of the method to achieve the goals of designing with and for fundamental needs, as well as the integration of introspective activities. I conclude the chapter by sharing key insights and implications for the following stages of the graduation project.

activities, as well as the use of narratives to give shape to the introspection. They also pointed out that these narratives required a different type of data overview. Aside from this, the discussion yielded an extra set of insights, which are summarised below (figure 8).

- **The definition of the fulfilment state of 'neglected needs' is a little vague.** While the need fulfilment states of satisfied and harmed needs seem to be experienced in real time, neglected needs might only show themselves when reflected upon. Another point of interest is the notion that neglected needs might be a different sort of harmed need, while in the initial development, neglected needs were conceived to be neither positive nor negative (Huang & Roest, 2023). It might be useful to investigate the value and form of this need fulfilment state further.

- The research project by Huang and Roest (2023) focused more on the analysis phase of the process; the data collection, data overview and exploration steps. **The fourth step, the ideation phase, was included in the process, but not in a detailed way.** Part of this was deliberate, to give designers space to follow their own organic ideation process, or to support a variety of different projects with different ideation needs. Though, it might be useful to include descriptions or suggestions on how to go from a design brief, defined in the exploration step, to an actual design concept. To substantiate the ideation step, it might be valuable to reflect on my own ideation processes during this first case study.

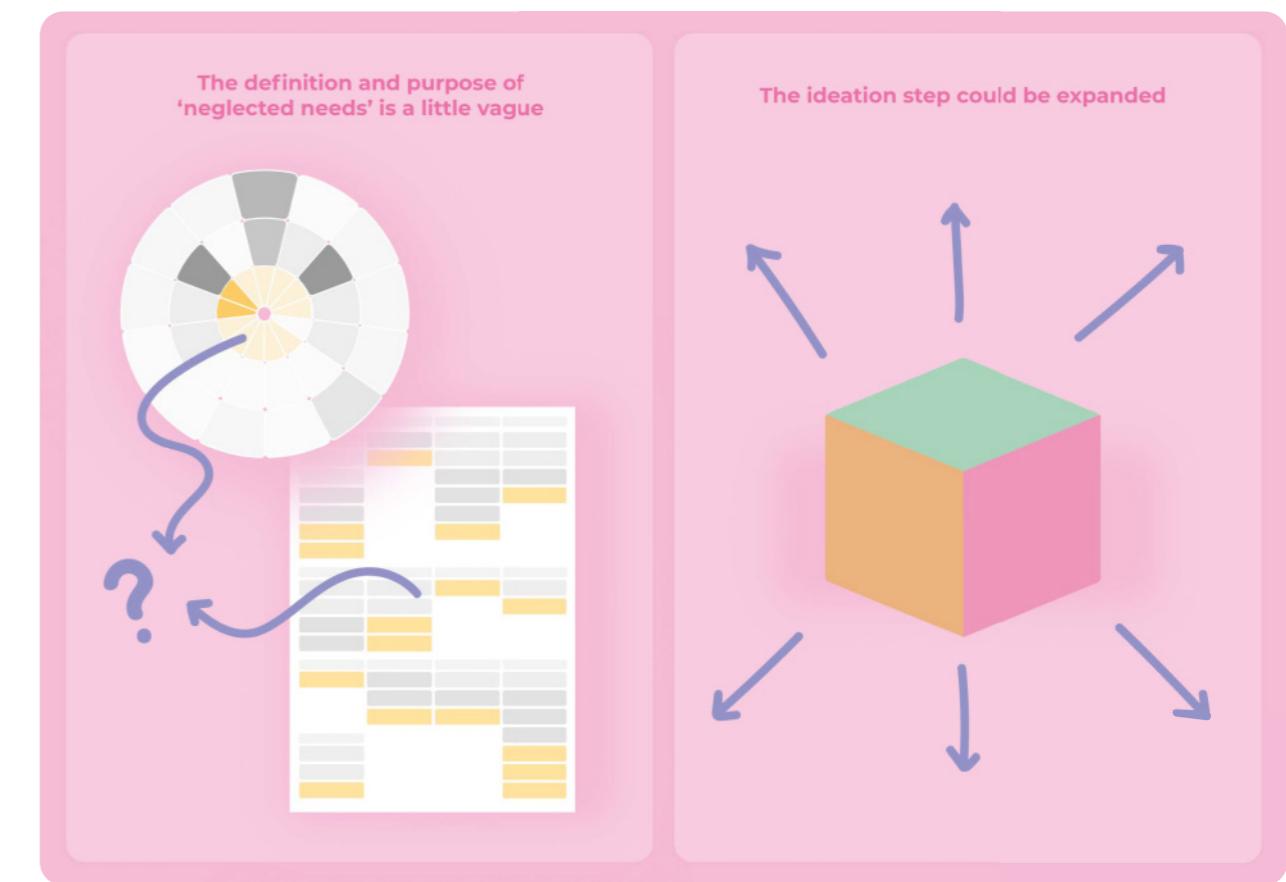


Figure 8 Two additional points of concern resulted from the expert discussion

## The design method prototype

Having considered the insights gained in the previous chapter, as well as the results from the expert discussion, I developed the following design method prototype to use during this case study (figure 9). Some steps of the process are still unclear,

because I aim to develop these further as I get to it, when I have a better overview of what is required in that phase of the process and I am directly able to review and iterate on these parts of the prototype. Next to that, the figure explains which roles I will take on in different stages of the study.

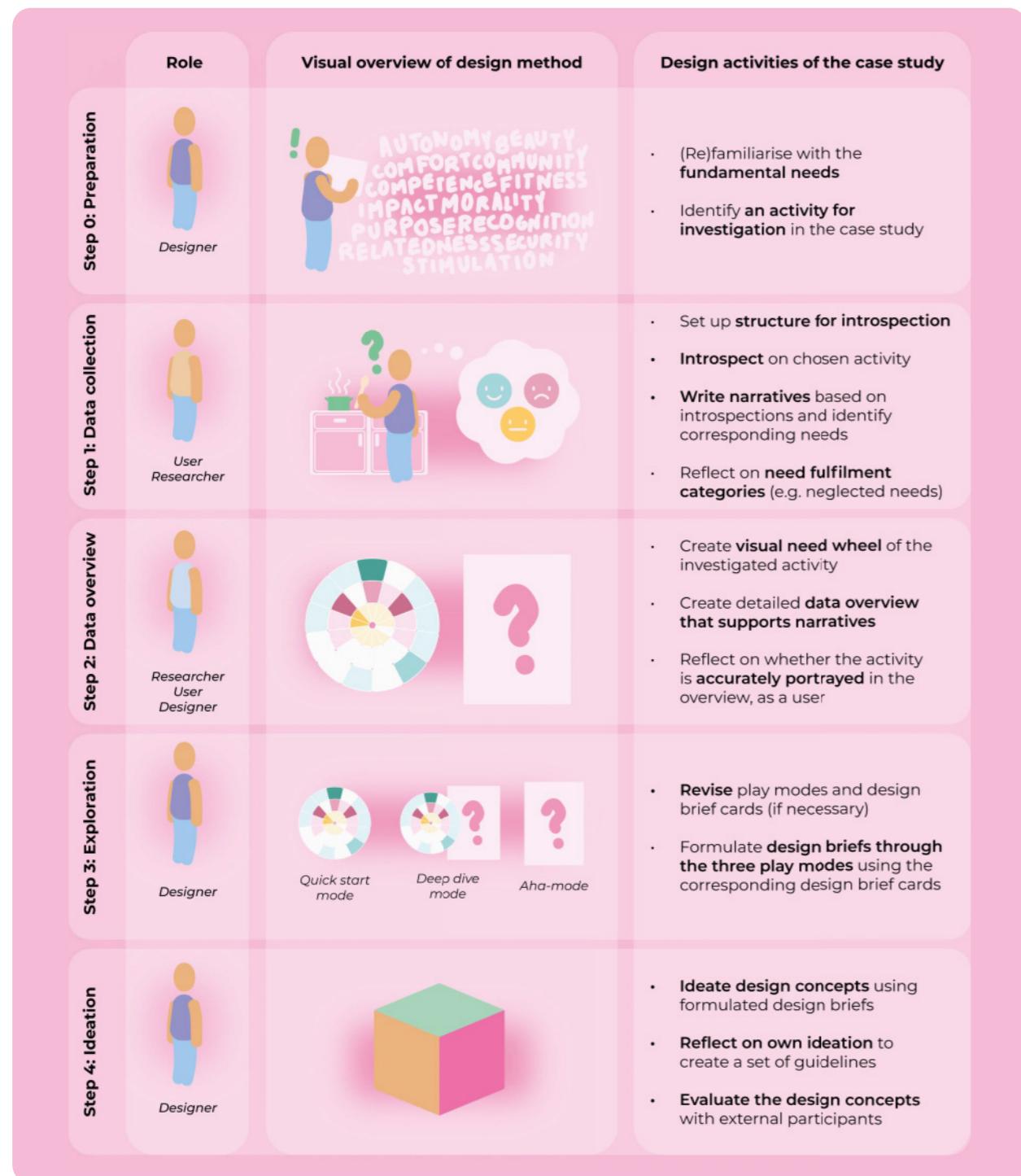


Figure 9 An overview of the design method prototype for this case study

## Step 0: Preparation

In their initial version of the design method, Huang and Roest (2023) suggested familiarising with the typology of fundamental needs as preparation. While I agree that this supports a more streamlined design process, I would like to add the identification of the to-be-investigated activity to this preparation step. Due to the development of the initial design method, which was done right before this graduation project, and the review of the typology of fundamental needs completed in the previous chapter, I will assume I have sufficiently familiarised myself with the thirteen fundamental needs, and focus on the identification of the activity in this paragraph.

The scope of the project, in this case, is not only defined by the activity that is to be investigated, but also by me as researcher-introspector, because of the introspective nature of the study. Inspired by Xue and Desmet's (2019) article on introspection in a design context, I have formulated four considerations for this project's scope. I have chosen the topic of activities related to food preparation in a home kitchen environment, which I will justify below, through the four defined considerations.

**The activity is subjective and experiential.** Xue and Desmet (2019) address this consideration in their article. I suppose that most activities would probably be susceptible, because of the described relation between introspection and experience-driven design. As I mentioned before, activities in general contain many subjective aspects, such as interactions and experiences of contexts. Food related activities might be of specific value, as food is such a subjective matter in particular. Food has many different meanings, within

individuals and within cultures, especially in home kitchens; a personal space.

**The activity is mundane and engaged in frequently.** This consideration is of interest to me as a designer personally. I think design for wellbeing cannot only be achieved through big gestures or radical changes in one's life, I think design for wellbeing can also find its place in the smallest moments of someone's day. When looking into daily, mundane activities that people might not even think about very often, designers could identify small changes or opportunities that can have a big impact, due to the frequency of the involvement in the activity.

**The designer is a complete member researcher.** Xue and Desmet (2019) describe the role of complete member researcher, where the researcher doing introspective activities is a member of the target group under investigation. In the case of this project, I believe the target group is quite large, as many people are frequently involved in food-related activities in their own kitchen. This group is made slightly smaller by focusing on Dutch kitchen activities, as I am Dutch myself and am therefore unable to accurately introspect on kitchen activities in other cultures.

**The designer has a connection to the activity under investigation.** Xue and Desmet (2019) describe the value of motivated researcher-introspectors, especially when they are investigating a topic that they are passionate about, for example a hobby or an interest. In my case, I dislike cooking and kitchen activities, which motivates me in a different way. I feel eager to find out why this is the case, and learn more about myself through this case study.

## Step 1: Data collection

This paragraph describes the first step of the activity-based need profiling method; the introspective collection of information about three need fulfilment categories (satisfied needs, harmed needs and neglected needs) within the defined activity. First, a structured approach to collecting the data is introduced. Secondly, the process of translating the collected data into narratives is described.

During this step of the design process, in which I was the only one involved, I have fulfilled the roles of user and researcher.

- **As a user**, I have reflected on how I use my kitchen as part of my own daily life, focusing on food preparation-related activities. In the later stages of translating the introspective data into narratives, I have iteratively reflected on the narratives to assess whether they still accurately represented my experiences.
- **As a researcher**, I have been involved in the data collection by observing myself. I have also been writing narratives and identifying needs as a way of processing the gathered data, getting it ready for use in further stages of the process.

### Creating a data collection plan

A data collection plan is formulated to structure the introspective data collection. Formulating a data collection plan was suggested in the previous chapter of the report. The data collection plan defines the goal of the data collection, a definition of the activity to investigate, the duration of study, which specific pieces of data are to be collected and when, as well as how they are collected. A summary of the data

collection plan can be seen in figure 10. A more detailed version of the data collection plan can be found in appendix C.

The data collection plan validates the introspective data to be collected, by creating transparency in the introspective process, providing others with the opportunity to understand and assess my introspective process if necessary. The data collection plan also ensures consistency in the collected data, making it more suitable to compare, cluster and analyse in the later stages of the design process.

The data collection plan proposes the use of both contemporaneous and retrospective introspection (Xue and Desmet, 2019). By using both of these techniques, I aim to record my experiences, behaviours and feelings in an accurate way.

- I introspect through **the contemporaneous approach** when engaged in the activity I want to investigate. In real time, I record the type of activity, the motivation, the actions taken and my experiences, both positive and negative. Accurately recording this data in real time, assists me in accurately remembering the experience at a later moment.

- **The retrospective introspection approach** is used at a moment after the activity instance is completed. I look back at the data I've collected earlier to write a narrative of 50 to 150 words to summarise this data and to identify the fundamental needs and their fulfilment categories within the activity instance.



Figure 10 An overview of the data collection plan

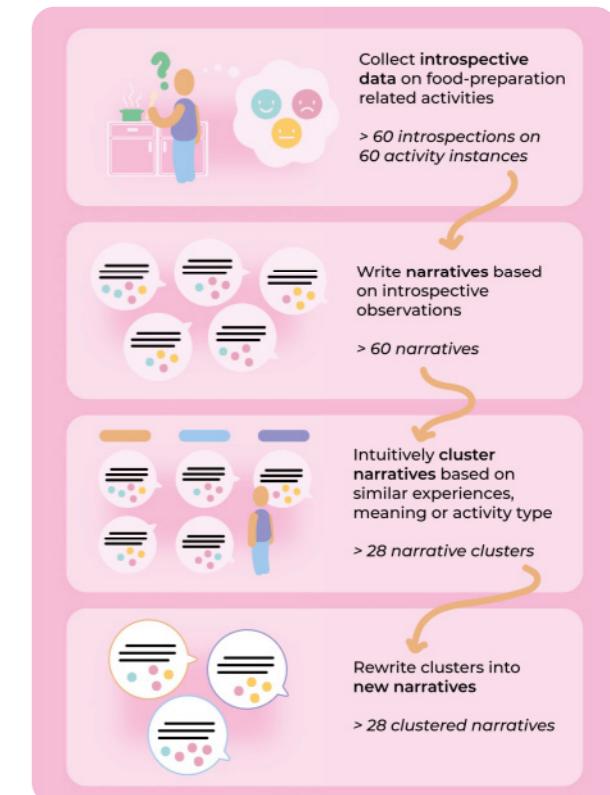


Figure 11 From introspective data to 28 narratives

### From data to narrative

This section describes the processing of the data into narratives. This process is also visualised in figure 11. I recorded data each time I engaged in any food preparation-related activities in my own home kitchen. I recorded the main information in real time during the activity instance, and at a later moment, wrote a narrative and identified the fundamental needs and their fulfilment categories.

The data collection took place over a time period of 14 days and resulted in 60 narratives, based on 60 activity instances (appendix D). The narratives will be part of the data overview in the second step of the method, which means they should be suitable for processing and analysis and to gain insights from them. I aimed to collect 25 to 30 narratives for this step, as I felt this number would still provide a good variety of experiences, without being

overwhelming. To achieve this, I clustered the 60 narratives based on their similarity in terms of the activity instance, experience or meaning. The goal of the clustering was to keep the variety and richness of the experiences intact. This was an intuitive process, in which I grouped narratives from which I felt I could combine them well into one narrative without losing any of the nuances of the experiences.

These narrative clusters were rewritten into single narratives, combining the different experiences into one story. I took care to include the triggers for any needs and need fulfilment categories. I also paid attention to ensure these clustered narratives still represented my food preparation-related activities well, to accurately reflect my experiences.

This clustering and rewriting resulted in 28 'new' narratives, which can be found in appendix E.

## Intermezzo: a revision of the need fulfilment categories

This paragraph describes a necessary detour taken during the design process, in order to ensure that the collected data still represented the experiences in an accurate way, by revising the need fulfilment categories of satisfied, harmed and neglected needs. The paragraph also introduces need fulfilment styles, which explain different ways in which needs can be fulfilled.

In this intermezzo, I act as designer, making an iteration on the design method.

### From neglected needs to drivers and non-drivers

In the initial version of the design method by Huang and Roest (2023), the category of satisfied needs represents the needs that people feel are fulfilled when engaged in the activity, and the category of harmed needs represents the needs that people feel are harmed. The category of neglected needs represents the neutral ground of the activity, where people don't fulfil a need, because they don't directly associate that need with the activity.

During the expert discussion in the prepa-

ration phase, doubts emerged on the category of neglected needs, and these doubts were strengthened while I was introspecting and processing this data. I noticed that I had collected only a handful of neglected needs and that in some cases, these neglected needs were needs that were overlooked in order to fulfil a different need. Following this insight, I changed the category of neglected needs into 'overlooked needs', which represent needs that are, upon reflection, overlooked during the activity in favour of another need. This category could either be a positive or a negative experience, depending on which other need fulfilment category is prioritised.

During a graduation progress meeting, my supervisors and myself concluded that the category of overlooked needs was still a little vague and difficult to grasp. When relating the theory to some of our personal experiences, it was suggested that perhaps some need fulfilments had more impact on the experience of the activity than others, and that these other, less prominent, need fulfilments might be experienced either unconsciously or that they might only be identified upon reflection.

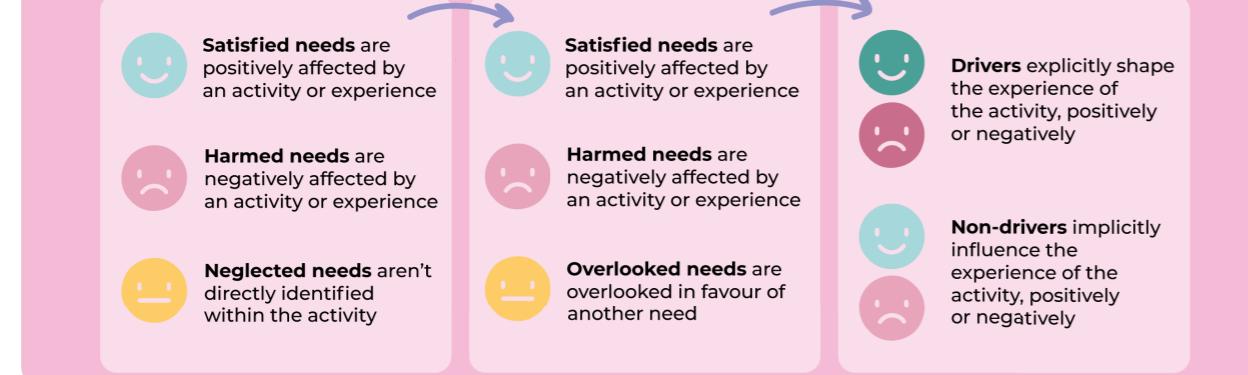


Figure 12 From neglected needs to drivers and non-drivers

Inspired by this conversation, the category of overlooked, or neglected needs, was integrated in the existing categories of satisfied and harmed needs (figure 12). This decision is based on the notion that when an experience warrants a reaction, it is by nature either positive or negative. To incorporate the insight about the impact of need fulfilment on an activity, need fulfilments were divided into two statuses, drivers and non-drivers. Both the satisfied/harmed-dimension and the driver/non-driver dimension describe the effect of the experience on the fulfilment of the fundamental needs, but they do so on different levels. Figure 13 provides an overview image of both dimensions.

- **Drivers** are either satisfied or harmed needs that have a big impact on the experience of an activity or activity instance and actively shape it. Drivers are often the primary force or motivation behind an experience. Drivers are more likely to be identified in real time while engaged in an activity and drivers are what people most likely

think back on when talking about their experience of an activity. Each activity instance has at least one driver and the existence of multiple, different drivers is possible.

- **Non-drivers** are either satisfied or harmed needs that have an impact on the experience of an activity in a more implicit way. Most likely, non-drivers are not identified until after the activity, when people reflect on their experience. This does not mean that non-drivers have an insignificant impact. They might not necessarily push the experience forward actively but they can play a role in determining its nature, tone or meaning.

Following this switch from three need fulfilment categories to two need fulfilment categories with two sub-categories, I reviewed the narratives I wrote during the data collection phase and rearranged the attached needs and their need fulfilment categories accordingly.

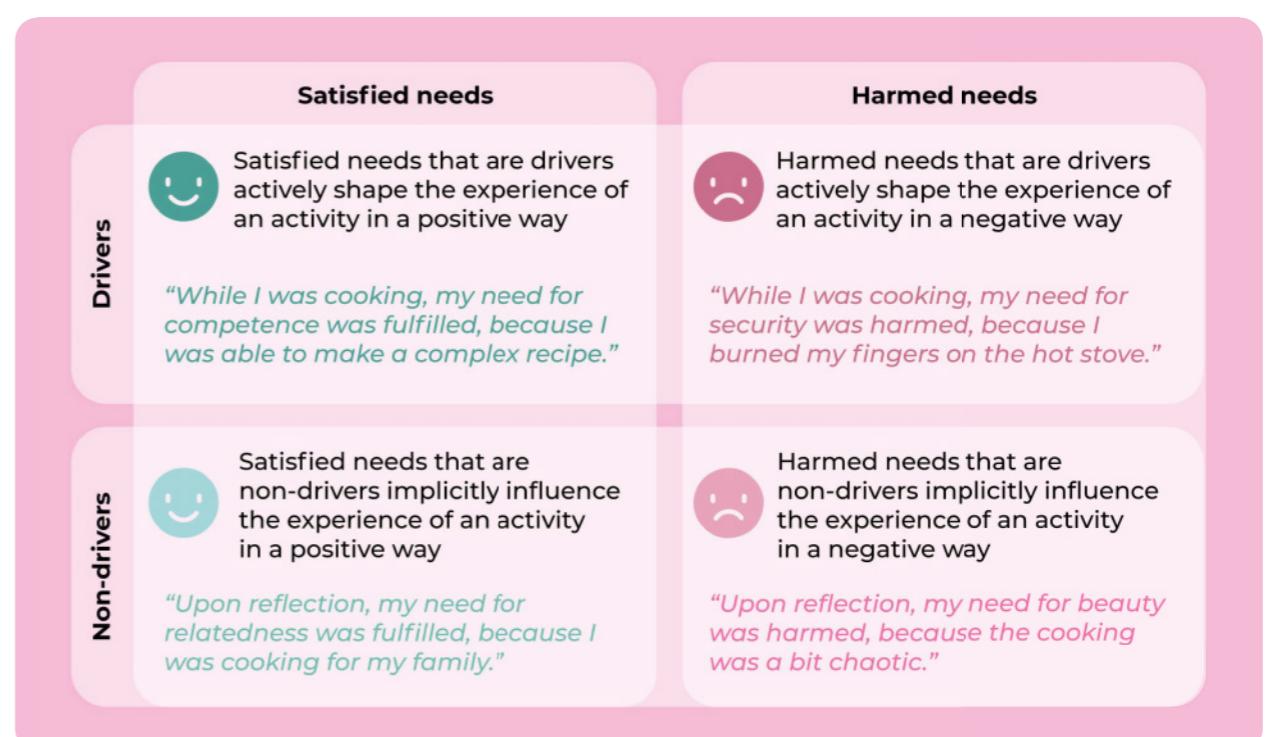
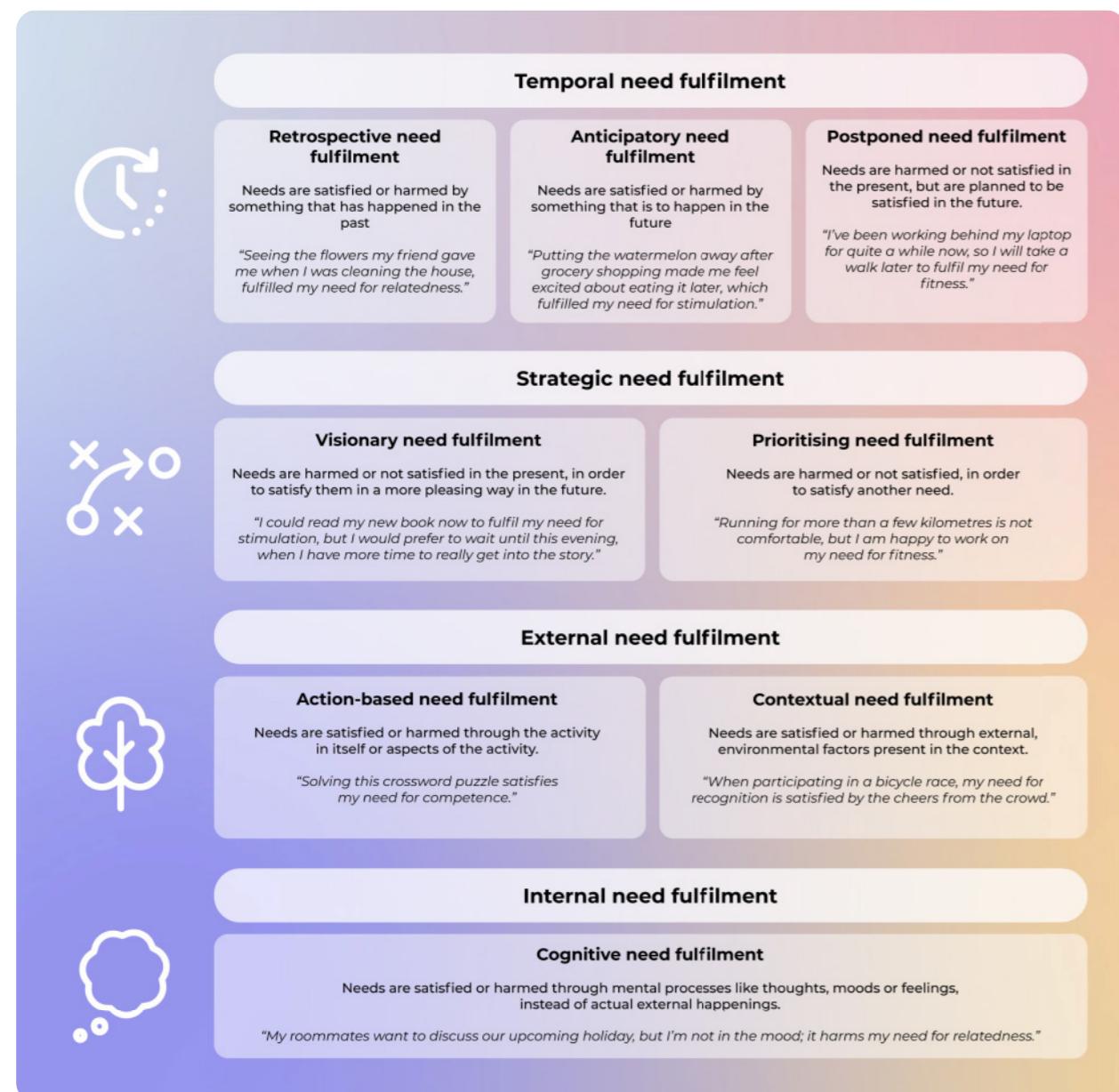


Figure 13 An overview of the four need fulfilment categories

## The identification of need fulfilment styles

Along with the notion of drivers and non-drivers, the discussion with my supervisors, described in the previous section, also yielded a different notion; need fulfilment styles. Need fulfilment categories describe the effect of an experience on the fundamental needs, while need fulfilment styles describe strategies in which people fulfil their needs through an activity, either intentionally or unintentionally. Need fulfilmen

styles can assist in making sense of an experience as a guide for reflection, or they can be used to identify design opportunities. During the collection of data, I had collected some initial ideas on the styles, which were developed further based on the aforementioned meeting. So far, I have identified four need fulfilment styles, with several subcategories each (figure 14). It is important to note that these need fulfilment styles don't exclude each other. More than one need fulfilment style can be at play at the same time.

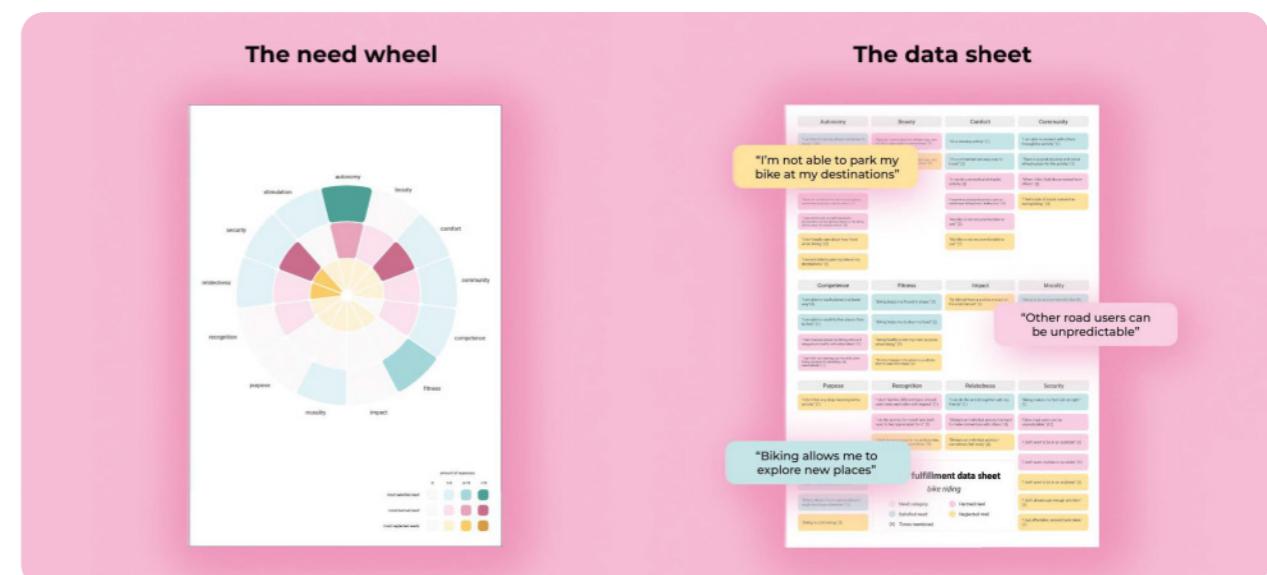


**Figure 14** An overview of the four need fulfilment styles and their subcategories

## Step 2: Data overview

The data overview consists of two parts; a visual component and a more detailed textual component. In the initial activity-based need profiling method, the data overview consisted of a need wheel and a data sheet (figure 15). Both of these parts contained information on the experience of the investigated activity through the fundamental needs and their corresponding need fulfilment categories.

In the previous data collection step, I described and explained the gathering of data through introspective activities, which resulted in 28 narratives and corresponding fundamental needs. The goal, and challenge of this second step was to explore ways in which the nuance and complexity of the narratives would be preserved, while still being usable in the context of this design process. First, I describe the revision of the visual need wheel, based on the need fulfilment category revisions done in the previous paragraph. Then, I introduce the updated textual component of the data overview, where a set of so-called narrative cards replaced the data sheet from the initial version.



**Figure 15** The initial version of the data overview, consisting of the need wheel and data sheet (Huang and Roest, 2023)

Because the category of neglected needs is absorbed into the satisfied and harmed need categories and these categories are divided through drivers and non-drivers, the revised need wheel looks a little different (figure 16). Other configurations that were considered are added in appendix F. This specific version was chosen, because of how it is able to clearly and directly show the presence of the fundamental needs and their categories within the scope of the activity. The main considerations for the redesign of the need wheel are described below:

- The **shape of the need wheel** is similar to the initial version. During the research project (Huang & Roest, 2023), it was decided that this part of the data overview should be visually inspiring, which would support the further design process and possible communication about the project. This would still be the case, therefore the wheel design is reused.

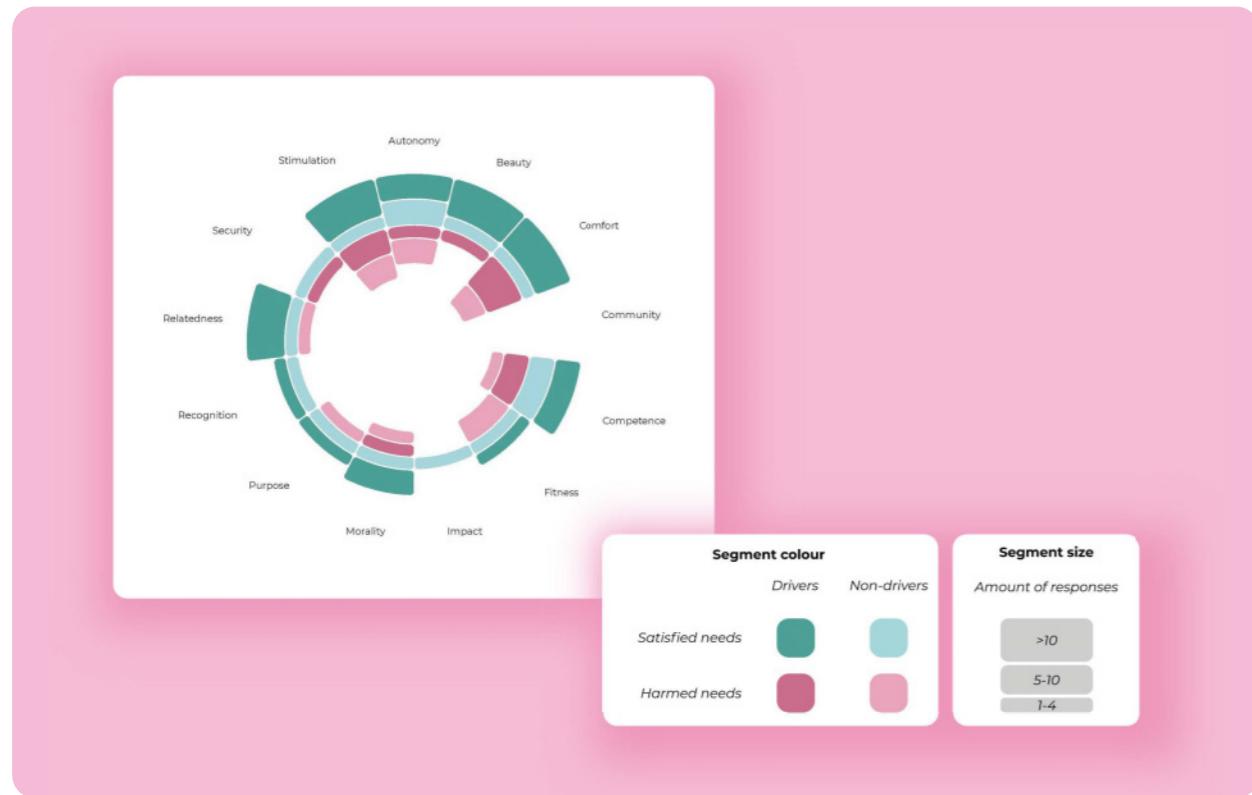


Figure 16 The revised need wheel and its legend, which resulted from the data collection step of this case study

- The revised wheel uses **colour to show the difference between need fulfilment categories**. A distinction is made between satisfied needs (greenish blue) and harmed needs (pink). The darker shade of this colour represents drivers of the experience and the lighter shade represents non-drivers of the experience.
- The different **sizes of the segments in the revised need wheel show the weight**, or the amount of mentions of the specific need and need fulfilment category. There are three different segment sizes, where the dimension of interest is the height of the segment, not the width (which is influenced by the shape of the wheel and not related to any information other than visual aesthetic). The amount of responses decide the size category in which the segment falls. The smaller the segment, the less amount of responses for that specific need and need fulfilment category.

### A textual component: narrative cards

In the initial version of the data overview, the need wheel is accompanied by a data sheet, containing short statements as explanations for needs and their need fulfilment states (figure 15), which had suited the data collection through a survey quite well. The new version of the 'data sheet' needed to not only accommodate the multiple-sentence narratives, but also the fact that these narratives contained multiple needs and different need fulfilment categories. This amount of data, the richness in detail and the complexity of information did not fit on one single data sheet. Therefore, narrative cards are introduced.

Narrative cards are cards that contain one narrative, including information about this narrative (figure 17). This means that designers use multiple narrative cards (one for each activity instance). Considerations for the design of these narrative cards are summarised below and earlier versions can be found in appendix G.. An overview of all 28 narrative cards can be found in appendix E.

- The narrative cards are **separate entities with one single narrative on each**, including the corresponding information. The result is a collection of narrative cards, which the designer is free to organise in a way that works for them. The narrative cards are created digitally, but it is advised to print them and use them as pieces of paper, to support easy clustering, ordering and annotating.
- The narrative cards are **A6-sized and are two-sided**. Both sides contain the title of the narrative and the reference number, which helps to trace back the narrative to its raw data, if necessary. One side contains an image, the needs and need fulfilment categories. The image is a representation of the experience, which helps designers to quickly identify the narrative. The other side contains the narrative, and a short explanation for the needs and their need fulfilment category, relating to the narrative. This way, the one side with the image shows a quick look of the experience, and the other side, with the narrative, shows a more detailed overview. Designers can flip the cards to the side which best suit their needs.

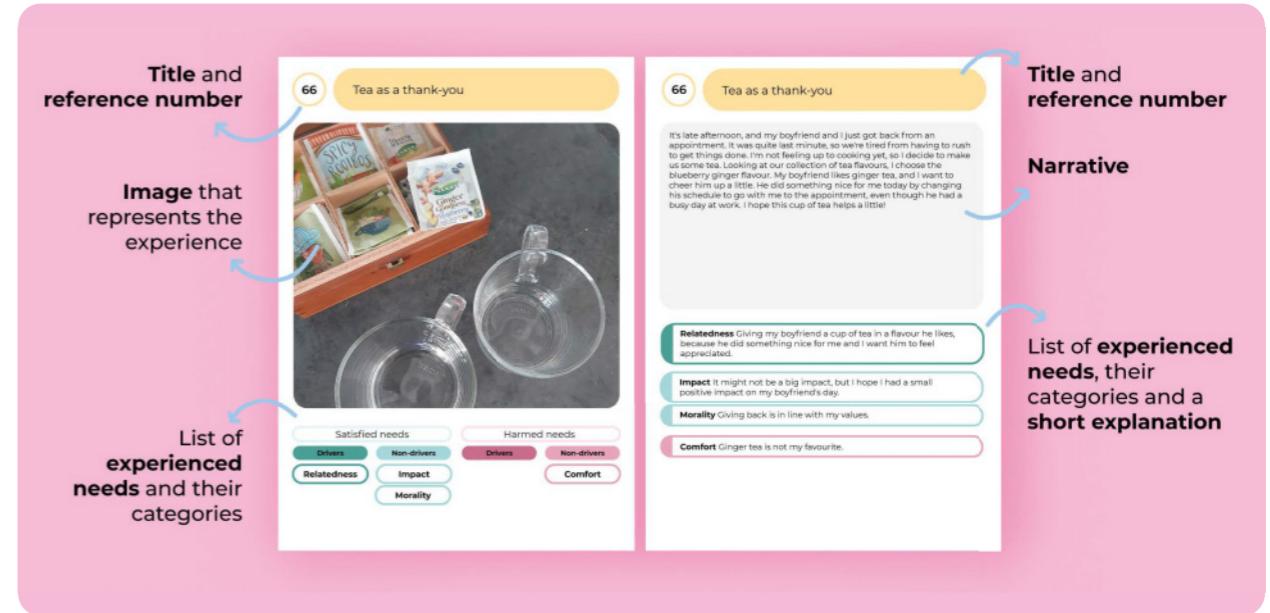


Figure 17 An overview of one of the narrative cards from this case study

## Step 3: Exploration

The third step of the activity-based need profiling method, exploration, is the phase in the process where the data overview from the second step is analysed and insights are gathered to create design briefs for the fourth ideation step; it's the translation step from data to design direction.

During this step, I take on the role of designer, where I use the gathered data to formulate design briefs for the development of design concepts.

This process is guided by three play modes and their corresponding design brief cards. The initial version of the method also uses play modes and design brief cards, but due to the revisions done to the need fulfilment categories, new versions of the play modes and design brief cards had to be developed. The new versions are introduced below, in relation to the design brief cards of the initial version.

### Revision of the three play modes

There are three play modes; quick start mode, adventure mode and deep dive mode, which have changed in name and somewhat in purpose in relation to the play modes in the initial version of cards. These modes differ in depth, complexity and intensity, ranging from the directness and efficiency of quick start mode to the abstractness and inspiration of the deep dive mode. Figures 18, 19 and 20 provide an overview of the revised play modes.

#### Quick start mode

Similarly to the initial quick start mode, this first play mode is a way to engage with the collected data through the need wheel. This mode is valuable to quickly get an overview of which kind of information there is and what this could say about the investigated activity. As in the initial version, here are four ways to approach the data through the quick start mode, though they are slightly adjusted in the new versions to support the changes made in earlier steps.

- *Focus on satisfied needs.* Similar to the initial version of the design method, which focuses on the satisfied needs. In the current version, the focus lies on the segment of fulfilled needs as a whole, not on the separate drivers and non-drivers.
- *Focus on harmed needs.* Similar to the initial version of the design method, which focuses on harmed needs. In the current version, the focus lies on the segment of fulfilled needs as a whole, not on the separate drivers and non-drivers.
- *Focus on unaddressed needs.* As in the initial version, this approach aims to identify design opportunities by investigating needs that were very little or not represented within the activity. As the category for neglected needs does not exist in the revised version, the focus lies solely on the gaps.
- *Focus on conflicts within needs.* Both the initial version and this current version look at needs that are satisfied and harmed at the same time to identify conflicts. In this current version, there is no distinction between driver needs and non-driver needs.



Figure 18 An overview of the revised 'quick start'-mode

#### Adventure mode

The adventure mode, which used to be the deep dive mode in the initial version, uses both the need wheel and the narrative cards to find interesting insights. Both versions investigate the connection between these two parts of the overview, while the new version also investigates the relation between drivers and non-drivers within a need. There are three approaches to take when exploring using the adventure mode (figure 19), and the process is guided by a corresponding design brief card.

- *Inner workings of needs.* This approach is newly added to the play mode and focuses on the buildup of single needs and the relationships between need fulfilment categories.
- *Relationships between needs.* Similar to the initial version of the play mode, this approach focuses on multiple needs within the need wheel and their relationships. The addition of drivers and non-drivers adds a new dimension to this approach, as it allows the investigation of needs with a similar need buildup, for example.
- *Personal motivation.* This third approach combines the curiosity-driven and project-dependent focuses from the initial version of the play mode. I combined these two, as they are both rooted in personal motivation, either through curiosity about some parts of the data overview, or project-driven interest in specific segments.

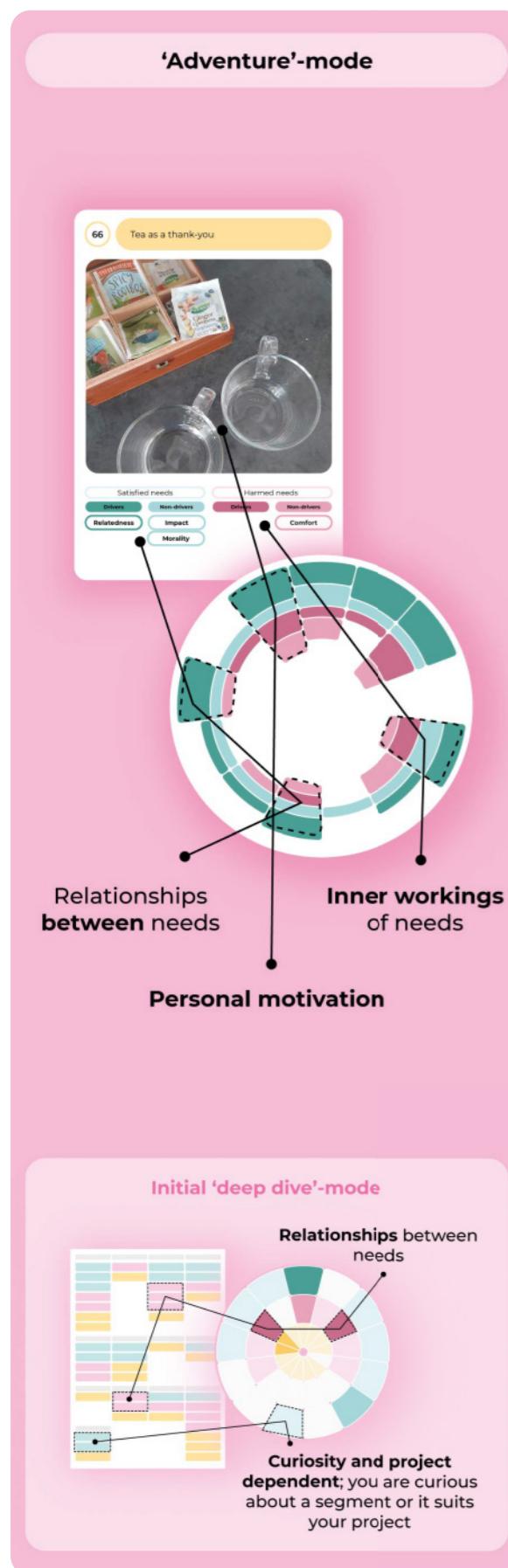


Figure 19 An overview of the revised 'adventure'-mode

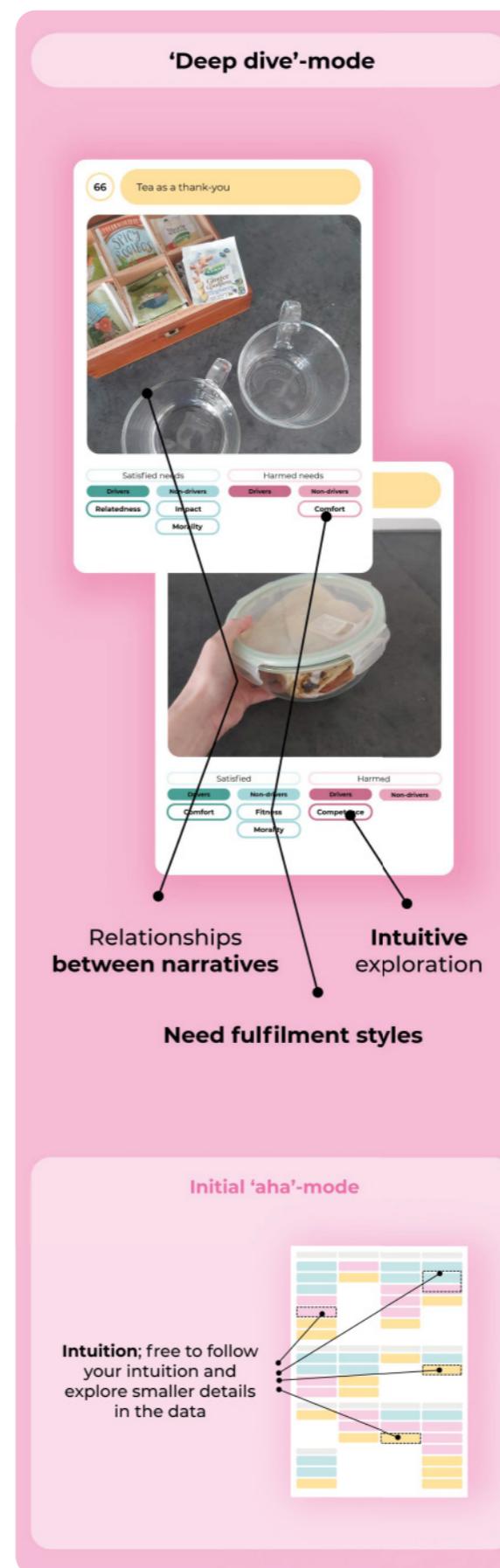


Figure 20 An overview of the revised 'deep dive'-mode

## Formulating the design briefs

Each of the play modes has a corresponding design brief card, which designers can use to follow the modes and approaches in a more concrete way. The cards help designers choose an approach, report which part of the data inspires the design brief, formulate which insights they gathered from this data, and which design brief stems from these insights.

Through the revised play modes and corresponding design brief cards, I formulated fifteen design briefs; five briefs for each play mode. These design briefs are the basis of the fourth step of the process; the ideation phase. I found that the design brief cards supported their play modes well, though I suggest adding some visual communication to the focuses.

An overview of the design briefs and the play modes and approaches they stem from can be found in appendix H. Some examples of them are shown in figure 21.

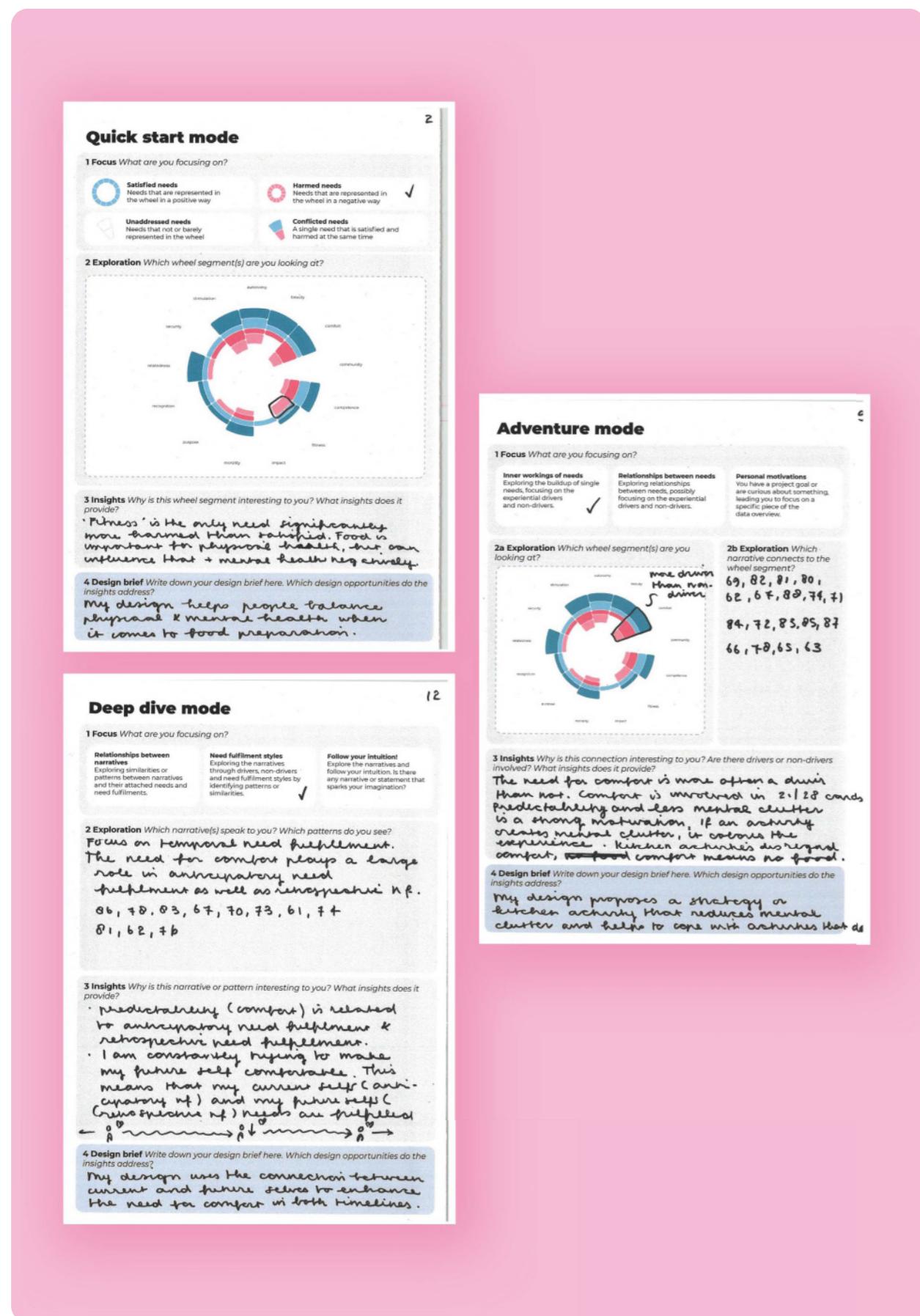


Figure 21 Three examples of revised and filled out design brief cards, one for each play mode

## Step 4: Ideation

This paragraph describes the ideation step of the design process. First, I describe insights gained on the ideation process in order to expand the ideation step. Secondly, I describe the results of the ideation step in the form of three design concepts and their prototypes. The goal of this fourth step is to turn the design briefs formulated in the previous step into design concepts. These design concepts are a result of the design process, and on the larger scope of this graduation project, will be able to give insights into the function of the activity-based need profiling method.

During this fourth step, I take on the role of designer. As a designer, I develop design concepts through an ideation process. On a larger level, I reflect on the process to gather information on my own ways of ideation, in order to expand the ideation step in the revised version of the design method.

### The ideation process and gathered insights

During the expert discussion in the preparation phase of this case study, it was mentioned that it would be valuable to expand the ideation step of the design method. To realise this expansion, I reflected on my own ideation process to gather insights to create guidelines. To be able to reflect on as broad an ideation process as possible, I ideated at least two concepts for all of the fifteen design briefs collected in the previous step. Some examples can be seen in figure 22. Other than useful ideation insights, ideating this many ideas would also help evaluate the usefulness of the revised method so far. The fact that I was able to ideate multiple concepts for each design brief in the relatively short span of three days bodes well for the creativity boost the method provides. The ideation guidelines I collected are summarised as follows:

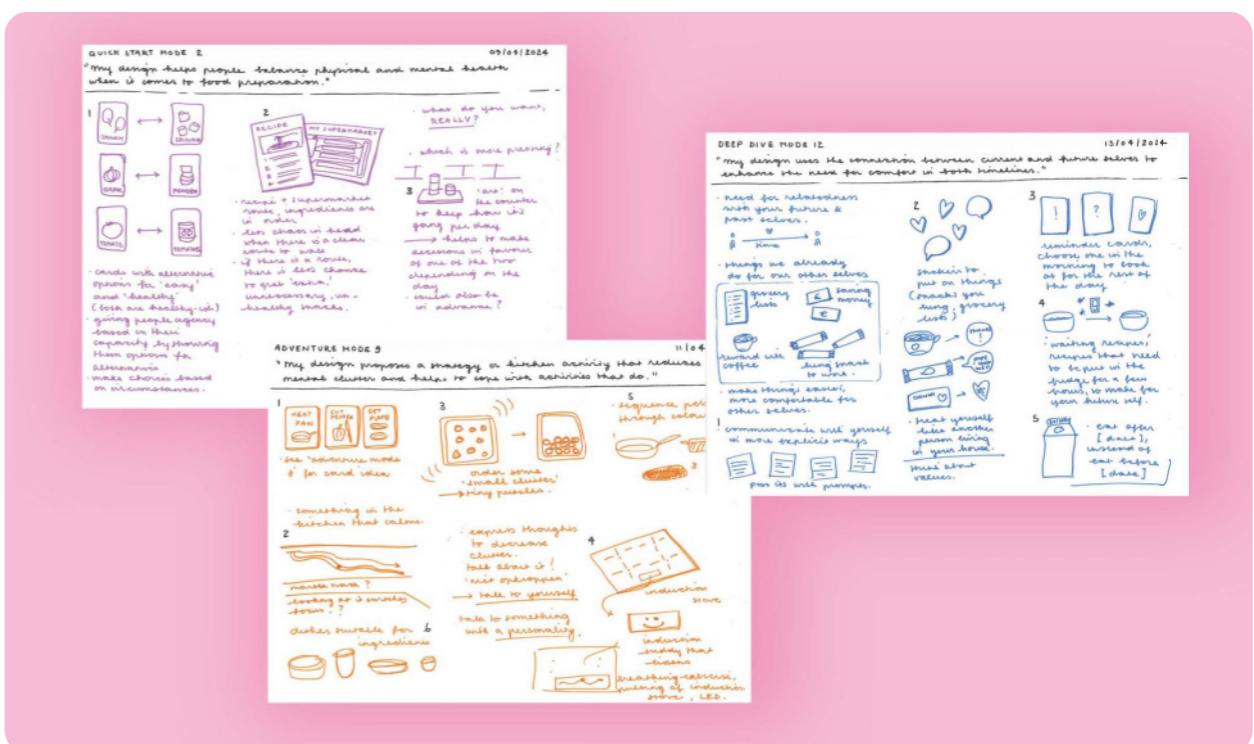
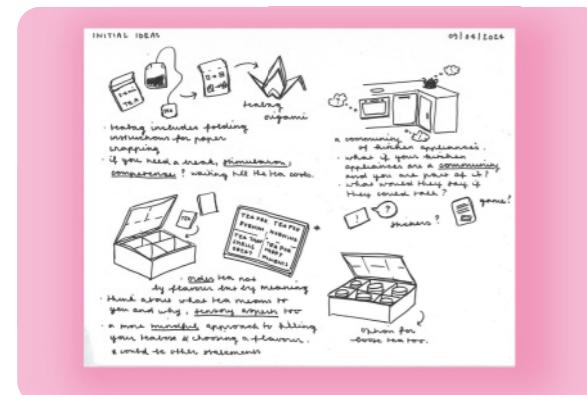


Figure 22 Three examples of ideation sheets, one for each play mode

**Formulating an ideation goal.** The general notion of 'creating design ideas' can be quite intangible and daunting. Further specifying this goal might help to structure this process, for example in terms of number of ideas or type of idea. In this case study, I aimed to design at least two concepts for each of the fifteen design briefs.

**Writing down initial ideas at the start of the process.** In processes like this, where a designer is deeply involved in all steps, it could happen that a designer already has collected some ideas, based on nothing but intuition or experiences while working with the data. These initial ideas can help clear the mind and they could be incorporated into other ideas later (figure 23).



**Figure 23** Ideation sheet with initial ideas

**Going back to previous steps in the process.** Though this ideation process is based on design briefs, which are in turn based on a data overview, this doesn't mean that designers can only use the design brief as guidance. Sometimes it can help to go back to the original narratives to be inspired by smaller and more concrete aspects that are the basis of the design brief.

**Switching between different types of ideation.** Switching between different ideation and prototyping activities can spark different associations and ideas.

In some cases, seeing similar, existing products can help in the development of vague ideas. In my case, I visited the kitchen section of a thrift store.

## The development and descriptions of three design concepts

In order to evaluate the results of the activity-based need profiling method, I selected three design concepts; one from each play mode. Other selection criteria included:

The relation between the concept, design brief and underlying fundamental needs. Several of the concepts were loosely based on the design brief and fundamental needs, and while these can be interesting ideas too, they weren't as suitable for validating the method as some of the others, which had a closer relationship with the design briefs and underlying needs.

Ease of prototyping and testing. Firstly, I aimed to do the testing of the concepts in the home kitchen environment that they were designed for, preferably in the homes of the participants themselves. I aimed to design concepts and prototypes that would suit these logistical preferences. Secondly, some of the ideas were more speculative and would yield only a visual representation, which might not be suited to the goal of the test. Lastly, due to the time constraints of the project, and the fact that I had to work on three different concepts, I chose concepts that I would be able to prototype within a week's time.

Based on these criteria, I selected three design concepts and created accompanying prototypes in order to be able to evaluate the concepts. The three concepts are summarised below, including images of the prototypes. More detailed sketches of these concepts can be found in appendix I.

## Concept 'Kookwissels'

The concept 'Kookwissels' ('Cooking swaps'), is based on the quick start play mode and the design brief: "My design helps people balance physical and mental health when it comes to food preparation". The addressed fundamental need is 'fitness'.

'Kookwissels' (figure 24) is a card set that contains double-sided cards with ingredients, which are regularly used in Dutch recipes or are common in Dutch food practices. The card sides show ingredients where both sides are an alternative for the other side. These alternatives are collected based on the 'healthiness' of the ingredient and the mental load that the use of this ingredient takes. E.g. one side shows oranges and the other side shows tange-

rines. The oranges and the tangerines can be considered equally healthy, as they are both fresh fruits, but the tangerines have a higher mental health score, as they can be peeled by hand and yield bite-sized pieces, in comparison to the oranges (figure 24). The cards allow users to make decisions based on the balance between physical and mental health. All cards can be found in appendix J.

The ingredient swaps on the cards are based on swaps that the Voedingscentrum (2024) recommends in terms of health, and on recipes by the online supermarket Picnic (2024) who occasionally give these kinds of recommendations in their recipes. Other cards have been developed based on my own experience. The cards and packaging are designed by me and are printed on 100 grams white paper.



**Figure 24** Prototype of the concept 'Kookwissels'

## Concept 'Maatkommen'

The concept 'Maatkommen' ('Measuring bowls'), is based on the adventure play mode and the design brief: "My design proposes a strategy or kitchen activity that reduces mental clutter and helps to cope with activities that do". The addressed fundamental need is 'comfort'.

'Maatkommen' (figure 25) is a set of bowls with measurements written on the inside edge of the bowls. These measurements communicate the amount of certain ingredients that fit into these bowls. For example, the text on the smallest bowl contains 2 tablespoons, 30 millilitres or 35 grams of oil. These bowls assist users in the

kitchen by reducing the amount of steps necessary to collect the correct measurements of ingredients. An overview of the measurements per bowl can be found in appendix K. There is no need to get a scale and users are able to prepare the needed ingredients before starting the actual task of cooking. This creates structure and predictability within the activity.

The measurements have been weighed and measured and are mostly accurate. The largest deviation is approximately 8% from the actual measurements. The bowls have been thrifted and the measurements have been written on in white marker.



Figure 25 Prototype of the concept 'Maatkommen'

## Concept 'Voorraadstickers'

The concept 'Voorraadstickers' ('Inventory stickers'), is based on the deep dive play mode and the design brief: "My design uses the connection between current and future selves to enhance the need for comfort in both timelines". The addressed fundamental need is 'comfort' and the attached need fulfilment style is anticipatory need fulfilment.

'Voorraadstickers' (figure 26), is a set of stickers meant to be put on groceries in storage. They are inspired by the 'best before'-date on food items. The stickers flip this concept around, introducing a way to date the items in a 'best after'-manner. For

example, the stickers say 'enjoy on Friday!' or 'saved for Tuesday!'. The day instead of a date ensures the stickers are suitable for multiple occasions. The stickers help create some sort of predictability for users, as well as a way to communicate with themselves in the future. Putting the stickers on food items meant for certain days can enhance the positive feeling when opening the food items, for example when it concerns something tasty or something saved for a happy occasion.

The stickers have been designed by me and have been printed on self-adhesive printer paper.



Figure 26 Prototype of the concept 'Voorraadstickers'

# Evaluating the method through its design concepts

This paragraph describes the evaluation of the three design concepts, resulting from the fourth ideation step of the design method. These concepts can be seen as concrete results from the method and can therefore be used to evaluate aspects of this method. This section describes the setup of the user tests. During this phase of the case study I acted as a researcher, evaluating the design concepts and gathering insights.

## Set up of the user test

The goal of the user test was to evaluate the activity-based need profiling method through the three design concepts. As this goal is quite general, it has been divided into three subgoals that relate to the three levels of the method, the concrete concepts (mentioned in the previous paragraph), the applied method (activity-based need profiling method) and the overarching principle (design for wellbeing), shown in figure 27. The subgoals relating to these layers are: evaluation of the design concepts, the evaluation of the design method and the evaluation of the contribution to wellbeing. To further specify these goals, research questions have been attached. These subgoals and research questions are summarised below:

### Evaluation of design concepts

- How do the users react to the concepts?
- In what way do the concepts inspire conversation?
- Are the users able to intuitively grasp the function of the concepts?

### Evaluation of the design method

- Do the concepts fulfil their respective design briefs?
- Do the concepts address their respective fundamental needs?
- What other fundamental needs do the concepts address?

### Evaluation of contribution to wellbeing

- Do the concepts contribute to the users' feeling of wellbeing?
- In what ways do the concepts impact the users' life in a positive way?
- In what ways do the concepts impact the users' life in a negative way?

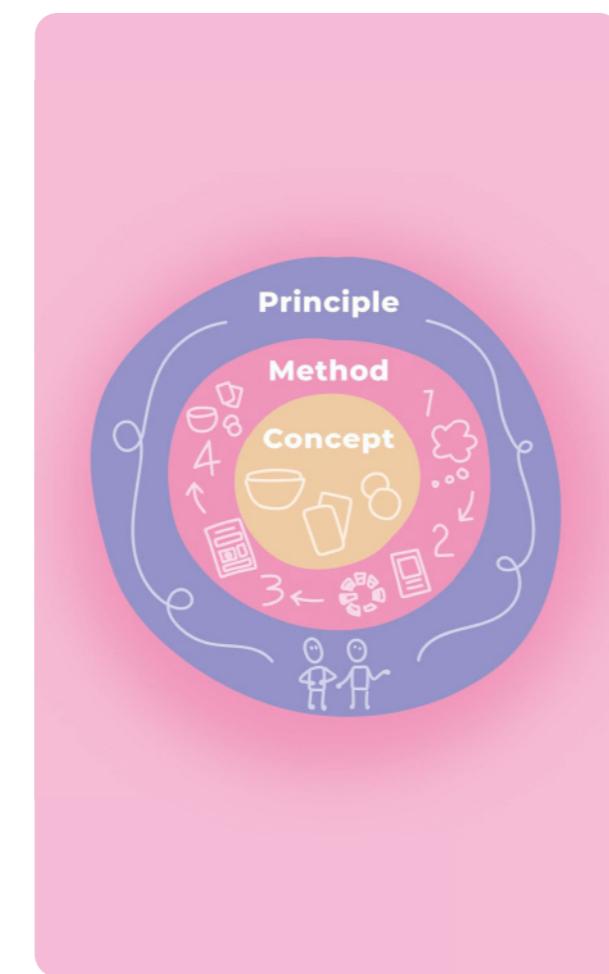


Figure 27 Overview of evaluation goals

During the study, the three concepts were evaluated in a similar manner. First, participants familiarised themselves with the concepts, during which I observed and asked some questions. After that, participants were introduced to the thirteen fundamental needs and were asked to identify the ones they felt the concepts fulfilled most. The participants were introduced to the concepts separately, and in a randomised order, to prevent any biased results from a previous concept. A more detailed overview of the concept evaluation can be seen in figure 28.

The user test has been conducted with five participants of differing genders, ages and living situations. These five participants were all members of the target group for the design concepts: users who regularly do activities in their home

kitchen environment. The tests have been conducted in the participants' own home and kitchen environment. The pilot test has been regarded as a valid test result, as there were no big, structural changes made after the pilot test. The main changes included an adjustment to the 'Maatkomen'-prototype to better support the scenario for the assignment, as well as a change to the text of this assignment to clarify the tasks to be done.

The user test has been documented via written notes (on paper, in a structured document) and pictures of the concepts in use and under evaluation. The complete test plan can be found in appendix L. This user test plan also includes the informed consent forms the participants were asked to sign before taking part in the user test. Appendices M and N show the supporting materials; the scenario and list of needs.



Figure 28 Overview of design concept evaluation structure

# Results of the design concept evaluation

This paragraph describes the results of the user test through the three goals of the user test: evaluation of the design concepts, the activity-based need profiling method and the contribution to wellbeing. These results will be supported by responses given by participants and pictures taken during the user test. Extensive answers to each research question are added in appendix O.

## Evaluation of design concepts

The first goal of the user test covered the evaluation of the design concepts, which was overall positive. The activity-based need profiling method yielded three design concepts that elicited positive reactions from their users, such as curiosity and appreciation of concept features. The design concepts also supported the forming of thoughts and feelings about them and they conveyed their uses in an intuitive way (figure 29).

The users' reactions to the design concepts and their functions included curiosity and appreciation of both the practicality and the looks of the design concepts. In most

cases, users started asking questions about the concepts and suggesting answers to these questions themselves. This way, the users expressed their curiosity and attempted to gain understanding of the design concepts. Consequently, they were able to formulate answers to my questions that surpassed a simple yes or no. Therefore, while the design concepts did not immediately spark conversations, they did support the forming of thoughts and feelings about the concepts and the ability to express these.

The participants were able to suggest (multiple) uses and functions for the concepts within the span of the user test, even though it was not necessarily the intended function of the concept. They often related the function of the concept to their own values or experiences. For example, one of the participants used the 'Kookwissels'-cards to gain inspiration and create a recipe (figure 30). While most users were able to grasp the goals and functions of the three design concepts, some mentioned that they did not see an immediate appeal to the concepts, as they did not see a gap in their lives that necessitated the concepts.



Figure 30 One of the participants combines several 'Kookwissels'-cards to create a recipe

**"I'm curious about what's on the cards and what it has to offer, though."**

- Participant 2, on the 'Kookwissels'-concept

**"No, because I don't generally look for alternatives, because I don't think I need to eat healthier."**

- Participant 0, on the 'Kookwissels'-concept

**"Oatmeal is nice, I'm going to eat that in the morning. Apple I do eat more now. Muesli not so much. I want to make gnocchi again myself soon."**

- Participant 3, when looking through the 'Kookwissels'-concept

**"I also have one of those measuring cups and you can put several things in it. That's what it reminds me of."**

- Participant 2, on the 'Maatkommen'-concept

**"For a weekly schedule. To keep things for a particular day. For organisation in your refrigerator. You decide when to eat what. Maybe also if you give someone a gift."**

- Participant 1, on the function of the 'Voorraadstickers'-concept

Figure 29 A set of quotes illustrating the result of the design concept evaluation goal

## Evaluation of the design method

This second user test goal covers the evaluation of the value and effectiveness of the activity-based need profiling method, which was overall positive. All three design concepts fulfilled at least some aspects of their intended effects, meaning that the design briefs formulated at the start were partly achieved. The 'Kookwissels' and 'Maatkommen'-concepts significantly satisfied their intended fundamental needs, while the needs fulfilled by the 'Voorraadstickers'-concept were more evenly distributed (figures 31 and 32).

The design concepts fulfilled some parts of their design briefs, but some parts were also overlooked by the users (illustrated by quotes on the next page). For example, in the 'Kookwissels'-concept, it was clear to users that the cards were designed to help them make decisions regarding ingredients, but they did not necessarily

make the connection between mental and physical health.

For the 'Voorraadstickers'-concepts, the intended goal of communication with one's future and past selves almost completely went over the users' heads. Some did mention the reminders the stickers could provide or communication with other kitchen users, but other than that they mostly related to the more practical use of the stickers, such as saving a product for a specific day of the week.

The design brief of the 'Maatkommen'-concept, of reducing mental clutter, was most clearly recognized, because almost all participants mentioned that the preparation of the ingredients with the bowls would make their cooking process more structured and organised, giving them more peace of mind.

**“It is good to not always do the same thing and change your routine a little bit.”**

- Participant 1, on the value to mental wellbeing of the Kookwissels-concept

**“Eating healthier also helps you mentally in the end, I think.”**

- Participant 4, on the value to mental and physical wellbeing of the Kookwissels-concept

**“[The concept is] to replace the scale. You can also organise your ingredients. You easily set out your ingredients, and also that you have just enough. It is more efficient to prepare and you have less mess, just like in cooking shows!”**

- Participant 1, on the ‘Maatkommen’-concept

**“[The concept] is also useful for [my partner] because from some [of the food items] I know what day they are for, but [my partner] does not. In that case we can use [the concept] for a lot of things.”**

- Participant 4, on the ‘Voorraadstickers’-concept

**“You can use [the stickers] for a particular reminder. You can relax, you are in control of everything. The stickers can support you with that.”**

- Participant 3, on the ‘Voorraadstickers’-concept

Figure 31 A set of quotes illustrating the result of the design method evaluation goal (design briefs)

The design briefs in turn were based on a set of fundamental needs, originating from the data overview. To assess whether these fundamental needs were represented in the design concepts, the participants were asked which needs were fulfilled by the design concepts. An overview of their responses is shown in figure 33, where the circles show the amount of times a need was mentioned and in the context of which concept (the colour of the circles). The stars identify the intended need fulfilment of the concepts.

The figure shows that both the ‘Kookwissels’-concept and the ‘Maatkommen’-concept fulfil their respective intended needs of fitness and comfort quite well. All five participants are able to identify these needs when asked about the concept. ‘Voorraadstickers’-concept was not always clear to the participants. Only three of five participants identified

‘comfort’ as a fulfilled need. I do have to note that the reasons for choosing this need weren’t always consistent with the intention of the design.

The figure also shows which other needs the concepts fulfil. For the ‘Kookwissels’-concept, users also mentioned comfort and stimulation. For the ‘Maatkommen’-concept, they mentioned competence, and in lesser amounts autonomy as well. Participants weren’t able to identify the intended need of comfort for the ‘Voorraadstickers’-concept, and they weren’t in agreement on other fulfilled needs either. Nine out of thirteen needs are mentioned, and none of them by more than three participants.

**“[The concept] helps you to find healthier alternatives.”**

- Participant 0, on the ‘Kookwissels’-concept for the need ‘fitness’

**“Someone else has already done the thinking.”**

- Participant 2, on the ‘Kookwissels’-concept for the need ‘comfort’

**“It’s easy, you have everything ready to go, with the measurements included.”**

- Participant 3, on the ‘Maatkommen’-concept for the need ‘comfort’

**“You trust your skills. [The concept] makes you feel confident that you have the measurements right.”**

- Participant 3, on the ‘Maatkommen’-concept for the need ‘competence’

**“You use [the food] for what it is intended.”**

- (Participant 1, on the ‘Voorraadstickers’-concept on the need ‘comfort’

**“[The concept] reminds you of the ‘best before’-date.”**

- Participant 2, on the ‘Voorraadstickers’-concept for the need ‘security’

Figure 32 A set of quotes illustrating the result of the design concept evaluation goal (fundamental needs)

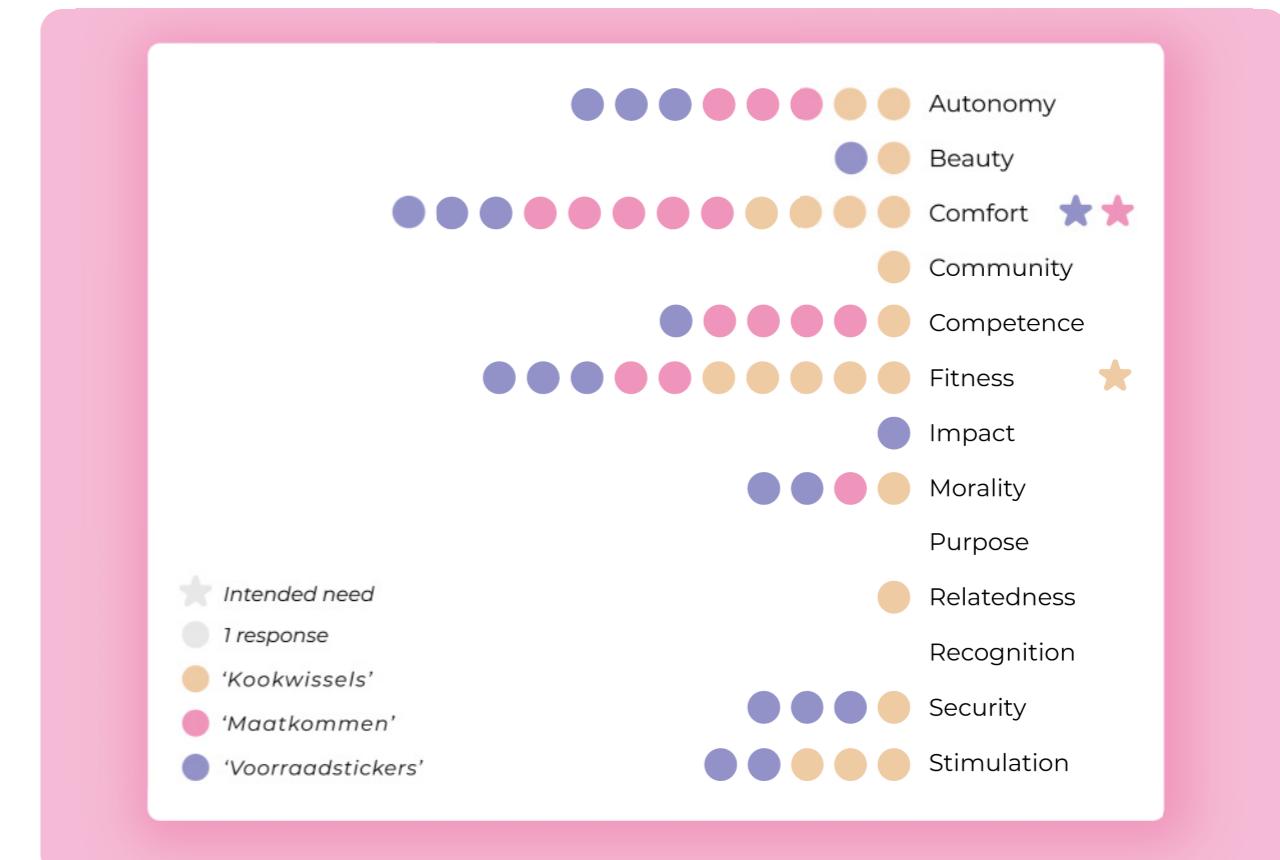


Figure 33 An overview of which fundamental needs the concepts fulfil

## Evaluation of the contribution to wellbeing

This third goal of the user test concerns the way the concepts, and indirectly the method, contribute to the feeling of wellbeing of the participants, the overarching principle of the activity-based need profiling method. The evaluation of this is a nuanced one. It is difficult to assess the contribution to wellbeing, due to the inability to evaluate the wellbeing in the long term and due to the unfamiliarity of the users with the design concepts; the users did not get the opportunity to use the concepts frequently and integrate them into their lives. Other than that, feelings of wellbeing are highly influenced by personal values and previous experiences (figure 34).

Firstly, it is difficult to formulate a concrete answer, as the feeling of wellbeing is a highly subjective one and this user test and graduation project did not accommodate the possibility of a long term evaluation. For the 'Voorraadstickers'-concept I did evaluate the effect a few days later, when the participants used the product on which they put the sticker. The participants were generally positive of the concept during the test, but a few days later responses were less positive. Participants felt forced to use the product on that specific day and felt bad when they didn't, which is illustrated by some quotes below.

Secondly, the unfamiliarity with and the newness of the design concepts also affected the interaction with the concept, as participants mentioned that they had to get used to the design concepts and how they worked, noticing the difference in how they would normally go about their kitchen activities. This could mean that the learning curve could have a negative effect on a feeling of wellbeing in the short term, which could be neglected in the

long term, when the participants would have integrated the concepts in their daily lives and used them in a more frequent manner.

Lastly, it became clear that when engaging with the concepts, the participants' personal experiences, values and goals were of importance. For example, some participants put the 'Voorraadstickers'-concept on their leftovers, as they found it important not to throw food away, while others put it on snacks, as they felt they needed to eat healthier (figure 35). It can be said that someone's feeling of wellbeing is highly personal and dependent on their own lived experiences and values. These values and experiences also affected how the users assessed the function of the design concepts.

While they did not always understand the intended function of the concepts, they were easily able to identify ways in which the concept would fit into their lives or how it would give a pleasant experience, either for themselves or for someone else.



Figure 35 The 'Voorraadstickers' find different uses

**"You can also use [the concept] when you're at home and you want to cook something, but you're missing one of the ingredients. Then you'll still be able to make the dish."**

- Participant 4, on the 'Kookwissels'-concept

**"Someone I know has Alzheimer's, and I think this might be something that they could make use of."**

- Participant 3, on the 'Voorraadstickers'-concept

**"Now it feels like a must, while before it was still a maybe."**

- Participant 4, on the 'Voorraadstickers'-concept

**"I was really in doubt before I opened it. It felt a little like I was skipping class at school."**

- Participant 3, on the 'Voorraadstickers'-concept, after opening the product on a different day

**"I went on autopilot, so then I wanted to grab the scale, but then I thought I should probably use the bowls. There was a little bit of confusion."**

- Participant 2, on the 'Maatkommen'-concept

Figure 34 A set of quotes illustrating the result of the contribution to wellbeing evaluation goal

## Key insights and project implications

This paragraph introduces several key insights gained during this first case study, and the implications these insights have on the further steps of this graduation project. As I further developed and revised the activity-based need profiling method while designing with it, I will first summarise the revisions to the design method I made during the case study. Then, I will share several general insights I gathered throughout the case study and their corresponding project implications.

### Summary of adjustments made to the design method during the case study

This section summarises changes I made to the activity-based need profiling method while designing with it during the case study.

- **Introspective data collection.** Data was collected through introspective activities instead of through surveys or interviews with members of the target group.
- **Narrative cards replaced the data sheet.** Data was gathered as narratives, including an image and a summary of fundamental needs included in the narratives, instead of sentence-long statements or quotes. These narratives were collected on narrative cards, instead of on a data sheet.
- **Revision of need fulfilment categories.** To better reflect the experience of the activity, the need fulfilment categories were changed from satisfied, harmed and neglected to satisfied and harmed. Drivers and non-drivers were added as an extra dimension, depending

on the type of effect they had on the experience of the activity instance. This revision also affected the layout of the need wheel and the narrative cards.

- **Introduction of need fulfilment styles.** While revising the need fulfilment categories, need fulfilment styles were introduced to explain different strategies people apply to fulfil their needs. These need fulfilment styles can be helpful to understand which needs are fulfilled within an activity and why, but they can also be valuable in the third exploration step of the design method.
- **Revision of the three play modes.** The three strategies, or play modes from the third exploration were adjusted to support the revised need fulfilment

categories. The quick start mode remained the quick start mode with its corresponding approaches. The deep dive mode became the adventure mode, which introduced an approach that targeted the structure of drivers and non-drivers. The aha-mode became the deep dive mode, which focused on patterns in the narrative cards. One of the approaches uses the newly introduced need fulfilment styles to identify these patterns. These adjustments to the play modes also affected the layout of the design brief cards.

- **Guidelines for ideation.** While working on the ideation phase of the case study, several guidelines were defined to structure this fourth step of the method.

## The value of concept validation

### Testing the concepts gives valuable insight into user's experiences

User testing and concept validation can help designers understand what effects their concepts have and how different people, with different experiences, perceive them. Through user testing, I found that my intentions did not necessarily reflect the users' interactions, as the way people perceive design concepts depends on their own previous experiences and personal values. Understanding these perceptions could help designers adjust their concepts to support these different ways of use or adjust them. Other than these more fundamental insights, user testing also pointed me to some smaller, more practical points of concern.

### Expand fourth step from 'ideation' to 'realisation'

I suggest expanding the fourth step of the method from 'ideation' to 'realisation'. By this change, I mean to include the validation and iteration of concepts as well. I predict that this will yield more valuable design concepts, in terms of feelings of wellbeing as well as practical use.

categories. The quick start mode remained the quick start mode with its corresponding approaches. The deep dive mode became the adventure mode, which introduced an approach that targeted the structure of drivers and non-drivers. The aha-mode became the deep dive mode, which focused on patterns in the narrative cards. One of the approaches uses the newly introduced need fulfilment styles to identify these patterns. These adjustments to the play modes also affected the layout of the design brief cards.

- **Guidelines for ideation.** While working on the ideation phase of the case study, several guidelines were defined to structure this fourth step of the method.

## Limitations of individual introspective data collection

### Individual introspection uses only one person's data and experience

The value of introspective activities lies in the depth of information you can gather from a single person, based on their values, feelings, thoughts and experiences. Though, this is also where there are limitations to introspection. The information gathered in this way is very personal, and only evaluates the experiences of one person, who was raised in a certain way, is part of a specific culture, is part of a societal group and so on. Data gathered through introspective activities can be difficult to generalise to people outside of the circles of the researcher-introspector, especially because the collected data is used throughout all steps of the design process.

### Validate collaborative introspection in the second case study

Firstly, I suggest being careful in making the decision for the scope of the project or the activity under investigation. Designers should reflect clearly on whether they are suitable as researcher-introspector for a specific activity and which limitations their introspective data could have. I suggest adding this as a guideline to the preparation step. Secondly, I suggest following the activity-based need profiling method collaboratively. Designers in a group can introspect on an activity individually, after which these introspections can be combined to create a more diverse data set. This suggestion will be evaluated further in the second case study.

## Fundamental needs and unfamiliar participants

### Unfamiliar people are able to quickly understand the typology

During the user test, I found that the participants had a sufficient understanding of the typology of fundamental needs to be able to answer my questions accordingly. None of the participants were familiar with the typology beforehand, and were introduced to it through a concise overview during the test. This overview, and some time to look through the information it provided, was enough for the participants to understand the fundamental needs and relate them to my design concepts.

### Apply this insight in the second case study (and beyond?)

This insight is valuable for the second case study, where design students will be introduced to the needs via a sensitising package. Other than that, this insight shows that the typology of fundamental needs could potentially be used as a tool for different kinds of creative sessions, user testing or interviewing with participants unfamiliar with the typology.

## Time needed to gather valuable introspections

### ! A more efficient time-value ratio

The introspective data collection and consecutive narrative writing was a time-consuming process. Introspecting for a shorter amount of time might have a more reasonable time-value ratio. During the data collection phase, I introspected for two weeks, which resulted in a lot of valuable data, but I believe half that time would also have yielded good enough data to continue to project. The main reason for this adjustment is to decrease the number of narratives, which would be less time-consuming to process, while also keeping all gathered experiences intact.

## The design method supports creativity

### ! The design method supports creativity

During the design process in this case study, I found that the design method supported my creativity through multiple means. Introspection in the data collection phase lays an excellent base for creative activities later. The richness that this type of data provides makes it easy to identify design opportunities in the exploration phase and being able to reach back to this data in the ideation phase increased the amount of ideas I was able to generate in a short amount of time.

### → A shorter period of introspection and number of narrative cards

I suggest a shorter period of introspecting or a predetermined number of investigated activity instances, depending on the goal of the design project. For a project similar to this, I suggest gathering 15 to 25 narrative cards. In the second case study, this suggestion will be evaluated.

### → Validate this insight in the second case study

This insight mainly contains my own reflections, and I suggest evaluating the feeling of creativity in the second case study with participants from the target group.

## On a personal note

This case study was quite a personal one, as it relied completely on my own experiences. My very own thoughts, feelings and relationships were threaded through the process; they were reflected upon in the data collection phase, they were visualised in the data overview, they were turned into design opportunities in the exploration phase and finally translated into tangible objects in the ideation phase. Up until the exploration step they were still mine, but in the ideation step it was time to send them out into the world, unsure of how they would be received.

Actively reflecting on such a specific part of my life, provided me with unexpected insights, some of which were useful in the design process, and others that were more useful for me personally. I mentioned earlier that I did not like cooking at all, and that I was eager to find out why.

I found out that it's mostly the complexity of the activity. Cooking is multitasking, and I found that this did not mesh well with my need for control and structure. However, I found that this need for control had also resulted in some strategies I use in the kitchen to cope with the chaos I sometimes experience. In the ideation phase, I realised that I had essentially designed concepts for myself. In the validation phase, I was happy to find that my design concepts also were of value for non-autistic users.

I hope that my introspection can provide non-autistic people with some insights into how I experience things. I also hope that the results can show that support for autistic people, in whatever shape, doesn't have to be an inconvenience, but that it can benefit everyone, whether they are autistic or not.

# 3

## A collaborative and validating case study

### Chapter summary

This third chapter describes a second case study conducted within the scope of this graduation project. The goal of this case study was to validate the revised activity-based design method from the first case study with members of the target group. The case study also investigated the addition of some other aspects, such as collaborative introspection. These validations and investigations took shape as two collaborative design workshops with novice designers; a group of design students and a group of designers working in a junior function.

To support this second case study, I developed a design method prototype in which I incorporated insights from the previous case study. The prototype was adjusted to support the collaborative design workshop format (figure 36).

I evaluated the design method through a physical workshop with two design students and an online workshop with three junior designers. The two workshops had a similar structure.

**Step 0: Preparation & Step 1: Data collection.** The participants completed the first two steps at home. I had created an information booklet to support the preparation phase. The booklet also described the data collection step, where the participants would introspect on their food-preparation activities at home and fill out five narrative cards based on these introspections.

**Step 2: Data overview, Step 3: Exploration & Step 4: Ideation.** The participants followed these three steps collaboratively in the design workshop, where their introspective data was combined to create the data overview. First, participants discussed their narrative cards and filled out the need wheel based on the cards. Then, they followed the adventure play mode to formulate three design briefs, one for each approach within the play mode. Lastly, they chose one of the briefs to ideate a design concept.

The design workshops were evaluated through my observations, the participants'

### Chapter takeaways

- It is important to **highlight the flexibility of the method** and its uses for different sorts of projects. I propose adding several project use suggestions to accompany the method, as well as renaming the 'steps' into 'phases' to encourage looking back at previous phases throughout the process.
- While the knowledge needed to complete the design process could be overwhelming, **the participants appreciated the preparation booklet**. I suggest creating a booklet that describes the complete design method in a practical way.
- Participants collected five narrative cards each, based on a few days worth of introspection. This yielded sufficient results from the design process. This insight confirms my hypothesis from the first case study, **regarding less time spent introspecting, and a lesser amount of narrative cards in relation to the value that could still be gained from it**.

design materials and an evaluation form. I defined two research goals: the evaluation of the usability of the method, and the evaluation of the value of the method.

**Evaluation of the usability of the method.** The results showed that the participants were able to successfully use the newly introduced topics (fundamental needs, introspection etc.) to complete the design process, the collaborative aspect had a positive effect on multiple parts of the design process and that the participants felt the flow of the design process was intuitive and logical.

**Evaluation of the value of the method.** The design method actively supported the creation of novel design concepts, strengthened by the addition of collaborative introspection. The design method supports the field of human-centred design through the introspective aspects and its framework of fundamental needs, but junior designers don't see a direct use of the design method in their work environment.

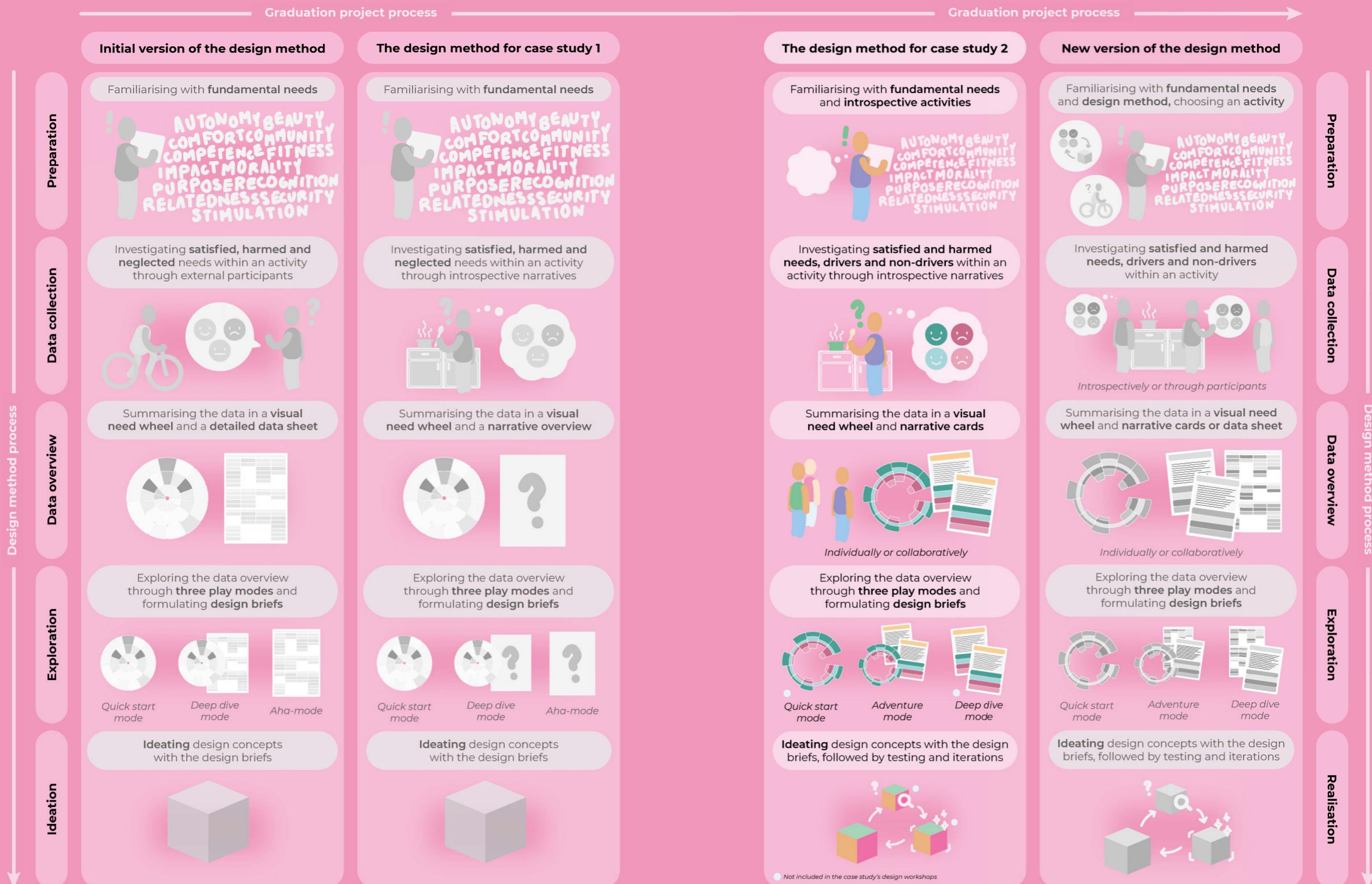


Figure 36 Evolution of the activity-based need profiling design method, with a focus on the second case study version of the design method

This chapter describes the second case study conducted within the scope of this graduation project, which aims to investigate and validate the workings of the revised activity-based need profiling method when it is being used by its target group of novice designers, consisting of design students and designers working in a junior function.

In order to do this, a new prototype of the activity-based need profiling method was developed, based on the suggestions from the first case study and requirements based on the goals of the second case study. The second case study consists of two design workshops attended by design students and junior designers. To prepare for the workshops, participants individually collected data by introspecting on food preparation-related activities. Bringing these introspections to the workshop in the shape of narrative cards, the parti-

pants completed the following three steps of the design method (data overview, exploration and ideation) in a collaborative design workshop. I gathered insights on the design method during these user tests and formulated suggestions for improvement.

During this second case study, I acted as designer, researcher and facilitator.

- **As a designer**, I developed a method prototype suitable for supporting the design activities that the participants were expected to do during the study.
- **As a researcher**, I observed and recorded happenings and insights during the study, as well as analysing the results.
- **As facilitator**, I acted as guidance to the participants during the design workshops.

## Another design method prototype

This section describes the version of the activity-based need profiling method that is to be used during this second case study. This version is based on the insights gained during the first case study. The goal of this version is to validate these insights and show points of improvement for a next version of the design method. Figure 37 gives an overview of the case study and the design method. The figure also shows my particular roles within the steps of the case study. Several aspects have been added to

the design method, such as the expansion of the ideation/realisation-step, but due to time constraints, not all aspects have been incorporated in the design workshops. This version of the design method prototype is accompanied by a set of materials that support the design workshop format of the case study. These materials are shown in further detail in appendix P.

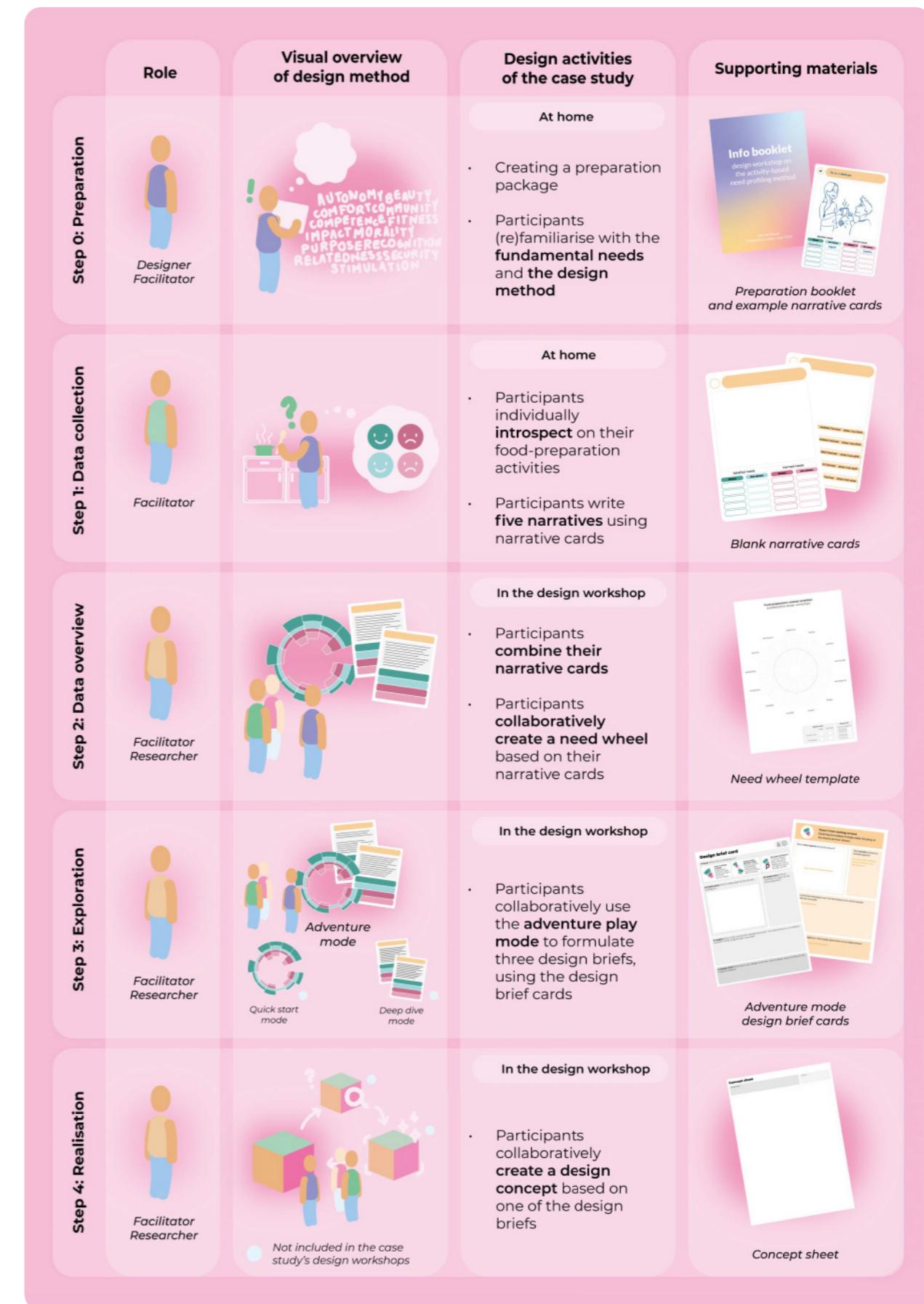


Figure 37 An overview of the design method prototype for the second case study

# Evaluation the method through two design workshops

This section describes the setup of the design workshops as user tests in a more detailed manner. First, the user test goals and research questions are introduced, which guide the user tests and evaluation. Then, the general structure of the user test is described, along with participant descriptions and types of user test documentation.

The complete user test plan for both user tests can be found in appendix Q. This user test plan also includes the informed consent forms, which participants were asked to sign before taking part in the workshop.

## General structure of the user tests

Two user tests were conducted; a first, physical design workshop for design students and a second, online design workshop for junior designers. Both workshops consisted of two phases; the first preparation phase was completed by the participants as preparation for

the second phase, the design workshop. During the first phase, participants introspected on food-preparation activities in their own home kitchen and filled out narrative cards based on these introspections. These narrative cards were used as a starting point of the second phase of the study, a design workshop of two hours. During the workshop, the participants conducted the following three steps of activity-based need profiling collaboratively. They discussed their narrative cards and created a need wheel. Based on this data overview, they used the adventure play mode to formulate three design briefs, one for each approach. To create a design concept, the participants chose one of the design briefs for ideation. Due to the time constraints of the workshop format, the participants used only one play mode and did not iterate on their concept. The design workshop concluded with a feedback and evaluation round, as well as filling out an evaluation form. An overview of the structure of the user tests can be seen in figure 38.

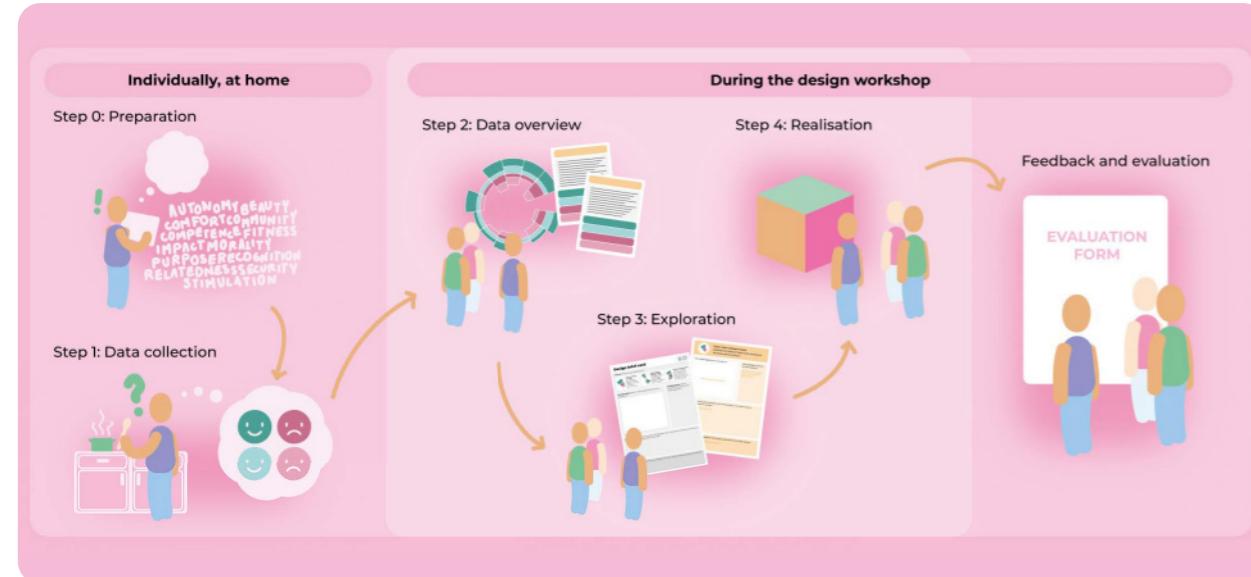


Figure 38 General structure of the user tests in the form of two design workshops

## User test documentation

The two user tests have been documented in four different manners; through written notes, photographs, design materials created by participants and through an evaluation form. The written notes consisted of my own observations during the workshops as well as responses to follow-up questions I asked. The photographs aimed to support these observations. The design materials were created by participants themselves and included, for example, the narrative cards, the filled out design brief cards and ideation sketches. The evaluation form was filled out afterwards by the participants and consisted of several statements, which participants will be able to respond to using a five-step Likert scale (from completely disagree to completely agree). They also had the opportunity to explain their response (appendix R).

## User test participants

As mentioned before, the target group for the activity-based need profiling method consists of novice designers; design students and junior designers, who evaluated the method separately in the two two-hour design workshops (figure 39).

The first workshop for design students was a physical workshop, taking place at the faculty of Industrial Design Engineering. The workshop was attended by two participants, both currently in or recently graduated from the Design for Interaction programme at the faculty of Industrial Design Engineering. A third participant was not able to attend the workshop, but did complete the preparation phase of the workshop.

The second workshop for junior designers was an online workshop, taking place via a Microsoft Teams-meeting, using an online Figma-space to complete the workshop. The workshop was attended by three participants, all graduated from a master programme at the faculty of Industrial Design Engineering. These three participants started working in the design field no more than two years ago.

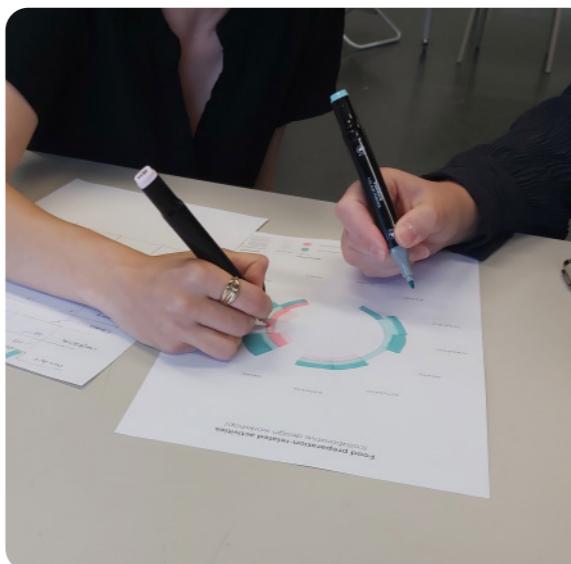
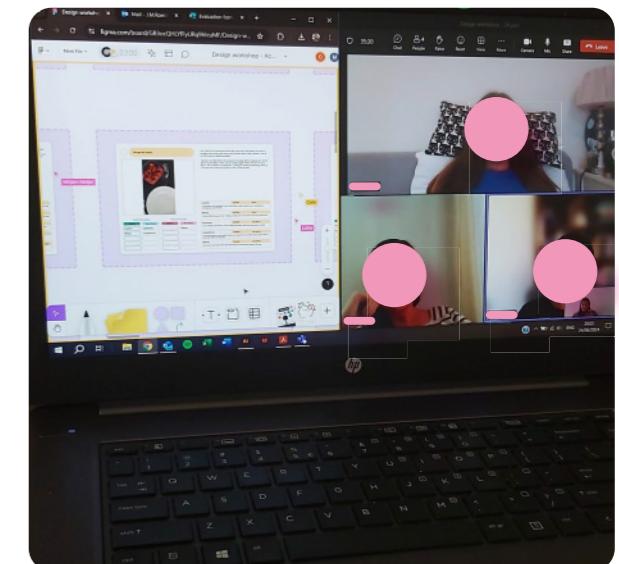


Figure 39 Pictures taken during the design workshops with design students (left) and junior designers (right)



## Results of the design method evaluation

This section describes the results of the method validation workshops through the two goals of the user test. These evaluations will be supported by responses given by participants during the workshop and in the evaluation form, and pictures taken during the workshop. Extensive answers to each research question are added in appendix S.

### Evaluation of the usability of the design method

This first goal concerned itself with the usability of the design method, containing questions regarding understanding and flow. This evaluation is overall positive. The results show that the participants were able to successfully use the newly introduced topics to complete the design process, the collaborative aspect had a positive effect on multiple parts of the design process and that the participants felt the flow of the design process was intuitive and logical (figure 40 and 42).

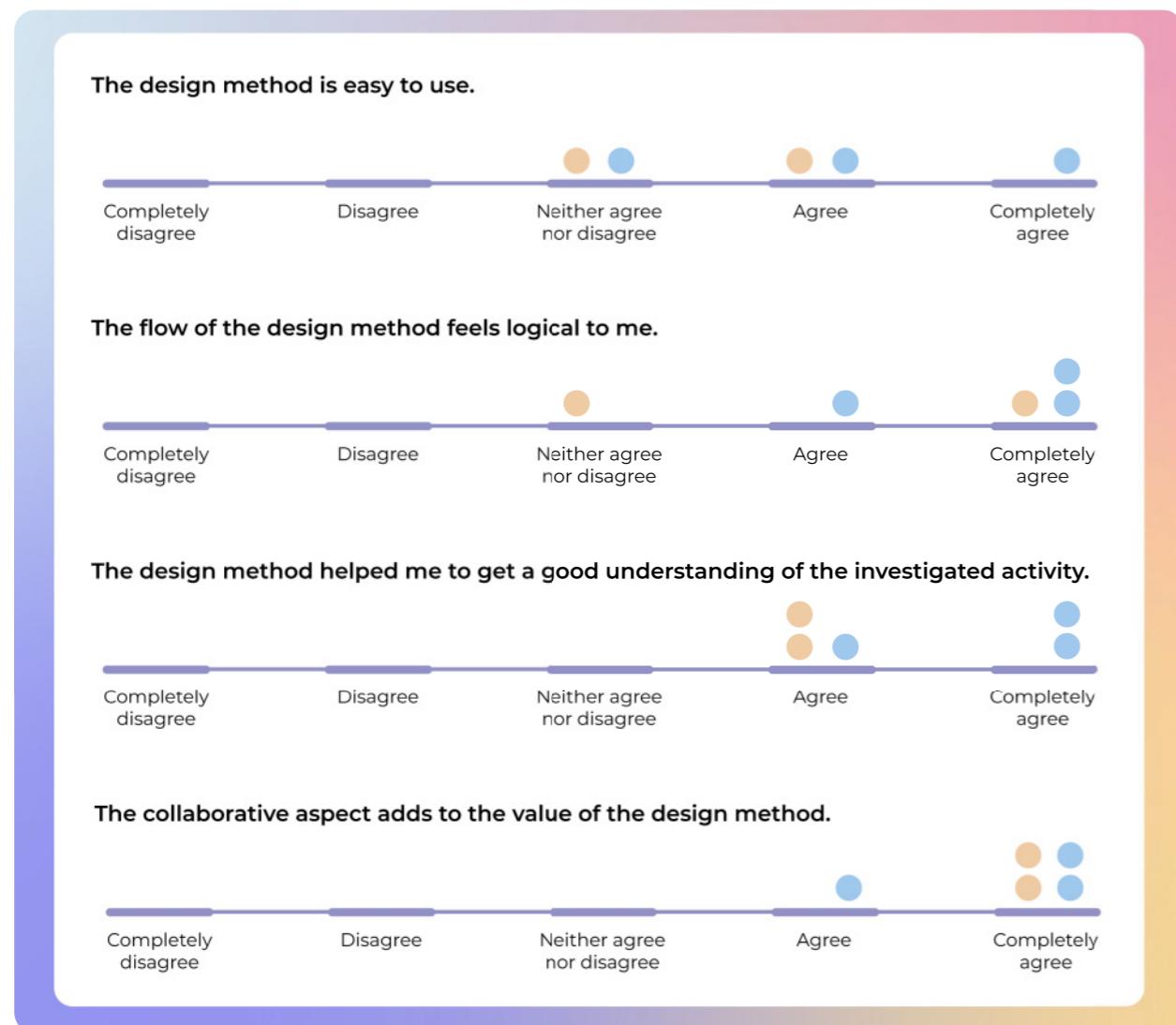


Figure 40 Results from the evaluation forms from design students (yellow) and junior designers (blue), regarding the goal on usability

During the workshop, I found that the participants were able to understand the topics well enough to work with them throughout the design process. The participants were introduced to topics that were part of their designer background, but might have been somewhat unfamiliar to them; such as the typology of fundamental needs, introspective activities, narrative writing and design brief strategies. The participants appreciated the way the design method used the topics to show them different ways of looking at experiences through different types of data. Based on their design activities, I judged that they had a good understanding of the topics, were able to discuss them with each other and they were able to use the materials as stepping stones to get to the next step, as intended. However, the participants did mention that it took some getting used to all the unfamiliar topics that were introduced and that they had to familiarise themselves with a lot of new terms and materials in a short amount of time. They did appreciate the buildup of the design method and they felt guided and sufficiently prepared by the information booklet they received beforehand. Overall, the participants appreciated the clear communication and the visual layout of the design method, both the preparation materials and those used during the design workshop.

The order of steps of the design method felt intuitive and logical to the participants. They were able to understand the idea behind the order of steps, see how the results from an earlier step actively enabled the activities in the following step, and relate the design process to other processes they had used earlier. Specifically the bridge from the data overview to the exploration phase seemed intuitive, as designers began to share insights based on the visual need wheel overview. However, it did not always feel intuitive to the design

students to reach back to their original data in the narrative cards during the third exploration step, which led to a struggle in the ideation phase regarding the relation of their design concepts to their own experiences. The junior designers did refer back to the narrative cards in the exploration phase and actively used them to identify patterns in the data.

This sharing of insights and the collaborative aspect of the workshop was appreciated by the designers, and I found that the collaborative aspect had a positive effect on the process and the result of the workshops. The discussion on the narrative cards with other participants created an extra round of reflection, supported and enriched by the combined perspectives. In both workshops, participants refined their narrative cards during the discussion (figure 41). In the following steps of exploration and ideation, the ability to associate based on the observations of the other participants was valuable. Also, participants prompted each other by relating ideas back to their own experiences or by providing stepping stones for each other, which resulted in a quick ideation phase.



Figure 41 This narrative card was edited during the design workshop



Figure 42 A set of quotes illustrating the result of the usability evaluation goal

### Evaluation of the value of the design method

This second goal concerned itself with the value of the design method, its value for the designers themselves and its place in the field of human-centred design; the goal is evaluated as mainly positive. The design method actively supported the creation of novel design concepts, strengthened by the addition of collaborative introspection. On a larger level, the design method supports the field of human-centred design through the introspective aspects and its framework of fundamental needs, but junior designers don't immediately see a use for the complete design method in their work environment, other than some aspects in a more inspirational way (figure 43 and 45). The participants were able to create

design concepts in both workshops. This conceptualization was supported by the design method in multiple ways. Firstly, the addition of introspection during the data collection phase helped to tether the design concepts to the 'real world', where participants were able to relate it back to their own, personal experiences. Secondly, the collaborative aspect of the workshops helped participants make associations and build ideas based on each other's suggestions, as was noted earlier as well (figure 44). Thirdly, the use of fundamental needs, the data overview and the strategies introduced during the third exploration step expanded the design space and showed the participants design opportunities they otherwise would not have identified. Lastly, all these factors caused the participants to create, in their opinion, novel and unique ideas they otherwise would not have

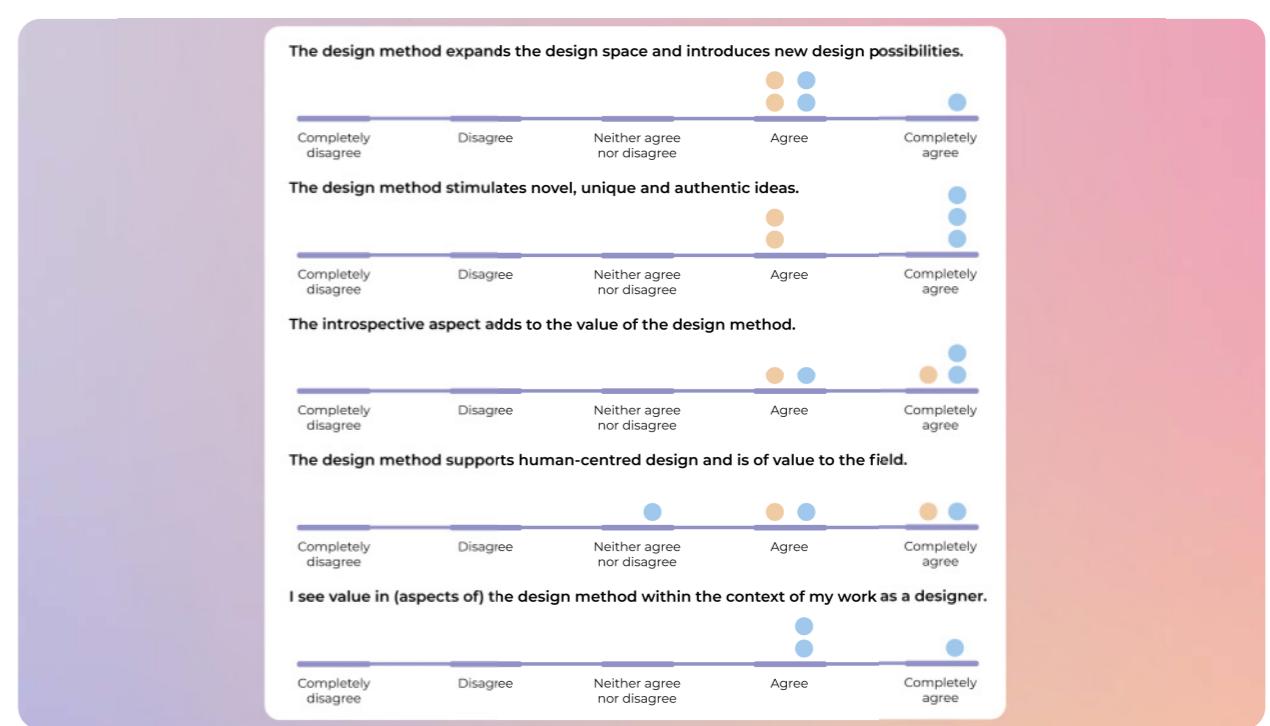


Figure 43 Results from the evaluation forms from design students (yellow) and junior designers (blue), regarding the goal on value

come up with. On another note, due to the amount of information to process, one of the participants noted that they thought it might be difficult for inexperienced designers or non-designers to understand and use the provided information to create a design concept.

The results from this second case study strengthen the positive evaluation of the addition of introspective activities, along with the research project by Huang and Roest (2023) and the first case study described in the previous chapter. In this second case study, the limitation of individual introspection was mitigated by the collaborative aspect of the design workshops. The participants appreciated the introspective activities in the data collection phase, because it helped them to look differently at and deeper into their daily life activities, making them identify novel and unique insights, which were enhanced by the collaborative discussion on the introspective narratives. The collaborative introspection also yielded more authentic design briefs and concepts, as

the designers were able to relate them to their own detailed and personal experiences.

However, one of the participants noted that introspecting on an activity in real time can be challenging due to the multi-tasking aspect and the fact that they would need to accurately remember the activity instance for later narrative-writing. Other than that, I noticed that participants were unfamiliar with the topic of introspection, or at least had not used it before, and were unsure what to look for exactly. I observed that, for example, the participants had a difficult time identifying harmed needs, as was also said by some during the workshop. During the narrative card discussion, they often added more aspects to their narratives.

Regarding the place of the design method in the field of human-centred design, it is difficult to give a definitive answer. In general, participants mainly saw value for human-centred design in the introspective and reflective aspects of the method, as well as in the framework of fundamental

needs. Though, not all participants were equally familiar with the term 'human-centred design' and if they did, their definitions were quite personal and therefore likely not the same as those from the other participants.

Concerning the value of the design method outside of design education;

the main value that the junior designers saw in the design method was the inspiration it provided in terms of investigation techniques and communication, for example through the need wheel, though they did not immediately see a way to directly use the design method in their own work environment.

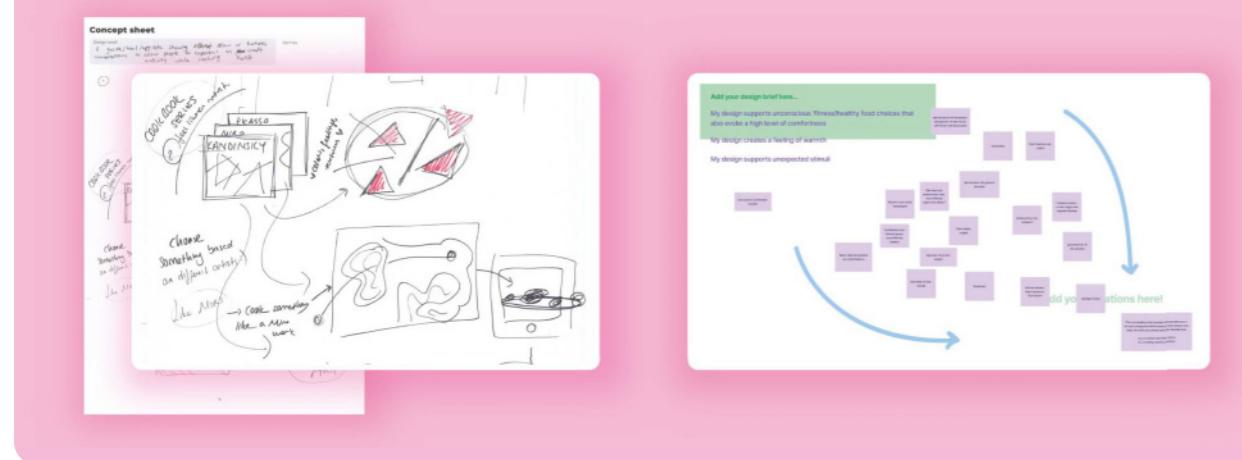


Figure 44 In both workshops, participants associated based on each other's suggestions

*"At first the 'play modes' confused me a bit, but when reading the description and seeing the icon it became clear. Now I'm really curious what the other two play modes of the method are and I wish I could try them as well. Also the name 'play mode' suggests fun and flexibility which I like and it made me curious what it means and how it works."*

- From the evaluation form for junior designers

*"I feel like this is an innovative method that makes you look from a different perspective and creates a new way of connecting the dots leading to new ideas. I also feel like we hardly had any standard ideas and quite quickly went into original ideas and concepts."*

- From the evaluation form for junior designers

*"This is specifically meant for designers who are able to think more flexibly, especially in the fuzzy front end of design. Being able to go with the flow is quite valuable."*

- Participant L, during the workshop for junior designers

*"Human-centred design is really integrated in the introspective activities. Furthermore it's great to have a way to actually integrate the fundamental needs in a design process rather than knowing the fundamental needs as background knowledge."*

- From the evaluation form for junior designers

Figure 45 A set of quotes illustrating the result of the value evaluation goal

## Key insights and project implications

This paragraph introduces several key insights gained during this first case study, and the implications these insights have on the newly revised version of the activity-based need profiling method.

### The communication of information

#### **The preparation booklet was appreciated**

! The design workshops in the second case study showed that while the participants were interested in the topics that were introduced, the large amount of information could be overwhelming at times, especially because the information was necessary to follow the design method process. The participants appreciated the clear communication of information in the preparation booklet they received, and I also noticed that they had a sufficient understanding of the topics to successfully follow the design process.

#### **Create a design method booklet**

I suggest creating a design method booklet to guide participants through the complete process. The guide booklet would provide an overview of the design method, as well as the necessary background information in a clear and direct way, similar to the preparation booklet for the design workshops.

### The collaborative aspect of the design workshop

#### **Collaboration enhances introspection**

! It was suggested in the first case study to introduce a collaborative aspect to the introspective activities to mitigate the limitations of individual introspection. For preparation of the workshops, the participants introspected individually, after which they shared their narratives in the workshop and completed the following design method steps together. This collaboration enriched the narratives through a discussion, and in the exploration and ideation steps the participants were able to associate further on each other's suggestions, supporting creativity, which led to richer design briefs and concepts.

#### **Add collaboration as an option for design method use**

I suggest adding collaborative introspection as a possible project structure to the activity-based need profiling method. This could be part of a section where multiple options for data collection are presented, allowing users to identify which fits best with their design project. Collaboration could also be part of one of the suggestions for design method use, mentioned earlier in this paragraph.

## Highlight the flexibility of the design method

### ! The participants experience the process as both flexible and rigid

One of the underlying values of the activity-based need profiling method is flexibility; allowing users to use the design method in ways that fit their personal goals best. The flexibility of the method was highlighted by a design student's suggestion on different uses of collaboration in the design method, aiming to enhance the impact of personal experiences. In the workshop for junior designers, they did not use the design briefs as clear goals, but combined them into a list of loose requirements. However, during the workshops, I also observed that participants felt reluctant to 'stray' from the steps of the design method. The perceived rigidity of the method might also have led to the junior designers commenting on the fact that they did not immediately see how they would be able to use the method in their design work.

### → Add project use suggestions and rename 'steps' into 'phases'

It might be valuable to add several project suggestions to the revised version of the activity-based need profiling method, to show the flexibility of the design method. These suggestions could motivate people to adjust and structure the design method to support their project goals and personal values. To further encourage users to look back at previous steps of the design process, instead of only following it in a linear manner, I suggest renaming 'steps' into 'phases'. 'Steps' suggest a very clear order of one after another, where I feel that 'phases' sounds less strict, which might encourage users more explicitly to go back to previous parts of the design process. Following through on this notion, I also suggest removing the numbers from the design process phases, renaming 'Step 1: Data collection' into 'The data collection phase', for example.

## A more efficient time/value-ratio in the introspection step

### ! The design method can be completed with less introspection time and narrative cards

An insight from the first case study hypothesised that introspecting for a shorter amount of time, collecting less narrative cards, would still be sufficiently valuable, while also more time-efficient. In the second case study, each participant collected five narrative cards. Sharing these with the other participants, they worked with 10 to 15 narrative cards in each workshop. In my observation, this approach also yielded valuable and novel design concepts.

### → Add guidelines for introspection and narrative cards

I suggest adding a guideline to the design method for both a time period for introspection and number of narrative cards, with the note that these decisions also depend on the user's design project goals.

## On a personal note

So far, during my graduation project, I had been in my comfort zone. I enjoy working on a project by myself, making my own decisions and doing things exactly how I had in my mind. I enjoy having control over the situation.

In this second case study, I was forced to let go. It was difficult for me to realise that while I had organised the workshop the way I had wanted, I couldn't control the recruitment of participants and their motivations to attend or not to attend. Of course I understood that design students had other things to worry about in the final weeks of the final quarter of the academic year, but it took me some time to acknowledge that the design workshop wasn't going to happen the way I had

foreseen it. I decided to organise a second workshop, specifically for working, junior designers, which was attended by three of them.

Looking back, the struggle of finding workshop participants was actually a blessing in disguise. The second workshop enriched my project, by including a different facet of my target group and adding an extra evaluation opportunity, which strengthened my findings. As a matter of fact, the whole struggle also enriched me, because I had lots of fun discussing the design method and seeing how something that had so far only lived inside my head would find its way in the real world.



## A recipe for human-centred design

The expanded activity-based need profiling method

- This chapter summarises the expanded and revised activity-based need profiling method, based on the insights of the project background, the first case study and the second case study, described in the previous three chapters. The design method is described through its process, which consists of five phases (figure 46).
- In the preparation phase, designers familiarise themselves with the typology of fundamental needs, which is used as a framework for the method. Also, they are encouraged to consider what their design project looks like and how the design method can best support it. Lastly, they choose and define an activity to investigate using the design method. These steps ensure that the design method can be used to its fullest potential.
- In the data collection phase, designers collect data on the need fulfilment within the predetermined activity, through the need fulfilment categories of satisfied and harmed needs, drivers and non-drivers. The data can be collected through external participants or through individual or collaborative introspective activities. The gathered data can be statements or narratives, accompanied by their need fulfilment categories.
- In the data overview phase, designers collect their gathered data, either individual or collaborative, into a visual need wheel and into a more detailed data medium, which can be either a data sheet or a set of narrative cards.
- In the exploration phase, designers use three play modes (quick start, adventure and deep dive) to investigate patterns and gain insights from the data overview. They use design brief cards to collect their insights and formulate design briefs.
- In the realisation phase, designers use the design briefs to create design concepts. They are encouraged to validate and iterate upon these concepts, due to the subjective nature of the collected data.

## Chapter summary

This chapter summarises the expanded and revised activity-based need profiling method, based on the insights of the project background, the first case study and the second case study, described in the previous three chapters. The design method is described through its process, which consists of five phases (figure 46).

**In the preparation phase**, designers familiarise themselves with the typology of fundamental needs, which is used as a framework for the method. Also, they are encouraged to consider what their design project looks like and how the design method can best support it. Lastly, they choose and define an activity to investigate using the design method. These steps ensure that the design method can be used to its fullest potential.

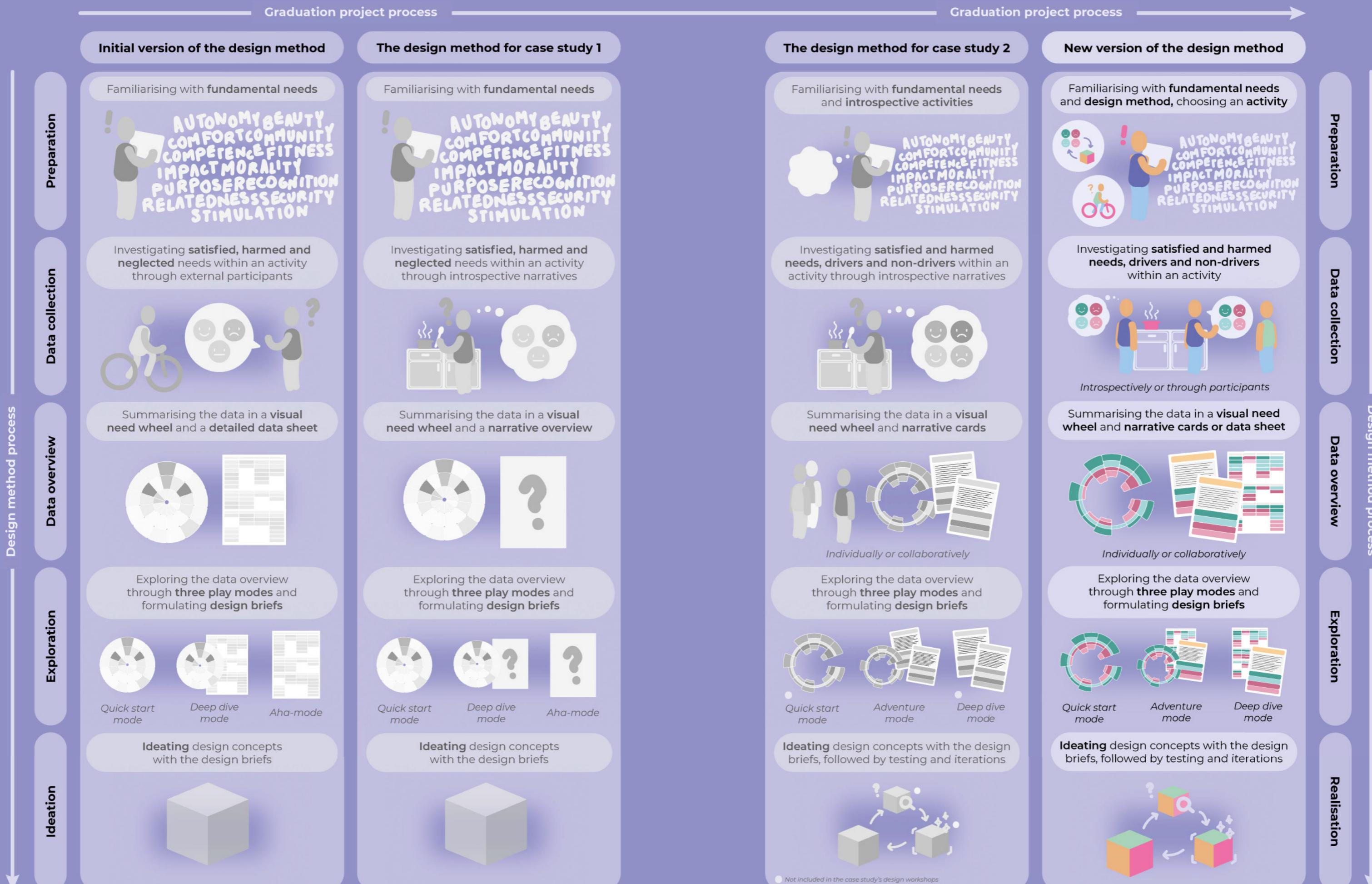
**In the data collection phase**, designers collect data on the need fulfilment within the predetermined activity, through the need fulfilment categories of satisfied and harmed needs, drivers and non-drivers. The data can be collected through external participants or through individual or collaborative introspective activities. The gathered data can be statements or narratives, accompanied by their need fulfilment categories.

**In the data overview phase**, designers collect their gathered data, either individual or collaborative, into a visual need wheel and into a more detailed data medium, which can be either a data sheet or a set of narrative cards.

**In the exploration phase**, designers use three play modes (quick start, adventure and deep dive) to investigate patterns and gain insights from the data overview. They use design brief cards to collect their insights and formulate design briefs.

**In the realisation phase**, designers use the design briefs to create design concepts. They are encouraged to validate and iterate upon these concepts, due to the subjective nature of the collected data.

The design method is supported by three project structure suggestions; a design workshop, a short-term project with external participants and a long-term course project with introspective activities. A practical guide booklet and a digital template folder make sure the design method is ready to use.



**Figure 46** Evolution of the activity-based need profiling design method, with a focus on the newly expanded version of the design method

This chapter describes the revised, expanded version of the activity-based need profiling method. These revisions and expansions have been based on the research project by Huang and Roest (2023) (chapter 1), an introspective case study described in chapter 2 and a validating case study in chapter 3. These revisions and expansions aimed to improve the effectiveness and usability of the design method, as well as making it suitable for a larger variety of design projects. The method is designed for novice designers, allowing them to become familiar with topics such as the typology of fundamental needs and introspective activities, and applying them in a concrete design process. They are free to adjust aspects of the design method to achieve their specific project goals and the design

## The five phases of the activity-based need profiling method

This section describes the five phases of the activity-based need profiling method; the preparation phase, the data collection phase, the data overview phase, the exploration phase and the realisation phase. The phases of the process guide the designer from collecting data on fundamental needs towards the design of a concept, framed by the scope of an activity.

### The preparation phase

The preparation phase aims to ensure a smooth design process through three different preparation activities. Firstly, designers familiarise themselves with the typology of fundamental needs and its effects on the activity-based need profiling method. This background knowledge assists designers in defining a scope for their design project in the shape of an

method aims to actively support this. The method encourages them to include parts of the process that work for them in their designers' toolbox and use them in their (future) work as a designer.

The activity-based need profiling method consists of five phases, of which the first is a preparation phase and the following four phases include different types of design activities, guiding the users from the collection of data to the realisation of a design concept. The activity-based need profiling method is made tangible and usable through a guide booklet and a digital folder that includes the materials that support the method. The chapter is concluded by three suggestions of design projects in which the activity-based need profiling method is used.

activity. Lastly, the preparation phase encourages designers to consider what their design project looks like and what they expect to achieve with the activity-based need profiling method.



Figure 47 The thirteen fundamental needs

### The typology of fundamental needs as a framework for the design method

The activity-based need profiling method is a concrete way to apply the typology of fundamental needs by Desmet and Fokkinga (2020) into a design process, and the design method leans on the typology as a framework; the fundamental needs are threaded through every phase of the process. Considering this, it is wise for designers wanting to use the activity-based need profiling to (re)familiarise themselves with the typology.

The typology of fundamental needs leans on the notion that every person has a set of thirteen fundamental needs. The satisfaction of each of these thirteen needs can positively influence a person's feeling of wellbeing. Because of the close relation between fundamental needs and people's feeling of wellbeing, the design method actively supports design for wellbeing. The thirteen fundamental needs are summarised in figure 47.

Investigating a person's experience through its affected fundamental needs can provide designers with a new perspective on an activity and increase the design space. A person's fundamental needs can either be satisfied or harmed by an activity instance. The topic of investigation of the design method, an activity, encompasses multiple interactions, produces and contexts. The thirteen funda-

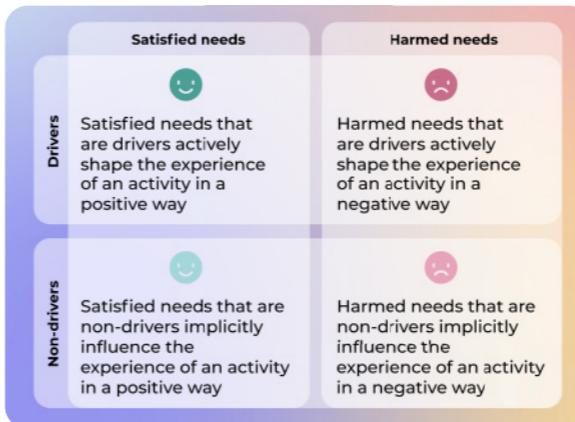


Figure 48 An overview of the need fulfilment categories

mental needs are used to make sense of this activity through its experience by relying on the notion that an experience can either positively or negatively influence a person's needs. Drivers and non-drivers further specify in what way the needs are satisfied or harmed. Drivers describe satisfied or harmed needs that directly influence and shape the experience of an activity instance, where non-drivers describe satisfied or harmed needs that affect the experience in a more reflective and implicit manner. The structure of satisfied needs, harmed needs, drivers and non-drivers are called need fulfilment categories. Figure 48 shows an overview of all need fulfilment categories. More information on need fulfilment categories can be found in chapter 2.

Need fulfilment styles explain another angle of looking at an activity in relation to fundamental needs. Where the need fulfilment categories explain the effect of an experience on need fulfilment, need fulfilment styles describe more concrete ways or strategies in which people consciously or unconsciously fulfil their needs through the activity. These need fulfilment styles can help designers to understand how an activity influences need fulfilment more specifically. Figure 49 shows an overview of all four need fulfilment styles and their subcategories. More information can be found in chapter 2.



Figure 49 An overview of the need fulfilment styles

## Familiarise with the design method and consider own project needs

The activity-based need profiling method aims to be a flexible design method that can be adjusted to multiple different types of design projects with different types of project needs. The design method offers different paths to take throughout the process, where designers are free to choose which path to take to reach their goals. For some projects, it might be valuable to follow the complete design process, where for some other projects, some phases might be more useful than others. I suggest designers look through the design method process before kicking off their project and consider how the design method can be adjusted to fit their design project best. I have listed several examples of prompting questions below to assist in this reflection process. Answering these questions could help designers make a project planning surrounding the design method. At the end of the chapter several project suggestions are listed as inspiration.

- Will I do this project **individually or collaboratively**? In what way are the phases best suited for individual projects? In what way are they best suited for collaborative projects?
- What is the **time frame of my project**? Which phases do I prioritise and which specific parts have the most value to my project?
- In what way will I **collect the information** on the topic I will investigate? Will I use my own experiences as input (introspection)? Or will I use external participants to gather data?

## Defining a scope for the design project

The activity-based need profiling method investigates an activity based on its experience and how it fulfils people's fundamental needs. The design method supports research into many different types of activities, but it's up to the designers themselves to clearly define the scope of the activity, to make use of the design method to its fullest. Listed below are some guidelines. The last guideline is specifically useful when using introspective activities in the data collection phase. Designers are free to include their own criteria.

- **The scope of the activity is clearly defined.** Clearly defining the frame of the activity, where it begins and ends and which interactions and types of activity instances are included in the activity scope, will greatly benefit the efficiency of the following phases of the design process.
- **The activity is subjective and experiential.** The design method will be of the most value when the activity is a subjective and experiential one. The design method is equipped with strategies to deal with these types of activities. It uses the personal and nuanced facets of the activities to develop novel and authentic design concepts.
- **The designer is a complete member researcher.** Xue and Desmet (2019) describe the value of a complete member researcher, where the researcher doing introspective activities is a member of the target group under investigation. It is important to consider whether a designer is suited to introspect on the determined activity.

## The data collection phase

In the data collection phase, designers collect information on the need fulfilment of the activity they have defined during the preparation phase. They investigate which needs are satisfied and which are harmed within the activity, and whether they are drivers or non-drivers. This data will provide input for the design briefs and be a source of inspiration for the design concepts to be created in following phases of the process. There are two ways to collect data; through external participants or through introspective activities (figure 50).

- **Through external participants.** With this approach, designers collect data on need fulfilment through external participants who engage in the activity under investigation. This can be done through a survey, as Huang and Roest (2023) did in their research project. Another way is through interviewing. I would prefer the use of interviews, because this allows designers to dive deeper into the participant's experience, which adds more nuance and authenticity to the data, and leaves less room for interpretation when analysing the data. The interviewing can be in combination with observation. The output of this approach can be a set of statements or quotes from the participants or a set of narratives. These statements are distributed according to their need fulfilment category, and the narratives are accompanied by a list of fundamental needs and their categories. I suggest collecting statements when working with a large number of participants, or in a short-term project, otherwise I would suggest collecting narratives.

- **Through introspective activities.** With this approach, designers reflect on and document their own feelings, thoughts and experiences when engaging in the activity under investigation. This approach is especially valuable to gather rich and detailed data on the activity, or when an activity is difficult to access or observe otherwise (e.g. sleeping). When designers are not very familiar yet with introspection, I suggest they read Xue and Desmet's paper (2019) on the subject. It is also advisable to use a data collection plan or other type of data collection structure to determine when to introspect and to make the process transparent. The output of the introspective data collection process is a set of narratives, where each narrative describes the experience of the activity through a short story, which is focused on the need fulfilment during the activity instance. A set of fundamental needs and their categories accompany the narratives. The narrative can describe the motivation behind the activity, the triggers that elicited a reaction or the experienced emotions; each of these can be linked to a need fulfilment category. To keep the data analysis manageable, I suggest collecting between 15-25 narratives.

For examples of an introspective data collection phase, take a look at chapters 2 and 3. For more information and inspiration regarding introspective activities, go to chapter 1.

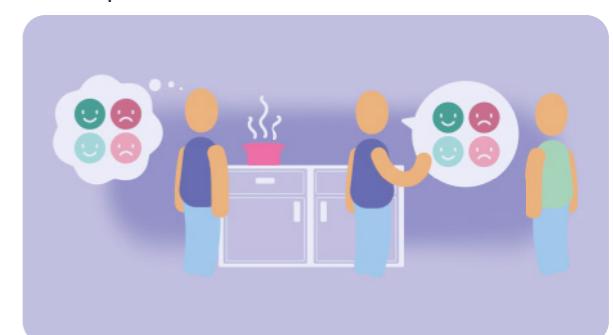


Figure 50 Data collection through introspection (left) or through external participants (right)

## The data overview phase

In the data overview phase, designers bring together the collected data into two overviews; a visual, summarised overview (a need wheel), and a more detailed, text-based overview (a data sheet or narrative cards). These overviews give the designers a direct way to access the data in a way that suits the further phases of the design process. Descriptions of the two parts of the data overview are summarised below.

- The visual need wheel.** The goal of the need wheel is to create a visual overview of the investigated activity in terms of need fulfilment, where the designer is able to directly see which fundamental needs are affected in which way (figure 51). To create the need wheel, the designer needs to know how many times each of the fundamental needs is experienced during the activity and in which need category. The need wheel shows all thirteen fundamental needs as segments of a circle. The circle (and each segment) is divided into layers. The outer two layers concern the satisfied needs and the inner two layers concern the harmed needs. These two categories are differentiated through different colours, green-blue and pink respectively. The darker shades show the drivers and the lighter shades show the non-drivers. There are three different layer sizes. The larger the layer, the more times that specific fundamental need and that specific need fulfilment category is represented in the experiences of the activity. The layer size is dependent on the amount of representations on the activity, and it is up to the designer to create a suitable distribution.

- The detailed data in the shape of a data sheet or a set of narrative cards.**

The goal of the data sheet or narrative cards is to create an overview where designers can take a deeper look into the experiences and find explanations for the different need fulfilments of the activity (figure 51). They provide a personal and nuanced source of information. A data sheet collects these pieces of information in one place, and is most suited when the designer has collected statements or quotes in the data collection phase. These statements can then be organised based on the fundamental need and need fulfilment category they support. Narrative cards are more suited when narratives are written during the data collection phase. Narrative cards are two sided cards that represent one activity instance each, which means that narrative cards are always used as a set. One side of the narrative cards represents an overview of the activity instance with an image and a list of experienced needs in their categories. The other side is more detailed, with the written narrative and the list of experienced needs with a short explanation in relation to the narrative.

When working with external participants, designers would combine the data from these participants into one data overview. In that case, both the need wheel and the data sheet or narrative cards are an accumulation of the experiences of all participants. When introspecting in a group project, I would suggest to introspect individually and then combine the introspective data from all group members into one data overview. The need wheel and narrative cards would then consist of the experiences of all group members. When doing an individual, introspective project, the data overview will completely consist of the data of one designer.

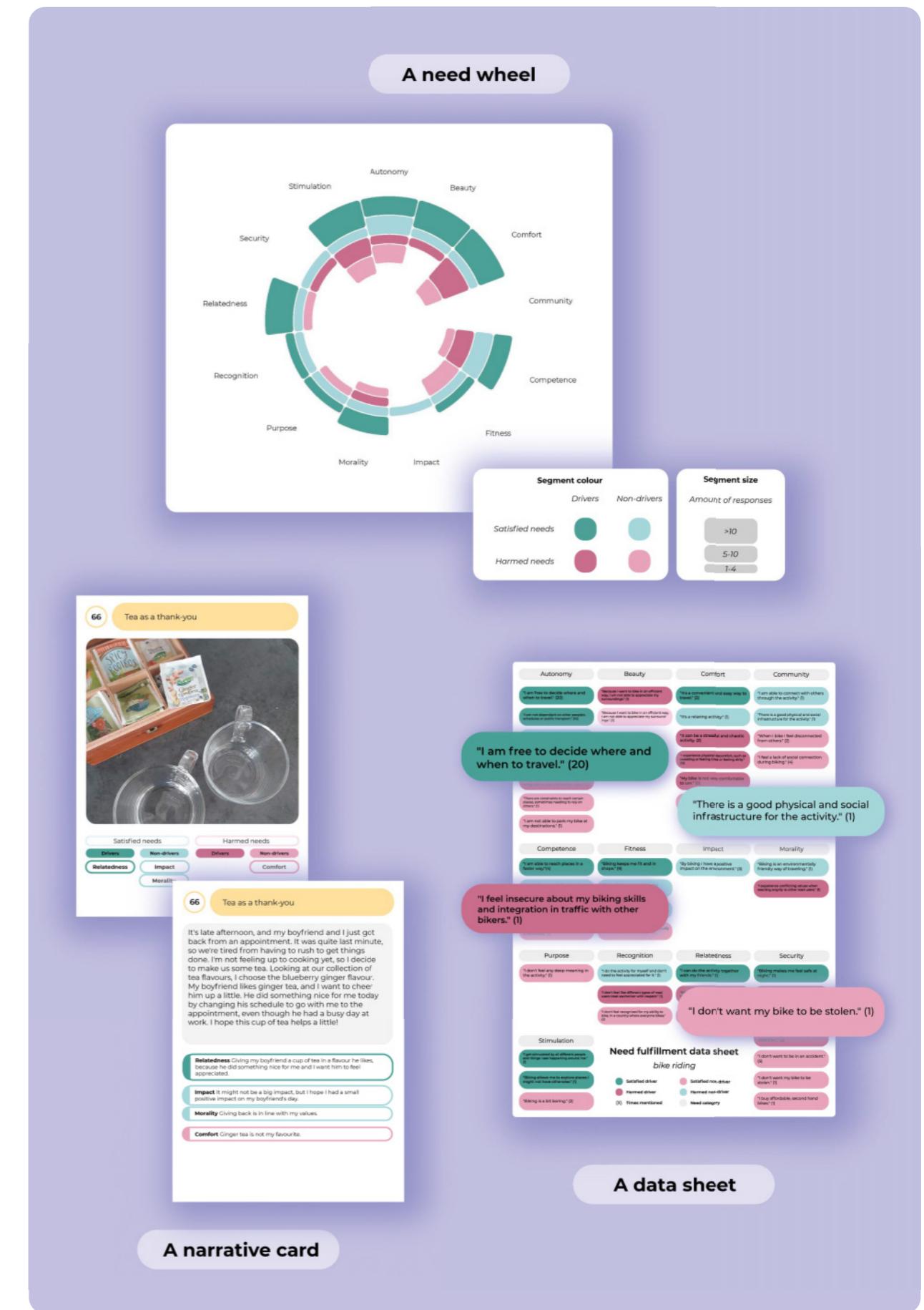


Figure 51 Examples of a need wheel, a narrative cards (about food-preparation activities) and a data sheet (about the activity of bike riding)

## The exploration phase

The exploration phase translates the complexity of the gathered data into a clear design brief, as a starting point for ideation in the realisation phase. The exploration phase uses three strategies, or play modes, to use the data overviews for this purpose. The three play modes, quick start, adventure and deep dive, all use different aspects and layers of information from the data overview (figure 52). The play modes differ in depth, complexity and intensity, ranging from the directness and efficiency of quick start mode to the abstractness and inspiration of the deep dive mode.

Each of the play modes is supported by a design brief card, which guides the designers through the play mode, leading them from data to design brief. The design brief is based on insights gathered through the play modes. A design brief includes enough information to guide the designer,

but leaves the designer free to ideate a varied set of design concepts. A design brief can be formulated through the following structure, but designers are free to follow other structures.

*"My design creates/supports/investigates/ enhances/... [goal of the design] within the context of [context of the design] for [target group of the design] (through [design medium])."*

### Quick start mode

The quick start mode is a way to engage with the collected data through the need wheel only, looking solely at the need fulfilment categories of satisfied and harmed needs, leaving the drivers and non-drivers out of the picture for now. This mode contains the design opportunities designers are able to identify quickly when looking at the surface-level information presented in the need wheel. There are four ways to approach the data through

the quick start mode. These four focuses are described below, and the process is guided by the corresponding design brief card (figure 53).

### Focus on satisfied needs

This approach focuses on the outer, green-blue layer of the need wheel, the ways in which needs are satisfied. Focusing on the needs that are represented in a positive way, provides designers with ways to enhance and strengthen the experience of the activity through needs that are already satisfied.

### Focus on harmed needs

The problem-solving lens lets designers focus on the inner, pink layer of the need wheel, the ways in which needs are harmed. Focusing on the needs that are represented in a negative way, provides a clear way to enrich the activity by removing or reducing a harmed need.

### Focus on unaddressed needs

This approach focuses on the empty or near-empty spaces in the need wheel, which signify areas that are not or hardly represented within the activity. These gaps represent needs that are not (yet) part of the activity or are not recognised as such. This provides designers with the opportunity to enrich the activity by introducing a new need.

### Focus on conflicts within needs

When the satisfied and harmed segments are somewhat equal in size, there could be a conflict within one of the needs, where the activity both harms and satisfies a single need. This provides an interesting opportunity for designers, which could result in some out-of-the-box ideas to compromise, solve or expose the conflict.

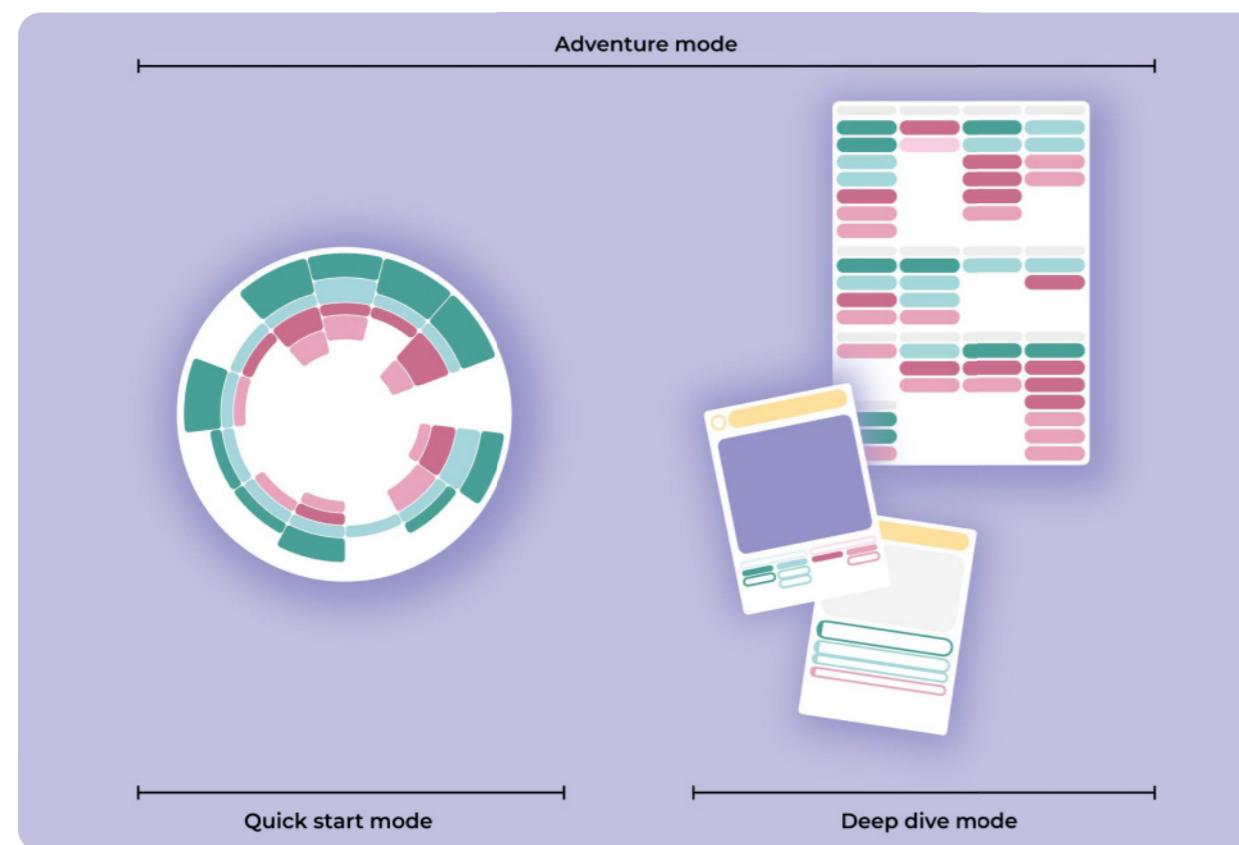


Figure 52 An overview of the three play modes and which parts of the data overview they use

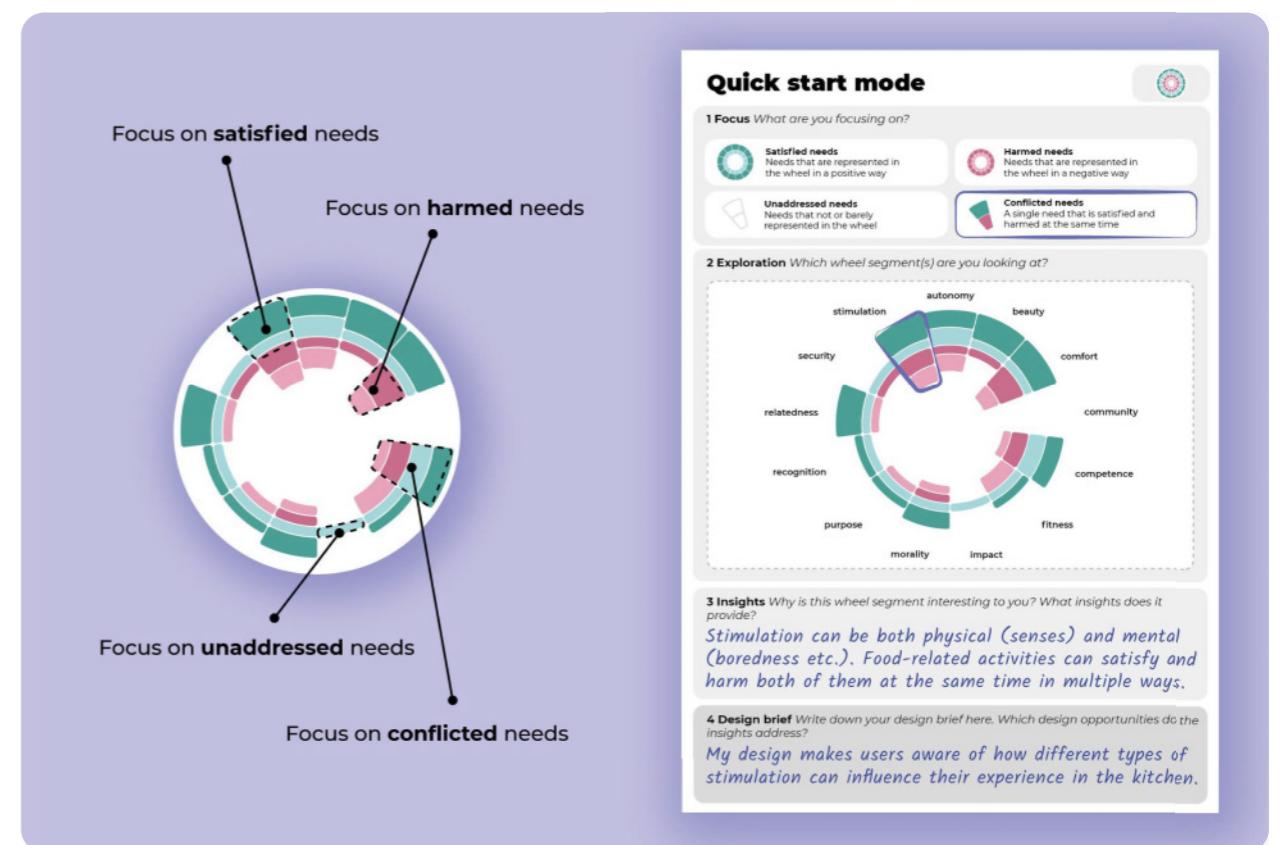


Figure 53 An overview of the quick start play mode and an example of a filled out design brief card

## Adventure mode

The adventure mode uses both the need wheel and the detailed data to find interesting insights and connections between the two. When looking at the need wheel, one can have questions that can only be answered by looking at the detailed data, or vice versa. This mode also engages the drivers and non-drivers. These categories could spark some curiosity based on the need wheel, but to understand the occurrences better, designers would need to look further into the need fulfilment explanations. There are three approaches to take when exploring using the adventure mode, and the process is guided by the corresponding design brief card (figure 54).

### Relationships within needs

This approach focuses on the buildup of specific needs and the relationships between drivers and non-drivers in both need fulfilment categories. This approach might seem similar to the 'focus on conflicts within needs'-approach from quick start mode, but this second approach doesn't require a conflict to be present within a need. It can also be about the ratio of drivers versus non-drivers within one of the need fulfilment

categories. Looking into the detailed part of the data overview could provide more insight into the need structure.

### Relationships between needs

This approach looks at the relationship between two different needs. This relationship could consist of a similarity between needs, either through meaning or through buildup of the needs. The need fulfilment categories could be of specific interest to identify patterns. Looking into the detailed part of the data overview could provide more insight into these relationships.

### Personal motivation

Some projects have a certain focus or in some cases designers have personal goals regarding a project. Or in some cases, designers are just curious about a certain part of the need wheel that catches their attention. These project goals, personal motivations or curiosities could lead a designer to focus on one need or segment in particular, which can then be connected and investigated further using the detailed data.

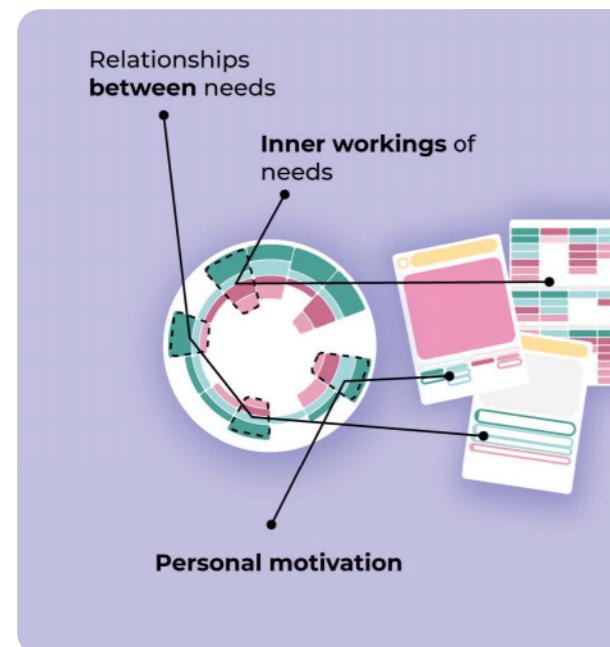


Figure 54 An overview of the adventure play mode and an example of a filled out design brief card

## Deep dive mode

The deep dive mode is the most complex and intensive of the three modes. This strategy focuses on the detailed part of the data overview only and dives deeper into the motivations behind the experiences. Though this mode is more time-consuming than others and it takes some mental effort, it helps designers to uncover patterns in the data that lead to out-of-the-box ideas that are based on the deeper layers of information. Due to its focus on nuances in the data, this play mode is most valuable when used in combination with narrative cards. There are three approaches to explore the data through the deep dive mode, and the process is guided by the corresponding design brief card (figure 55).

### Relationships between narratives or statements

This approach leans on patterns that can be identified between narratives or statements. Patterns to look for can be related through time, type of activity, collaborative activities or through similar need patterns throughout the narratives or statements. Of course, these are only examples, and designers are free to explore any patterns or structures that they can identify.

Narrative cards can be ordered in multiple different ways to represent these patterns.

### Intuitive exploration

This approach leans on a designer's personal interest and intuition. Occasionally, when working with a large amount of data, such as with this method, designers come across interesting pieces of data. These pieces can be quotes or details, and they can be very small. The important part of this approach is that it sparks a designer's imagination or interest. Being able to follow intuition in this way could add to the authenticity of a design process and resulting concepts.

### Need fulfilment styles

This approach uses the set of need fulfilment styles to analyse the narratives or statements and their corresponding need fulfilment categories. Need fulfilment styles can be used to identify patterns in the data or to cluster the different narratives or statements according to their need fulfilment style. More information about need fulfilment styles can be found in chapter 2.

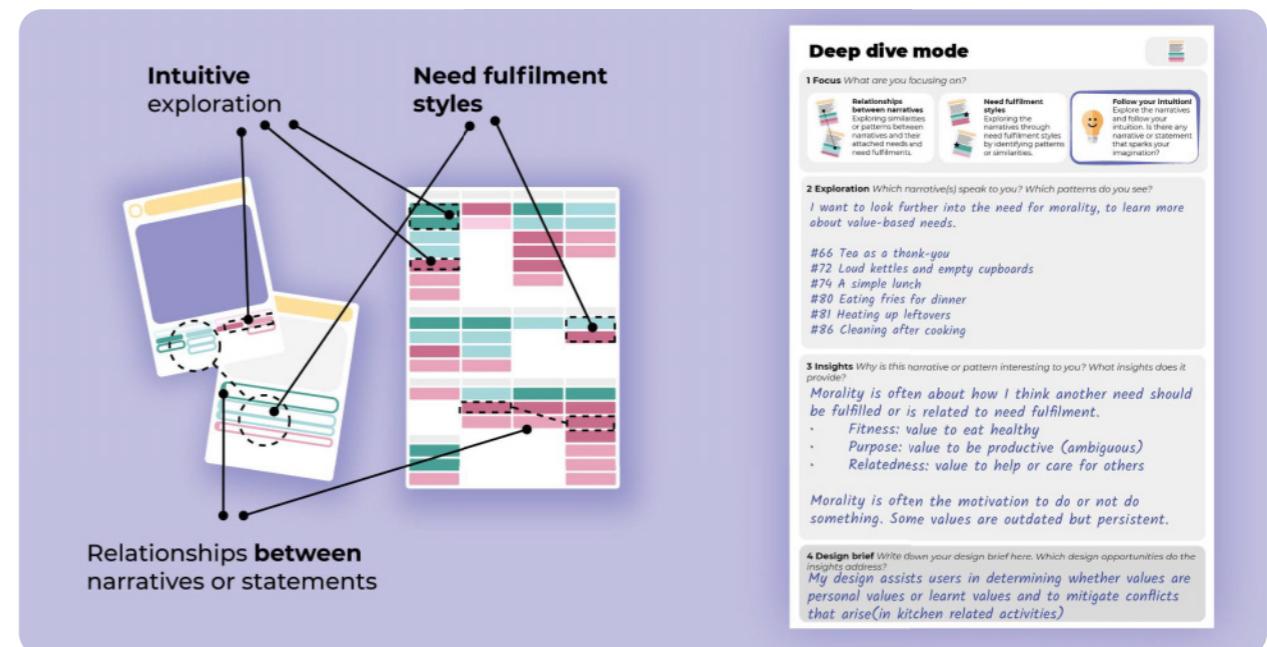


Figure 55 An overview of the deep dive play mode and an example of a filled out design brief card

## The realisation phase

In the realisation phase, the design briefs from the exploration phase are used as a starting point for the designing of concepts. The realisation phase also includes the validation of the design concepts and the possible iterations. The validation and iteration parts are valuable, as the design method works with highly subjective materials, e.g. the experience of activities, the fulfilment of fundamental needs and in some cases, introspection. This subjectivity could lead to different perceptions of the design concepts by their target group, based on their own personal experiences and values. It is of importance that the designer is aware of these different perceptions and whether it affects the intended use of the design concepts. The realisation phase is visualised in figure 56.

The process of translating a design brief into a design concept is a very organic and personal one. It can also be dependent on the type of design project. Therefore, it is difficult to formulate clear steps to follow, but based on my own reflections, I have created the following set of guidelines. More information about my personal ideation process can be read in chapter 2. Huang and Roest (2023) suggested that

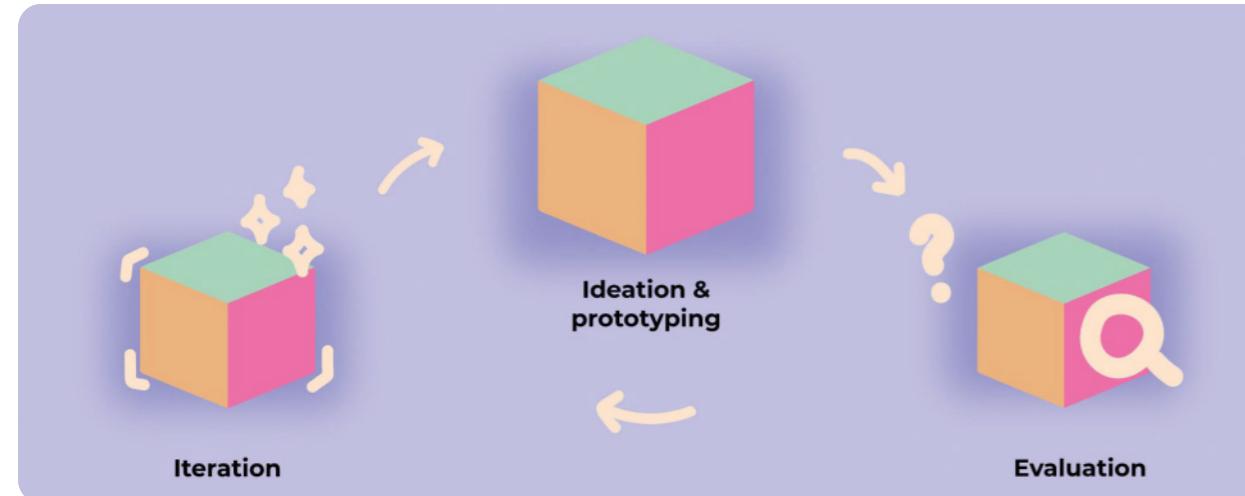


Figure 56 The cycle of the realisation phase

designers refer to the Delft Design Guide (van Boeijen et al., 2020) for other ideation method, which they are free to do.

- **Formulating an ideation goal.** Specifying an ideation goal, either through determining a desired number of ideas or which (combination of) design briefs to use, can help structure (parts of) the process.
- **Writing down initial ideas at the start of the process.** Having worked with the data in the previous phases, some ideas might have popped up. It can help to get these initial ideas out of the way to start with a clean slate to act as inspiration for further ideas.
- **Going back to previous phases** in the process. Sometimes it can help to go back to the original narratives or statements to be inspired by smaller and more concrete aspects that are the basis of the design brief. These smaller aspects can enrich ideas.
- **Switching between different types of ideation.** Switching between different ideation and prototyping activities can spark different associations and ideas. Also looking at different existing products from the targeted use context can be inspiring.

## Manifestation of the design method

The activity-based need profiling method is essentially a set of phases that form an intangible design process. Though, in order to realise this process, the design method is supported by two different materials; a guide booklet and a digital template folder.

### The guide booklet

The guide booklet describes the design process of the activity-based need profiling in a practical way (figure 57). The guide booklet is designed to be used by novice designers and introduces the design method in a ready-to-use way, through clear task descriptions, visuals, overviews and examples. The guide booklet can be downloaded from the website of the Delft Institute of Positive Design, as well as from the TU Delft Thesis Repository.

### The digital template folder

The activity-based need profiling method uses a wide range of supporting materials, such as narrative cards and design briefs. The digital template folder combines all these materials in different formats. These different formats range from Adobe Illustrator-files for editing to PDF-files for printing and use on paper. The digital template folder can be found on the website of the Delft Institute of Positive Design.



Figure 57 An impression of the guide booklet that accompanies the design method

## Inspiration for design method use

This section includes visual summaries of proposed ways to use the design method, which could provide inspiration for designers on how the method could be applied in their own design projects.

- An afternoon-long design sprint with twelve designers (figure 58).
- A week-long individual project (figure 59).
- A course-length collaborative project with three designers (figure 60).

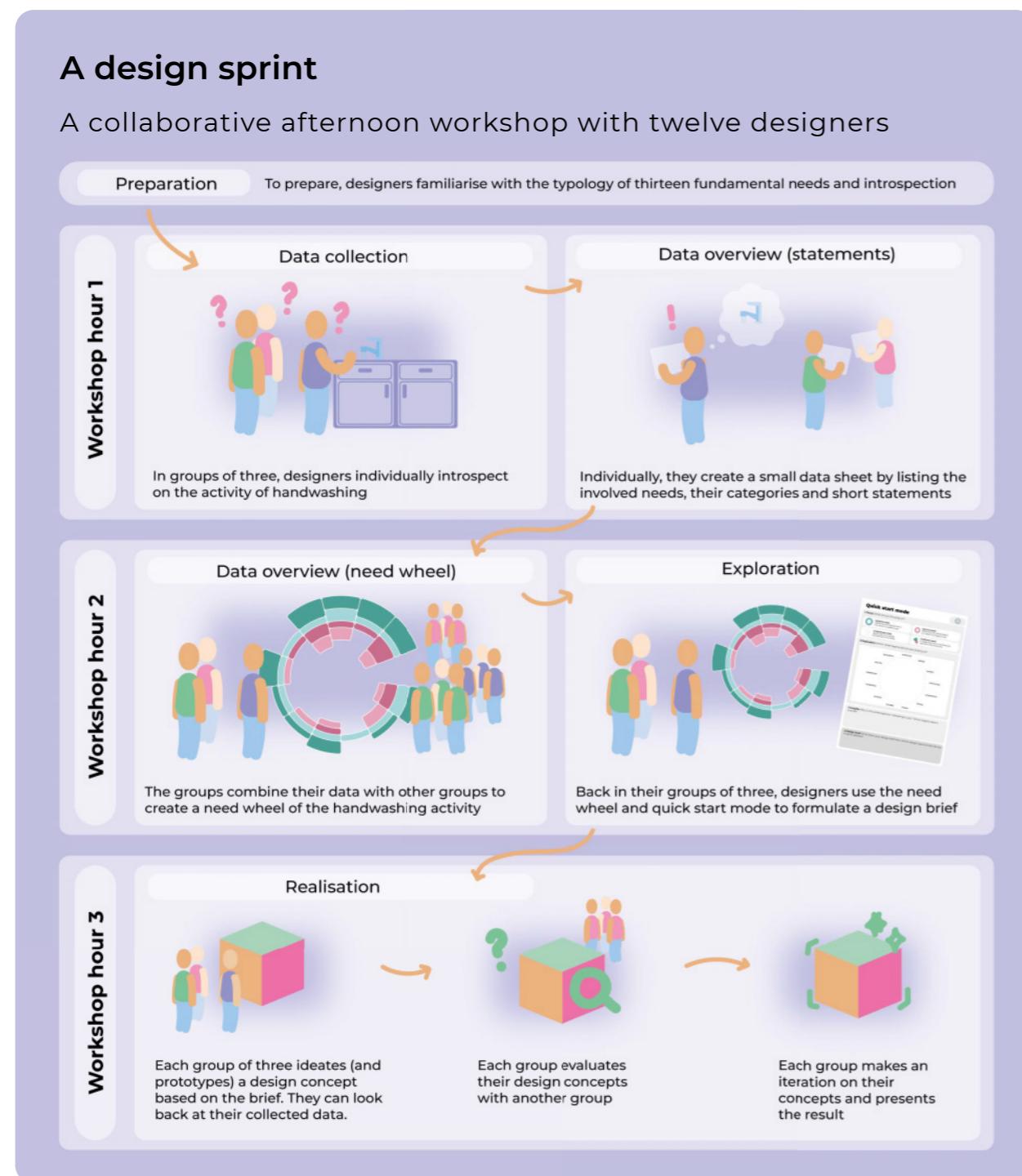


Figure 58 A possible structure for a design sprint using the activity-based need profiling method

### A short-term design project

An individual, week-long project with one designer

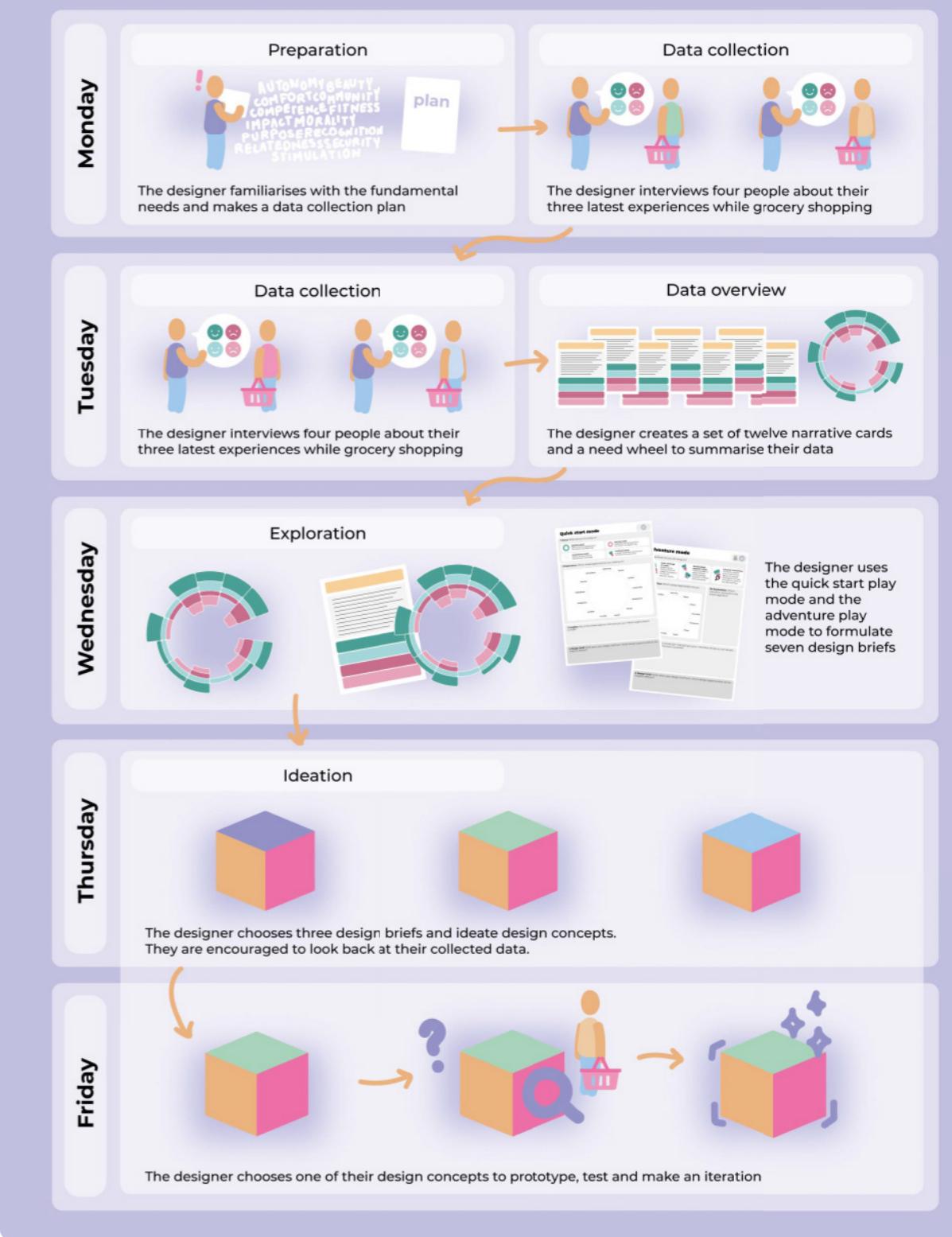
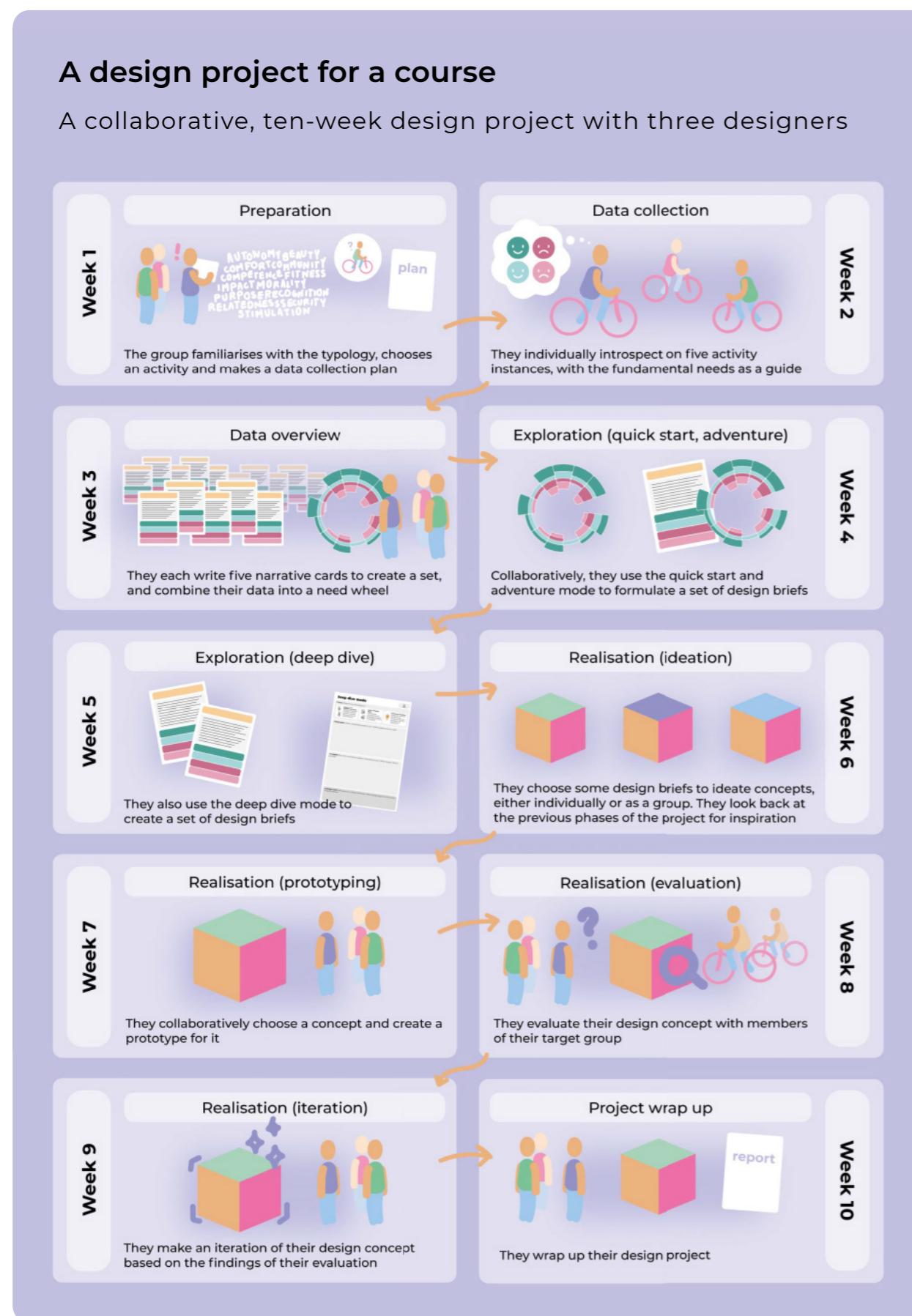


Figure 59 A possible structure for a short design project using the activity-based need profiling method



## On a personal note

Working on a design method has been an interesting process. I was still designing a product (the design method) in the way I have been taught in the past years, but I have been looking at it from a larger distance. I have been designing a way to design in order to design other things. The design method that has been described in this chapter, reflects my own way of designing. I have integrated my own mannerisms and personality, and with this method, I am able to share this with other designers. It is my thought process made tangible.

Now that a revised and expanded version of the activity-based need profiling method is completed, my graduation project has essentially come to an end (aside from more practical things that also have to happen). With the closure that this new version brings, I realise that I have satisfied (and harmed) all of my own fundamental needs in all kinds of different ways.

My need for **autonomy**, because this project has allowed me to make all of the decisions by myself and have been able to do the project in the way I saw fit. My need for **beauty**, because when I look at the completed method it makes sense to me; it is in harmony. My need for **comfort**, because it gives me peace of mind to see it completed without loose ends (though, during the process, this need might have

been more harmed than satisfied overall...). My need for **community**, because I feel that I am contributing something to the field of design. My need for **competence**, because I did, in fact, use my design skills to design a design method. My need for **fitness**, which might have been harmed, now that I reflect on it, because I've been sitting behind my laptop screen a lot. My need for **impact**, because I hope that other designers will use the design method and find inspiration in aspects of it, incorporating it in their future projects. My need for **morality**, because I have been able to integrate my own personality and my own opinions into the method, and I hope that it allows others to do so as well. My need for **purpose**, because the project has given me a clear direction to work towards, and now it gives me the opportunity to see where it takes me next. My need for **recognition**, because throughout the project, I have had some feedback, but I've also had positive reactions on my design work. My need for **relatedness**, because I've learned a lot about myself, but also about the people around me through the introspective aspect of the project. My need for **security**, because I was free to learn and experiment, within the safe and clear boundaries of a graduation project. My need for **stimulation**, because during the project, I have been doing lots of different things for different purposes, and each activity gave me new ideas and new directions to pursue.

Figure 60 A possible structure for a course-long design project using the activity-based need profiling method



This chapter concludes the report as well as the graduation project. In the discussion, I introduce several results from the project, what they tell us and several limitations that these results uncover.

## General discussion

In the general discussion, I describe several limitations and implications of the activity-based need profiling method and of the graduation project, including some notes on the limitations of introspective activities, as well as some notes on the existence of the design method in general.

### A few notes on introspective activities

This first section of the discussion concerns the integration of introspective activities in the activity-based need profiling method, which I would like to illustrate with the three need wheels from the two case studies (figure 61). These three need wheels represent the need fulfilment within the activity of food-preparation in a home kitchen. The first is from my own personal introspection within the first case study (chapter 2), the second is from the design workshop with design students and the third is from the design workshop with junior designers (chapter 3).

The first thing to be noticed is that these need wheels show both differences as well as similarities, which can mean multiple things. The similarities, such as the needs for comfort, competence and fitness, could be explained through the fact that all participants engaged in a similar type of activity or because of the universality of fundamental needs. These are speculations, as I haven't had the time to investigate this further. Creating consistent

Then, I describe several directions for further research. In the conclusion, I summarise the graduation project through its process, its goals and its results.

data overviews also wasn't the goal of the integration of introspective activities. It was the introduction of nuanced, personal and authentic data, with the intention of using this personal data to expand the design space and create novel and unique design concepts. The results from both case studies show that this was achieved. However, these differences in the three need wheels could be caused by the different amounts of time spent introspecting, but also by some limitations of integrating introspective activities in the design method. These limitations include the meaning of need fulfilment, the intrinsic motivation of the designer and the idea of the complete member researcher.

During one of the design workshops in the second case study, I had an interesting conversation with one of the participants, where they asked the question where need fulfilment starts. They were not sure whether they needed to include the motivation to engage in the activity into the list of satisfied needs. I replied that I felt that this was up to them; that it relied on the fact whether they felt it affected their experience of the activity. This means that the abstractness of when a feeling or experience begins affects the way people introspect and what they include in their narratives or list of fulfilled needs, which in turn could affect the resulting need wheel.

The definition of need fulfilment, and the resulting data could also be linked to the intrinsic motivation of the designer

and their particular goals. For example, when I collected introspective data in the first case study, I did it to contribute in a valuable way to my graduation project, where the designers in the second case study participated in only a design workshop, motivated by either altruism and/or the curiosity of learning something new. In both cases, the motivation for introspection was quite different, which could have affected the data. The particular motivation could also be linked to the researcher's passion described by Xue and Desmet (2019), where they explain the positive effect of a relationship between the topic under investigation and a researcher's personal interests on introspective results.

On a final note, Xue and Desmet (2019) also describe the value of a complete member researcher, who is part of the target group under investigation and understands not

only the research topic well, but also the underlying norms and principles. However, it could be difficult to determine when a designer is in fact a complete member researcher. For example, in the first case study, I used introspection to design for Dutch food-preparation activities in the home kitchen, as a Dutch person who regularly uses her kitchen at home for these types of activities. For the sake of the graduation project, I viewed myself as a complete member researcher. While this might not have been the case, as I did not, for example, represent the male group or elderly group of home kitchen users. I suppose the answer to this dilemma lies in the goal of the design project and which aspects of the target group are of importance to design a concept that suits them. Other than that, this insight might be yet another reason why testing, validating and iterating design concepts is of such great value.



Figure 61 A comparison between the three need wheels created in this graduation project

## A short reflection on the existence of the activity-based need profiling method

This second section discussed the value of the existence of the activity-based need profiling method. The starting point of the development of the design method during the research project by Huang and Roest (2023) was to provide a concrete way to apply the fundamental needs in a design project, as well as give a voice to the different ways in which people express their need fulfilment. This version of the activity-based need profiling method still encourages these points. Still, it can be debated whether the existence of this design method is still a requirement when designers are already aware of the fundamental needs and have introspective skills. These designers might be able to use the fundamental needs in their introspective exercises and find their way towards a design concept. What would motivate them to use the activity-based need profiling method?

First of all, it has been the intention of the activity-based need profiling method to be a flexible design method that provides users with the freedom to adjust the method to suit their needs. Second of all, the design method has been developed for novice designers, to familiarise them with introspection, fundamental needs and the bridge between the abstractness of the needs and the concreteness of activities.

These values might indeed point towards the moment when the activity-based need profiling method might be redundant. When designers have adjusted the design method in such a way that it might not be recognisable as such anymore. Or when novice designers have incorporated the no-longer-unfamiliar topics into their toolbox and start using them for different purposes. And when this happens, I would say: mission accomplished!

## Recommendations for further research

This paragraph introduces four directions that might be suitable for further research, based on findings of this graduation project. The four directions include an evaluation of the revised design method described in chapter 4, a further investigation into the need fulfilment styles, the development of a tool for introspection, the use of the design method for people outside of the current target group, such as experienced designers or non-designers.

### Evaluation of the current, revised activity-based need profiling method

The revised version of the design method introduced in chapter 4 is thoroughly supported, both by Huang and Roest (2023) as well as by the two case studies presented in chapters 2 and 3. However, it has not been evaluated in its entirety in its current form. It might be valuable to further validate the complete set of changes made in this graduation project, as well as the project suggestions made at the end of chapter 4.

### Further investigation into need fulfilment styles

During the first case study, I developed a set of need fulfilment styles, which describe strategies through which people fulfil their fundamental needs. These need fulfilment styles are included in the preparation phase and the exploration phase of the activity-based need profiling method. Now, these need fulfilment styles have been developed within the scope of the graduation project and aimed at a use within the design project. However, I believe that the list of need fulfilment styles might not yet be complete or could be refined further; something I did not have the time for. I also believe that the need fulfilment styles could be used to explain and understand more about how people fulfil their needs and unconsciously work on their feeling of wellbeing. Further exploring and refining the need fulfilment styles could be valuable for design for wellbeing in general.

### A tool for introspection on-the-go

Introspective data can be difficult to work with, as relying on memories can be untrustworthy. During this graduation project, I introspected both in real time as well as retrospectively. In order to keep my memories of the activity instances as accurate as possible, I sent myself messages describing what I was doing, what my feelings and thoughts were and what caused these reactions. During the second case study, I had omitted the specifics of collecting introspective data, other than that the participants were expected to write narratives. When discussing introspection during the design workshops, one of the participants mentioned that they struggled with collecting introspective data in real time; they were afraid they would forget. They suggested some type of tool that would

assist with introspection on the go. I agree with this suggestion. I think that an introspection tool could make introspective activities more accessible for designers to use as a way to collect data, while also making the collected data more accurate and thus more valuable for the further phases of a design process.

### Validating and adjusting the design method for different target groups

The current version of the activity-based need profiling method is aimed at novice designers, to make them more familiar with topics such as introspection and fundamental needs. Therefore, the value for users outside of the target group has not been investigated (yet).

One interesting target group might be more experienced designers. Due to their experience, they might already have their own ways of designing or they might have already incorporated introspection or fundamental needs into their way of working. The thing is, I don't know for sure. It might be worth investigating whether this assumption is true and if there is a way the design method can be of value to them.

Another interesting target group is that of non-designers. During one of the design workshops in the second case study, it was mentioned that the users of the design method would have to be able to handle the fuzzy front end of a design process and the subjectivity the design method makes use of. However, during the first case study, I did find that the typology of fundamental needs was easy to understand for people unfamiliar with it. I wonder whether the design method can be adjusted to be used by non-designers. If this is the case, the method could be used in co-creation sessions, or it could be useful to investigate activities that designers themselves might not have access to.

## Conclusion

The main objective of this graduation project was to expand the activity-based need profiling method with introspective activities in the data collection phase. The design method investigates activities through the way they fulfil people's fundamental needs, which yields rich and personal information, suited for the field of human-centred design. The hypothesis was that the addition of introspective activities in the data collection phase in the form of narratives, would further enrich this information about activities and provide a more nuanced and inspiring input for a design process.

This hypothesis has been evaluated through two case studies and the result of this evaluation is positive. In the first case study, conducted by me individually, yielded a revised version of the activity-based need profiling method, which was sufficiently equipped to handle the complex and nuanced narratives that resulted from the introspective data collection (figure 62). The introspective activities made sure that the design process stayed connected to real-life experiences and provided a near-endless source of inspiration throughout the entire design process. The second case study confirmed these findings through a set of design workshops for novice designers, which intended to validate the revised design method through its target group. In these workshops, the introspective activities resulted in discussions, which further enriched the data, in associations, which expanded the design space and in new

perspectives, which resulted in novel and out-of-the-box design concepts in a short amount of time. The combined insights from these two case studies resulted in a revised version of the activity-based need profiling method, with introspective activities integrated in the data collection phase.

In its revised form, the activity-based need profiling method still offers the freedom and flexibility of the initial version, by providing designers with the opportunity to adjust the design method to their own needs and by allowing them to follow their intuition. The guidance that the design method provides aims to introduce novice designers to tools such as the typology of fundamental needs, the investigation of activities and how to incorporate them in their design process. The revised design method adds introspective activities to this list of tools, making the design method suitable for a larger variety of design projects.

My secondary objective aimed to highlight the personal experience of my graduation project as an autistic designer, with which I hoped to encourage other designers to embrace neurodiversity in the design field. It is hard to say whether this has been successful, as I don't know how others will receive this at this moment in time. However, I can say that reflecting on the entire process and writing these thoughts down has been a cathartic experience, which has meant a lot to me.

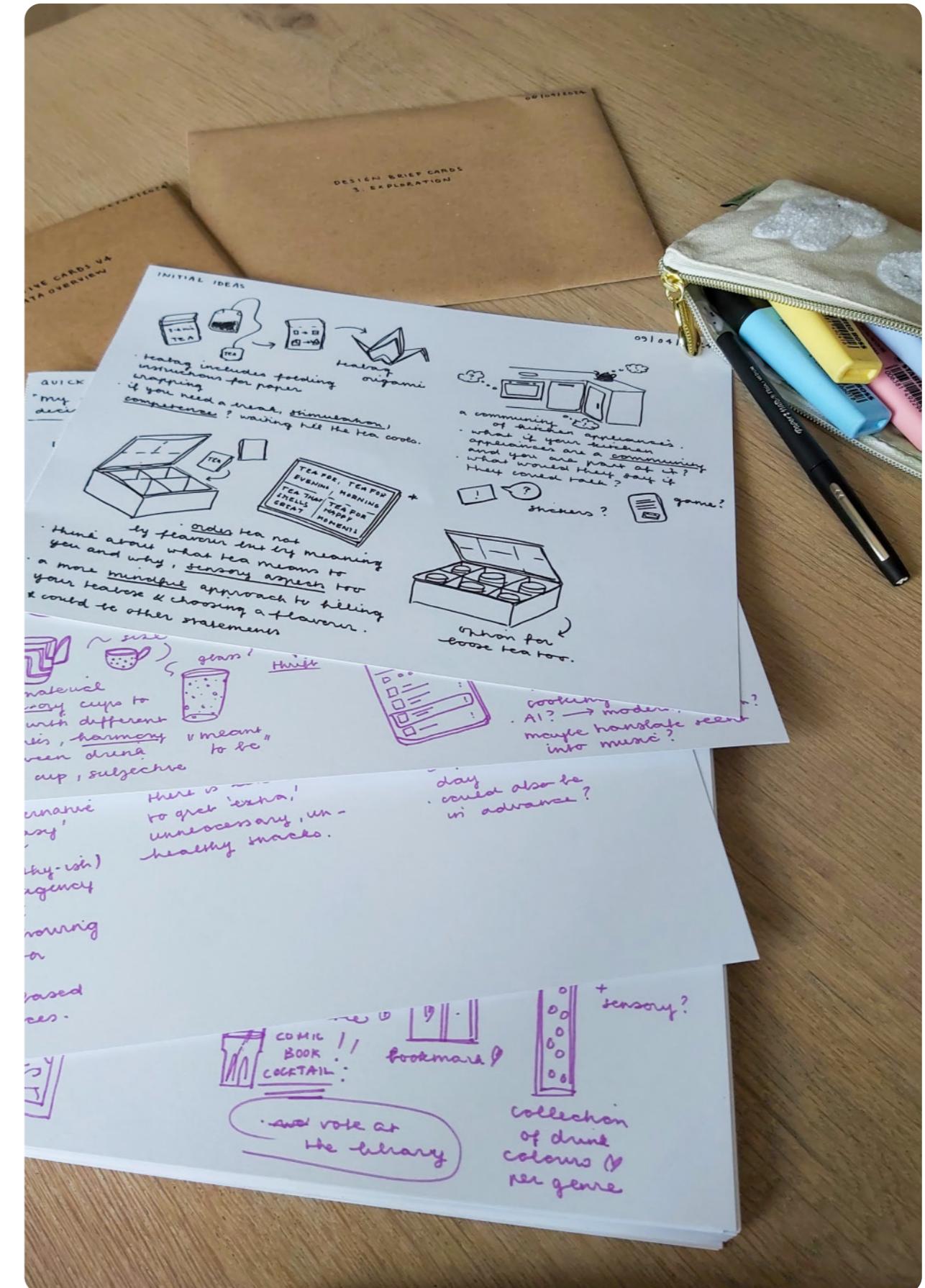


Figure 62 A behind-the-scenes view of the ideation phase (later, realisation phase) of the first case study

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**DESIGN FOR our future**

**TU Delft**

**Personal Project Brief – IDE Master Graduation Project**

Name student Marinka Roest Student number  

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

**Project title** Expanding the activity-based need profiling method with introspective activities through a case study

*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 graduation project builds upon the recently developed activity-based need profiling method. This method aims to apply the typology of fundamental needs to investigate a specific activity, in order to define an inspiring design brief to enrich said activity. The intended users of the design method are design students and other designers aiming to include fundamental needs into their design processes.

The activity-based need profiling method stems from the idea that though the thirteen fundamental needs are universal, the expressions of these needs are different for everybody. This seemed like an interesting starting point for a design process, as these need expressions could provide valuable insights into people's behaviours. These need expressions could also show us opportunities to enhance people's experiences and use these opportunities to design for wellbeing.

Currently, the method consists of several materials (image 1) and a guide on how to conduct the process, and has been validated through two case studies. Naturally, along with some useful conclusions and insights, the development of the method has also opened up new opportunities for expansion of the method or for further research. Even though the method would be valuable as is, it would be worthwhile to investigate these opportunities, to show the possibilities of the method and to prove its use for all sorts of design projects.

→ space available for images / figures on next page

introduction (continued): space for images



Need wheel



Data sheet



Design brief cards

image / figure 1 Toolkit materials for the activity-based need profiling method.

image / figure 2

**DESIGN FOR our future**

**TU Delft**

**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)

In the current version of the activity-based need profiling method, data is collected about people's experiences regarding their need fulfilment within a specific activity. Though this is a suitable way of gathering data, a previous case study has showed that the more detailed the description of the experience, the more inspiring the design brief and the design concepts that build upon it. Unfortunately, there was no opportunity to investigate this phenomenon further. Therefore, this graduation project aims to expand the method by introducing introspective activities in the data collection phase, using the personal and detailed insights these activities provide.

To validate this expansion of the method, a case study is to be conducted as part of the graduation project. The case study will use the activity-based need profiling method and the introspective activities will be introduced in the research phase of the project. The method will be evaluated and adapted in order to accommodate the introspective activities as part of the graduation project as well.

The expanded method would combine multiple research areas within the field of human-centered design, and therefore would increase the reach of the activity-based need profiling method.

**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 the combination of introspective activities and the activity-based need profiling method to expand the possibilities of the method and to further validate the method for human-centred designers in a design education context.

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)

- Literature review: gather insights from related topics and from the development of the activity-based need profiling method.
- Case study: conduct a case study using the activity-based need profiling method in combination with introspective activities in the data collection phase. The case study will investigate the activity of preparing food in a home kitchen environment. The case study will be concluded with a design concept related to the investigated activity.
- Evaluation and expansion of the activity-based need profiling method: during the case study, the method, including introspective activities, will be evaluated and adapted in an iterative manner.
- Validation of the expanded need profiling method: the newly adapted version of the method will be evaluated and validated by its intended users.

**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	19 Feb 2024
Mid-term evaluation	26 Apr 2024
Green light meeting	5 Jul 2024
Graduation ceremony	9 Aug 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	<input checked="" type="checkbox"/>
For how many project weeks	25
Number of project days per week	4,0

Comments:  
Due to disability, student is unable to work on graduation project fulltime

**Motivation and personal ambitions**

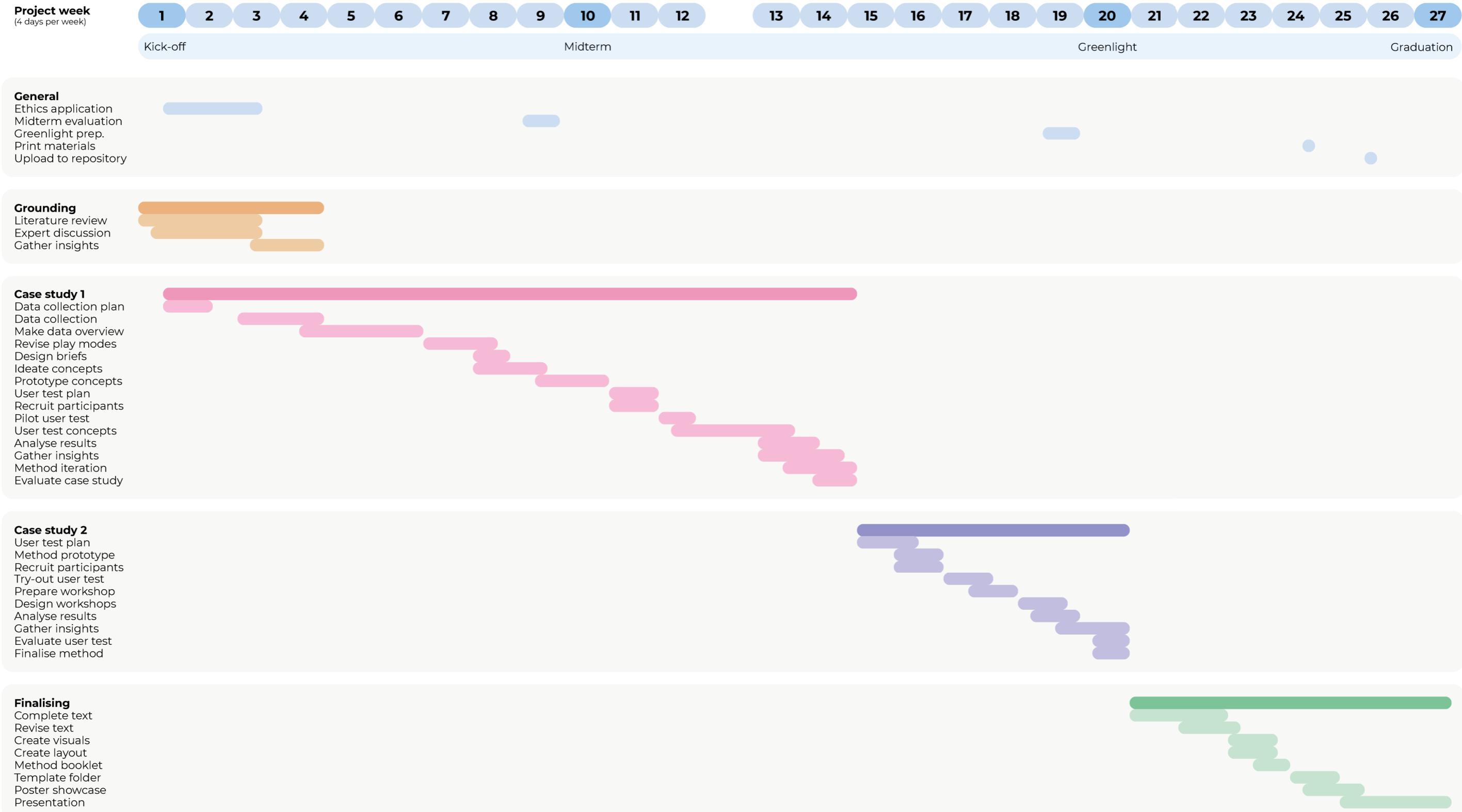
Explain why you wish to start this project, what competencies you want to prove or develop (e.g. competencies acquired in your MSc programme, electives, extra-curricular activities or other).

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)

In the previous months, I have worked together with dr. Siyuan Huang to develop the activity-based need profiling method, which is something I'm quite proud of. Being so closely involved with the creation of the method, I am also aware of the ways in which it could be applied or expanded, but for which we haven't had the time (yet). I am grateful that I'm able to use my own method in my graduation project and also very motivated to explore further possibilities of the method.

On a more personal note, this graduation project involves introspective activities, which means I'll be using my own experiences and thoughts as input for the method. Being an autistic design student, I feel that I'm in the unique position to share some of my experiences of everyday life, while also being able to use them in my design work. I feel that in order to create a more (neuro)diverse field of design, projects like this are important. Therefore, a secondary, more personal objective is to reflect on doing a project like this as a neurodiverse design student.





## Introduction

This guide provides a detailed walkthrough of the activity-based need profile method, a toolkit grounded in the Typology of Thirteen Fundamental Needs by Desmet and Fokkinga. It aims to offer a practical approach for integrating this typology into the design process.

By examining how each of the thirteen fundamental needs is fulfilled within a specific activity, the method categorizes three need fulfilment states: satisfied, harmed, and neglected. This assessment yields a comprehensive snapshot of the activity's impact on need fulfilment. The guide further introduces three distinct strategies, or play modes, to analyse this data, enabling the formulation of innovative and original design briefs to advance the design process.

While this booklet outlines the method with instructions and examples, it's important to remember that there is no one-size-fits-all approach. We encourage you as designers to exercise your intuition and creativity, adapting the method and toolkit to suit your project's unique requirements.

Happy designing!

Siyuan and Marinka



## Preparation

Familiarise with the Thirteen Fundamental Needs

The activity-based need profiles method is based on Desmet and Fokkinga's **Typology of Thirteen Fundamental Needs**. Given the integral role this typology plays in nearly every step of the process, we recommend familiarizing or refreshing your knowledge about it and the specific thirteen needs in detail.

We believe that familiarizing yourself with the need typology will enhance the design and thinking process in two key aspects:

- It **streamlines the data collection process**, as you'll have a clearer understanding of what to look for and the questions to pose to your participants or yourself.
- It aids in the **effective clustering and analysis** of your findings.



To find more information on the typology, scan to QR-code to go to <https://needtypology.com/> or read the paper 'Beyond Maslow's Pyramid: Introducing a Typology of Thirteen Fundamental Needs for Human-Centred Design' (Desmet & Fokkinga, 2020).

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<b>Autonomy</b>	Being the cause of your actions and feeling that you can do things your own way
<b>Beauty</b>	Feeling that the world is a place of elegance, coherence and harmony
<b>Comfort</b>	Having an easy, simple, relaxing life
<b>Community</b>	Being part of and accepted by a social group or entity that is important to you
<b>Competence</b>	Having control over your environment and being able to exercise your skills to master challenges
<b>Fitness</b>	Having and using a body that is strong, healthy, and full of energy
<b>Impact</b>	Seeing that your actions or ideas have an impact on the world and contribute to something
<b>Morality</b>	Feeling that the world is a moral place and being able to act in line with your personal values
<b>Purpose</b>	Having a clear sense of what makes your life meaningful and valuable
<b>Recognition</b>	Getting appreciation for what you do and respect for who you are
<b>Relatedness</b>	Having warm, mutual, trusting relationships with people who you care about
<b>Security</b>	Feeling that your conditions and environment keep you safe from harm and threats
<b>Stimulation</b>	Being mentally and physically stimulated by novel, varied, and relevant impulses and stimuli

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## Step 1: Data collection

Collect data in three need fulfilment categories

The initial step in the process involves collecting data from participants about their experiences with need fulfilment within an activity. Specifically, you'll gather insights on which needs are **most satisfied**, **most harmed**, and **most neglected**, along with why. Understanding the why is essential, as it informs the formulation of an inspiring design brief later in the process.

**Satisfied needs** are needs that people feel are fulfilled through the activity. Satisfied needs support a feeling of wellbeing and a positive experience when involved in the activity.

**Harmed needs** are needs that people feel are not fulfilled or harmed through the activity. Harmed needs give people a negative feeling and experience when involved in the activity.

**Neglected needs** are needs that people don't directly associate with the activity and therefore don't fulfill that need when involved in the activity.

You have the option to collect data via **surveys**, **interviews**, **experience sampling methods (EST)**. Interviews and EST are recommended for a deeper dive into people's experiences, offering the chance to clarify any ambiguities. However, surveys can be quite effective, especially in time-sensitive projects or situations where participants are already knowledgeable about fundamental needs.

When working with a **large number of participants**, consider focusing on one need per fulfilment category, as demonstrated in the example on the next page. This approach was employed in our case study with over sixty respondents. Conversely, **with a smaller group**, you might ask participants to evaluate each of the thirteen needs on whether it is satisfied, harmed, or neglected. This method ensures comprehensive coverage of each need with a limited number of responses.

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### Participant A

- "My most fulfilled need is security because, by not biking, I don't have to worry about safety issues. Also, taking public transportation or walking makes me feel safe."
- "My most harmed need is competence, because I don't feel like I have the skills to ride a bike at this moment."
- "My most neglected need is community, because people around me do ride a bike and I don't feel like I am part of that."

### Participant B

- "My most fulfilled need is autonomy, because riding my bike gives me the freedom to go wherever I want."
- "My most harmed need is comfort, because bike riding takes a lot of mental effort to be safe in Delft."
- "My most neglected need is beauty, because I don't feel that I can enjoy my surroundings when riding my bike, because it takes up too much mental space."

### Participant C

- "My most fulfilled need is competence, because I can ride my bike very fast."
- "My most harmed need is stimulation, because bike riding can feel boring to me."
- "My most neglected need is recognition, because I usually bike when I'm alone and I don't feel I can share my skill."

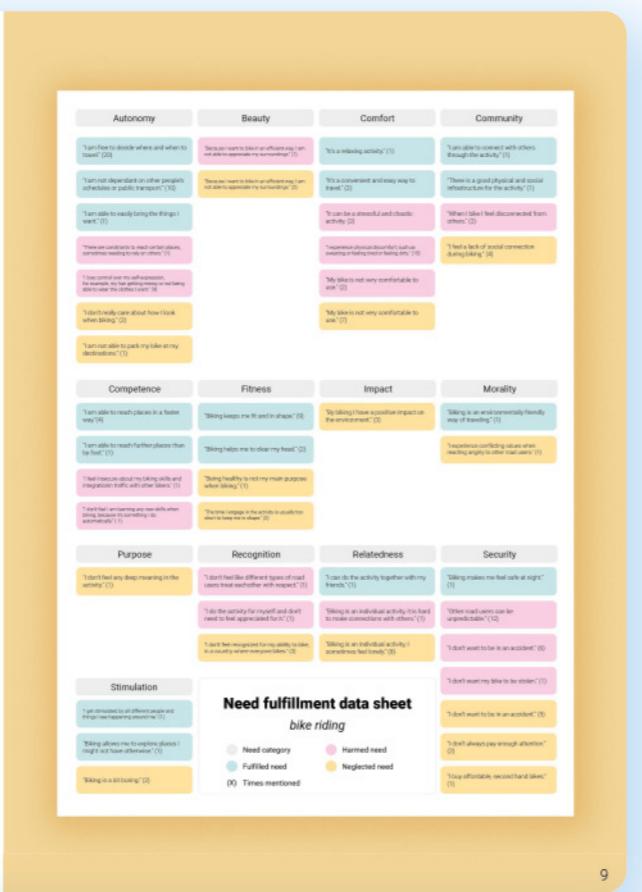
7

## Step 2: Data overview

### Compiling a Data Sheet

Once you've collected your participants' experiences regarding need fulfilment, the next step is to **organize this information** into a data sheet. This sheet should be structured by each need and categorized according to different need fulfilment states.

To enhance clarity, especially when dealing with numerous responses, consider **clustering similar participant statements**. This approach was effectively utilized in the example on the following page, which focuses on the activity of bike riding, based on the responses of over sixty participants.



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## Step 2: Data overview

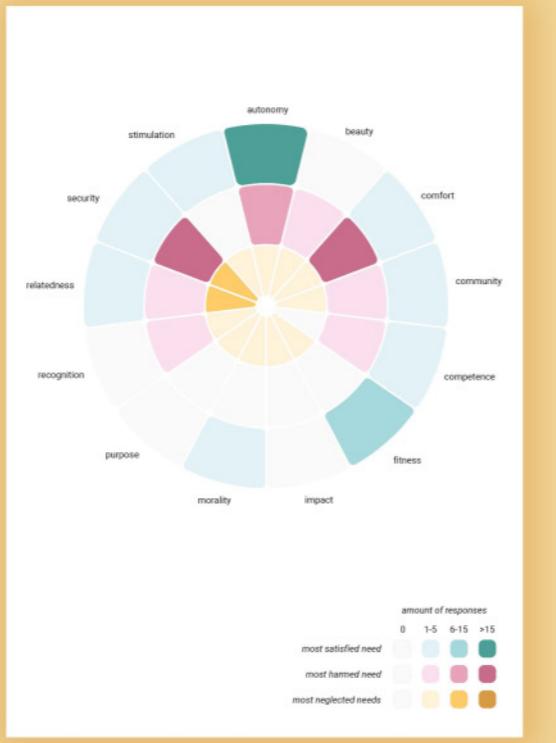
### Creating a Need Wheel

The need wheel is a tool designed to provide a **visual overview of the activity's impact on need fulfilment**. It provides an immediate understanding of which needs are satisfied, harmed, and neglected, including the relative importance or 'weight' of each. To construct the need wheel, utilize the following data:

- Participant responses related to **specific needs**.
- Participant responses categorized by **need fulfilment states** (satisfied, harmed, neglected).
- The **number of responses** in the above categories, which determines the shade of each segment in the wheel. A darker shade indicates more frequent mentions.

To create the Need Wheel, follow these steps:

- Develop a **legend** that aligns with the volume of responses you have. This legend should clearly differentiate between segments that are not mentioned (white), underrepresented (light shade), represented to a moderate degree (medium shade), and overrepresented (dark shade).
- Begin **filling in the segments** of the need wheel with the appropriate shade. It's advisable to start with one of the thirteen needs, completing all three categories for it before moving on to the next need.



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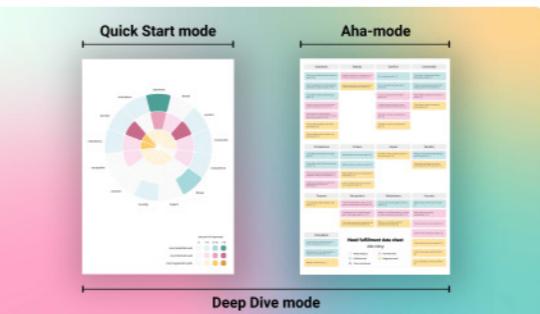
10

## Step 3: Explorations

### Identify design opportunities through 3 play modes

Upon completing the data overview, which includes both the *Data Sheet* and *Need Wheel*, the next phase is to utilize these tools to **uncover design opportunities**. To facilitate this exploration, we have developed **three play modes**, each aimed at generating inspiring design briefs. The following pages detail these three play modes, accompanied by a *'Design Brief Card'* designed to guide you through the process. We recommend using a separate card for each design brief, which might necessitate multiple cards for each play mode.

An overview of the three play modes is presented on the right: the **Quick Start mode**, the **Deep Dive mode**, and the **Aha-mode**. Each mode utilizes either one or a combination of the two data overviews (see below). While we suggest employing all three play modes to develop inspiring design briefs tailored to your project, some modes may prove more effective than others depending on the project's specifics. Feel free to choose what works best for your project, modifying the modes or devising your own methods to make the most of the data overviews!



12

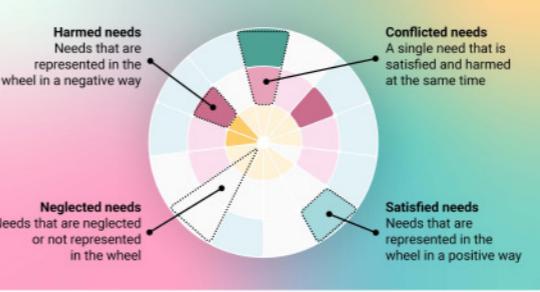
13

## Step 3: Explorations

### Quick Start mode

You have four starting points for exploration:

- Satisfied Needs:** Focus on what works well in the activity and the needs that are positively met. Here, your attention is on the outer ring of the need wheel.
- Harmed Needs:** Concentrate on aspects of the activity that work undesirably and the needs negatively impacted. This involves looking at the middle layer of the need wheel.
- Neglected Needs:** This entails examining the centre ring of the wheel and the individual needs or 'pizza slices' that are empty. Your look for needs that are less represented in the activity.
- Conflicted Needs:** Investigate the needs or 'pizza slices' that are filled. This approach is about focusing on needs that appear to be both satisfied and harmed.



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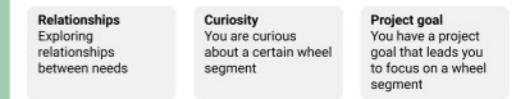
#### Quick Start mode

The Quick Start mode uses only the Need Wheel. This mode facilitates the identification of potential design directions by analysing the distribution of need categories. Within this mode, four specific tactics are provided to sharpen the focus of your search.



#### Deep Dive mode

In the Deep Dive mode, both the Data Sheet and Need Wheel are used to uncover connections between needs or to feed your curiosity. This mode includes three strategies for a more in-depth analysis.



#### Aha-mode

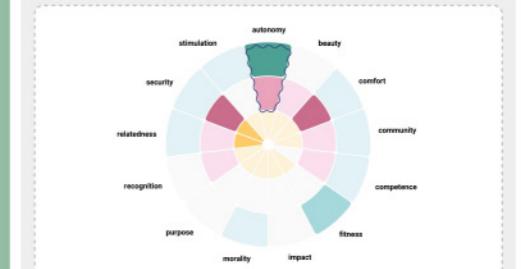
The Aha-mode gives you the room to explore your own interests. You are free to discover and think about the various statements in the data sheet and see if any of them spark your imagination!

#### Quick start mode

##### 1 Focus What are you focusing on?



##### 2 Exploration Which wheel segment(s) are you looking at?



##### 3 Insights Why is this wheel segment interesting to you? What insights does it provide?

Because it looks like autonomy is an important aspect of the biking experience. Some parts of the activity satisfy this need, but others harm it. It could be that these parts could actually influence each other in a positive way.

##### 4 Design brief Write down your design brief here. Which design opportunities do the insights address?

My design uses the parts of the biking experience that satisfy the need for autonomy, to lessen the harm of the parts of the activity that harm the need for autonomy.

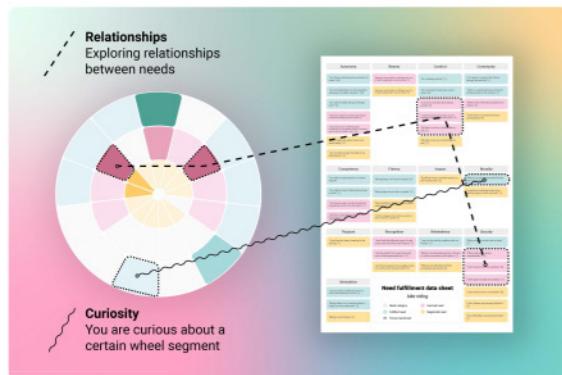
15

## Step 3: Explorations

### Deep Dive mode

In the deep dive mode, you may use three main strategies that leverage the connection between the need wheel and the data sheet to explore design opportunities:

- **Identify relationships between needs:** This goes beyond the Quick Start mode, which focused on relationships within individual needs.
- **Investigate attention-grabbing segments:** If a particular segment of the wheel catches your attention, delve into it. You can refer to the Data Sheet to understand what lies behind this segment.
- **Project-dependent:** Depending on the specific goals or topics of your project, some segments may be more relevant for you to examine and understand in greater depth.



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### Deep dive mode

#### 1 Strategy What strategy are you using?

**Relationships**  
Exploring relationships between needs

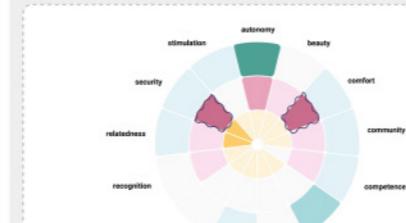
Curiosity

You are curious about a certain wheel segment

Project goal

You have a project goal that leads you to focus on a segment

#### 2a Exploration Which wheel segment(s) are you looking at?



#### 2b Exploration Which data sheet statement connects to the wheel segment?

"It can be a chaotic stressful and chaotic activity." &

"I don't want to be in an accident."

#### 3 Insights Why is this connection interesting to you? What insights does it provide?

These two statements could be related! Being scared of an accident can make biking a stressful activity.

#### 4 Design brief Write down your design brief here. Which design opportunities do the insights address?

My design helps people to feel less afraid of an accident in traffic, relieving their stress and creating a calming biking experience.

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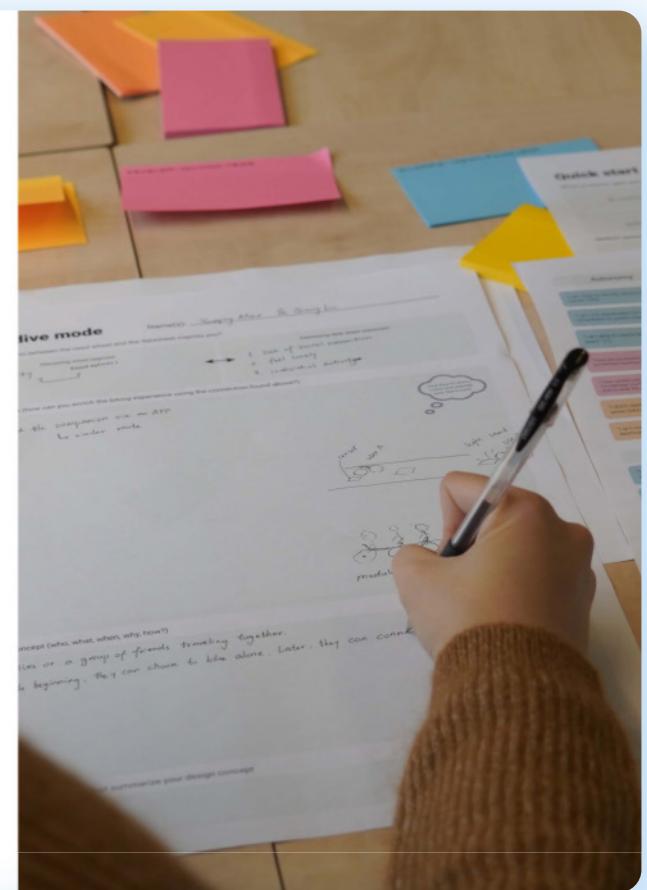
## Step 4: Ideation

### Creating ideas with the Design Brief Card

At the end of each *Design Brief Card*, you should have a sentence that concludes your design brief. Feel free to utilize as many cards as needed and generate as many briefs as you can come up with.

Once the design briefs are formulated, the next step is the **ideation phase**, which you can do in a manner that fits you best. We haven't provided specific guidance for this stage because we believe in designers' toolboxes and access to various resources. For a touch of inspiration, consider incorporating **fictional elements** into your design brief. This could involve crafting a unique narrative or envisioning a world where your design exists. You might even find **AI tools** (such as the Midjourney, ChatGPT, and DALL-E) helpful in this creative process!

If you prefer classic design methods and tools, especially the ones that require paper and pens, the **Delft Design Guide** is an excellent resource, offering a variety of choices to guide you through your design journey.

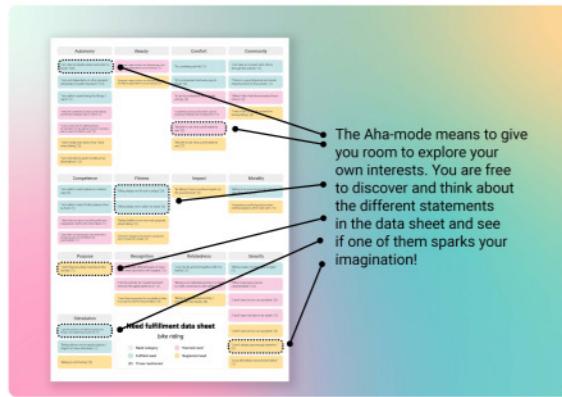


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## Step 3: Explorations

### Aha-mode

The Aha-mode is designed to empower **instinct and intuition**. Often, a minor detail or a particular quote can spark your imagination or drive your enthusiasm. This mode offers you the freedom to **pursue these moments of inspiration**. It primarily utilizes the data sheet, allowing you to select one or multiple statements that speak to you. Additionally, you are free to draw upon any other quotes or observations made during the data collection stage (e.g., interviews or introspection exercises).



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### Aha-mode

#### 1 Use your intuition! What interests you?

The aha-mode means to give you room to explore your own interests. You are free to discover and think about the different statements in the data sheet and see if one of them sparks your imagination!

#### 2 Exploration Which specific statement on the datasheet speaks to you?

"I don't feel any deep meaning in the activity", from the need for purpose

**3 Insights** Why is this statement interesting to you? What insights does it provide?  
Wouldn't it be interesting if you could fulfill the need for purpose while biking? Apparently, this is currently not the case. Many people in Delft bike multiple times a day, and I feel that this could be a good opportunity to enhance this through a need they don't necessarily experience during the activity.

I feel that many people overlook the need for purpose, while it is important to have a feeling of belonging in life. A daily activity such as biking could be a good time to work on that.

**4 Design brief** Write down your design brief here. Which design opportunities do the insights address?  
My design shines a new light on the activity of biking, which makes people reflect on biking and its place in their lives.

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## Toolkit components

### Data Sheet

This compiles the collected data by need and need fulfilment category. While designers have the option to create their own overview, a template for the data sheet is also available in a digital folder for convenience.

### Need Wheel

This tool offers a visual representation of need fulfillment across thirteen categories. Designers can craft their own need wheel or utilize the template provided in the digital folder.

### Design Brief Cards

These are instrumental in analysing the data sheet and need wheel, and in developing effective design briefs through the three play modes. Templates for these cards are included in the following pages and are also accessible in the digital folder.

### Where to find

The digital folder that contains templates for the data sheet (Adobe Illustrator), need wheel (Adobe Illustrator), small need wheels (Adobe Illustrator) and the design brief cards (PDF & Adobe Illustrator) can be requested by contacting Siyuan Huang or Marinka Roest. You will then receive a ZIP-file containing the materials.

## Additional information

### Additional Resources

• Article introducing the **Typology of Thirteen Fundamental Needs**  
Desmet, P., & Fokkinga, S. (2020). Beyond Maslow's pyramid: Introducing a typology of thirteen fundamental needs for human-centered design. *Multimodal technologies and interaction*, 4(3), 38.

• Website with an overview of the **Thirteen Fundamental Needs**  
<https://needtypology.com/>

• **Delft Design Guide: Perspectives, models, approaches and methods**  
Van Boejen, A., Daalhuizen, J., Zijlstra, J. (2020). *Delft Design Guide*. BIS Publishers.

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### Quick start mode

**1 Focus** What are you focusing on?

- Satisfied needs** Needs that are represented in the wheel in a positive way
- Harmed needs** Needs that are represented in the wheel in a negative way
- Neglected needs** Needs that are neglected or not represented in the wheel
- Conflicted needs** A single need that is satisfied and harmed at the same time

**2 Exploration** Which wheel segment(s) are you looking at?

**3 Insights** Why is this wheel segment interesting to you? What insights does it provide?

**4 Design brief** Write down your design brief here. Which design opportunities do the insights address?

### Deep dive mode

**1 Strategy** What strategy are you using?

- Relationships** Exploring relationships between needs
- Curiosity** You are curious about a certain wheel segment
- Project goal** You have a project goal that leads you to focus on a segment

**2a Exploration** Which wheel segment(s) are you looking at?

**2b Exploration** Which data sheet statement connects to the wheel segment?

**3 Insights** Why is this connection interesting to you? What insights does it provide?

**4 Design brief** Write down your design brief here. Which design opportunities do the insights address?

### Aha-mode

**1 Use your intuition!** What interests you?

The aha-mode means to give you room to explore your own interests. You are free to discover and think about the different statements in the data sheet and see if one of them sparks your imagination!

**2 Exploration** Which specific statement on the datasheet speaks to you?

**3 Insights** Why is this statement interesting to you? What insights does it provide?

**4 Design brief** Write down your design brief here. Which design opportunities do the insights address?

# Data collection plan introspection

## Goal

The data collection phase is the first step of the activity-based need profiling method, which this graduation project aims to validate through a case study. The goal of this data collection phase is to collect introspective data about the activity of preparing food in a home kitchen environment, within the frame of the typology of fundamental needs and their need fulfillment status (satisfied, harmed, neglected).

## Study topic

The activity under investigation is the activity of preparing food in the home kitchen environment. This activity is considered in a broad sense\*, in order to identify as many interesting design opportunities as possible. The activity has to consist of multiple consecutive actions in order to prepare the food. Some examples are listed below.

### Activity includes:

- Preparation of breakfast, lunch, dinner and other snacks that include multiple consecutive actions and/or interactions.
- Baking (e.g. for hobby purposes or part of larger food preparation process).
- Making coffee or tea (as it includes consecutive steps like boiling water, grinding coffee beans, pouring water, discarding the tea bag).
- Kitchen clean up, both when it is included in the food preparation process or when food has already been prepared.

### Activity does not include:

- Getting a snack from a cupboard or pouring a glass of water (amount of steps is too limited).

The activity has to be seen as a part of daily life. Therefore, there can be no special activities or deviation from the regular routine as a result of the research. For example, no staying at home to do kitchen activities or cooking complex recipes if specifically for research purposes.

\*After one week (7 days), scope of topic will be revised and updated if necessary.

## Study duration

The study will take place over a period of two weeks (14 days), covering the entire day. This period of time is assumed to cover the variety of the activity (e.g. cooking for self and cooking for others, weekend and workdays, hobby cooking etc.)

## What data will be collected and when?

At the start of each activity instance

- [What is the activity that I am going to do?]
- In the kitchen, I am going to \_\_\_\_\_.
- The activity I'm planning to do is \_\_\_\_\_.
- [How am I going to do the activity?]
- I will accomplish this by \_\_\_\_\_.
- To complete this task, I will \_\_\_\_\_.

- [Why am I doing this activity?]
- I am engaging in this activity because \_\_\_\_\_.
- The reason behind me doing this activity is \_\_\_\_\_.
- [Who is involved in this activity?]
- The people involved in this activity are \_\_\_\_\_.
- I'll be doing this activity together with \_\_\_\_\_.
- [When is this activity taking place?]
- The time I'm doing this activity is early morning/late morning/early afternoon/late afternoon/early evening/late evening.

At the start of each activity instance and continuously during the activity (if relevant)

- What is the need fulfilment status of these needs? (satisfied, harmed, neglected)
- Something happened during the activity, and it had an impact on me. This impact is positive/negative, because, \_\_\_\_\_.
- [Why is this happening? (thoughts, feelings, emotions, moods, motives, triggers)]
- My reaction was triggered by \_\_\_\_\_.
- I feel this way, because \_\_\_\_\_.
- The reason behind my reaction is \_\_\_\_\_.
- [Which fundamental needs are involved?]
- This is important to me, because, \_\_\_\_\_.
- I enjoy this, because \_\_\_\_\_.
- I don't like this, because \_\_\_\_\_.
- Audio, video, photo (if relevant)

Close after the activity instance

Reflections on each of the thirteen needs in relation to the instance of the activity that is just completed. This need was satisfied, harmed, neglected, because \_\_\_\_\_

I feel this way, because \_\_\_\_\_.

This is important to me, because \_\_\_\_\_.

I enjoy/don't like this, because \_\_\_\_\_.\*

\*Deleted after expert discussion, in order to better investigate neglected areas of the activity. Also, gives the opportunity to iterate after the data overview is completed. Possibly also limits the investigation of the complete experience, when focusing on the fundamental needs.

During data analysis the next day

Write a short narrative (50-100 words) about the activity instances you experienced the previous day. Identify the fundamental needs involved in the activity instances.

## How will I collect the data?

The data will be collected through messages via Whatsapp on my smartphone, because of the following considerations:

- Both the smartphone and the Whatsapp-app provide easy access during the activity.
- The smartphone and Whatsapp are integrated in my daily life, therefore will cause little interruption while doing the activity.
- Whatsapp automatically creates a timestamp when data is entered.
- Whatsapp is able to record audio, video and photo and send it along with messages including the timestamp.

Each day a backup of the data will be made in an Excel-sheet, according to the data collection questions mentioned earlier, along with the original data entry and the written narratives.

	Activity	Narrative	Need	Status	Reason
1	Making coffee	This afternoon, I went into the kitchen to make myself a cup of coffee. This is something I do often, sometimes multiple times a day. I wanted to give myself a short break to reset myself. The process of making the coffee requires some time and a little effort, because I'm using an Aeropress. Though, having been using it for quite some time, I feel confident in the technique and can rely on my own intuition to know when the coffee is ready. And yet, there are some parts of the process I haven't mastered yet; the pouring of the water, I've found that pouring the water in the correct way, gives me a perfect, clear and tasty cup of coffee. Doing it incorrectly, however, can lead to a muddy, less tasty coffee. I got a muddy coffee this time.	Competence	Satisfied	Feeling confident enough in the process to be able to make coffee without timing it.
			Competence	Satisfied	Knowing what a good cup of coffee looks and tastes like.
			Competence	Harmed	The coffee didn't turn out perfectly due to an unmastered part of the process.
			Comfort	Satisfied	Coffee isn't the easiest process, but it's result is worth it.
			Stimulation	Satisfied	Making a cup of coffee helps to break a feeling of being stuck in an activity or feeling.
2	Making dinner (fries in the airfryer)	For dinner, I was planning on making myself some eggplant curry. I had all the ingredients and everything! Unfortunately, when it was time to actually cook it, I didn't feel up to it. I had a meeting today, which cost me a lot of energy, so I felt quite tired, and I wasn't feeling very hungry. Looking ahead at all the tasks I would have to take to make the curry, I got a little stressed. I couldn't wrap my head around all the tasks I would have to do and was unable to create a plan of action in my head. For cases like this, when I'm by myself and without the energy to cook, I have some fries in the fridge. Cooking the fries in the airfryer is an easy and comforting dinner, but it's of course not very healthy. In the back of my head, I was a little disappointed in myself for taking the easy way out, while I also know it was the best I could do at the moment.	Morality	Harmed	Eating healthy is something I find important, so I struggled with the fact that I wasn't able to cook myself a healthy dinner this evening.
			Fitness	Satisfied	I'm aware that eating fries isn't the healthiest option, but I chose my mental wellbeing over my physical health.
			Competence	Harmed	I chose not to exercise myself or challenge myself, I chose the easy way.
			Fitness	Harmed	I'm aware that eating fries isn't the healthiest option, but I chose to ignore that fact.
			Comfort	Satisfied	I enjoy eating fries and making it takes less energy and mental effort than cooking a whole dinner.
3	Making breakfast (jam on toast)	In the mornings, I always eat jam on toast for breakfast. At least, I have been for the past few months. I've been debating getting a toaster, but knowing myself, I could be off toast with jam in a few weeks and then the new toaster would be neglected somewhere in the back of a cupboard. But, for now, it's toast with jam, out of the oven. Knowing what I'm going to eat, and the accompanying routine, makes it less tiring for me, I don't have to decide what to make, I don't have to think about what to do. Little changes to this 'sequence' requires me to adapt sometimes, for example, when the jam isn't in the regular spot in the fridge. I do have some intended unpredictability however. I don't wait all the way until the oven is heated to put the bread in, which means I have to keep an eye on it. Fortunately I did remember to turn the oven off afterwards. I haven't gotten entirely used to an oven that doesn't turn off by itself yet!	Comfort	Satisfied	Knowing what I'm going to eat and how to make it, gives me ease of mind and requires less effort from me.
			Morality	Satisfied	Choosing not to buy a new appliance, knowing I probably won't use it enough to be a sustainable choice.
			Comfort	Harmed	Not getting a toaster, because of the morality.
			Comfort	Harmed	Unpredictability in the routine costs me energy, such as jam being in a different place.
			Competence	Satisfied	Remembering to turn off the oven, while I mostly forget.
4	Making tea	Throughout the day, I often drink tea. Usually most mornings with my breakfast, during the afternoon to take small breaks and in the evenings to wind down. So, I use a lot of teabags in a day! In order to make it less wasteful, and also more cheap, I use teabags twice. But, I'm not a fan of using teabags more than twice. I think with some brands, it's possible, but usually the tea just doesn't have any flavour anymore the third time around. I would say that my decision for which flavour I'm going to drink depends on the time of day. Usually, I would drink rooibos, but recently we got morning blends and evening blends as well. Now, I find it easier to drink mornings blends in the mornings and evening blends in the evening. It feels like the decision has been made for me, in a comforting way.	Morality	Satisfied	Using teabags twice, because it's a little better for the environment, easy to not have to get a new teabag every time and it also saves money.
			Autonomy	Harmed	I allow the decision to be made for me through morning blends and evening blends
			Stimulation	Harmed	There is not novelty or variety in drinking the same tea every morning and evening.
			Comfort	Harmed	Morning blends and evening blends make sure I don't have to make a decision about tea flavours, because it says when you can drink them best.
			Competence	Satisfied	Deciding to keep the kettle, even though it's quite old, it still works.
5	Making tea	It's the afternoon, and I'm a little tired. When I'm a little tired, sounds are a little louder and I sometimes find it hard to process them. I'm feeling a little cold and I could use a break, so I decide to make some tea. The sound of the kettle is quite loud and keeps going for a long time. Once more, I reflect on whether I would like to get a new kettle. I like the design of this one, but it's quite old, loud and calcium builds up inside quicker and quicker. But, it still works! I decide it can stay for a little while longer.	Morality	Satisfied	Not getting a new kettle, because of the morality.
			Comfort	Harmed	Drinking calcium might not be very healthy
			Fitness	Harmed	Not deciding to get a new kettle also has an impact on the environment, but it's not the main reason.
			Impact	Satisfied	The sound of the kettle is quite loud, which is uncomfortable.
			Comfort	Harmed	Giving my boyfriend a cup of tea in a flavour he likes, because he did something nice for me and I want him to feel appreciated.
6	Making tea	It's late afternoon, and my boyfriend and I just got back from an appointment. It was quite last minute, so we're tired from having to rush to get things done. I'm not feeling up to cooking yet, so I decide to make us some tea. Looking at our collection of tea flavours, I choose the blueberry ginger flavour. My boyfriend likes ginger tea, and I want to cheer him up a little. He did something nice for me today by changing his schedule to go with me to the appointment, even though he had a busy day at work. I hope this cup of tea helps a little!	Relatedness	Satisfied	Ginger tea is not my favourite, but I chose it in favour of the need for relatedness.
			Comfort	Harmed	My boyfriend did something nice, so I have to do something nice back.
			Morality	Satisfied	It might not be a big impact, but I hope I had a small positive impact on my boyfriend's day.
			Impact	Satisfied	When I'm tired, my finer motor skills decrease, and I'm scared I'm going to accidentally cut myself
			Security	Harmed	I chose help over the ability to finish cooking myself
7	Cook dinner (eggplant curry)	Tonight, I'm cooking eggplant curry for dinner. I don't really enjoy cooking, because it seems like such a chaotic activity to me. Unfortunately, it's up to me, because my boyfriend needs to finish something for his job. Cooking is something I have to focus on, especially when I'm tired. I know that when I'm tired, I have a hard time with my finer motor skills, such as cutting vegetables. Also, I notice that my threshold for unpredictability decreases. Not getting the coconut milk out of the can, can get me to short circuit. I felt grateful that my boyfriend noticed, and that he could come over and help me finish the rest of the dinner!	Competence	Harmed	Small things happening during the cooking process can cause a big reaction from me, because of their unpredictability
			Comfort	Harmed	The process of cooking seems to me so chaotic and unorderly. It's hard for me to structure the activity in my head.
			Beauty	Harmed	I feel grateful that my boyfriend helped me finish the cooking. I feel more confident when he's there to help.
			Relatedness	Satisfied	

	Activity	Narrative	Need	Status	Reason
8	Clean up from preparing dinner	It's later in the evening, after dinner, and it's time to clean up. When I think about it, I could technically leave it, but honestly, that would give me more stress than comfort. So, better to get it over with! Unfortunately, the curry was a little too spicy for us to eat. We had some leftover, but we decided to throw it out, we weren't going to eat it anyway. This made me feel a little guilty, because aside from the spice, the food actually was quite nice!	Morality	Harmed	I had to throw away good food, because it was too spicy for us to eat.
			Comfort	Harmed	Choosing a clean kitchen over the comfort of staying on the couch.
9	Morning breakfast routine	In the morning, there are usually multiple things I want to accomplish. I want to make my breakfast, I want to make some coffee and some tea to drink and I also want to clean out the dishwasher to prepare for another day of dirty dishes. Luckily, I've combined these things rather efficiently into a routine I can follow. Prepare the coffee, put on the oven, clean out the dishwasher while I wait, then finish my drinks and breakfast. This works fine for me. Thinking about this made me realize that I have other sequences as well, like for making tea and also inception sequences for cleaning out the dishwasher itself.	Comfort	Satisfied	Having sequences saves me the energy from thinking about how I'm going to accomplish my goals, knowing that following the sequence will get me what I want.
			Competence	Satisfied	Having sequences makes sure I accomplish my goals in an efficient way.
			Autonomy	Satisfied	Having the choice to have coffee or not, depending on my mood.
			Purpose	Harmed	I was doing something, and chose to get some coffee over accomplishing my task.
			Comfort	Satisfied	Waiting for the mood to strike to have coffee gives me peace of mind, instead of forcing it.
10	Making coffee	During lunchtime, I decided to make myself a cup of coffee. I was in the mood for it! Usually I have my first coffee in the morning, but today I wasn't feeling that. I'm not going to have coffee for the sake of having coffee. Then it's not as tasty as when I do want my coffee! The right moment turned up later in the day. I even got a bit impatient and didn't want to wait. Lucky for me, the Aeropress method is quite foolproof and even if I don't wait long enough, the coffee is still nice.	Beauty	Satisfied	Drinking coffee when I'm in the mood for it, gives me the feeling that's it meant to be.
			Competence	Satisfied	Knowing the Aeropress method well enough to know the coffee will be nice whatever I do.
			Autonomy	Satisfied	Being able to choose to make a bad decision, being aware of the consequences and still being able to do it.
			Fitness	Harmed	I chose a treat that would cause me to have stomach aches.
			Stimulation	Satisfied	Eating something that is tasty and I don't get to have often.
11	Making lunch (bread with speculoos)	I'm wheat intolerant, so I often can't eat the things that I would like. One of those things is speculoos. It's so tasty! But, we don't often have it, because I'm not really allowed to eat it anyway. Today I decided otherwise. I realize that eating it could lead to stomach aches, but the following few days I'm at home, and I don't have any specific plans, so I felt it was fine to eat some speculoos on my bread. And it was worth it.	Comfort	Harmed	Making tea to procrastinate is not really a good strategy to cope with the fact of having to do a task. I doesn't take away the stress of having to get up later to do it anyway.
			Purpose	Harmed	By making tea instead of doing the task I have to do for my studies, I'm not really working towards the goal I had planned for myself during the day and in general.
			Autonomy	Satisfied	Having tea makes me less stressed about the task I still have to do.
			Stimulation	Satisfied	Using tea as a break helps me what to expect of the break timewise.
			Comfort	Harmed	Even though I need some help by making tea, I am in charge of my own schedule and how and when to take a break and for how long.
12	Making tea	I have to admit, often I make myself drinks, not only because it's tasty, but also because it gives me a little break or a reason to put off a task I am meant to do. The tea I was making this time is also one of those. Making the tea gives me some extra time before starting a task, especially if I'm planning not to start the task until I've finished my tea.	Autonomy	Satisfied	Using tea as a break helps me what to expect of the break timewise.
			Stimulation	Satisfied	Even though I need some help by making tea, I am in charge of my own schedule and how and when to take a break and for how long.
			Comfort	Harmed	Having tea makes me less stressed about the task I still have to do.
			Purpose	Harmed	By making tea instead of doing the task I have to do for my studies, I'm not really working towards the goal I had planned for myself during the day and in general.
			Autonomy	Satisfied	Having tea makes me less stressed about the task I still have to do.
13	Making tea	Other than the taste and the procrastination, I like to make drinks as a break too. It gives me the certainty that I can have a break at least for the time it takes me to make the tea and drink the tea. The activity of making tea itself gives me a clear boundary of the break, so when I finish my tea, it triggers me to go back to work more easily.	Stimulation	Satisfied	Taking a break by doing a different activity, like making tea, gives my mind something else to focus on, refreshing me to get back to work later.
			Comfort	Harmed	Taking a break by making tea gets me up from my desk. It's not much, but it might help.
			Autonomy	Satisfied	Using tea as a break helps me what to expect of the break timewise.
			Stimulation	Satisfied	Even though I need some help by making tea, I am in charge of my own schedule and how and when to take a break and for how long.
			Fitness	Satisfied	Using tea as a break helps me what to expect of the break timewise.
14	Cooking dinner (gnocchi with bell pepper sauce)	Gnocchi with creamy bell pepper sauce is one of my favourite dishes to eat. Knowing what the end result will be, makes the cooking process a little more fun. I also like to put on some music to sing along to while cooking. I think it distracts me a little from the aspects I don't really enjoy about cooking, like the dirty kitchen and the feeling of having stuff on my fingers. When I was cooking, my boyfriend came home, and he told me that he was happy that I had already started, because he was feeling very hungry. All in all, maybe I enjoyed cooking a little this time.	Comfort	Satisfied	Looking forward to eating one of my favourite dishes made me feel happy.
			Beauty	Satisfied	Putting on music makes the activity more balanced in terms of stimuli.
			Stimulation	Satisfied	Putting on music during cooking helped me to focus on more positive sensory inputs, rather than the ones that bring me discomfort.
			Comfort	Harmed	The feeling of having dirty or wet fingers makes me feel really uncomfortable.
			Autonomy	Satisfied	Listening to music and singing along makes me happy, because it's something I'm able to predict well.
15	Breakfast routine	When I'm making breakfast in the morning, there are many other subtasks I do as well. Often I make coffee and tea as well, and when I'm waiting for the coffee to brew, I clean out the dishwasher, so it's ready for the day. Thinking about it, small things in these little tasks can bring me a lot of joy. I love getting the coffee beans out of the glass jar we keep them in. I like seeing them through the glass. I enjoy the scent when I open the jar and I love the sound of scooping them out with the measuring spoon. This whole moment of sensory joy is completed when the cup of coffee turns out perfect; the clarity of the coffee makes the colour so nice to look at. It feels as if things like these soothe my brain. I go look for them often. I actually found an opportunity for it just a few minutes later, when I went on to make tea. We have morning blend and evening blend in our tea box, but it just didn't make sense to me that the evening blend was on the left and the morning blend was on the right. That kind of felt like an itch. So I decided to turn the itch into a soothe and switched the bags to the correct order. And as a cherry on top, I found the cheese grater in the dishwasher, so I had the pleasure of looking forward to eating the tasty gnocchi again in the evening.	Stimulation	Satisfied	The sensory joy of the coffee making process, seeing, hearing and smelling the beans and enjoying the colour of the coffee.
			Purpose	Satisfied	These small moments of sensory joy contribute to my wellbeing in general.
			Beauty	Satisfied	The whole coffee making process was in harmony, for how smooth it went and the sensory joy it brought me.
			Beauty	Harmed	The teabags were out of order, which made me uncomfortable.
			Comfort	Satisfied	Looking forward to the nice sensation of eating one of my favourite dishes.
16	Making tea	Sometimes, I find it difficult to get started on a task. I feel like I'm stuck on whatever tasks (or no task) I'm doing beforehand. One strategy that helps is finding some sort of activity in between, such as making a cup of tea. It helps my brain to recognize the boundaries of an activity; it becomes clear for me that by making the tea, the previous activity has ended, and when the tea is finished, the start of the new activity begins.	Autonomy	Satisfied	Knowing that I have useful strategies to get started on a task that I'm having difficulty with.
			Beauty	Satisfied	Making tea as a clear border between tasks, creates a certain harmony, things are right.

Activity	Narrative	Need	Status	Reason
	I enjoy doing things efficiently. This way, I keep a little tasks floating around in my brain and I save some energy. In this case, I decided I wanted to have a sandwich and some coffee for lunch. I knew that the coffee needed time to brew, so I had my sandwich while I was waiting for my coffee. I was happy, because the timing worked out perfectly! Another added bonus, the texture of the bread was very nice. Soft on the inside and crunch on the outside.	Competence	Satisfied	Doing the in-between activity, helps me to do what I wanted to do in my day, to reach my goals.
17 Making lunch (coffee and a sandwich)		Comfort	Satisfied	The efficiency and clearing away of tasks gives me peace of mind.
		Fitness	Harmed	It would probably be better to pay more attention to a more nutritious lunch
		Beauty	Satisfied	The timing of eating my sandwich and waiting for the coffee fitted perfectly.
		Stimulation	Satisfied	The texture of the bread added to the sensory joy of the experience.
18 Making tea	Because of my disability, I often have some pains in my wrists and knees. Sometimes it helps to get a cup of tea to take my mind off it and soothe my nerves a little. I feel that the rooibos flavour is perfect for that. It makes me feel warm and cosy and I'm (almost) always in the mood for it. Earlier I had a tea flavour I didn't like as much, so I appreciated this one even more. Though, I don't follow the brewing advice on the bag, it would get way too strong for me!	Comfort	Harmed	I was doing the activity, because my wrists and knees hurt. I was feeling uncomfortable while doing the activity.
		Autonomy	Harmed	My disability keeps me from doing things the way I want to do them.
		Stimulation	Satisfied	The rooibos flavour of the tea soothed me and the taste is always nice.
		Autonomy	Satisfied	Feeling that I can choose how to make my own tea, disregarding the advice on the packaging
19 Making dinner (gnocchi with bell pepper sauce)	This evening, I thought I had an excellent idea regarding the preparation of the dinner. We usually make dinner for two days, because it saves us the time and energy of cooking every evening, and usually recipes are for four people. So, this evening, I once again planned on cooking the gnocchi. Though, the previous night, the gnocchi wasn't baked very even, so I decided to use a different pan. My excellent idea turned out very bad, as the gnocchi really stuck to the pan. I felt upset, because I was really looking forward to eating it, and I felt ruined it. I expressed this feeling to my boyfriend, saying that I felt I really can't cook. He then made me laugh, saying that I was just doing an experiment and that maybe it would taste extra nice! In the end, it was actually fine, but I was happy that my boyfriend helped me in accepting that things sometimes don't go how you planned them.	Recognition	Satisfied	My boyfriend making me laugh, which made me less upset about the mistake with the gnocchi I made.
		Relatedness	Satisfied	My boyfriend knowing what to say in moments of distress makes me appreciate him
		Competence	Harmed	An idea that I had turned out not to work at all.
20 Morning routine	So far, it's been a slow morning today. I feel that I don't have a lot of energy, which makes it harder for me to start tasks that I meant to do. I used to get angry at myself for not being able to get going with certain things, but in the past few years I've learned that it just doesn't work that way. That doesn't mean I don't get annoyed at myself sometimes though. Especially with kitchen tasks I feel that I'm quite slow. I always spend three times the amount of time a recipe says I need. I always need to start the process of cooking dinner a few hours in advance. And when I know I need to do some tasks, it's quite frustrating to first need to do a kitchen activity in what feels like slow-motion. I keep getting distracted by things that aren't crucial to the task at hand, for example by the dirty sink or the unwiped counters. Luckily, in the end I was rewarded by a perfect, clear cup of coffee.	Competence	Harmed	Sometimes I feel I do tasks in slow-motion, and I always need to take that into account when I do things
		Morality	Harmed	Why do I have the feeling that I need to do things quickly? Is that what I want? Who needs me to do that? Would I be mad at myself if I were someone else?
		Autonomy	Harmed	My brain keeps me from doing things I want to do
		Stimulation	Harmed	I keep getting distracted by negative sensory input
		Beauty	Satisfied	I can really appreciate a perfect cup of coffee
21 Making tea	In the past few years, I've learned that I get stressed easily and often. I didn't always used to recognize this as stress, as I didn't necessarily feel short of breath. Stress often shows itself as pain and tiredness for me. I also realize that I make tea often. I can't help but think that I do this as a way to soothe myself. Tea is something that I'm always able to drink and it never lets me down.	Comfort	Satisfied	Making (and drinking) tea is a way to soothe myself
		Fitness	Harmed	Being stressed is not a healthy way to be, tea is only a temporary solution.
		Autonomy	Satisfied	Being able to take matters into my own hands and do an activity to self-soothe, instead of other, more harming activities.
22 Making a sandwich for lunch	For lunch, I often have just a sandwich with one spread on it. It might seem boring and easy to some, but that's exactly why I like it. I've learned that it's not necessary for me to make a complex lunch and it's okay to not want to spend a lot of energy on it. I like the predictability of it. Also, the way I see it, lunch cuts your day in half. I know that I sometimes need more time to do certain tasks, and making an entire lunch keeps me from doing other, more important tasks.	Autonomy	Satisfied	Being able to steer my own motivation and energy levels by the way I choose what to have for lunch
		Fitness	Harmed	Eating the same lunch everyday might not be the healthiest option
		Purpose	Satisfied	Prioritizing certain tasks over lunch
		Comfort	Satisfied	I enjoy knowing what I'm going to have for lunch every day.
23 Making coffee	At home, I have decaf coffee. I find that when I drink coffee with caffeine, I get twitchy and more tired. That's fine, but I do want to be able to control when I drink caffeine. And at home, I feel more comfortable with decaffeinated coffee. But, that doesn't mean I don't drink coffee when I feel tired. To me, coffee has a certain flavour that gives you a pep talk. It's comforting and harsh at the same time. Perfect to give you a little kickstart!	Stimulation	Satisfied	The flavour of coffee often gives me the right amount of kick to get out of a tired slump
		Fitness	Satisfied	Drinking decaf coffee is healthier than regular coffee, but that's not the point of this.
		Autonomy	Satisfied	Being able to choose when to drink caffeinated coffee and when to drink decaf coffee, helps me feel in control of how I feel.
24 Making dinner (pizza with sweet potatoes and beets)	For me, pizza is the perfect weekend food. I enjoy eating pizza, so it feels like a little reward to having successfully finished the week and it feels in line the laidback feel of Fridays and Saturdays. This particular pizza recipe is new for me. It's a pizza with muhammara sauce, topped with sweet potato slices, beets and white cheese. It seemed like a clear and structured recipe to me, which made the cooking process less stressful. Though, cooking with beets is a challenge in itself, with the stains and all. I couldn't cut the beets on the regular cutting board, as it is made of wood and I would never get the stains out properly. I unfortunately don't have a plastic or glass board, so a plate it's. A sensory nightmare in itself. The sound of the knife hitting the plate is so loud, it hurts me even as I write about it now. Though, I suppose it's better I do it myself, because then I'm able to anticipate when the sound is going to hit. After eating the pizza, I can't say the taste of the pizza excused the sound, but it made it a little more worth it.	Stimulation	Harmed	The sound of cutting the beets has to be one of the worst sensory nightmares.
		Comfort	Harmed	Cutting the beets was worth it, I chose the taste of the pizza over feeling comfortable in the process.
		Beauty	Satisfied	The pizza recipe and the feeling of the weekend were in perfect harmony.
25 Making coffee for two	It's the weekend, which means it's not only me at home during the day. It's nice that my boyfriend is around to do some tasks in the kitchen, but it also means that I have to do my usual kitchen activities in a different way or that I have to adapt them. I think I might just have different sequences for weekends, when my boyfriend is at home. For example, making coffee means I have to do the steps twice. Some tasks are taken over by my boyfriend, because some activities are easy to share. When making coffee, one of us can brew the coffee, while the other grinds the beans. During the weekends, I also have to accept that I get distracted more often. Not only by my boyfriend also being at home, but also by the traces of his living that he leaves behind, like crumbs on the counter or dirty dishes that are lying around.	Relatedness	Satisfied	Being together at home makes the kitchen activities feel more connecting.
		Comfort	Harmed	I choose the need of relatedness over the need for comfort, because that's what sometimes happens when you're living together.
		Beauty	Harmed	Usual order is different than normal, things are disturbed more often

Activity	Narrative	Need	Status	Reason
26 Finishing tea for two	When my boyfriend and I are both at home, we fall into a different rhythm of activities. There are certain unwritten rules and tasks that we divide. One of them is making tea. It is a mutual understanding than when one of us boils water, the other one finishes the tea. To let the other know that we are starting this sequence of activities, we do ask: "If I boil the water, will you finish the tea?", but that's more symbolic than an actual question.	Relatedness	Satisfied	Having certain sequences together regarding kitchen activities means we trust each other to know what we are doing and what we mean when we are saying things.
		Stimulation	Harmed	There is no novelty or surprise in this routine
		Beauty	Satisfied	There is a certain harmony to having sequences with another person and being in tune with each other.
		Morality	Satisfied	Helping someone else is in line with my values
		Impact	Satisfied	Making an impact on my boyfriend's cooking experience by making one step of the task a little easier.
27 Cleaning out the dishwasher during cooking process	At some time in the early evening, my boyfriend started to prepare dinner. I noticed that the dishwasher was done cleaning, but it hadn't been cleared yet. I know how annoying and disrupting it can be when you can't put the dirty dishes from cooking in the dishwasher directly, so I decided to help out and clear out the dishwasher. Usually, this is a task I enjoy, but doing it when someone else is in the kitchen doing a different task, makes it more difficult. You only notice when you have certain standard movements or actions when doing an activity, until you can't do it anymore. Being together with someone in the kitchen means paying attention, so that you don't bump into them or that you don't hit them with cupboard doors or cutlery drawers. It means knowing where the other person is and anticipating what they are going to do next, which means new streams of sensory input and extra processing in my mind. Having finished the dishwasher task, my boyfriend put me to work with finishing the pizza toppings, claiming this was something I was better at. Was he trying to make me feel better, or did he just not like that specific task? I'm going to assume the first.	Comfort	Harmed	Being together with someone in the kitchen overstimulates me by added processing energy loss.
		Recognition	Satisfied	My boyfriend asking me to do a specific task, because he thought I was better at it than him.
		Relatedness	Satisfied	Being together means experiencing each others moods, for example, being in the mood for coffee!
		Comfort	Satisfied	Making coffee means creating space to do small cleaning tasks, which gives me peace of mind.
		Recognition	Satisfied	Being together means experiencing each others moods, for example, being in the mood for coffee!
28 Making coffee and tea for two	Living together with someone, means accepting that there is another person with needs close to you, which can be difficult, but most of the times, it's a positive experience for me. For example, there are two people who can be in the mood for coffee. It's nice, because whether it's my boyfriend or me, we can share the coffee making and coffee drinking experience. This time, it was my boyfriend who proposed to make some coffee. I hadn't necessarily thought about it, but when he mentioned it, I realized I wanted a cup too. Usually, we share the tasks when we're at home. He grinds the beans, and I do the rest, which works fine for me. That also gives me time to do small tasks in the meantime, like wiping down the counters or putting away some things.	Relatedness	Satisfied	Being together means experiencing each others moods, for example, being in the mood for coffee!
		Comfort	Satisfied	Being together means experiencing each others moods, for example, being in the mood for coffee!
		Relatedness	Satisfied	We were going to have to use the two last teacups in the cupboard.
29 Making tea for two	This morning, my boyfriend and I were doing nothing in particular, which felt like an excellent moment to make some tea. I'm not sure why. Maybe because we were already comfortable, we were looking for ways to be even more comfortable? As I went into the kitchen to start the tea, that feeling of comfort ebbed away a little, because I realized I had to take the last two teacups out of cupboard to use. This gave me a small feeling of anxiety, because there were no back up mugs anymore, they were all dirty, in the dishwasher waiting to be cleaned. It seems a little irrational to be stressed about something like this, but it is what it is.	Comfort	Satisfied	Tea enhances the feeling of comfort that was already there
		Stimulation	Satisfied	Seeing a different perspective to brewing coffee in the reflection of the kettle.
		Competence	Satisfied	Perhaps knowing what I am doing also creates space to notice these things.
		Relatedness	Satisfied	Seeing a different perspective to brewing coffee in the reflection of the kettle.
		Stimulation	Satisfied	Perhaps knowing what I am doing also creates space to notice these things.
30 Making coffee for two	It's late morning, and I'm in the mood for coffee. I don't think necessarily because of the coffee, but also a little because of the activity. Luckily, living together means you always have a sidekick, so I went and made some coffee for him too. I think that when the goal is the activity itself, and not only the result, makes me feel more in the moment and makes me appreciate certain aspects of the activity more. For example, I had put the kettle down next to the Aeropress, and the kettle is made of a reflective chrome material. When I pressed the plunger of the Aeropress down, I noticed that I could see the coffee dripping into the cup in the reflection of the kettle. It surprised me in a positive way. I was able to see the coffee brewing process from a different perspective, literally!	Relatedness	Satisfied	Seeing a different perspective to brewing coffee in the reflection of the kettle.
		Stimulation	Satisfied	Perhaps knowing what I am doing also creates space to notice these things.
		Competence	Satisfied	Living together means you always have someone's support and enthusiasm, which makes me feel appreciated
		Relatedness	Satisfied	The feeling of the clean, warm dishes from the dishwasher gave me joy.
31 Making lunch	Usually, I put on the dishwasher in the evening before I go to bed. This way, the dishes are cleaned when you don't need them anyway and when you need them again in the morning, you don't have to wait for the dishwasher to finish. But, sometimes this is different. When the dishwasher isn't full and there are only a few dishes in there, it feels like waste to turn it on. So it happens that the dishwasher runs during the day, and when you are going to make lunch, you can get a clean, dry plate right from the dishwasher, a few minutes after it has finished its washing programme. The feeling of warm, clean dishes is so nice, sometimes I wonder if it might be good idea to always run the dishwasher right before lunch?	Stimulation	Satisfied	The feeling of the clean, warm dishes from the dishwasher gave me joy.
		Relatedness	Satisfied	The dishwasher makes the baking process so much easier. No need to clean dishes during or after baking, just put it in the dishwasher!
		Stimulation	Harmed	No real novelty or variety in always making the same recipe, trying new ingredients might also have to do with stimulation.
		Competence	Satisfied	Feeling confident enough to replace one of the ingredients in a recipe and the result still turns out fine.
		Relatedness	Satisfied	When the batter spills on the tin, I feel sad that the tin gets dirty, and you can't really get it clean again until after the muffins are baked.
		Stimulation	Harmed	The dishwasher makes the baking process so much easier. No need to clean dishes during or after baking, just put it in the dishwasher!
		Beauty	Harmed	No real novelty or variety in always making the same recipe, trying new ingredients might also have to do with stimulation.
		Relatedness	Satisfied	Feeling confident enough to replace one of the ingredients in a recipe and the result still turns out fine.
		Stimulation	Harmed	When the batter spills on the tin, I feel sad that the tin gets dirty, and you can't really get it clean again until after the muffins are baked.
		Competence	Satisfied	Having a trusting relationship with wordless agreement brings me joy
		Relatedness	Satisfied	It's easy and comfortable to be able to do a first half of a task, knowing someone else will finish the second part for you.
		Stimulation	Harmed	Working together on the same activity is bound to have an impact on the other's life, however small.
		Impact	Satisfied	It's easy and comfortable to be able to do a first half of a task, knowing someone else will finish the second part for you.
33 Putting on water for tea	This evening, I put on the kettle to make some tea. Making tea on the weekends is a nice experience for me, as it is almost always something collaborative between my boyfriend and I. One of us boils the water and the other finishes the tea. It's so nice to be able to put on the water, go sit on the couch and trust that at some later moment the tea will come without having to do anything else. There is no real understanding about who does which job, but it switches multiple times during the day. This way, the tea making process doesn't take us much effort at all.	Relatedness	Satisfied	Having a trusting relationship with wordless agreement brings me joy
		Comfort	Satisfied	Working together on the same activity is bound to have an impact on the other's life, however small.
		Impact	Satisfied	It's easy and comfortable to be able to do a first half of a task, knowing someone else will finish the second part for you.
		Relatedness	Satisfied	Working together on the same activity is bound to have an impact on the other's life, however small.
34 Cleaning up the kitchen after cooking	Because my boyfriend did the cooking, it was my turn to clean up the kitchen, put dishes in the dishwasher and wipe down the counters. In short, I don't like this task. I don't like touching food leftovers on plates and cutlery. I don't like touching the wet cloth to wipe down the crumbs on the counter and I don't like touching dirty dishes that are already in the dishwasher when I put new ones in. I don't like cleaning dirty plates that aren't allowed to go in the dishwasher and I don't like the dirty sink gats during the day. This has nothing to do with laziness, I'm fine with cleaning and I like the results. After cleaning up the kitchen, especially after cooking, is a sensory nightmare. Even the idea of touching some dishes leftover on the plate gives me the ick, even as I write about it now. But, I still do it, because in the long term, a dirty kitchen is even worse, as the idea of dirty dishes lying around would keep floating around in my mind. And I do want my boyfriend to feel appreciated, by acknowledging the effort that went into cooking the dinner.	Stimulation	Harmed	Touching dirty dishes during the cleaning process is a sensory nightmare for me
		Morality	Satisfied	There is a value in the background that makes me do this, because my boyfriend did something else.
		Comfort	Satisfied	A clean kitchen gives me peace of mind.
		Relatedness	Satisfied	Making sure my boyfriend feels appreciated by cleaning up the kitchen, after he cooked dinner.
35 Making tea	Tonight, one of my favourite tv shows is on and I enjoy taking the time to make a small experience of it. I settle into my favourite spot on the couch, and I make sure I have a fresh cup of tea when the program starts. To make the cup of tea, I follow my usual process of boiling and pouring the water, and because it's evening, I choose evening blend. Knowing that I have my tv show and comfortable spot on the couch to look forward to, making tea get a different meaning. It not just something to drink because I'm cold or because I want to take a break, the tea makes the experience of watching tv feel complete.	Relatedness	Satisfied	The tea makes the experience of watching tv feel complete
		Stimulation	Harmed	The tea makes the experience of watching tv feel complete

Activity	Narrative	Need	Status	Reason
36 Making breakfast	When I don't have to be anywhere in the morning, my usual breakfast routine includes making toast with jam, brewing coffee and tea and cleaning out the dishwasher. Though, when I do have to go somewhere, I don't have time for all that, unless I want to get up at 06:00h in the morning... I don't feel like I'm fast enough to complete my usual morning routine in time, so I switch to my adapted one, which I still bread with jam, but I leave all the other things, including turning the bread into toast. If I have some extra time, which is almost never, I make some tea. Unfortunately, this morning, it was just bread with jam, but I was on time!	Autonomy	Harmed	Not being able to do my usual morning routine due to an appointment that I have early in the morning.
		Comfort	Harmed	I don't have the comfort of my regular routine, due to other circumstances.
		Competence	Harmed	Not being able to complete my usual morning routine quickly; I feel like I am so slow with things sometimes.
37 Making lunch + kitchen tasks	This morning, I didn't have time to do my usual morning routine, due to an appointment, but I did manage to throw out the trash. This meant that the dishwasher hadn't been cleaned out and the trashbags needed to be replaced. So, when I had put some leftover pizza in the oven, I set to work. Cleaning out the dishwasher is a fun task for me. Putting everything in its rightful place, no dirt to touch, it's perfect! Except for the fact that our dishwasher doesn't dry the dishes very well, so occasionally, I accidentally touch some unexpected wet dish and water splashes on me and on the floor, which is less than ideal. Even worse is when I then step into a puddle with my socks. To make things a little better, the leftover pizza was still very <del>fresh</del> .	Beauty	Satisfied	Putting all the clean dishes in their rightful place in the cupboards
		Stimulation	Harmed	Touching sudden wet dishes that the dishwasher didn't dry completely and stepping in the puddles resulting from that.
		Comfort	Satisfied	Taking some time to process the stimuli thrown at me during the day, tea helps with that.
38 Making tea	When I get home from somewhere, I usually make myself a cup of tea. I easily get overstimulated at places, especially places other than my own home. I need some time to process the sounds, conversations and general otherness of the outside world and for this I plan some time to rest a little. I feel that tea is an excellent way to help with the process a little. It's cosy and warm and distracts me from my own thoughts, in a non-intrusive way. I would say that tea would be an essential aspect of this time of rest.	Fitness	Satisfied	Giving myself time to recover.
		Autonomy	Satisfied	Being able to use coping mechanisms that aren't harmful to process overstimulation.
		Comfort	Satisfied	Heating up leftovers in the oven is one of the easiest ways to make dinner.
39 Heating up dinner (pasta pesto)	This evening, I'm alone for dinner. Knowing that cooking isn't my favourite activity, it's easy for me to just put some fries into the air fryer or make some grilled cheese. I know this isn't really the way to go, healthwise, so I was lucky that I still had some leftover pasta pesto in the fridge. A few months ago, our kitchen was renovated and our combi-microwave was replaced by a regular oven. I was worried a little about how we would heat up leftovers, but it turns out that a pan or the oven is usually fine. We use glass containers to store leftovers, so it wasn't a lot of effort at all to heat up the oven and put the food in. After waiting a little while, the pasta was ready and I had my healthy, but easy dinner!	Competence	Harmed	Heating up dinner proves no challenges or skills needed, I choose morality and comfort over competence.
		Morality	Satisfied	I like leftovers, because they mitigate the conflict of wanting an easy and healthy dinner.
		Fitness	Satisfied	I was happy to eat a healthy leftover dinner instead of fries out of the air fryer.
40 Making tea	It's important to note that in my house, the kitchen is not a separate room in the house. When I'm doing kitchen activities, I often get distracted by other things going on in the house, especially when I have to wait, for example for the water to boil. Usually, I try to use this time to clean up a little, but this evening I was distracted by my pets, who live in their cage close to the kitchen. When they see me going into the kitchen, they try their very best to catch my attention, trying to remind me that they would like something to eat, please! I don't really like being distracted during tasks, but I do love my pets, so this was fine and made me happy, even though the tea had to wait a little while longer.	Relatedness	Satisfied	Spending some time with my pets makes me (and them) happy, when I'm doing kitchen activities
		Competence	Harmed	My ability to focus on an activity without getting distracted is less important than spending time with my pets.
		Comfort	Satisfied	Not being able to complete my usual morning routine quickly; I feel like I am so slow with things sometimes.
41 Making breakfast (bread with jam)	When I don't have to be anywhere in the morning, my usual breakfast routine includes making toast with jam, brewing coffee and tea and cleaning out the dishwasher. I don't feel like I'm fast enough to complete my usual morning routine in time, so I switch to my adapted one, which I still bread with jam, but I leave all the other things, including turning the bread into toast. The feeling of being slow in certain tasks hinders me often, I think. I don't like the fact that sometimes it feels like my brain is already ahead and my body just can't keep up with my brain.	Competence	Harmed	The feeling of not being in charge of the things I want.
		Autonomy	Harmed	The inconsistency between the speed of my brain and the speed of my body
		Comfort	Harmed	Tasting something that I don't eat very often felt like a treat!
42 Making lunch (crackers)	This afternoon, I realized that I didn't have any bread left and that I had to wait until this evening to get new ones. Luckily, I have a backup in the form of some crackers, that I sometimes also take when I go to study at the faculty. These are very tasty, especially with chocolate spread. So, I decided to make that for lunch, and it felt a little like a treat!	Stimulation	Satisfied	Having a food backup in the shape of crackers makes me feel like I don't have to worry about not having anything to eat, even if I make a mistake.
		Security	Satisfied	Being able to trick my mind into getting ready for a next task.
		Relatedness	Satisfied	It's the weekend, which means I have time to make myself some toast with jam for breakfast. I usually also drink some coffee with that, and my boyfriend wanted some as well. When I make coffee for two, it turns into a collaborative process. When my boyfriend grinds the beans, I make the coffee. I really enjoy this process, because I don't like being together doing things in the kitchen, but I do enjoy the closeness of working together on a task. This way, I get the best of both worlds!
43 Making tea	After I got home from studying at the faculty this morning, I decided to make some tea. I felt I deserved a break, and tea is great for that, but I also like to make and drink some tea to trick my mind into resetting and getting ready for a next task. For me, tea sometimes feels like a comma in a sentence, just a little space to take a breath before moving on to the next thing.	Autonomy	Satisfied	The purpose of needing to do tasks.
		Purpose	Harmed	The dish causes a lot of chaos in my mind due to the importance of its timing and different stages of the process.
		Comfort	Harmed	The amount of dirty dishes that this dish creates is a lot.
44 Cooking dinner (pasta pesto)	This evening, the only dinner I had ingredients for was pasta pesto, which I had to make from scratch. Pasta pesto doesn't sound like a very complicated dish, but in my mind it's still quite chaotic. The dish requires the cooking and baking of different ingredients separately in different ways, so timing is essential if you want to prevent one thing of being ready while the other one still needs ten minutes. It feels like I'm juggling five balls at the same time. Other than that, cooking different things in different ways also means a lot of dirty dishes and pans, some of which aren't allowed to go in the dishwasher. On the positive side, it's extra rewarding when the timing works out while cooking this dish, which I managed to do this time!	Beauty	Satisfied	I can appreciate it when the timing of all the parts of the dish work out and line up perfectly
		Autonomy	Harmed	Seeing things in their correct place makes me happy
		Relatedness	Harmed	I sometimes overlook my boyfriend's needs in needing things to be a certain way.
45 Putting away the groceries	This Tuesday evening, the groceries were delivered. This means putting them away in the right spots in the cupboards and fridge. I always do this activity together with my boyfriend, but we each have our own tasks. He puts away the things that can go in the regular cupboard and I put away the ingredients that are meant to go in the fridge. The fridge has a limited amount of space and it also has specific shelving, some are smaller than others and some are higher than others and then there's also some space in the door. In short, I like it when things are stored a certain way in the fridge, so that's my job when putting away the groceries.	Comfort	Satisfied	The dishwasher hadn't run yet, so I could immediately put my dirty breakfast dishes in there as well!
		Autonomy	Harmed	My body felt a little painful from muscle tension, which made it harder to move.
		Relatedness	Satisfied	I overlooked my need for rest, because I found clearing out the dishwasher more important.
46 Making breakfast	This morning, I went into the kitchen to make breakfast before I left to study at the faculty. This meant that I didn't have time to eat my usual toast with jam, but instead I went with just a jam sandwich. I also went into the kitchen to turn on the dishwasher, so that it could run when I wasn't at home. I actually meant to turn it on last night, but I forgot and it was already almost full. Though, the good news is that I could put my dirty dishes in the dishwasher to be cleaned to, instead of just leaving them on the counter.	Comfort	Satisfied	The sounds from pot lids can be so loud.
		Stimulation	Harmed	The paradox between having to wait and having to pay constant attention while making risotto.
		Relatedness	Satisfied	The new garlic press was very easy to use.
47 Emptying the dishwasher	This afternoon, when I got home, I cleaned out the dishwasher. I don't like to leave the clean dishes in there, because it often interrupts later kitchen activities when you realize you still need to empty the dishwasher. Though, this afternoon I was quite tired and sore from spending the day studying at the faculty. Often when I'm in places other than home, it's hard for me to relax, so after a while my muscles get very tense, which makes it harder to move. As was the case when I was emptying the dishwasher. The movements of bending and reaching were difficult. Being tired also makes sounds a lot louder, so putting away the pot lids made a very painful sound, when they hit each other in the cupboard.	Fitness	Harmed	Being able to put my dirty dishes straight into the dishwasher
		Autonomy	Harmed	Usually, when I don't have to be anywhere and I'm making breakfast for myself, I empty the dishwasher when I'm waiting for my coffee to brew. Last night, the dishwasher wasn't full yet, so I decided to leave it be
		Comfort	Satisfied	Not being able to keep track of the fact that I have to eat something.
48 Making dinner (risotto)		Relatedness	Satisfied	Not running the dishwasher when it isn't full!
		Stimulation	Harmed	The texture of the old bread was a little dry.
		Autonomy	Harmed	Not being able to decide when I eat lunch and what I eat.
49	breakfast routine (no dishwasher)			Because I didn't toast the bread, I was on time to study with my friend.
50 Making lunch before leaving (bread with chocolate spread)	It's around noon, and I have to leave soon to study at the faculty with a friend. Before going, I want to eat some lunch. Usually, I eat a sandwich for lunch, which is what I'm planning to do now too. It's quick and easy and usually tastes fine. Unfortunately, the bread is a little old, and therefore a little dry, which I don't like. The texture between the bread and the chocolate spread on the sandwich is just too different. When I have the time, I put the bread in the oven, because old bread makes fine toast, but I didn't have time for that.	Morality	Satisfied	Even though I paid a lot of attention, the risotto still burned.
		Competence	Harmed	Because I didn't toast the bread, I was on time to study with my friend.
		Comfort	Satisfied	Eating a dish for two days is convenient and easy.
51 Heating up dinner (risotto)	For dinner I'm going to heat up some risotto I made the day before. Usually, I cook for two days, because it's convenient in terms of time and because most recipes are for four people. In this case, I wasn't sure how to heat it up; in the oven or on the stove. I decided to heat the risotto on the stove by putting it in a pan and adding some water. One of the downsides of heating things on the stove is that it burns quickly and you have to pay a lot of attention and stir regularly. I did my best, but unfortunately it was still a little bit burned...	Autonomy	Harmed	The feeling of being able to organize my life in such a way that it's efficient for me. Doing something nice for my future self.
		Morality	Satisfied	Knowing what I will have for breakfast gives me peace of mind.
		Fitness	Harmed	I'm doubting how healthy it is to eat the same thing for breakfast everyday.
52 Making tea and emptying the dishwasher	This evening, I went into the kitchen to make some tea. It was a little later in the evening and I had turned on the dishwasher after dinner, which was done running. This turned out great, because it meant that I could empty the dishwasher while the water for the tea was boiling. I like emptying the dishwasher as soon as possible, so that I don't have any interruptions later on, for example when I want to put something in the dishwasher and realize that it's still full of clean dishes. The time that the water needs to boil is otherwise waiting time anyways!	Autonomy	Satisfied	Recognition for myself for doing a task I don't like and giving myself appreciation for it by making myself coffee.
		Relatedness	Satisfied	Need to have a reward for doing a simple task around the house.
		Stimulation	Harmed	A refilled teabox soothes my mind.
53 Making breakfast, coffee and tea	This morning, I didn't have to anywhere and I could take my time to make myself some breakfast, coffee and tea. I feel comfortable doing this, because it is something that I do most mornings. I enjoy knowing what to expect and knowing what to do, because it takes me less energy and effort. My brain likes knowing what's going to happen. I suppose it might not be the healthiest to eat the same things every morning, but it's what makes me feel the most comfortable and the most ready for the day ahead.	Autonomy	Harmed	Always drinking the same tea flavours isn't novel or varied.
		Relatedness	Satisfied	Smelling and touching all the new tea bags when refilling the box makes me happy.
		Autonomy	Harmed	I can't seem to cook onions right.
54 Making coffee	This morning, I was cleaning up around the house, which is quite an intense task for me. I don't like touching wet and dirty things and our house gets dusty so quickly because of the flooring in my house. After finishing one of the tasks, I decided I deserved some coffee as a reward. Even though I often drink more than one coffee per day, it still feels like a little treat!	Relatedness	Satisfied	I got stuck in my head switching between two phases of the cooking process.
		Stimulation	Harmed	Knowing that there is someone to help me when I can't seem to do somethings, and that they know how to help me too.
		Autonomy	Harmed	Working together on a kitchen activity, without having to both be in the kitchen and in each other's space all the time.
55 Making tea	This afternoon, I wanted to drink some rooibos tea. This is my favourite tea flavour and it always makes me feel cosy. Unfortunately, the flavour wasn't in the tea box anymore, so I decided to refill it while the water was boiling. Refilling the teabox is very satisfying, because first I have to reach the high shelves, but after that I can touch and smell all the new teabags and the teabox is how it's meant to be. And, I get to drink my rooibos tea.	Relatedness	Satisfied	There is a certain harmony in working together on a task.
		Relatedness	Satisfied	Working together on a kitchen activity, without having to both be in the kitchen and in each other's space all the time.
		Autonomy	Harmed	Not being able to work together with someone in the kitchen sometimes makes me feel out of control.
56 Making dinner (melanzane)	For dinner I decided to make melanzane, which is a dish with eggplant, cheese and pasta. We did have ingredients for some other dishes, but I knew I wasn't eating at home tomorrow evening, and this dish seemed easiest for my boyfriend to heat up tomorrow. Cooking the dish consists of two parts, making the melanzane, and while that's baking in the oven, cooking the pasta. The making of the sauce went okay, except for the onions. I somehow can't seem to cook those right; they always end up undercooked. When the melanzane was in the oven and it was time to cook the pasta, I had a small brain error; I couldn't seem to switch between the two tasks, which were completely different in the process. When this happened, my boyfriend had to help me by explicitly saying what I have to do and in what order, this helps me to get unstuck. This happens more often when there's a hitch earlier in the process, which in this case was probably the fact that the dishwasher hadn't run and it was full of dirty dishes, some of which I needed and therefore had to wash by hand earlier. I hadn't run the dishwasher, because when the dishwasher runs at the same time as the washing machine, that one pauses, which is very inconvenient in its own way. It's funny how this chain reaction of things caused me to get stuck making some pasta.	Relatedness	Satisfied	Having to boil the kettle twice, means waiting time and twice the noise.
		Relatedness	Satisfied	Looking forward to the experience I was going to have with my book and my tea.
		Autonomy	Harmed	The feeling of someone looking out for your wellbeing.
57 Making breakfast and coffee for two	It's the weekend, which means I have time to make myself some toast with jam for breakfast. I usually also drink some coffee with that, and my boyfriend wanted some as well. When I make coffee for two, it turns into a collaborative process. When my boyfriend grinds the beans, I make the coffee. I really enjoy this process, because I don't like being together doing things in the kitchen, but I do enjoy the closeness of working together on a task. This way, I get the best of both worlds!	Relatedness	Satisfied	Not being able to work together with someone in the kitchen sometimes makes me feel out of control.
		Relatedness	Satisfied	Having to boil the kettle twice, means waiting time and twice the noise.
		Autonomy	Harmed	Looking forward to the experience I was going to have with my book and my tea.
58 Making breakfast, coffee and tea for two	It's the weekend, which means I have time to make myself some toast with jam for breakfast. I usually also drink some coffee and tea with that, and my boyfriend wanted some as well. When I make coffee for two, it turns into a collaborative process. When my boyfriend grinds the beans, I make the coffee. I really enjoy this process, because I don't like being together doing things in the kitchen, but I do enjoy the closeness of working together on a task. This way, I get the best of both worlds! When there is tea involved, it does make it a little more difficult than when it's just coffee, because when I make those drinks for myself, one kettle fits one tea and coffee, but when I make it for two, I have to boil the kettle twice, which means more waiting and more noise.	Relatedness	Satisfied	Not being able to work together with someone in the kitchen sometimes makes me feel out of control.
		Relatedness	Satisfied	Having to boil the kettle twice, means waiting time and twice the noise.
		Autonomy	Harmed	Looking forward to the experience I was going to have with my book and my tea.
59 Making tea for two	It's the weekend and I'm going to read my book. In my opinion, the reading experience is so much nicer with a drink, so I decided to make some tea. Because my boyfriend is also at home, I offered to make him some too. When I was making the tea, I was looking forward to sitting in my comfy corner on the couch, with my pillow and my book. This is one of my favourite things.	Relatedness	Satisfied	The feeling of someone looking out for your wellbeing.
		Relatedness	Satisfied	It's not very healthy to eat regularly.
		Autonomy	Harmed	Not being able to keep track of the fact that I have to eat something.
60 Making lunch	It was already well into the afternoon when my boyfriend asked me if I had any lunch yet. I hadn't really thought about it, until he said something. Indeed, I hadn't had any lunch yet and I realized at that moment that I was also a little hungry. This happens to me quite often, and I don't always realize it, so sometimes I don't eat lunch until half past three. It helps when my boyfriend is at home and he keeps an eye on me, making sure I eat something.	Relatedness	Satisfied	Not being able to keep track of the fact that I have to eat something.
		Relatedness	Satisfied	Not being able to keep track of the fact that I have to eat something.
		Autonomy	Harmed	Not being able to keep track of the fact that I have to eat something.

### 61 The predictability of my breakfast routine



Satisfied needs  
Drivers Non-drivers  
Competence Comfort

Harmed needs  
Drivers Non-drivers  
Comfort Fitness

### 61 The predictability of my breakfast routine

It's early in the morning and I've got nowhere to be. I just got out of bed and I'm ready to start the day. For mornings like these, I like to follow my morning breakfast routine, in which I make jam on toast, brew myself coffee and some tea. When I wait for the coffee to brew, I empty the dishwasher, which finished its program after I turned it on before going to sleep last night. I enjoy the predictability of this routine. I like that it doesn't take me a lot of effort to decide what to have for breakfast and which steps I'd need to take to get there. I like knowing beforehand that if I follow my routine, I will get a breakfast that I enjoy. I suppose it's not the healthiest to eat the same breakfast everyday, but I like knowing what to expect. When I open the fridge, I don't see the jam. Where did it go? It's not in its usual spot, but tucked into the shelf in the door. It takes some time to process, but I try to pick up where I left off. When I'm about to take my coffee, tea and toast, I realize I forgot to turn off the oven, like yesterday and the day before. I'm happy I see it and turn the knob. Maybe there are some things in my routine that I can change!

**Competence** Following this routine makes sure I accomplish my goals in an efficient way.

**Comfort** Knowing what I will have for breakfast gives me peace of mind and takes me less mental effort.

**Comfort** Something being out of place takes me a lot of mental effort to process.

**Fitness** I'm doubting how healthy it is to eat the same thing for breakfast everyday.

### 63 Do I do tasks in slow motion?



Satisfied needs  
Drivers Non-drivers  
Competence

Harmed needs  
Drivers Non-drivers  
Autonomy Comfort  
Morality

### 63 Do I do tasks in slow motion?

It's morning when I walk into the kitchen to make breakfast. It seems like a nice day and I feel ready to go and study. I turn on the oven for some toast and add some water to the kettle to boil for some coffee and tea. I see that there are still some crumbs on the counter and decide to wipe them off. While I'm at it, I better take off the stains from the stove as well. Did I already give the guinea pigs some food? Wait, I was making some coffee. Did I already put some bread in the oven? Better throw this teabag away and get a new one. As I'm walking to the couch with my coffee, I take a look at the clock. 10:30, that doesn't seem right. Didn't I go into the kitchen at 10:00? Why am I so slow with these things? It happens all the time too. I know that I need to start dinner at least and hour and a half in advance. I know I can't have toast and coffee and tea when I have to be somewhere in the morning. Sometimes it feels like my brain is going twice as fast as my body, which frustrates me, like I'm moving in slow motion.

**Autonomy** Not being able to do activities that I want to do, because I need to take my speed into account.

**Competence** Not being able to complete tasks as quickly as I want them to, I feel like I am so slow with things sometimes.

**Comfort** The inconsistency between my body's speed and my mind's speed makes me feel restless.

**Morality** Why do I have the feeling that I need to do things quickly? Is that what I want? Who needs me to do that? Would I be mad at myself if I were someone else?

**Stimulation** I keep getting distracted by negative sensory input.

### 62 The pros and cons of not running the dishwasher



Satisfied needs  
Drivers Non-drivers  
Comfort

Harmed needs  
Drivers Non-drivers  
Morality

### 62 The pros and cons of not running the dishwasher

It's morning and I'm going into the kitchen to make myself some breakfast, coffee and a cup of tea. After pouring the water into the Aeropress to brew the coffee, I open the dishwasher to empty it while I wait. As soon as I look inside, I realize that's not necessary. All the dishes inside are still dirty. But why? I think back to last night, when I usually turn on the dishwasher before going to bed. Did I forget? That has happened before too. No, that's not the case. Last night, the dishwasher wasn't completely full, so I decided not to start the program. It's probably better for the environment to run it when it's full. When I finish my breakfast, I add my dirty plate and cups, which otherwise would have had to wait on the counter. As I get ready to leave for the day, I add the dishwasher tablet and turn it on. When I get home, the dishes will be nice and clean!

**Comfort** The dishwasher hadn't run yet, so I could immediately put my dirty dishes in there as well.

**Morality** Not running the dishwasher when it isn't full.

### 64 In the mood for coffee



Satisfied needs  
Drivers Non-drivers  
Beauty Recognition

Harmed needs  
Drivers Non-drivers  
Autonomy Fitness

### 64 In the mood for coffee

I'm as much a coffee person as a tea person, but I'm also an intuitive and emotional person. For many things I do in my life, I rely on my intuition, my mood and on how I feel in general. Also for when I drink coffee. Did I just finish the awful task of cleaning the house? Then it's time to drink some coffee to reward myself. Coffee makes the feeling of wet and dirty fingers a little more worth it. Do I feel a little tired and could I use a little kick to keep going for the rest of the afternoon? Then I make myself a cup of coffee. It doesn't matter to me that it's decaf, I think it's more about the flavour than the caffeine anyway. Though, this morning, something odd happened. I didn't feel like a cup of coffee. This is strange. I decided not to push it, as I know that I wouldn't enjoy it as much. It was the right call; a few hours later, I suddenly realized that I was in the mood for a cup of coffee. So, off to the kitchen I went, ready to drink some coffee.

**Beauty** Drinking coffee when I'm in the mood for it, gives me the feeling that's it meant to be.

**Recognition** Appreciating my work by making myself a cup of coffee.

**Stimulation** The flavour of coffee often gives me the right amount of kick to get out of a slump.

**Autonomy** Being able to choose when to drink (decaf) coffee and when it's better to wait for the mood to strike.

**Fitness** Decaf is healthier than coffee with caffeine.

**Purpose** I was doing something and chose to make a hot drink instead; needing to make myself a hot drink to reward myself.

**65** Collaborative coffee brewing



It's the weekend, and my boyfriend and me are having a nice day in. We don't have any specific plans, just do some things around the house and watch some tv on the couch. Living together with someone means accepting that there is another person with needs close to you. My boyfriend also uses the kitchen to make his lunch, to leave his dishes or to get a glass of water. Living together with someone means accepting that some things aren't in the place where you left them. Though, those are only small things, and living together with my boyfriend is one of my favourite things. For example, there are two people who can be in the mood for coffee. It's nice, because whether it's my boyfriend or me, we can share the coffee making and coffee drinking experience. When my boyfriend asked me if I wanted some coffee, I went into the kitchen to boil the water, and he got the coffee grinder to grind the beans. I like doing this together with him, because I prefer to be in the kitchen by myself, but I do enjoy the closeness of working together on a task. Brewing coffee together in this way, gives me the best of both worlds!

**Beauty** There is a certain harmony in working together on a task.

**Relatedness** Being together at home makes the kitchen activities more connecting.

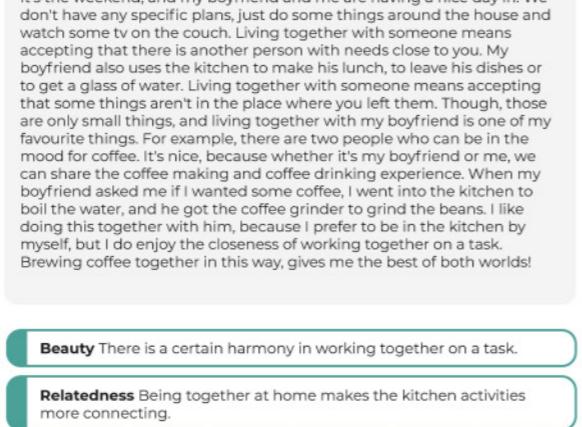
**Autonomy** Not being able to work together with someone in the kitchen sometimes makes me feel out of control.

**Beauty** Living together means that things aren't necessarily how I had wanted them to be.

**Comfort** I choose the need of relatedness over the need for comfort, because that's what sometimes happens when you're living together.

Satisfied needs	Harmed needs
Drivers	Non-drivers
Beauty	Drivers
Relatedness	Non-drivers

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Satisfied needs	Harmed needs
Drivers	Non-drivers
Beauty	Drivers
Relatedness	Non-drivers

**67** The ritual of making tea



This evening, I walk into the kitchen to put on the kettle to make some tea for my boyfriend and me. When my boyfriend and me are both at home, we fall into a different rhythm of activities. There are certain unwritten rules and tasks that we divide. It is a mutual understanding than when one of us boils water, the other one finishes the tea. To let the other know that we are starting this sequence of activities, we do ask: "If I boil the water, will you finish the tea?", but that's more symbolic than an actual question. So, I ask the question, and when I've turned on the kettle, I walk back to my favourite spot on the couch. It's nice to be able to settle in and trust that at some later moment my boyfriend will bring me a nice, hot cup of tea.

**Beauty** There is a certain harmony to having sequences with another person and being in tune with each other.

**Comfort** It's easy and comfortable to be able to do a first half of a task, knowing someone else will finish the second part for you.

**Relatedness** Having a trusting relationship with 'wordless' agreements brings me joy.

**Impact** Working together on the same activity is bound to have an impact on the other's life, however small.

**Stimulation** There is no novelty or surprise in this routine.

Satisfied needs	Harmed needs
Drivers	Non-drivers
Beauty	Impact
Comfort	Stimulation
Relatedness	Drivers
	Non-drivers

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Satisfied needs	Harmed needs
Drivers	Non-drivers
Beauty	Impact
Comfort	Stimulation
Relatedness	Drivers
	Non-drivers

**68** Putting away the groceries



In the evening the doorbell rings. I don't worry me, I have been following the grocery delivery via the app for the past fifteen minutes. When my boyfriend takes the bags and puts them on the kitchen counter, we set to work. We both have our own tasks; his is to put the general groceries in the cupboards and mine is to find the cold groceries and put them in the fridge. I don't necessarily enjoy this task, but I do see its importance. The fridge has a limited amount of space and it also has irregular shelving; some are smaller than others and some are higher than others and then there's also some space in the door. From past experience, I know that I like it when the items in the fridge are stored in a certain way, so I feel responsible for putting those groceries away.

**Beauty** Seeing things in their correct place makes me happy.

**Relatedness** I sometimes overlook my boyfriend's needs in needing things to be a certain way.

Satisfied needs	Harmed needs
Drivers	Non-drivers
Beauty	Drivers
Relatedness	Non-drivers

**66** Tea as a thank-you



It's late afternoon, and my boyfriend and I just got back from an appointment. It was quite last minute, so we're tired from having to rush to get things done. I'm not feeling up to cooking yet, so I decide to make us some tea. Looking at our collection of tea flavours, I choose the blueberry ginger flavour. My boyfriend likes ginger tea, and I want to cheer him up a little. He did something nice for me today by changing his schedule to go with me to the appointment, even though he had a busy day at work. I hope this cup of tea helps a little!

**Relatedness** Giving my boyfriend a cup of tea in a flavour he likes, because he did something nice for me and I want him to feel appreciated.

**Impact** It might not be a big impact, but I hope I had a small positive impact on my boyfriend's day.

**Morality** Giving back is in line with my values.

**Comfort** Ginger tea is not my favourite.

Satisfied needs	Harmed needs
Drivers	Non-drivers
Relatedness	Drivers
Impact	Non-drivers
Morality	Comfort

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Satisfied needs	Harmed needs
Drivers	Non-drivers
Relatedness	Drivers
Impact	Non-drivers
Morality	Comfort

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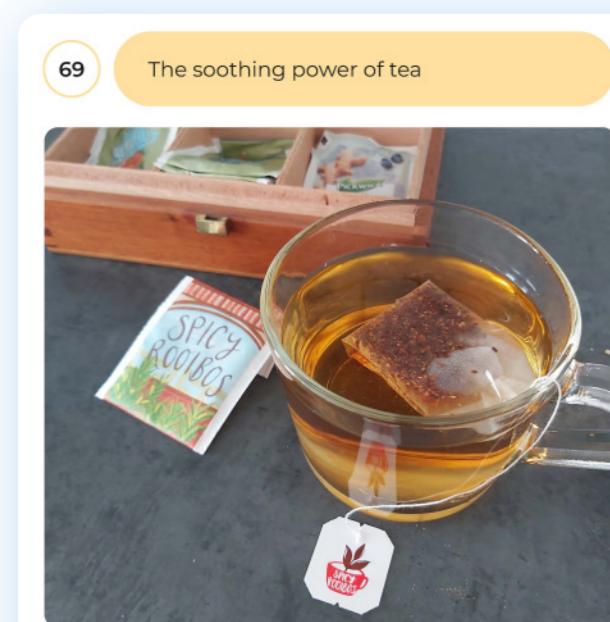


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**Beauty** Seeing things in their correct place makes me happy.

**Relatedness** I sometimes overlook my boyfriend's needs in needing things to be a certain way.

Satisfied needs	Harmed needs
Drivers	Non-drivers
Beauty	Drivers
Relatedness	Non-drivers



## 69 The soothing power of tea

## 69 The soothing power of tea

It's the afternoon, and I just got home from a day of studying at the faculty. I go into the kitchen to make myself a cup of tea. I easily get overstimulated at places, especially places other than my own home. I need some time to process the sounds, conversations and general otherness of the outside world. To process this, I like to plan some time to rest with a cup of tea. Tea, especially rooibos tea, is cosy and warm and distracts me from my own thoughts and soothes my painful knees and wrists in a non-intrusive way. When my cup of tea has finished brewing, I take it to the couch and sit down, already starting to feel a little better.

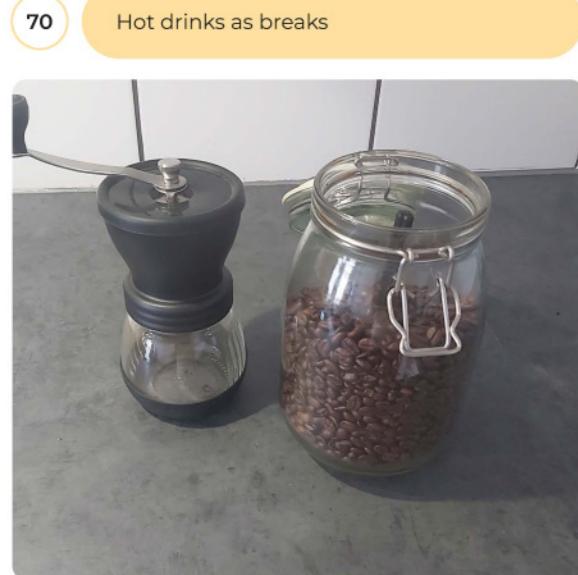
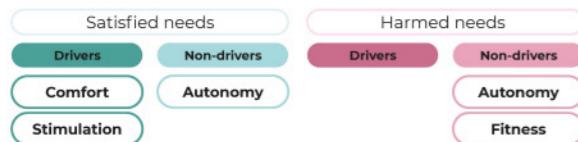
**Comfort** Making (and drinking) tea is a way to soothe myself.

**Stimulation** The rooibos flavour of the tea is soothing.

**Autonomy** Being able to take matters into my own hands and do an activity to self-soothe.

**Autonomy** My disability keeps me from choosing things I want to do.

**Fitness** Being stressed from being outside is not a healthy way to be.



## 70 Hot drinks as breaks

## 70 Hot drinks as breaks

It's morning, and I've been working at home on some small tasks. It feels like a slow day, where the motivation is further away than I would like it to be. I think about the other things I had planned on doing today. I decide to go into the kitchen to make myself some coffee. It's not only because I like drinking coffee, but sometimes it also works to reset my mind to get ready to work some more. The activity of making coffee, or tea, is different, but not complicated. Especially with making coffee, which consists of more steps than making tea, works well to give my mind something else to focus on for a little while. It's complicated in its own way, but I feel confident enough to make a good coffee without it requiring a lot of concentration. As I take my cup and go sit on the couch, I feel at peace, knowing I have time to rest at least until I've finished my coffee. At the same time, the tasks I still have to do float in the back of my mind. I finish my cup of coffee and get up, going back to my desk to work, feeling a little more refreshed and a little more focused.

**Autonomy** Being able to trick my mind into getting ready for a task

**Beauty** The clear order of tasks and breaks creates a feeling of harmony.

**Comfort** Hot drinks relieve stress; drinking something gives predictability about the length of the task

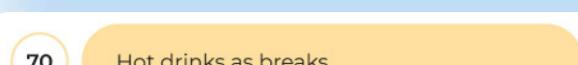
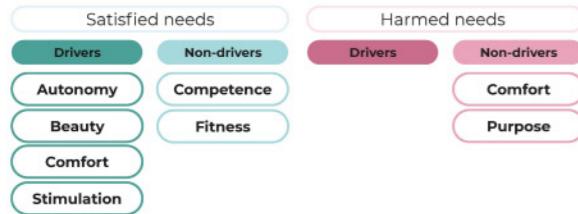
**Stimulation** Making coffee gives the mind other stimuli to focus on.

**Competence** Being able to achieve goals quicker by taking a break; being able to make coffee on intuition

**Fitness** Getting up from my desk and walking around a little

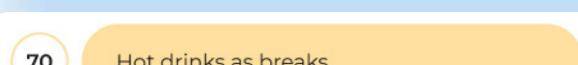
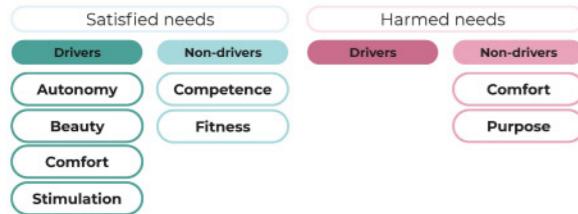
**Comfort** Coffee isn't the easiest process, but its result is worth it.

**Purpose** By taking a break instead of working on my studies, I'm not really working towards my goals.



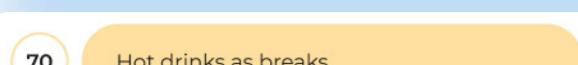
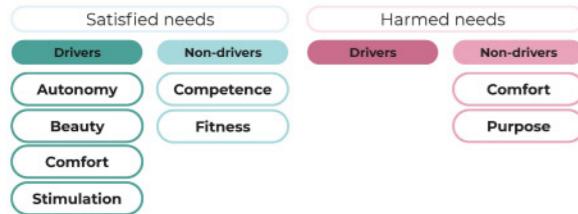
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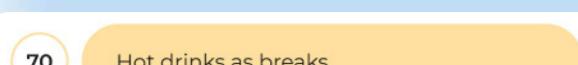
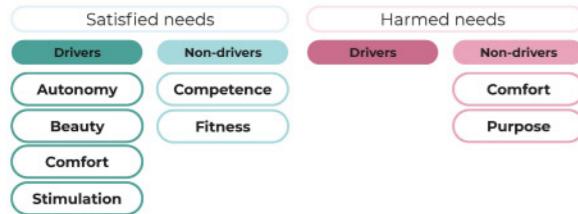
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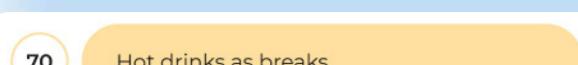
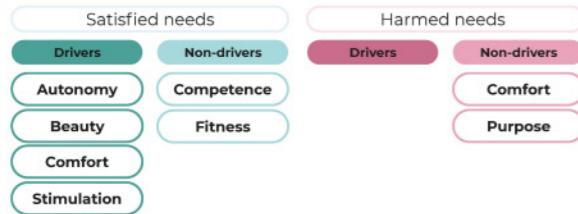
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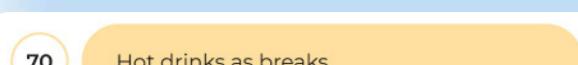
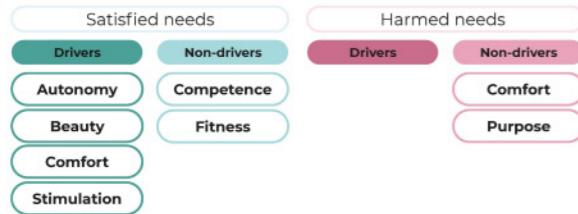
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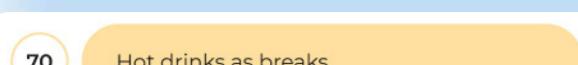
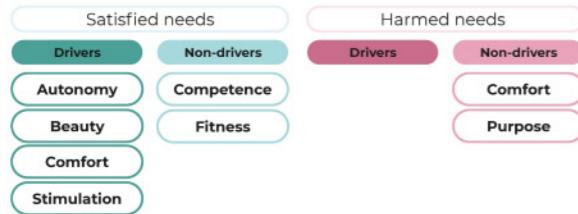
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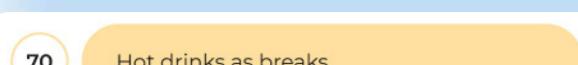
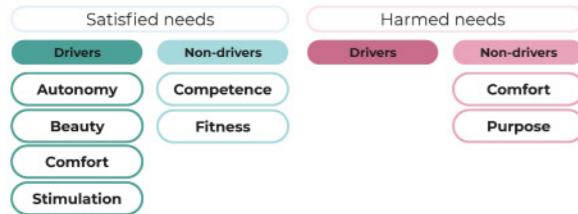
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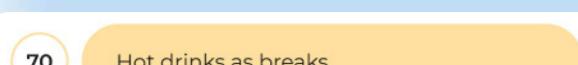
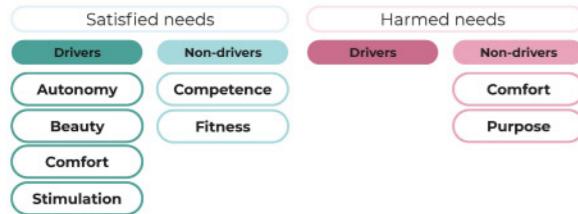
## 70 Hot drinks as breaks

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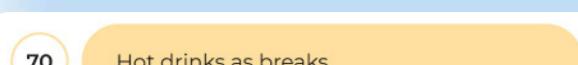
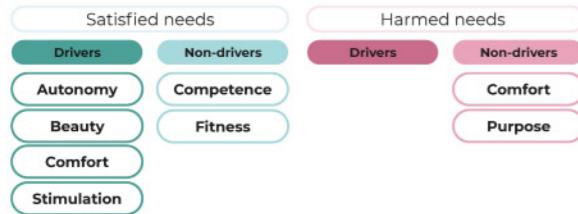
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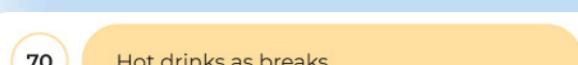
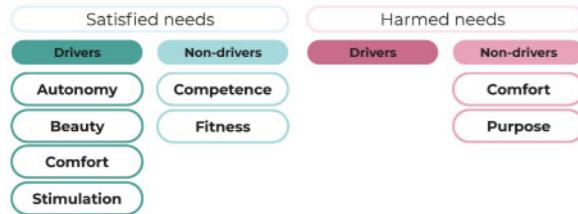
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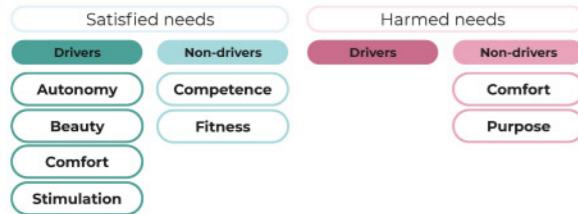
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**73** Tea as part of an experience



Tonight, one of my favourite tv shows is on and I enjoy taking the time to make a small experience of it. I like settling into my favourite spot on the couch, and I make sure I have a fresh cup of tea when the show starts. To make the cup of tea, I follow my usual process of boiling and pouring the water, and because it's evening, I choose evening blend. Knowing that I have my tv show and comfortable spot on the couch to look forward to, making tea gets a different meaning. It not just something to drink because I'm cold or because I want to take a break, the tea often completes comfortable experiences for me, such as watching a nice tv show or reading a good book.

**Beauty** The tea makes the experience of watching tv or reading a book feel complete

Satisfied	Harmed
Drivers	Non-drivers
Drivers	Non-drivers
Beauty	

**74** A simple lunch



It's lunchtime, and I'm in the kitchen making myself a sandwich. Having just a sandwich for lunch might seem boring and easy to some, but that's exactly why I like it. I've learned that it's not necessary for me to make a complex lunch and it's okay to not want to spend a lot of energy on it. I like the predictability of it. I know I'm not the quickest with tasks like this either, so I usually try to keep it simple. I'm able to eat my sandwich while I wait for my coffee or tea, leaving more time for other tasks I prioritize in the afternoon. Last week I had some place I needed to be in the afternoon, and while I was making lunch, I realized the bread was already a few days old. At times like this I feel a little sad that I don't feel fast enough to make toast out of the bread before needing to leave. Though, getting my bread out of the cupboard now, I feel that it's nice and soft. I just took it fresh out of the freezer this morning. As I'm putting some chocolate spread on the bread, I can feel the soft inside and the crunch outside. I can only imagine what it will taste like!

**Comfort** The predictability of what I'm going to have for lunch.

**Morality** Being able to prioritize tasks based on my own values.

**Stimulation** The texture of the bread was soft.

**Autonomy** Being able to make my own decisions based on my energy levels.

**Beauty** The harmony of my lunch routine.

**Autonomy** Not being able to decide when I eat lunch and what I eat.

**Fitness** It might not be healthy to eat such a simple sandwich every day.

Satisfied	Harmed
Drivers	Non-drivers
Drivers	Non-drivers
Autonomy	Autonomy
Morality	Beauty
Stimulation	Fitness

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Satisfied	Harmed
Drivers	Non-drivers
Drivers	Non-drivers
Beauty	

**75** Distracted by my pets



It's important to note that in my house, the kitchen is not a separate room in the house. When I'm doing kitchen activities, I often get distracted by other things going on in the house, especially when I have to wait, for example for the water to boil. Usually, I try to use this time to clean up a little, but this evening I was distracted by my pets, who live in their cage close to the kitchen. When they see me going into the kitchen, they try their very best to catch my attention, trying to remind me that they would like something to eat, please! I don't really like being distracted during tasks, but I do love my pets, so this was fine and made me happy, even though my tea had to wait a little while longer.

**Relatedness** Spending some time with my pets makes me (and them) happy, when I'm doing kitchen activities.

**Competence** My ability to focus on an activity without getting distracted is less important than spending time with my pets.

Satisfied	Harmed
Drivers	Non-drivers
Drivers	Non-drivers
Relatedness	
Competence	

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Satisfied	Harmed
Drivers	Non-drivers
Drivers	Non-drivers
Autonomy	Autonomy
Morality	Beauty
Stimulation	Fitness

**76** Treats for lunch



It's lunchtime, and when I open the cupboard to get my bread, I realize I forgot to take it out of the freezer this morning. What do I do? I need to eat something. A little to the right sits a box of my favourite crackers, that I sometimes take to the faculty too, when I study there. These crackers are the best, they are thin, crunchy and don't have a very strong flavour. I could have those for lunch! Looking further into the cupboard, I see a jar of speculoos. I am not really allowed to have that, because of some food sensitivities, but I don't really have anything planned for the coming few days. I decide that it's worth it. I take my crackers and spread some speculoos on top. It felt like a little treat!

**Autonomy** Being able to make a bad decision.

**Security** Always having some food in the cupboard as a backup.

**Stimulation** Eating something that is tasty and that I don't have often.

**Fitness** I chose a treat that could cause me to have stomach aches.

Satisfied	Harmed
Drivers	Non-drivers
Autonomy	Non-drivers
Security	Drivers
Stimulation	Fitness

**77** Forgetting to eat something



It was already well into the afternoon when my boyfriend asked me if I had any lunch yet. I hadn't really thought about it, until he said something. Indeed, I hadn't had any lunch yet and I realized at that moment that I was also a little hungry. This happens to me quite often, and I don't always realize it, so sometimes I don't eat lunch until half past three. It helps when my boyfriend is at home and he keeps an eye on me, making sure I eat something.

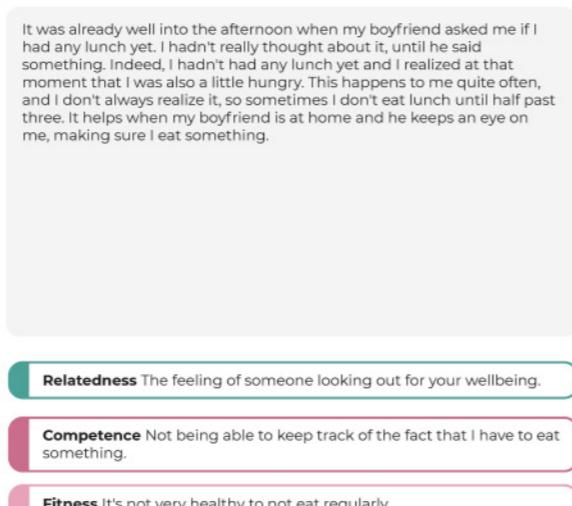
**Relatedness** The feeling of someone looking out for your wellbeing.

**Competence** Not being able to keep track of the fact that I have to eat something.

**Fitness** It's not very healthy to not eat regularly.

Satisfied	Harmed
Drivers	Non-drivers
Relatedness	Competence
Fitness	

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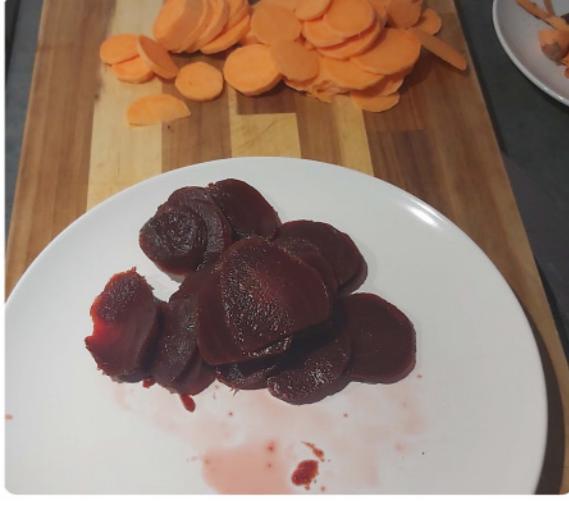
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Satisfied	Harmed
Drivers	Non-drivers
Relatedness	Competence
Fitness	

**78** Pizza with beets



For me, pizza is the perfect weekend food. I enjoy eating pizza, so it feels like a little reward to having successfully finished the week and it feels in line to the laidback feeling of Fridays and Saturdays. This particular pizza recipe is new for me. It's a pizza with muhammara sauce, topped with sweet potato slices, beets and white cheese. It looked like a clear and structured recipe to me, which made the cooking process seem less stressful. I started on the beets, knowing that I have to be careful, with the stains and all. I couldn't cut the beets on the regular cutting board, as it is made of wood and I would never get the stains out properly. Lacking a different cutting board, I decided to use a plate. A sensory nightmare in itself. The sound of the knife hitting the plate is so loud, it hurts me even as I write about it now. Though, I suppose it's better I do it myself, because then I'm able to anticipate when the sound is going to hit. After eating the pizza, I can't say the taste of the pizza excused the sound, but it made it a little more worth it.

**Beauty** The pizza recipe and the feeling of the weekend were in perfect harmony.

**Stimulation** The sound of cutting the beets has to be one of the worst sensory nightmares.

**Comfort** Cutting the beets was worth it, I chose the taste of the pizza over feeling comfortable in the process.

Satisfied	Harmed
Drivers	Non-drivers
Beauty	Stimulation
Comfort	Comfort

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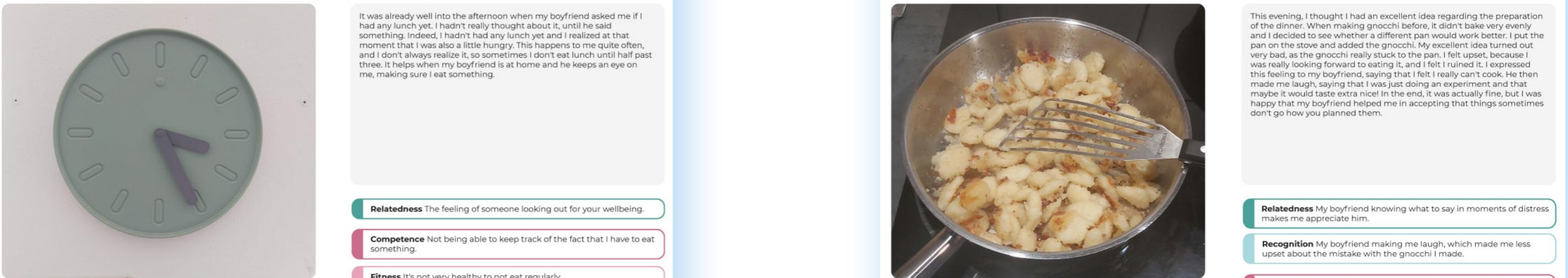
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Satisfied	Harmed
Drivers	Non-drivers
Beauty	Stimulation
Comfort	Comfort

**79** Baking gnocchi goes wrong



This evening, I thought I had an excellent idea regarding the preparation of the dinner. When making gnocchi before, it didn't bake very evenly and I decided to see whether a different pan would work better. I put the pan on the stove and added the gnocchi. My excellent idea turned out very bad, as the gnocchi really stuck to the pan. I felt upset, because I was really looking forward to eating it, and I felt I ruined it. I expressed this feeling to my boyfriend, saying that I felt I really can't cook. He then made me laugh, saying that I was just doing an experiment and that maybe it would taste extra nice! In the end, it was actually fine, but I was happy that my boyfriend helped me in accepting that things sometimes don't go how you planned them.

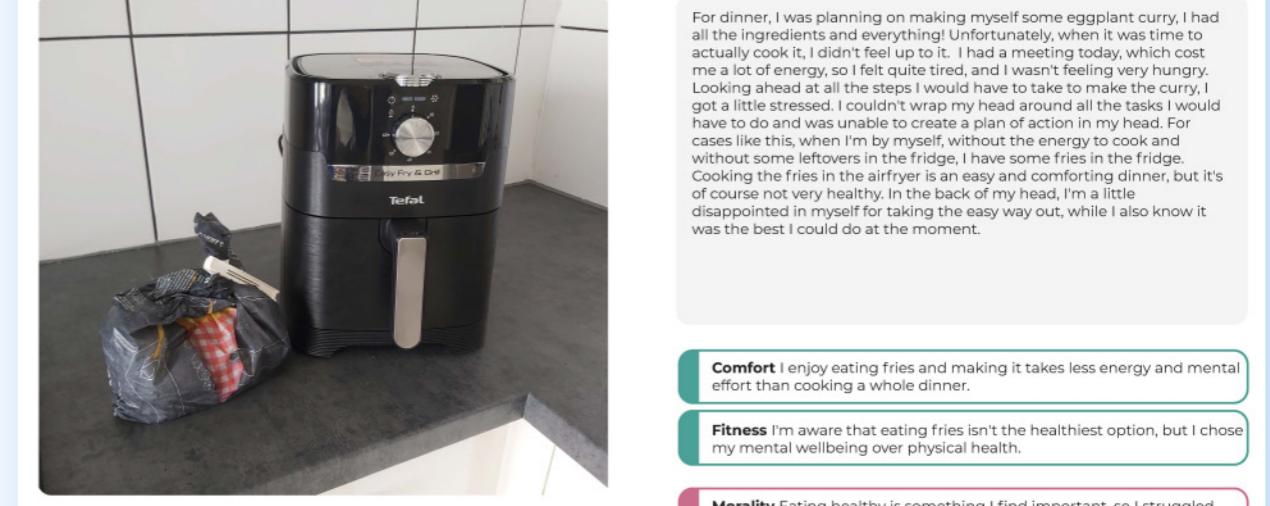
**Relatedness** My boyfriend knowing what to say in moments of distress makes me appreciate him.

**Recognition** My boyfriend making me laugh, which made me less upset about the mistake with the gnocchi I made.

**Competence** An idea that I had turned out not to work at all.

Satisfied	Harmed
Drivers	Non-drivers
Relatedness	Recognition
Competence	

**80** Eating fries for dinner



For dinner, I was planning on making myself some eggplant curry, I had all the ingredients and everything! Unfortunately, when it was time to actually cook it, I didn't feel up to it. I had a meeting today, which cost me a lot of energy, so I felt quite tired, and I wasn't feeling very hungry. Looking ahead at all the steps I would have to take to make the curry, I got a little stressed. I couldn't wrap my head around all the tasks I would have to do and was unable to create a plan of action in my head. For cases like this, when I'm by myself, without the energy to cook and without some leftovers in the fridge, I have some fries in the fridge. Cooking the fries in the airfryer is an easy and comforting dinner, but it's of course not very healthy. In the back of my head, I'm a little disappointed in myself for taking the easy way out, while I also know it was the best I could do at the moment.

**Comfort** I enjoy eating fries and making it takes less energy and mental effort than cooking a whole dinner.

**Fitness** I'm aware that eating fries isn't the healthiest option, but I chose my mental wellbeing over physical health.

**Morality** Eating healthy is something I find important, so I struggled with the fact that I wasn't able to cook myself a healthy dinner this evening.

**Competence** I chose not to exercise myself or challenge myself, I chose the easy way.

**Fitness** I'm aware that eating fries isn't the healthiest option, but I chose to ignore that fact.

Satisfied	Harmed
Drivers	Non-drivers
Comfort	Morality
Fitness	Competence

**81** Heating up leftovers



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This evening, I went into the kitchen to heat up some risotto I made the day before. Usually, I cook for two days, because it's convenient in terms of time and because most recipes are for four people. I also know that cooking isn't my favourite activity, and having leftovers in the fridge keeps me from making a less healthy meal, like fries or grilled cheese. In this case of the leftover risotto, I wasn't sure how to heat it up; in the oven or on the stove. I decided to heat the risotto on the stove by putting it in a pan and adding some water. One of the downsides of heating things on the stove is that it burns quickly and you have to pay a lot of attention and stir regularly. I did my best, but unfortunately it was still a little bit burned... Maybe I should try the oven next time?

**Comfort** Heating up leftovers is an easy way to make dinner; making dinner for two days is convenient and time-saving.

**Fitness** Leftovers are a healthier alternative for an easy dinner.

**Morality** I like leftovers, because it mitigates the conflict of wanting an easy and healthy dinner.

**Competence** Not mastering the heating up process yet.

Satisfied	Harmed
Drivers	Non-drivers
Comfort	Drivers
Fitness	Non-drivers
Morality	Competence

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Satisfied	Harmed
Drivers	Non-drivers
Comfort	Drivers
Fitness	Non-drivers
Morality	Competence

**83** Gnocchi, music and being appreciated



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Gnocchi with creamy bell pepper sauce is one of my favourite dishes to eat. Knowing what the end result will be, makes the cooking process a little more fun. I also like to put on some music to sing along to while cooking. I think it distracts me a little from the aspects I don't really enjoy about cooking, like the dirty kitchen and the feeling of having stuff on my fingers. When I was cooking, my boyfriend came home, and he told me that he was happy that I had already started, because he was feeling very hungry. All in all, maybe I enjoyed cooking a little this time.

**Comfort** Looking forward to eating one of my favourite dishes made me feel happy.

**Recognition** My boyfriend expressing his happiness with my cooking made me happy, because he knows I don't really like cooking.

**Relatedness** Making my boyfriend smile by cooking dinner.

**Stimulation** Listening to music and singing along makes me happy, because it's something I'm able to predict well. It replaces negative sensory input.

**Beauty** Music and cooking creates a balance between positive and negative stimuli.

**Competence** The feeling of having dirty or wet fingers makes me feel really uncomfortable.

Satisfied	Harmed
Drivers	Non-drivers
Comfort	Beauty
Recognition	Competence
Relatedness	Stimulation

**82** The paradox of cooking risotto



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This evening, I decided to cook risotto for dinner. I had had a busy day and risotto is quite a simple recipe, which I have made many times before. I added tomato, spinach and goat's cheese to this one. To start, you have to fry the onion and add garlic. I got to use our new garlic press, which worked great! It takes less effort than our old one and you don't have to cut the garlic in tiny pieces. After adding the rice and the broth, the rest of the recipe is very simple. Cooking risotto is mainly waiting and stirring, which sometimes feels a little contradictory. You have to wait a lot and also for quite a long time, but at the same time, you also have to constantly pay attention so that it doesn't burn.

**Comfort** The new garlic press was very easy to use

**Stimulation** The paradox between having to wait and having to pay constant attention while making risotto

Satisfied	Harmed
Drivers	Non-drivers
Comfort	Stimulation

**84** Cooking short-circuits my brain



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For dinner I decided to make melanzane, which is a dish with eggplant, cheese and pasta. Cooking the dish consists of two parts, making the melanzane, and while that is baking in the oven, cooking the pasta. Due to its many tasks, cooking often seemed daunting, but I have to eat sometime. The first step is cutting the ingredients. I was feeling a little tired, which made me feel insecure in cutting the vegetables, because of my lesser fine motor skills. Luckily, I managed to not cut off my fingers and got the melanzane ready to go in the oven. I had planned to make the pasta in the meantime, but I had a small brain error; I couldn't seem to switch between the two tasks, the gap seemed too big. When this happens, my boyfriend helps me by explicitly saying what I have to do and in what order; this helps me to get unstuck. This happens more often when there's a hitch earlier in the process, which can be anything. A dishwasher that I forgot to run, a can that I wasn't able to open or the use of the wrong spoon. With some help, cooked the pasta, and when that was done, it was time to take out the melanzane too. This perfect coincidence made me feel a little better.

**Beauty** I enjoy a little structure in the chaos of cooking.

**Relatedness** Having someone near to take care of me and help me when I get stuck.

**Beauty** The process of cooking seems inherently chaotic to me.

**Comfort** The process of cooking creates a lot of chaos in my mind.

**Competence** During the cooking process, my mind often short circuits.

**Security** When I'm tired, I can't rely on my fine motor skills, posing a threat when cutting vegetables.

**Competence** I chose help over doing it by myself.

Satisfied	Harmed
Drivers	Non-drivers
Beauty	Competence
Relatedness	Comfort
Competence	Security

**85** The pros and cons of emptying the dishwasher



This morning, I didn't have time to do my usual morning routine, due to an appointment, but I did manage to throw out the trash. This meant that the dishwasher hadn't been cleaned out and the trashbags needed to be replaced. So, when I had put some leftover pizza in the oven, I set to work. Cleaning out the dishwasher is easy to do when I'm waiting for something else, and this means I don't have to keep it as a to-do in my head. I also quite enjoy the task. This afternoon, the dishwasher had just finished its run and all the dishes were still warm. Putting those back in their rightful place, makes me very happy. Unfortunately, the dishwasher didn't dry everything perfectly. It especially struggles with a specific set of bowls that I have. Other than that, there were some pot lids in the dishwasher that make a terrible noise when I put them back in the cupboard. Having put the last of lids away, I opened the oven to check on my pizza. It was perfect. It made the wet dishes and the puddle I stepped in after a little worth it.

**Beauty** Seeing every dish in their rightful place in the cupboard.

**Stimulation** The feeling of clean, dry and warm dishes.

**Autonomy** The feeling of being able to organize my life in a way that is efficient for me.

**Comfort** Wet dishes, wet puddles and loud pot lids.

Satisfied	Harmed
Drivers	Non-drivers
Beauty	Autonomy
Stimulation	Comfort

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Satisfied	Harmed
Drivers	Non-drivers
Beauty	Autonomy
Stimulation	Comfort

**87** Collaborative kitchen activities



At some time in the early evening, my boyfriend started to prepare dinner. I noticed that the dishwasher was done cleaning, but it hadn't been cleared yet. I know how annoying and disrupting it can be when you can't put the dirty dishes from cooking in the dishwasher directly, so I decided to help out and clear out the dishwasher. Usually, this is a task I enjoy, but doing it when someone else is in the kitchen doing a different task, makes it more difficult. You only notice you have certain standard movements or actions when doing an activity, until you can't do it anymore. Being together with someone in the kitchen means paying attention, so that you don't bump into them or that you don't hit them with cupboard doors or cutlery drawers. It means knowing where the other person is and anticipating what they are going to do next, which means new streams of sensory input and extra processing in my mind. Having finished the dishwasher task, my boyfriend put me to work with finishing the pizza toppings, claiming this was something I was better at. Was he trying to make me feel better, or did he just not like that specific task? I'm going to assume the first.

**Morality** Helping someone is in line with my values.

**Impact** Making an impact on my boyfriend's cooking experience by making one step of the task a little easier.

**Recognition** My boyfriend asking me to do a specific task, because he thought I was better at it than him.

**Comfort** Being together with someone in the kitchen overstimulates me by added processing energy loss.

**Relatedness** Working together with my boyfriend in the kitchen makes me a little stressed sometimes.

Satisfied	Harmed
Drivers	Non-drivers
Morality	Impact
Comfort	Relatedness
Recognition	

**86** Cleaning after cooking



Because my boyfriend did the cooking, it was my turn to clean up the kitchen, put dishes in the dishwasher and wipe down the counters. Let's be clear, I don't like this task. I don't like touching food leftovers on plates and cutlery. I don't like touching the wet cloth to wipe down the crumbs on the counter and I don't like touching dirty dishes that are already in the dishwasher when I put new ones in. I don't like cleaning dirty pans that aren't allowed to go in the dishwasher and I don't like how dirty the sink gets during the day. This has nothing to do with laziness, I'm fine with cleaning and I like the results. But, cleaning up the kitchen, especially after cooking, is a sensory nightmare. Even the idea of touching some sauce leftover on the plate gives me the ick, even as I write about it now. But, I still do it, because in the long term, a dirty kitchen is even worse, as the idea of dirty dishes lying around would keep floating around in my mind. And, I do want my boyfriend to feel appreciated, by acknowledging the effort that went into cooking the dinner.

**Comfort** A clean kitchen gives me peace of mind.

**Morality** There is a value in the background that makes me do this, because my boyfriend did something else.

**Relatedness** Making sure my boyfriend feels appreciated by cleaning up the kitchen, after he cooked dinner.

**Stimulation** Touching dirty dishes during the cleaning process is a sensory nightmare for me

**Comfort** Choosing to clean the kitchen instead of staying on the comfy couch.

Satisfied	Harmed
Drivers	Non-drivers
Comfort	Morality
Relatedness	Stimulation
Stimulation	Comfort

**88** Baking muffins



I'm usually not much of a baker, because I feel that some of the recipes can be quite complicated and baking often leaves a lot of mess. Luckily, our kitchen was recently renovated, and for the first time in my life, I had access to a dishwasher. I don't think there is any baking equipment that could make me happier than the dishwasher. The messiness of baking is a thing of the past. Did I use a spoon to add some honey? Did I use a bowl to weigh some flour? Did I have to get a clean knife to get a piece of butter? No worries! Straight into the dishwasher it goes. So, when I'm going to bake something, I make sure the dishwasher is empty and ready to go. To solve my other problem, my fear of complicated recipes, I started making muffins. Very simple, not even a mixer is required. I really enjoy making muffins using apple sauce, as it makes the structure of the muffins very soft. Unfortunately, we didn't have any apple sauce left, but we did have some bananas. I recently made the recipe with bananas also, so I felt that it was fine to replace the apple sauce with banana. (And it was!) One thing I haven't found a solution for yet is when the batter spills when I put it in the tin, before it goes in the oven. The tin sadly isn't dishwasher proof.

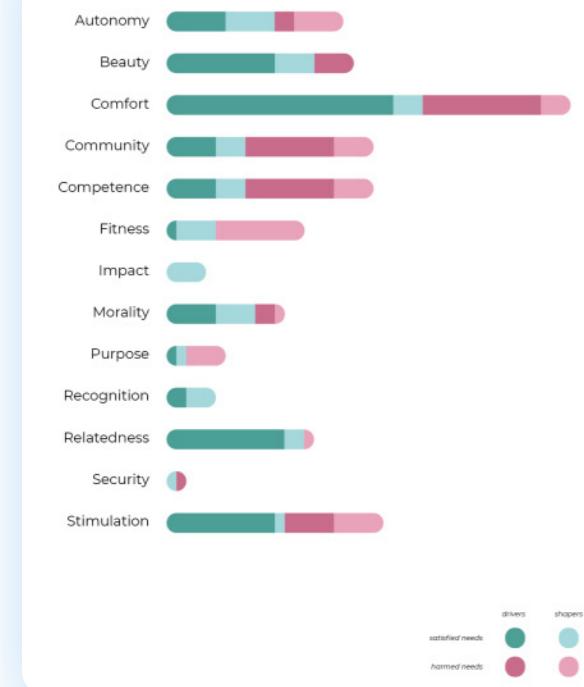
**Comfort** The dishwasher makes the baking process so much easier. No need to clean dishes during or after baking, just put it in the dishwasher!

**Competence** Feeling confident enough to replace one of the ingredients in a recipe and the result still turns out fine.

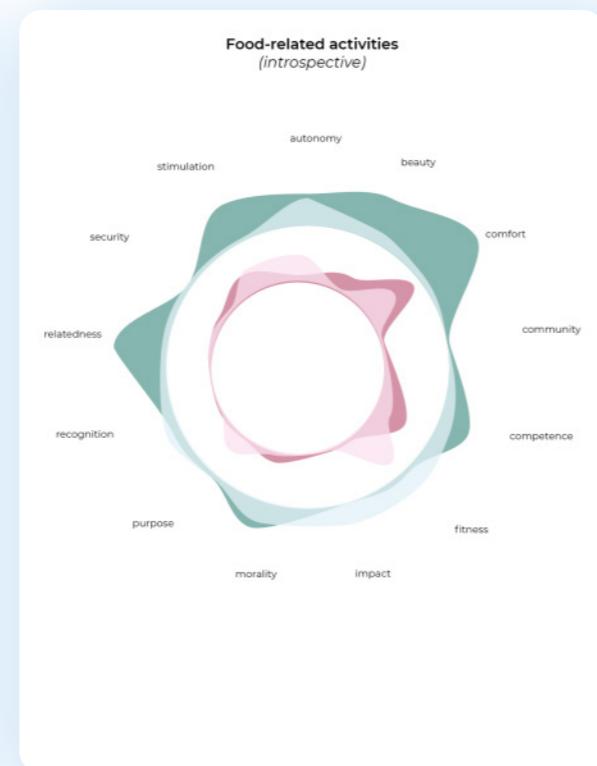
**Beauty** When the batter spills on the tin, I feel sad that the tin gets dirty, and you can't really get it clean again until after the muffins are baked.

**Stimulation** No real novelty or variety in always making the same recipe, trying new ingredients might also have to do with stimulation.

Satisfied	Harmed
Drivers	Non-drivers
Comfort	Beauty
Relatedness	Stimulation
Competence	



A bar chart clearly shows the data, but the inspirational quality is low



Inspirational value is high, but is time-consuming to create and is not accurate



Uses small segments, which makes it time-consuming to create



The segments are distributed, which makes it difficult to get a direct overview of data

## 66 Tea as a thank-you

It's late afternoon, and my boyfriend and I just got back from an appointment. It was quite last minute, so we're tired from having to rush to get things done. I'm not feeling up to cooking yet, so I decide to make us some tea. Looking at our collection of tea flavours, I choose the blueberry ginger flavour. My boyfriend likes ginger tea, and I want to cheer him up a little. He did something nice for me today by changing his schedule to go with me to the appointment, even though he had a busy day at work. I hope this cup of tea helps a little!

**Impact**  
**Relatedness**

**Comfort**  
**Morality**

- Included overlooked needs; an earlier version of drivers and non-drivers
- Did not accommodate an explanation for need fulfilment

## 66 Tea as a thank-you

It's late afternoon, and my boyfriend and I just got back from an appointment. It was quite last minute, so we're tired from having to rush to get things done. I'm not feeling up to cooking yet, so I decide to make us some tea. Looking at our collection of tea flavours, I choose the blueberry ginger flavour. My boyfriend likes ginger tea, and I want to cheer him up a little. He did something nice for me today by changing his schedule to go with me to the appointment, even though he had a busy day at work. I hope this cup of tea helps a little!

**Impact** It might not be a big impact, but I hope I had a small positive impact on my boyfriend's day.

**Relatedness** Giving my boyfriend a cup of tea in a flavour he likes, because he did something nice for me and I want him to feel appreciated.

**Comfort** Ginger tea is not my favourite tea.

**Morality** Giving back is in line with my values.

**Satisfied**  
**Impact**  
**Relatedness**

**Overlooked**  
**Comfort**  
**Morality**

- Included overlooked needs; an earlier version of drivers and non-drivers
- Did not use an image to represent the experience

### Quick start mode

1 Focus What are you focusing on?

Satisfied needs  
Needs that are represented in the wheel in a positive way

Harmed needs  
Needs that are represented in the wheel in a negative way

Unaddressed needs  
Needs that not or barely represented in the wheel

Conflicted needs  
A single need that is satisfied and harmed at the same time

2 Exploration Which wheel segment(s) are you looking at?

3 Insights Why is this wheel segment interesting to you? What insights does it provide?

'Beauty' is one of the most satisfied needs, though at first sight might seem unrelated to the activity. A subjective need like this has a big influence.

4 Design brief Write down your design brief here. Which design opportunities do the insights address?

My design draws on the joy of harmony in the kitchen to ~~help~~ help decision making ~~while~~ during food-related activities.

### Quick start mode

1 Focus What are you focusing on?

Satisfied needs  
Needs that are represented in the wheel in a positive way

Harmed needs  
Needs that are represented in the wheel in a negative way

Unaddressed needs  
Needs that not or barely represented in the wheel

Conflicted needs  
A single need that is satisfied and harmed at the same time

2 Exploration Which wheel segment(s) are you looking at?

3 Insights Why is this wheel segment interesting to you? What insights does it provide?

'Fitness' is the only need significantly more harmed than satisfied. Food is important for physique's health, but can influence that + mental health negatively.

4 Design brief Write down your design brief here. Which design opportunities do the insights address?

My design helps people balance physical & mental health when it comes to food preparation.

### Quick start mode

1 Focus What are you focusing on?

Satisfied needs  
Needs that are represented in the wheel in a positive way

Harmed needs  
Needs that are represented in the wheel in a negative way

Unaddressed needs  
Needs that not or barely represented in the wheel

Conflicted needs  
A single need that is satisfied and harmed at the same time

2 Exploration Which wheel segment(s) are you looking at?

3 Insights Why is this wheel segment interesting to you? What insights does it provide?

When you are living together, the kitchen is a place to connect, as it's a functional space. This influences the need for relatedness in a positive way.

4 Design brief Write down your design brief here. Which design opportunities do the insights address?

My design helps people to enhance the feeling of relatedness by investigating the sources in an explicit way.

### Adventure mode

1 Focus What are you focusing on?

Inner workings of needs  
Exploring the buildup of single needs, focusing on the experiential drivers and non-drivers.

Relationships between needs  
Explaining relationships between needs, possibly focusing on the experiential drivers and non-drivers.

Personal motivations  
You have a project goal or are curious about something, leading you to focus on a specific piece of the data overview.

2a Exploration Which wheel segment(s) are you looking at?

2b Exploration Which narrative connects to the wheel segment?

76, 70, 85, 69, 64, 74, 63, 71, 65

3 Insights Why is this connection interesting to you? Are there drivers or non-drivers involved? What insights does it provide?

This segment is a large non-driver. Most of the narrative connects to my disability, as do the drivers: autonomy is negatively influenced by disability, and positively influenced when decisions are made to accommodate disability. (non-drivers → drivers)

4 Design brief Write down your design brief here. Which design opportunities do the insights address?

My design supports the building of confidence to make decisions in favour of one's disability related to kitchen activities (take resin in own hands)

### Quick start mode

1 Focus What are you focusing on?

Satisfied needs  
Needs that are represented in the wheel in a positive way

Harmed needs  
Needs that are represented in the wheel in a negative way

Unaddressed needs  
Needs that not or barely represented in the wheel

Conflicted needs  
A single need that is satisfied and harmed at the same time

2 Exploration Which wheel segment(s) are you looking at?

3 Insights Why is this wheel segment interesting to you? What insights does it provide?

Over the course of two weeks, community wasn't mentioned once. This seems strange. It is the others choice, the. It's not to solve a problem that isn't there.

4 Design brief Write down your design brief here. Which design opportunities do the insights address?

My design integrates other, non-kitchen related ways of communicating with daily kitchen activities.

### Quick start mode

1 Focus What are you focusing on?

Satisfied needs  
Needs that are represented in the wheel in a positive way

Harmed needs  
Needs that are represented in the wheel in a negative way

Unaddressed needs  
Needs that not or barely represented in the wheel

Conflicted needs  
A single need that is satisfied and harmed at the same time

2 Exploration Which wheel segment(s) are you looking at?

3 Insights Why is this wheel segment interesting to you? What insights does it provide?

Stimulation can be both physical (senses) and mental (boredom etc.). Food-related activities can satisfy and harm both of them in multiple ways.

4 Design brief Write down your design brief here. Which design opportunities do the insights address?

My design makes users aware of how different types of stimulation can influence their experience in the kitchen.

### Adventure mode

1 Focus What are you focusing on?

Inner workings of needs  
Exploring the buildup of single needs, focusing on the experiential drivers and non-drivers.

Relationships between needs  
Explaining relationships between needs, possibly focusing on the experiential drivers and non-drivers.

Personal motivations  
You have a project goal or are curious about something, leading you to focus on a specific piece of the data overview.

2a Exploration Which wheel segment(s) are you looking at?

2b Exploration Which narrative connects to the wheel segment?

65, 84, 67, 83, 68, 85, 70, 78, 73, 64, 71, 74, 88, 79, 77, 75, 66, 66, 67

3 Insights Why is this connection interesting to you? Are there drivers or non-drivers involved? What insights does it provide?

Why do these two needs follow the same pattern? Beauty is mostly about things being 'right'. Relatedness is mostly about care and attention. Conversations are about being in tune with each other. Pattern is based on the needs being based on the same kind of personal motivation.

4 Design brief Write down your design brief here. Which design opportunities do the insights address?

My design helps people living together to create rituals for food-related activities through a feeling of harmony.

### Adventure mode

1 Focus What are you focusing on?

Inner workings of needs  
Exploring the buildup of single needs, focusing on the experiential drivers and non-drivers.

Relationships between needs  
Explaining relationships between needs, possibly focusing on the experiential drivers and non-drivers.

Personal motivations  
You have a project goal or are curious about something, leading you to focus on a specific piece of the data overview.

2a Exploration Which wheel segment(s) are you looking at?

2b Exploration Which narrative connects to the wheel segment?

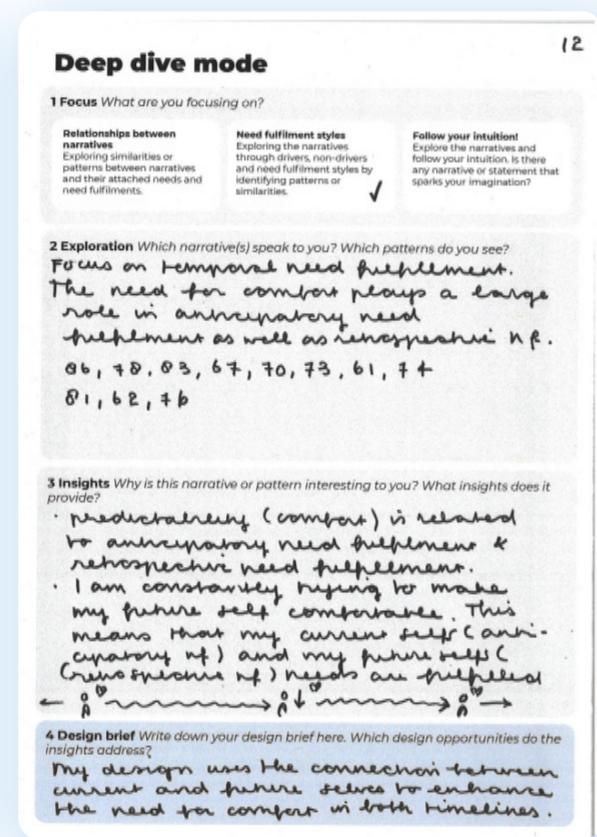
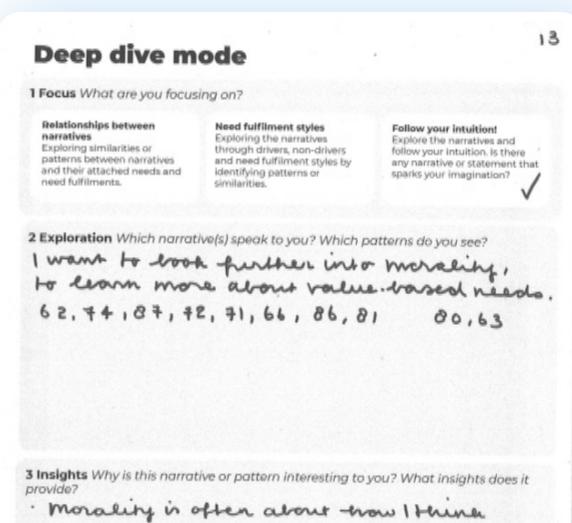
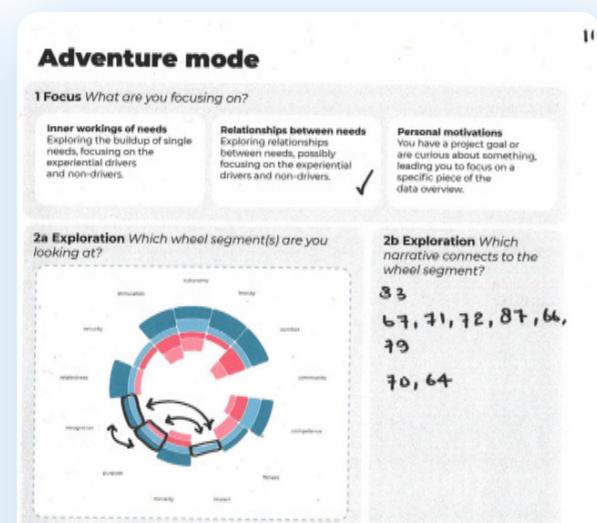
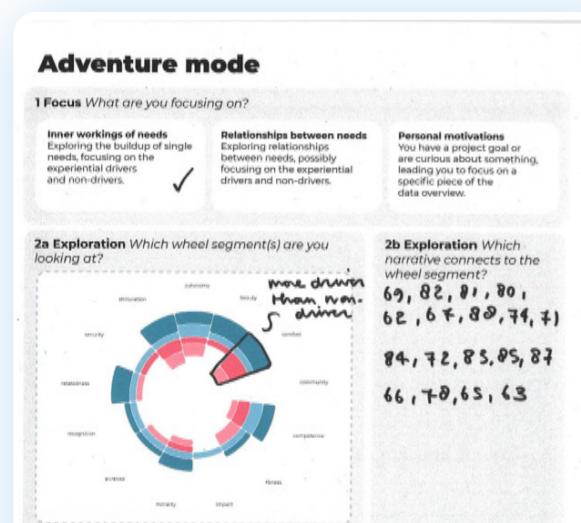
84, 76

3 Insights Why is this connection interesting to you? Are there drivers or non-drivers involved? What insights does it provide?

Why is security such a small part in my experience? Both instances are about control (+, having control = control of unpredictability) (-, loss of control = loss of control). Being anxious means having a need for control, when that is lost, sense of security is gone.

4 Design brief Write down your design brief here. Which design opportunities do the insights address?

My design helps autistic people gain a sense of control in situations related to food preparation, where they feel insecure, through 'anodenken' techniques.



## Ideation sheet for 'Kookwissels'-concept

CONCEPT 'BEST AFTER' DEEP DIVE MODE (12,5) .18/04/2024

"My design uses the connection between current and future selves to enhance the need for comfort in both timelines"

---

- best before date creates certainty, is it past the date? better not eat it anymore.
- best after date provides future self & current self with a sense of certainty, 'when can I eat it?' 'not yet!'
- can include message to future self.

→ comfort

- basic food, enhanced by anticipation (visionary need fulfillment)
- predictability, members create clarity

change date: helps keep things until the right time to eat them

Stamp or sticker?

write date: maybe no date but day? SUNDAY / FRIDAY / MONDAY

also recognition for future self.

## Ideation sheet for 'Voorraadstickers'-concept

CONCEPT 'MEASURING DISHES' ADVENTURE MODE (9,6) 18/10/2024

"My design proposes a strategy or kitchen activity that reduces mental clutter and helps to cope with activities that do."

---

Diagram illustrating the 'Measuring Dishes' concept:

- This holds 2p pasta
- This holds 160 ml milk
- This holds 30gr rice
- This holds 2p cheese
- This holds 1 paprika
- This holds 200gr apple juice
- This holds 4p pasta
- This holds 200 gr veg.
- This holds 200 gr meat
- This holds 3 eggs
- just ideas

similar to measuring cups, but for bigger ingredients

→ to think about, does it show amount of people (for 2 persons) or amount of grams, → maybe all?

↑ . Takes 'schaaf van mij' into account, as well as most used ingredients

↓ . This idea reduces mental clutter through

- removing measuring steps (scale etc.), just add till full
- when done at start, gives overview of ingredients & steps to take
- helps people adjust to prescribed amounts of vegetables = healthy
- help people to create own recipes by following 'schaaf van mij'

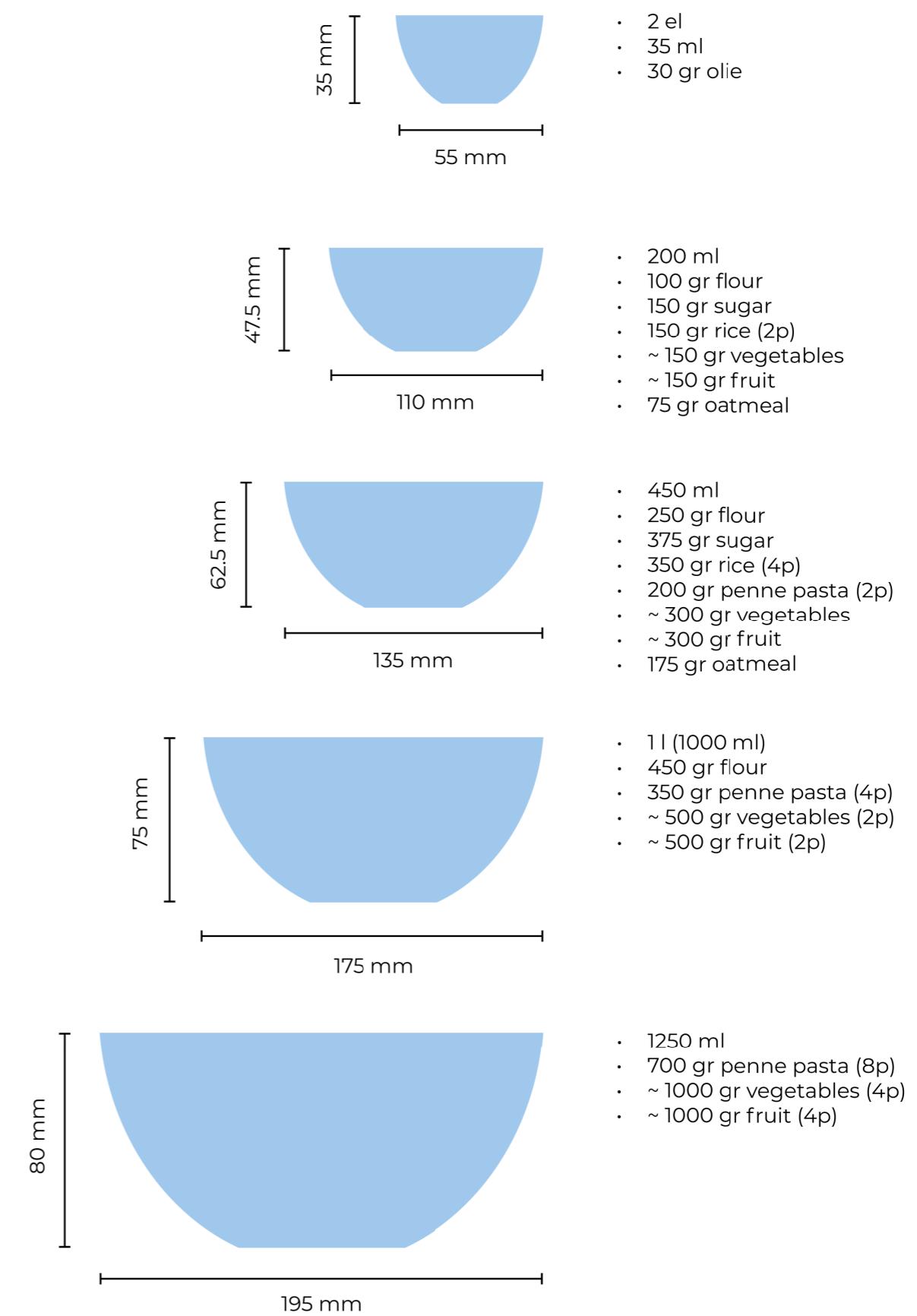
get base from these bowls, measure things & wait till or preferably glass

## Ideation sheet for 'Maatkomen'-concept



## Packaging for 'Kookwissels'-concept





# User test plan - design concepts

## 1 Goal(s) of the user test

The goal of this user test plan is to structure the user test of three design concepts. These three design concepts have been designed with the revised activity-based need profiling method and, as a concrete result of the method, can be evaluated to judge the function of the method and whether it achieves the goals stated in the design briefs, and the goals of the method in general. These goals are summarised below, reaching from the more concrete design concepts (1), to the more abstract design method (2), to the underlying principle of the design method (3), also visualised in figure 27:

### Evaluation of design concepts

The three design concepts are designed to have a positive influence on a person's life, especially related to home kitchen activities. Without looking at the underlying method or fundamental needs, it can be of interest to investigate how the concepts are received and perceived by participants to judge the overall value of the concepts.

### Evaluation of design method

The design briefs are based on design brief cards, which in turn are based on the introspective data gathered in the first phases of the method. One of the goals of this test is to investigate whether the three design concepts fulfil their respective design briefs. This can be an indication whether the method helps designers to design using the framework of the fundamental needs and introspective data collection activities.

The design briefs formulated on the design brief cards are based on a set of fundamental needs, which are fulfilled or not fulfilled, depending on the selected play mode and approach. Another goal of this test is to investigate whether the design concepts address these needs in a positive way. It is also of interest to investigate whether the concepts address other needs as well, which were not mentioned in the design brief cards.

### Evaluation of contribution to wellbeing

In the literature review of this project, it is mentioned that designing for fundamental needs can contribute to a person's wellbeing. Therefore, one of the goals of the activity-based need profiling method in general is to contribute to wellbeing in a positive way. It is of interest to investigate whether the three design concepts contribute to the participants' wellbeing and whether the overarching goal of the method is achieved.

## 2 Research questions

The research questions are based on the goals of the user test and address the three layers of abstractness, similar to the goals.

### Evaluation of design concepts

- How do the participants react to the concepts?
- In what way do the concepts contribute to conversation?
- Are the participants able to intuitively grasp the function of the concepts?

### Evaluation of the design method

- Do the concepts fulfil their respective design briefs?
- Do the concepts address their respective fundamental needs?
- What other fundamental needs do the concepts address?

### Evaluation of contribution to wellbeing

- In what way do the concepts contribute to the participant's feeling of wellbeing?
- In what ways do the concepts impact the participant's life in a positive way?
- In what ways do the concepts impact the participant's life in a negative way?

## 3 User test planning

The user test lasts approximately 60 minutes, with the schedule below. Concepts are tested separately, with randomised order, so that the order of introduction of the concepts does not affect the study result. Detailed test plans for each of the concepts can be found in the following sections of the document.

### Introduction (~10 minutes)

- Explain purpose of the study
- Explain expectations of the participants and of me as researcher
- Explain informed consent form
- Let participants sign consent form

### User test concept 1 (~15 minutes)

- Observation of concept use & interview about concept use
- Introduction of (simple version of) fundamental needs
- Evaluation of fundamental needs

### User test concept 2 (~15 minutes)

- Observation of concept use & interview about concept use
- Evaluation of fundamental needs

### User test concept 3 (~15 minutes)

- Observation of concept use & interview about concept use
- Evaluation of fundamental needs

### Conclusion (~5 minutes)

- Any other comments or questions
- Conclusion of study

The user tests take place in the participant's home. Preferred locations are dependant on the concept and are listed below:

- Concept 'Kookwissels': kitchen environment, preferably dining table or kitchen counter.
- Concept 'Maatkomen': kitchen environment, preferably kitchen counter.
- Concept 'Voorraadstickers': kitchen environment, food storage location.

## 4 Documentation of user test

The user tests will be documented through written notes and through pictures.

During the user test, I will note down answers and insights on paper, as I think this enhances the connection with the participant, compared to taking notes on a laptop. I understand that it will be difficult to write down everything quickly and completely, which is why I will type down the happenings of the user test in a more detailed manner in an online document right after completing the user test, to preserve as many details as possible. I will be using a separate note-taking document with the questions and extra space to write observations and answers down to keep all the data structured and in order (appendix A).

I will also be taking pictures of the concepts in use, with a focus on the concept to respect the privacy of the participants.

## 5 Observation and interview guidelines for concepts

The following section summarises the actions which the participant is asked to complete and the interview questions which will be asked for each of the three concepts. The interview questions are in Dutch, as the concepts are in Dutch and this is the native language of the recruited participants. It is expected that the use of Dutch language helps participants to express their experiences and feelings in a more nuanced way compared to English. English translations for the questions are added in italic for documentation purposes.

### Concept 'Kookwissels'

The concept 'Kookwissels' is based on the quick start play mode and the design brief: "My design helps people balance physical and mental health when it comes to food preparation". The addressed fundamental need is 'fitness'.

'Kookwissels' (figure 24) is a card set that contains double-sided cards with ingredients, which are regularly used in Dutch recipes or are common in Dutch food practices. The card sides show ingredients, where both sides are an alternative for the other side. These alternatives are collected based on the 'healthiness' of the ingredient and the mental load that the use of this ingredient takes. E.g. one side shows oranges and the other side shows tangerines. The oranges and the tangerines can be considered equally healthy, as they are both fresh fruits, but the tangerines have a higher mental health score, as they can be peeled by hand and yield bite-sized pieces, in comparison to the oranges. The cards allow users to make decisions based on the balance between physical and mental health.

### Observation and interview

Observation and interview will be simultaneous, which will help participants to reflect on the concept in real time and will provoke conversation about the concept. Interview questions below are guidelines, more questions can be asked based on the flow of the conversation and the answers of the participants.

### Before introducing the concept

- Kook je vaak? [Do you cook often?]

- Hoe ervaar je het kookproces? [How do you experience the cooking process?]
- Wat vind je leuk? Wat vind je minder leuk? [What do you like about it? What do you not like about it?]

Introducing the concept (packaging only)

- Wat denk je dat dit is? [What do you think this is?]
- Waar denk je dat dit voor is? [What do you think this is for?]
- Spreekt het je aan? Op wat voor manier? Op wat voor manier niet? [Does this appeal to you? In what way? In what way doesn't it appeal to you?]

Introducing the concept (cards)

- Klopt jouw idee van wat je dacht dat het concept was? [Does this confirm what you thought the concept was about?]
- Heb je meer informatie over waar het concept voor is? Zo ja, wat? En waar zie je dat aan? [Do you have more information on what the concept is for? If yes, what makes you think that way?]
- Spreekt het je aan? Op wat voor manier? Op wat voor manier niet? [Does this appeal to you? In what way? In what way doesn't it appeal to you?]
- In wat voor scenario zou je dit concept gebruiken? [Can you tell me about a scenario in which you would use this concept?]
- Op welke manier hebben deze kaartjes invloed op je fysieke gezondheid? [In what way do these cards influence your physical health?]
- Op welke manier hebben deze kaartjes invloed op je mentale gezondheid? [In what way do these cards influence your mental health?]
- Als je dit zou gebruiken, hoe zou je kookproces er dan uit zien? [If you would use this concept, what would your cooking process look like?]

### Concept 'Maatkomen'

The concept 'Maatkomen' is based on the adventure play mode and the design brief: "My design proposes a strategy or kitchen activity that reduces mental clutter and helps to cope with activities that do". The addressed fundamental need is 'comfort'.

'Maatkomen' (figure 25) is a set of bowls with measurements written on the inside edge of the bowls. These measurements communicate the amount of certain ingredients that fit into these bowls. For example, the text on the smallest bowl contains 2 tablespoons, 30 millilitres or 35 grams of oil. These bowls assist users in the kitchen by reducing the amount of steps necessary to collect the correct measurements of ingredients. There is no need to get a scale and users are able to prepare the needed ingredients before starting the actual task of cooking. This creates structure and predictability within the activity.

### Observation

The participants are asked to collect the correct amount of ingredients for a pasta recipe for two people using the bowls. They receive a bag of penne pasta, some vegetables, cherry tomatoes, some sunflower oil and some tomato sauce. Some of these ingredients can be found on the bowl measurements. They are shown the following scenario:

- 'Het is laat in de middag, en het is tijd om het avondeten te bereiden, omdat er zo iemand bij je komt eten. Je hebt al eerder besloten dat je pasta

met tomatensaus gaat maken volgens dit recept (appendix M) en je hebt de ingrediënten uit de voorraadkast gepakt, net als deze kennisset. Je wilt je graag goed voorbereiden en niet te veel of te weinig maken. Zet alvast alle ingrediënten klaar zodat je zometeen aan de slag kunt gaan met koken.'

- [It's late afternoon, and it's time to start cooking, because someone is coming over for dinner. Earlier, you have decided to make pasta with tomato sauce using this recipe (appendix M) and you have gathered the ingredients from the storage, as well as this set of bowls. You want to prepare well and you don't want to make too much or too little pasta. Prepare all the ingredients so that you can start cooking later.]

The goal is to have the participants measure the pasta, cherry tomatoes and the oil using the bowls.

#### Interview

The interview will be conducted after the participants have collected and measured the above mentioned ingredients using the bowls.

- Wat was je eerste indruk van de opdracht? [What was your first impression of the assignment?]
- Wat was je eerste indruk van de kennisset? [What was your first impression of the set of bowls?]
- Was het duidelijk wat er van je verwacht werd? [Was it clear to you what was expected of you?]
- Op welke manier helpen de kommen je om de opdracht te volbrengen? [In what way did the bowls help you to complete the assignment?]
- Waar denk je dat de kommen voor zijn? [What do you think is the purpose of the bowls?]
- Spreken de kommen je aan? Op welke manier wel? Op welke manier niet? [Do the bowls appeal to you? In what way? In what way don't they appeal to you?]
- Kun je een ander scenario bedenken waar je de kommen voor zou gebruiken? [Can you think of another scenario in which you would use the bowls?]
- Als je terugdenkt aan een eerdere keer dat je avondeten maakte, kun je dan een verschil noemen tussen toen en nu net? [If you think back on a previous time you were cooking, can you tell me a difference between then and just now?]
- Als je deze kommen zou gaan gebruiken, hoe zou je kookproces er dan uit zien? [If you were to use these bowls, what would your cooking process look like?]

#### Concept 'Voorraadstickers'

The concept 'Voorraadstickers' is based on the deep dive play mode and the design brief: "My design uses the connection between current and future selves to enhance the need for comfort in both timelines". The addressed fundamental need is 'comfort' and the attached need fulfilment style is anticipatory need fulfilment.

'Voorraadstickers' (figure 26) is a set of stickers meant to be put on groceries in storage. They are inspired by the 'best before'-date on food items. The stickers flip this concept around, introducing a way to date the items in a 'best after'-manner. For example, the stickers say 'enjoy on Friday!' or 'saved for Tuesday!'. The day instead of a date helps to be able to use the

stickers for multiple occasions. The stickers help create some sort of predictability for users, as well as a way to communicate with themselves in the future. Putting the stickers on food items meant for certain days can enhance the positive feeling when opening the food items, for example when it concerns something tasty or something saved for a happy occasion.

#### Observation and interview

Observation and interview will be simultaneous, which will help participants to reflect on the concept in real time and will provoke conversation about the concept. Interview questions below are guidelines, more questions can be asked based on the flow of the conversation and the answers of the participants.

#### Before introducing the concept

- Kun je me wat vertellen over hoe je je boodschappen doet? [Can you tell me something about the way you do your groceries?]
- Hoe vaak doe je boodschappen? [How often do you shop for groceries?]
- Wat koop je dan en waarvoor? [What do you generally buy and for what?]
- Introducing the concept
- Waar denk je dat deze stickers voor zijn? [What do you think is the purpose of these stickers?]
- Spreken de stickers je aan? Op welke manier wel? Op welke manier niet? [Do the stickers appeal to you? In what way? In what way don't they appeal to you?]
- Welke van deze stickers spreekt je het meest aan? Waarom? [Which of these stickers appeal to you the most? Why?]

#### Using the concept

- Kun je me laten zien waar je je boodschappen bewaart? Kun je me de voorraadkast laten zien? [Can you show me where you store your groceries? Can you show me your food storage?]
- Kun je een paar boodschappen aanwijzen waar je de stickers op zou willen plakken? Plak de stickers. [Can you point to some groceries on which you would want to put the stickers? Put on the stickers.]
- Kun je omschrijven hoe het voelde om de stickers te plakken? [Can you describe how it felt to stick the stickers?]
- Hoe denk je dat je voelt als het (de dag op de sticker) is? [How do you think you feel when it is (the day on the sticker)?]
- Kun je een ander scenario bedenken waar je de stickers voor zou gebruiken? [Can you think of another situation in which you would use the stickers?]

#### After use, when day has arrived, which is mentioned on the sticker (via call)

- Kun je omschrijven hoe het voelde om het product (eten) te openen/gebruiken? [Can you describe how it felt to open the item with the sticker?]
- Tijdens de eerste test heb je omschreven hoe je dacht dat je zou voelen (hou eerdere antwoord erbij), klopt dit? Zo ja, waarom? Zo nee, waarom niet? [During the test earlier, you described how you thought you would feel at this moment, was this correct? If yes, why? If no, why not?]
- Welke invloed denk je dat de sticker had? [Which

- influence do you think the sticker had?)  
Als je deze stickers vaker zou gebruiken, hoe zou je leven er dan uit zien? [If you were to use these stickers, what would your grocery and food storage experience look like?]

## 6 Evaluation of fundamental needs

After the observation and interview section, the participants will evaluate the concepts based on the fundamental needs. During the test of the first concept, the users will be introduced to the fundamental needs and will be given a short explanation using this infographic (appendix N). They will be asked to point out which of the needs they think the concept supports and why.

The infographic is a simplified version, meant to be grasped quickly by people unfamiliar with the typology. The infographic is loosely translated into Dutch, which might help the participants, who are native Dutch speakers, understand the information more easily. The infographic is based on the overview by Fokkinga and Desmet (2020).

Datum:

Geachte deelnemer,

U bent uitgenodigd om deel te nemen aan een onderzoek getiteld 'Uitbreiding van de activity-based need profiling methode met introspectie door middel van een case study'. Dit onderzoek wordt uitgevoerd door Marinka Roest, een masterstudent van de faculteit Industrieel Ontwerpen aan de TU Delft. De context van het onderzoek is een afstudeerproject, die wordt afgerond in augustus 2024.

Het doel van dit onderzoek is om drie ontwerpconcepten te valideren. Deze concepten zijn het resultaat van een ontwerpproces waarin het bereiden van voedsel in de keuken wordt onderzocht, en het onderzoek heeft als doel inzicht te geven in de functie van de concepten en de methode als geheel.

Het onderzoek duurt ongeveer 60 minuten. De verzamelde gegevens worden gebruikt voor analyse, publicatie en validatie van het ontwerpproces waarvan het ontwerpconcept een resultaat is. In dit onderzoek zal ik u vragen om de ontwerpconcepten te gebruiken in en rond de keuken. Daarnaast zal ik voor, tijdens en na de activiteit een aantal vragen stellen over uw ervaring met de concepten.

Tijdens het onderzoek worden gegevens verzameld door middel van foto's en schriftelijke aantekeningen. Uw gegevens uit dit onderzoek zullen naar mijn beste vermogen vertrouwelijk blijven. Ik zal eventuele risico's minimaliseren door de gegevens op een anonieme manier vast te leggen (bijv. foto's waarin alleen het concept (in gebruik) te zien is), en als dit niet het geval is, zullen de gegevens worden geanonimiseerd in de fase van gegevensanalyse. De gegevens worden anoniem opgeslagen, bijvoorbeeld door uw gezicht te vervagen op foto's waarop u herkenbaar bent vastgelegd of door u een pseudoniem te geven. Uw identificeerbare, persoonlijke gegevens worden niet gepubliceerd en worden alleen door mij, de onderzoeker, ingezien en gebruikt.

Uw deelname aan dit onderzoek is geheel vrijwillig en u kunt zich op elk moment terugtrekken. Het staat u vrij om vragen niet te beantwoorden. Als u uw gegevens op enig moment uit het onderzoek wilt terugtrekken (ook nadat het onderzoek is uitgevoerd), staat u dat vrij.

Als je vragen of opmerkingen hebt, kun je contact met me opnemen via dit e-mailadres en dit telefoonnummer:

Marinka Roest

VINK DE RELEVANTE VAKJES AAN	Ja	Nee
<b>A: ALGEMENE OVEREENSTEMMING - ONDERZOEKSDOELEN, TAKEN VAN DEELNEMERS EN VRIJWILLIGE DEELNAME</b>		
1. Ik heb de bovenstaande informatie (.....) gelezen en begrepen of deze is mij voorgelezen. Ik heb vragen kunnen stellen over het onderzoek en mijn vragen zijn naar tevredenheid beantwoord.	<input type="checkbox"/>	<input type="checkbox"/>
2. Ik geef vrijwillig toestemming om deel te nemen aan dit onderzoek en begrijp dat ik kan weigeren vragen te beantwoorden en dat ik me op elk moment, zonder opgave van reden, uit het onderzoek kan terugtrekken.	<input type="checkbox"/>	<input type="checkbox"/>
3. Ik begrijp dat deelname aan het onderzoek bestaat uit het vastleggen van fotomateriaal en schriftelijke aantekeningen.	<input type="checkbox"/>	<input type="checkbox"/>
<b>B: MOGELIJKE RISICO'S VAN DEELNAME (INCLUSIEF GEGEVENSBESCHERMING)</b>		
4. Ik begrijp dat deelname aan het onderzoek gepaard gaat met het verzamelen van specifieke persoonlijk identificeerbare informatie (bijv. naam en e-mailadres) en bijbehorende persoonlijk identificeerbare onderzoeksgegevens (bijv. foto's en antwoorden op vragenlijsten) met het mogelijke risico dat mijn identiteit bekend wordt.	<input type="checkbox"/>	<input type="checkbox"/>
5. Ik begrijp dat de volgende stappen zullen worden ondernomen om de dreiging van een datalek te minimaliseren en mijn identiteit te beschermen in het geval van een dergelijke inbraak: <ul style="list-style-type: none"> <li>Gegevens worden anoniem opgeslagen (bijv. gezichten worden vervaagd in herkenbare foto's en pseudoniemen worden gebruikt bij de opslag en publicatie van gegevens).</li> <li>Ruwe gegevens zullen alleen toegankelijk zijn voor en gebruikt worden door de onderzoeker. Gepubliceerde gegevens worden geanalyseerd en geanonimiseerd.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
6. Ik begrijp dat persoonlijke informatie die over mij is verzameld en waarmee ik kan worden geïdentificeerd, zoals mijn naam en e-mailadres, niet zal worden gedeeld met anderen, los van de onderzoeker.	<input type="checkbox"/>	<input type="checkbox"/>
7. Ik begrijp dat de door mij verstrekte (persoonlijke) persoonsgegevens uiterlijk zes maanden na afloop van het afstudeerproject worden vernietigd.	<input type="checkbox"/>	<input type="checkbox"/>
<b>C: PUBLICATIE, VERSPREIDING EN TOEPASSING VAN ONDERZOEK</b>		
8. Ik begrijp dat na het onderzoek de geanonimiseerde informatie die ik heb verstrekt, zal worden gebruikt voor de (publicatie van een) afstudeerprojectverslag, afstudeerprojectpresentatie en (de ontwikkeling van) een ontwerp methode die vrij kan worden gebruikt door iedereen.	<input type="checkbox"/>	<input type="checkbox"/>
9. Ik ga ermee akkoord dat mijn reacties, meningen of andere input anoniem geciteerd kunnen worden in onderzoeksresultaten.	<input type="checkbox"/>	<input type="checkbox"/>

'Het is laat in de middag, en het is tijd om het avondeten te bereiden, omdat er zo iemand bij je komt eten. Je hebt al eerder besloten dat je pasta met tomatensaus gaat maken volgens dit recept en je hebt de ingrediënten uit de voorraadkast gepakt, net als deze kookset. Je wilt je graag goed voorbereiden en niet te veel of te weinig maken. Zet alvast alle ingrediënten klaar zodat je zometeen aan de slag kunt gaan met koken.'

*It's late afternoon, and it's time to start cooking, because someone is coming over for dinner. Earlier, you have decided to make pasta with tomato sauce using this recipe and you have gathered the ingredients from the storage, as well as this set of bowls. You want to prepare well and you don't want to make too much or too little pasta. Prepare all the ingredients so that you can start cooking later.'*

## Pasta penne met puntpaprika en cherrymaaltjes



**Ingrediënten voor 2 personen**

- Pasta penne 200 gr
- Tomatenblokjes 1 blikje
- Puntpaprika's 2 stuks
- Cherrymaaltjes 150 gr
- Olijfolie 30 gr
- Ui

**Zo maak je het!**

## 13 basisbehoeften

Basisbehoeften zijn behoeften die iedereen heeft. Ze kunnen invloed hebben op je gedrag, bewegredenen en gevoelens.



**Impact**  
Het gevoel dat jij, je acties of je ideeën ergens aan bijdragen.



**Zelfstandigheid**  
Het gevoel dat je de touwtjes in handen hebt en je eigen beslissingen kunt maken



**Normen en waarden**  
Het gevoel dat de wereld klopt met jouw normen en waarden en dat je daar ook naar kunt handelen



**Harmonie**  
Het gevoel dat de wereld een mooie plek is en dat de dingen in harmonie met elkaar zijn



**Zingeving**  
Het gevoel dat jouw leven zinvol en waardevol is



**Comfort**  
Het gevoel dat je een gemakkelijk en ontspannen leven leidt



**Erkenning**  
Waardering en respect krijgen voor wat je doet en voor wie je bent



**Groepsgevoel**  
Het gevoel dat je deel uitmaakt van en geaccepteerd wordt door een groep die belangrijk voor je is.



**Verbondenheid**  
Het hebben van een warme en wederzijdse band met mensen om wie je geeft



**Bekwaamheid**  
Het gevoel dat je op jezelf en je eigen vaardigheden kunt vertrouwen.



**Veiligheid**  
Het gevoel dat je omstandigheden en omgeving je beschermen tegen narigheid



**Gezondheid**  
Het gevoel dat je lichaam en geest in goede staat zijn.



**Prikkeling**  
Fysiek en mentaal gestimuleerd worden door afwisselende of relevante prikkels

# Results of the user test - case study 1

This appendix described the results of the user test through the three goals of the user test, by answering the research questions. These answers will be supported by responses given by participants and pictures taken during the user test.

## Evaluation of design concepts

This user test goal covers the concrete evaluation of the function of the design concepts themselves. The answers to the three supporting research questions are summarised below.

### How do the participants react to the concepts?

Overall, the participants reacted positively to the concepts. These positive reactions ranged from curiosity about the function of the concept, to the practicality of the design, to the looks of the concept. Though, not all participants saw the immediate appeal to the concepts, as they didn't see a gap in their lives that necessitated the concept. Some quotes below illustrate the points made.

- 'I'm curious about what's on the cards and what it has to offer, though.' (Participant 2, on the 'Kookwissels'-concept)
- 'Handy and compact. They fit together, so they don't take up much space in storage. They are useful for multiple purposes.' (Participant 1, on the 'Maatkomen'-concept)
- 'That one has a cheerful colour. I like cheerful colours.' (Participant 3, on the 'Voorraadstickers'-concept)
- 'No, because I don't generally look for alternatives, because I don't think I need to eat healthier.' (Participant 0, on the 'Kookwissels'-concept)

### How do the concepts contribute to conversation?

Not particularly. During the user test, people occasionally gave answers that required me to ask a follow-up question, but nonetheless it was more interview than conversation. Other than that, it was not difficult for participants to come up with answers to the questions I asked, as they were able to give a confident answer relatively quickly. They also voiced multiple associations when familiarising themselves with the concept, which is illustrated by some quotes below. Also, after the test was completed, I had a conversation with most of the participants about the function of my concepts within the larger scope of my graduation project.

- 'Oatmeal is nice, I'm going to eat that in the morning. Apple I do eat more now. Muesli not so much.' (Participant 3, when looking through the 'Kookwissels'-concept)
- 'I also have one of those measuring cups and you can put several things in it. That's what it reminds me of.' (Participant 2, on the 'Maatkomen'-concept)

### Are the participants able to intuitively grasp the function of the concepts?

Yes, participants are able to easily come up with (multiple) uses and functions for the concepts, even though it's not necessarily the intended function of the concept. They often relate the function of the concept to their own values or experiences. For example, one of the participants used the 'Kookwissels'-cards to gain inspiration and create a recipe. In general, the participants are able to understand the (intended) use of the 'Maatkomen'-concept the easiest, and the use of the 'Voorraadstickers'-concept is the most elusive. These results are supported by some quotes below.

- '[This concept is] to organise your cooking process or to weigh your ingredients. Or both.' (Participant 4, on the function of the 'Maatkomen'-concept)
- 'For a weekly schedule. To keep things for a particular day. For organisation in your refrigerator. You decide when to eat what. Maybe also if you give someone a gift.' (Participant 1, on the function of the 'Voorraadstickers'-concept)
- '[The concept] gives you a little more bandwidth, you get stuck in your thinking a little less easily.' (Participant 2, on the 'Kookwissels'-concept)
- 'Yes, [the concept] gives me ideas. I want to make gnocchi again myself soon.' (Participant 3, on the 'Kookwissels'-concept)
- 'I would mostly use [the concept] before cooking or while grocery shopping. What are vegetarian, simple or healthier alternatives to this recipe? It might also help to find cheaper alternatives.' (Participant 0, on the uses of the 'Kookwissels'-concept)

### Evaluation of the design method

This user test goal covers the evaluation of the value and effectiveness of the activity-based need profiling method.. The answers to the three supporting research questions are summarised below.

### Do the concepts fulfil their respective design briefs?

The 'Kookwissels'-concept was based on this design brief: "My design helps people balance physical and mental health when it comes to food preparation". This design brief has been fulfilled for the most part. To most participants, it was clear that the card set helped them to make decisions in favour of their physical health, but the value for their mental health was less clear, at least in the way that I had intended. The idea was that one side of the cards offered an 'easier' alternative that required less steps or effort to use, though the participants offered other mental benefits to the cards, such as the joy of having a varied diet, the opportunity to follow your own values and the fact that eating healthy can also have a positive influence on your mental wellbeing. These points are illustrated by quotes below.

- 'You can switch when you have a list of ingredients, for example between full-fat cheese and other cheese.' (Participant 2, on the benefits for your physical wellbeing)
- 'It is good to not always do the same thing and change your routine a little bit.' (Participant 1, on the value to mental wellbeing)
- 'Eating healthier also helps you mentally in the end, I think.' (Participant 4, on the value to mental wellbeing)

- '[The concept] can also help if you are dieting or want to make different choices.' (Participant 0, on the effect of the 'Kookwissels'-concept on people's values)

The 'Maatkomen'-concept was based on this design brief: "My design proposes a strategy or kitchen activity that reduces mental clutter and helps to cope with activities that do". Most participants were able to grasp quickly that these bowls would make the cooking process more organised, both through having a clear overview of the necessary ingredients, ready to use, as well as not having to grab a scale to gather the correct amount of ingredients, thus moving some steps and mental clutter from during the process to the start of the process. Participants also mentioned that though they could see the benefits of the concept, they still had the urge to stick to their routines and grab the scale to measure the ingredients, which was enhanced by the fact that they were in their own, familiar kitchen environment. These statements are supported by some quotes below:

- 'It's easy in terms of measuring, you don't have to grab a scale or measuring cup, and you don't have to convert either.' (Participant 0)
- '[The concept is] to replace the scale. You can also organise your ingredients. You easily set out your ingredients, and also that you have just enough. It is more efficient to prepare and you have less mess, just like in cooking shows!' (Participant 1)
- 'I went on autopilot, so then I wanted to grab the scale, but then I thought I should probably use the bowls. There was a little bit of confusion.' (Participant 2)
- 'You can lay [the ingredients] out like this beforehand. Then you then get to cooking and take everything out of the bowls.' (Participant 4)

The concept 'Voorraadstickers' was based on the deep dive play mode and the design brief: "My design uses the connection between current and future selves to enhance the need for comfort in both timelines". This design brief was quite an abstract one, and this intention was difficult to grasp for most participants. Some of the participants did mention that the stickers would help them to remind themselves, which can be seen as a type of communication with oneself, but the aspect of comfort was not widely recognized by the participants as a main point of the concept. They related more to the practical side of the intended use, for example using the stickers to save something for a specific event. Some participants also mentioned that they could use the stickers as a type of communication with others that use the kitchen.. Some quotes below illustrate these points.

- '[The concept] is also useful for [my partner] because from some [of the food items] I know what day they are for, but [my partner] does not. In that case we can use [the concept] for a lot of things.' (Participant 4)
- '[The concept would be] reassuring me that I took a good look at the date and then emphasised it. You're reminded, "Oh yeah, the sticker was on that!"' (Participant 2)
- 'You can use [the stickers] for a particular reminder. You can relax, you are in control of everything. The stickers can support you with that.' (Participant 3)

### Do the concepts address their respective fundamental needs?

During the user test, I asked participants to review the concepts in terms of need fulfillments, using the set of fundamental needs as a basis for their answers. They could point out as many fundamental needs as they wanted and they were asked to give a reason for selecting a need. This section of the user test resulted in an overview, which is shown in figure 33. The overview shows the amount of times a need was mentioned (the circles) and in the context of which concept (the colour of the circles). The stars identify the intended need fulfilment of the concepts.

The figure shows that both the 'Kookwissels'-concept and the 'Maatkomen'-concept fulfil their respective needs of fitness and comfort quite well. All five participants are able to identify these needs when asked about the concept. Though participants were able to identify the intended need, it was not always for the same reason I had in mind when designing the concepts.

The results from 'Voorraadstickers'-concept show that the underlying intention of the concept was not always clear to the participants, which was also mentioned in the previous research question on the design briefs. Only three of five participants identified 'comfort' as a fulfilled need. Similarly to the other two concepts, the reasons for choosing this need weren't always consistent with the intention of the design. These points are illustrated by the quotes below.

- '[The concept] helps you to find healthier alternatives.' (Participant 0, on the 'Kookwissels'-concept for the need 'fitness')
- 'It's easy, you have everything ready to go, with the measurements included.' (Participant 3, on the 'Maatkomen'-concept for the need 'comfort')
- 'You use [the food] for what it is intended.' (Participant 1, on the 'Voorraadstickers'-concept on the need 'comfort')

### What other fundamental needs do the concepts address?

Figure 33 also shows other needs that have been addressed by participants when reviewing the concepts. For the 'Kookwissels'-concept, you can see that alongside the intended need of 'fitness', most participants also mentioned the need for comfort. Three out of five participants mentioned 'stimulation' as well. Some reasons for this are illustrated by quotes below.

- 'Someone else has already done the thinking.' (Participant 2, on the 'Kookwissels'-concept for the need 'comfort')
- '[The concept gives you] the idea that you can eat something else, too. And the drawings are nice.' (Participant 4, on the 'Kookwissels'-concept for the need 'stimulation')

For the 'Maatkomen'-concept, the figure shows that, alongside the intended need of 'comfort', the concept also addressed the need for competence and, in lesser amounts, the need for autonomy. Some quotes below illustrate the reasons participants gave.

- 'You trust your skills. [The concept] makes you feel confident that you have the measurements right.'

- (Participant 3, on the 'Maatkomen'-concept for the need 'competence')*
- 'With the bowls, you can do exactly what you have in mind, you can implement your own decision.' (Participant 1, on the 'Maatkomen'-concept for the need 'autonomy')*

As was mentioned before, the participants generally weren't able to identify the intended need of 'comfort' for the 'Voorraadstickers'-concept, and this also shows in what other needs the participants addressed. While it was clear for the other two concepts which needs were addressed most, for the 'Voorraadstickers'-concept it is less clear. Nine out of thirteen needs are mentioned, and none of them by more than three participants. The reasons for selecting these needs also vary, as is shown in the quotes below.

- 'Apparently I need this to make certain decisions.' (Participant 0, on the 'Voorraadstickers'-concept for the need 'autonomy')*
- 'Food is good for you, as is eating it at the right time.' (Participant 4, on the 'Voorraadstickers'-concept for the need 'fitness')*
- '[The concept] reminds you of the 'best before'-date.' (Participant 2, on the 'Voorraadstickers'-concept for the need 'security')*

#### Evaluation of the contribution to wellbeing

This third goal of the user test concerns the way the concepts, and indirectly the method, contribute to the feeling of wellbeing of the participants. This is relevant as the principle of the typology of fundamental needs is to contribute to design for wellbeing, as is explained in the literature review. Next to that, it is generally desirable for a design concept to have a positive impact on a person's life. The answers to the three supporting research questions of this goal are summarised below.

#### Do the concepts contribute to the participant's feeling of wellbeing?

It is difficult to give a concrete answer to this question, due to multiple reasons. Firstly, due to the nature of the graduation project and the user test, the participants are only able to engage with the concepts for a short amount of time, as well as having had no introduction to the concept beforehand. The user test only shows a moment in time, and neglects the ways the concepts would be used over a longer period of time or the experience the concepts elicit when the participants have used them regularly and have become part of a routine. For the same reason, it can be difficult to determine the actual effects of the concepts on the feeling of wellbeing, and it is wise to consider that some of the responses to the user test are speculations from participants, and no definite truths.

Next to that, participants mentioned that on some occasions, they had to get used to the concepts and how they worked, noticing the difference in how they would normally go about their kitchen activities. Considering this, the concepts could decrease the feeling of wellbeing of the participants in the short term, due to the fact that they would have to alter their familiar routine. Though, in the long term, if the participants have incorporated the concepts in their daily activities, they could improve a person's feeling of wellbeing.

Lastly, it became clear that when engaging with the concepts, the participants' personal experiences,

values and goals were of importance. For example, the 'Kookwissels'-concept represented healthier alternatives for some participants, for whom eating healthy was one of their values, while for others the cards served as more of an inspiration, as eating varied was one of their values. For the 'Voorraadstickers'-concept, some participants put the stickers on their leftovers, as they found it important not to throw food away, while others put it on snacks, as they felt they needed to eat healthier. It can be said that someone's feeling of wellbeing is highly personal and dependent on their own lived experiences.

#### In what ways do the concepts impact the participant's life in a positive way?

While it can be difficult to identify the concepts' influence on someone's wellbeing, some ways in which they create a positive impact can be identified. As previously said, a person's personal values influence how they experience a concept. Therefore, ways in which the concepts create a positive impact is also personal. During the test it became clear that participants are quite creative in that sense. They did not necessarily understand the intended function of the concepts, but they were easily able to identify ways in which the concept would fit into their lives or how it would give a pleasant experience. Other than that, participants were able to understand the benefits of the design, whether it would be for themselves or for someone else. These points are illustrated by some quotes below.

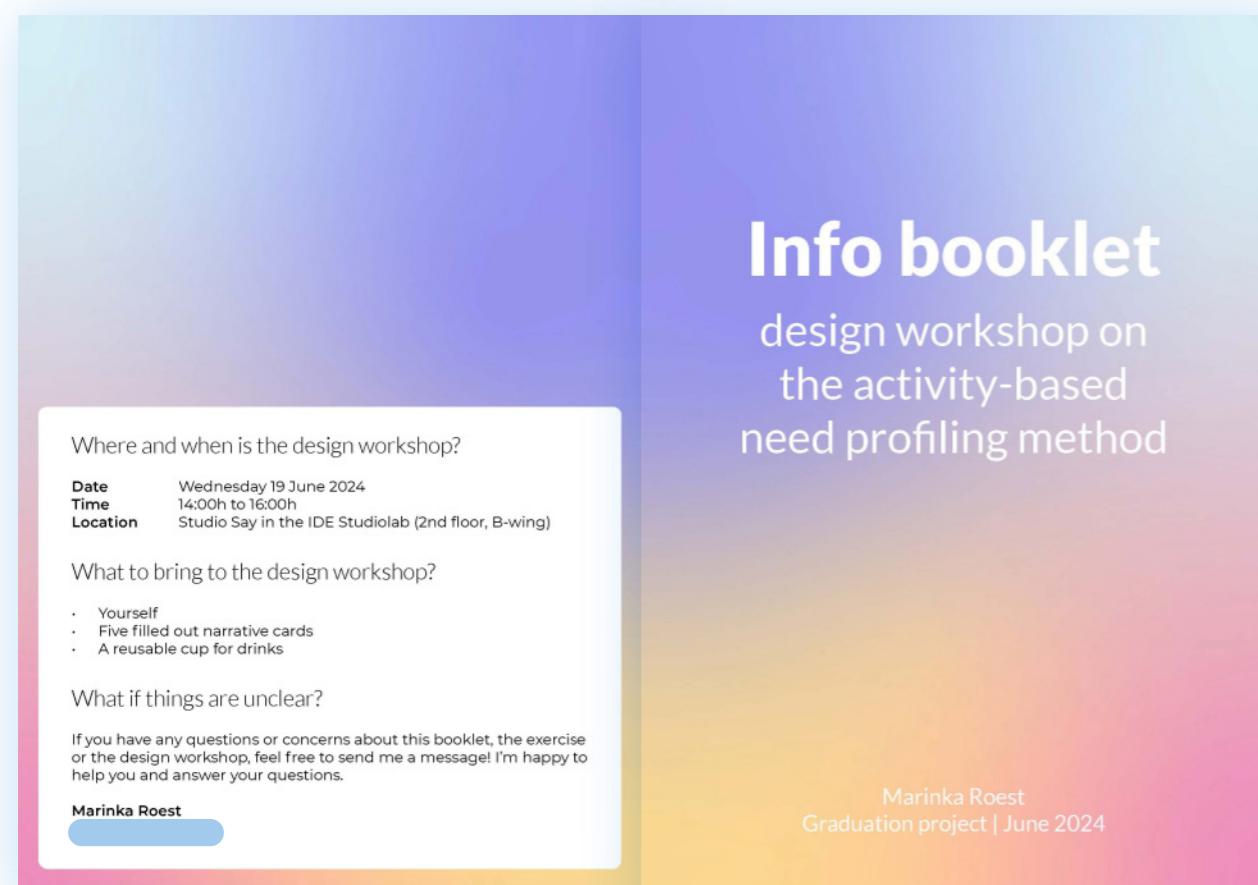
- 'You can also use [the concept] when you're at home and you want to cook something, but you're missing one of the ingredients. Then you'll still be able to make the dish.' (Participant 4, on the 'Kookwissels'-concept)*
- 'Someone I know has Alzheimer's, and I think this might be something that they could make use of.' (Participant 3, on the 'Voorraadstickers'-concept)*
- 'I think for someone who finds something like that difficult, it can be convenient that they don't have to use the scales.' (Participant 2, on the 'Maatkomen'-concept)*
- 'The turning of the cards is satisfying to do. And the size of the cards is quite nice.' (Participant 2, on the 'Kookwissels'-concept)*

#### In what ways do the concepts impact the participant's life in a negative way?

It is naive to assume that the concepts would only have a positive impact, and in order to identify some improvements for the designs or concerns for the activity-based need profiling method, it is of importance to see whether the concepts also have some negative aspects. In general, the 'Kookwissels'-concept and the 'Maatkomen'-concepts had some considerations on the more concrete functions of the concepts, such as the categorization of the alternatives or the cleaning of the bowls. The 'Voorraadstickers'-concept, however, had bigger concerns. While participants were generally positive of the concept during the test, when I called to ask some more questions after use of the stickered food item, responses were less positive. Participants felt forced to use the product on that specific day and felt bad when they didn't. These points are illustrated by some quotes below.

- 'I like the idea of the cards, but when I actually want to find an ingredient, I would prefer an alphabetic list. It's quite hard to find something in this format.' (Participant 4, on the 'Kookwissels'-concept)*
- 'Perhaps you do have to wash more dishes, if you do that by hand. Especially for the wet ingredients, like oil.' (Participant 1, on the 'Maatkomen'-concept)*

- 'Now it feels like a must, while before it was still a maybe.' (Participant 4, on the 'Voorraadstickers'-concept)*
- 'I was really in doubt before I opened it. It felt a little like I was skipping class at school.' (Participant 3, on the 'Voorraadstickers'-concept, after opening the product on a different day)*



## Some background info

This section of the booklet introduces some topics that will be addressed within the method. You will encounter these as you follow along the process! There are short explanations of the typology of fundamental needs, introspection and the narrative cards.

### The typology of thirteen fundamental needs

The typology of thirteen fundamental needs was developed by Pieter Desmet and Steven Fokkinga as a framework to better understand the human experience. The typology is tailored to designers and is **valuable in investigating people's motivations and emotions**.

The typology introduces thirteen fundamental needs. These are needs that are universal and apply to everybody. Though, everybody expresses and fulfills these need in their own way. **Satisfying or harming these needs can have a big impact on a person's feeling of wellbeing**.

Within the activity-based need profiling method, **the typology functions as a framework**, working as a more concrete guide to design for wellbeing.

The list on the next page shows these thirteen fundamental needs, as well as a short description.



To find more information on the typology, scan to QR-code to go to <https://needtypology.com/> or read the paper 'Beyond Maslow's Pyramid: Introducing a Typology of Thirteen Fundamental Needs for Human-Centred Design' (Desmet & Fokkinga, 2020).

Autonomy	Being the cause of your actions and feeling that you can do things your own way
Beauty	Feeling that the world is a place of elegance, coherence and harmony
Comfort	Having an easy, simple, relaxing life
Community	Being part of and accepted by a social group or entity that is important to you
Competence	Having control over your environment and being able to exercise your skills to master challenges
Fitness	Having and using a body that is strong, healthy, and full of energy
Impact	Seeing that your actions or ideas have an impact on the world and contribute to something
Morality	Feeling that the world is a moral place and being able to act in line with your personal values
Purpose	Having a clear sense of what makes your life meaningful and valuable
Recognition	Getting appreciation for what you do and respect for who you are
Relatedness	Having warm, mutual, trusting relationships with people who you care about
Security	Feeling that your conditions and environment keep you safe from harm and threats
Stimulation	Being mentally and physically stimulated by novel, varied, and relevant impulses and stimuli

4

### Introspection

Introspection is a way of **collecting data through one's own thoughts, feelings, emotions, motivations and experiences**. Using introspective activities opens up new opportunities and perspectives, as you can gather data directly from the source, with a lot of details, as you are essentially reflecting on your own experiences.

Introspection is especially valuable for research into experiences and interactions, and for human-centred design, which are often quite subjective and emotion-based. The activity-based need profiling method centers around the typology of thirteen fundamental needs, of which the fulfillment and expression is personal and different for everyone. **Introspection can be a useful tool to evaluate these needs**.

There are different types of introspection, ranging from guided introspection, which is more distant, to researcher-introspection, which is more personal. In this project, we'll be using researcher-introspection, where **you'll be reflecting on your own experiences within an activity, and using these reflections as a starting point for a design process**. These reflections will be guided by the thirteen fundamental needs, and you can view these needs as frame on which to base your reflections.

If you want to know more about introspection, take a look at Haian Xue's paper, which explains the origins of introspection, different types of introspection and its strengths and limitations.

> Xue, H., & Desmet, P. M. (2019). Researcher introspection for experience-driven design research. *Design Studies*, 63, 37-64.

### Reflecting on needs and the narrative cards

During the first phase of the project, you will be **introspecting on five different instances** of food preparation activities in the kitchen, such as preparing dinner or making coffee. To make these reflections tangible, you'll be **writing short narratives based on these experiences**.

6

From these narratives, you'll be determining **which of the thirteen fundamental needs have been affected while you were experiencing the activity**. Some aspects of the activity instance can fulfill one or multiple needs, while other aspects of the activity instances can harm one or multiple needs. Within one activity, these can happen at the same time. **It is important to note that this is dependent on your experience, and how you felt about it!**

An **experienced need can be either satisfied or harmed**. A satisfied need has a positive effect on the experience of the activity instance, and a harmed need has a negative effect. Satisfied or harmed needs can be divided into two categories, based on the type of effect they have on the experience; driver needs and non-driver needs.

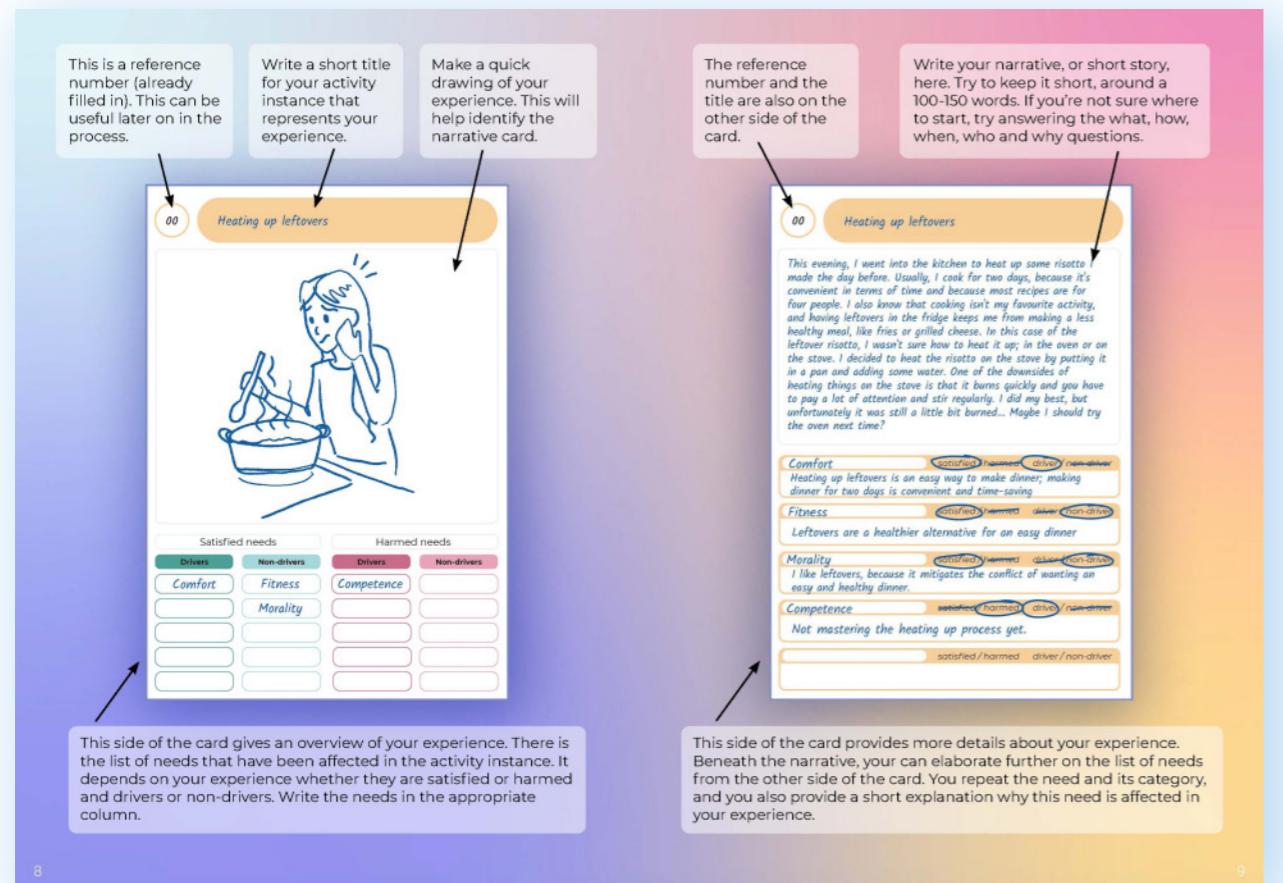
**Driver needs** are either satisfied or harmed needs that have a big impact on the experience of an activity or activity instance and actively shape it. Drivers are often the primary force or motivation behind an experience. Drivers are more likely to be identified in real time while engaged in an activity and drivers are what you most likely think back on when talking about their experience of an activity. Each activity instance has at least one driver need.

**Non-driver needs** are either satisfied or harmed needs that have an impact on the experience of an activity in a more implicit way. Most non-drivers are not identified until after the activity, when you reflect on your experience as you write the narrative. They might not necessarily push the experience forward actively but they can play a role in determining its nature, tone or meaning.

To help structure the writing of the narratives and the identification of the needs that are involved, I have developed 'narrative cards'. **Each of these two-sided cards collects one activity instance, with a title, a visual representation of the experience, the narrative and the involved needs, as well as a short explanation for these**. The next two pages show an example of a narrative card with some short explanations.

I have also added two examples of narrative cards to the envelope you received.

7



## What to do

To prepare for the design workshop, you will introspect on five different instances of kitchen activities related to food preparation, and write five narratives about these instances.

Which activities to choose?

You are free to decide on which activity instance to reflect and what to include in the narrative, as long as it gives insight into **which needs are satisfied and harmed and why**. You can do these introspections from your own kitchen at home, with activities that you already do in your daily life, such as making a cup of coffee or cooking dinner. Please don't feel obliged to do activities you otherwise might not do. **The goal is to introspect on things that happen in everyday life, so your regular activities are probably perfect to do this exercise!**

As I said, most activities in the kitchen qualify, but not all are as suitable as others. It's important to keep in mind that the **activity has to be related to food preparation**. Also, it is most useful to reflect on activity instances that contain a multitude of steps and different interactions, as this will most likely give more insight into the need fulfillment of the activity. Below are some examples of activities that you can reflect on, and also some that are less useful. You can do these activities by yourself or with others, but it is important to keep in mind that the introspection is about your own experience.

**Examples of activity instances you can reflect on:**

- Preparation of breakfast, lunch or dinner
- Baking something
- Making a cup of tea or a cup of coffee
- Cleaning up the kitchen after cooking

**Examples of activities that are less useful:**

### How to introspect and write the narrative cards

#### Step 1: Choose an activity instance to reflect on

First, choose an activity instance to reflect on, keeping in mind the points mentioned on the previous page. There is no need to seriously think about this. If you decide to make breakfast and choose to reflect on that as an activity instance the minute before, that is fine! **Deciding beforehand to introspect on an activity will help you to keep track of your feelings, triggers and experiences.**

#### Step 2: Introspect on the activity instance

When introspecting on an activity instance, try to pay attention to **anything that elicits a reaction out of you or that motivates you**. This can be anything; a thought, a feeling, an emotion or an action. The trigger can also be anything; a spoon that falls on the floor, a remark from your roommate or a recipe you decide to make.

#### Step 3: Fill out the narrative card

After you've finished the activity, it is time to fill out the narrative card. **Try to do this as soon as possible, so the experience is still fresh in your mind.**

- I suggest starting with the narrative, which is a **short story that explains what happened and how you felt about it**. If you find it hard to know where to begin, try answering the what, who, when, how and why-questions.
- Based on the narrative and the emotions it elicited from you, try to identify which needs are involved and why**. You might already have some needs in mind, which are most likely driver needs. It is possible that, upon reflection, more needs were involved than you actually thought; these are most likely non-driver needs.
- From here, fill out the rest of the narrative card. **Keep in mind that this is about your experience, which means that there is no right or wrong answer.**

#### Step 4: Repeat!

Repeat this process until you've reflected on five activity instances and filled out five narrative cards. There are blank narrative cards in the envelope to use. There is also an extra one in the envelope in case you want to change something, start over or just want to fill in a sixth :)



## PROJECT BACKGROUND

- Research project
- Introduction of introspective activities
- Exploring and developing during first phase
- Now it's time to validate with other designers!



designed and tested

## THE GOAL OF THIS WORKSHOP

- Evaluating the usability of the method
- Evaluating the value of the method

## NARRATIVE CARD DISCUSSION

## WORKSHOP PLANNING

- Workshop introduction
- Discussing the narrative cards
- Creating the need wheel overview

Break!

- Formulating design briefs
- Creating a design concept
- Short evaluation & conclusion

## THE NEED WHEEL

- Visual representation of the activity
- Based on the narrative cards
- What info do you need?
  - Amount of times a need is mentioned
  - Category of the mentioned need



## FILL OUT THE NEED WHEEL

**BREAK!**

### DESIGN BRIEF CARD

Three strategies, or 'play modes' (only one for sake of the workshop)

Uses the connection between narrative cards and need wheel through three approaches

Design brief cards help to guide from data overview to design brief

### FORMULATE A DESIGN BRIEF

### DESIGN CONCEPT

Design something based on your design brief(s)

Can be anything! Feel free to draw and ideate

### DESIGN A CONCEPT

### FEEDBACK AND EVALUATION

### 00 Tea as a thank-you

**It's late afternoon, and my boyfriend and I just got back from an appointment. It was quite last minute, so we're tired from having to rush to get things done. I'm not feeling up to cooking yet, so I decide to make us some tea. Looking at our collection of tea flavours, I choose the blueberry ginger flavour. My boyfriend likes ginger tea, and I want to cheer him up a little. He did something nice for me today by changing his schedule to go with me to the appointment, even though he had a busy day at work. I hope this cup of tea helps a little!**

Satisfied needs		Harmed needs	
Drivers	Non-drivers	Drivers	Non-drivers
Relatedness	Impact		Comfort

**Relatedness** satisfied/harmed driver/non-driver  
Giving my boyfriend a cup of tea in a flavour he likes, because I want him to feel appreciated.

**Impact** satisfied/harmed driver/non-driver  
I hope I had a small positive impact on my boyfriend's day.

**Comfort** satisfied/harmed driver/non-driver  
Ginger tea is not my favourite.

### 00 Heating up leftovers

**This evening, I went into the kitchen to heat up some risotto I made the day before. Usually, I cook for two days, because it's convenient in terms of time and because most recipes are for four people. I also know that cooking isn't my favourite activity, and having leftovers in the fridge keeps me from making a less healthy meal, like fries or grilled cheese. In this case of the leftover risotto, I wasn't sure how to heat it up; in the oven or on the stove. I decided to heat the risotto on the stove by putting it in a pan and adding some water. One of the downsides of heating things on the stove is that it burns quickly and you have to pay a lot of attention and stir regularly. I did my best, but unfortunately it was still a little bit burned... Maybe I should try the oven next time?**

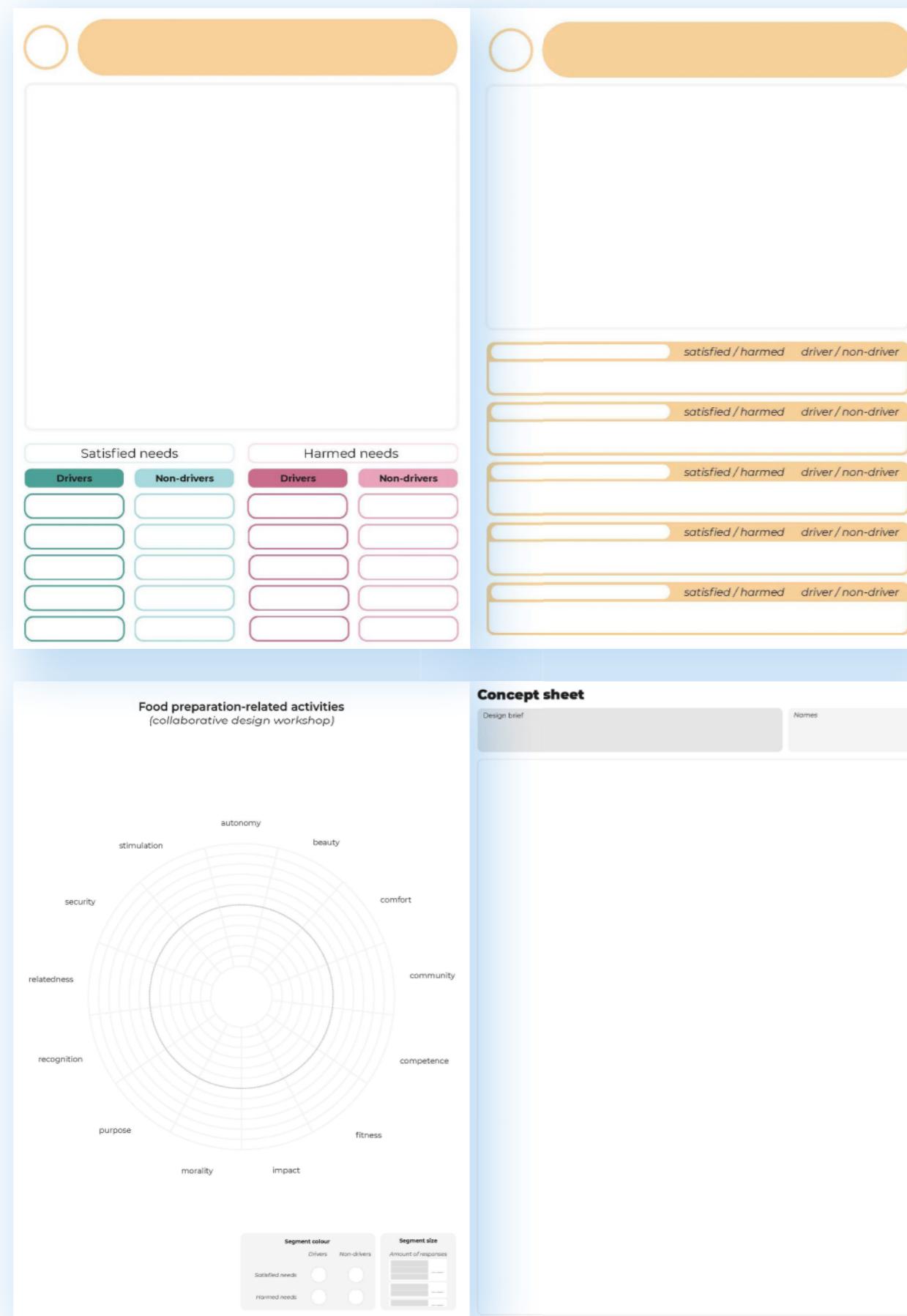
Satisfied needs		Harmed needs	
Drivers	Non-drivers	Drivers	Non-drivers
Comfort	Fitness	Competence	
	Morality		

**Comfort** satisfied/harmed driver/non-driver  
Heating up leftovers is an easy way to make dinner; making dinner for two days is convenient and time-saving.

**Fitness** satisfied/harmed driver/non-driver  
Leftovers are a healthier alternative for an easy dinner.

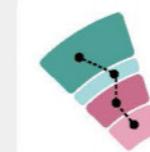
**Morality** satisfied/harmed driver/non-driver  
I like leftovers, because it mitigates the conflict of wanting an easy and healthy dinner.

**Competence** satisfied/harmed driver/non-driver  
Not mastering the heating up process yet.



## Design brief card

### 1 Focus What are you focusing on?



**Inner workings of needs**  
Exploring the buildup of single needs, focusing on the drivers and non-drivers.

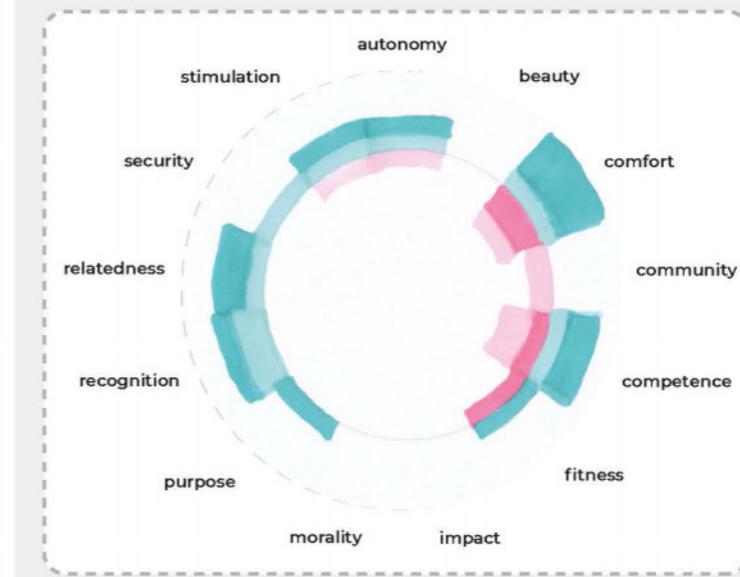


**Relationships between needs**  
Exploring relationships between needs, possibly focusing on drivers and non-drivers.



**Personal motivations**  
You have a project goal or are curious about something, leading you to focus on a specific piece of the data overview.

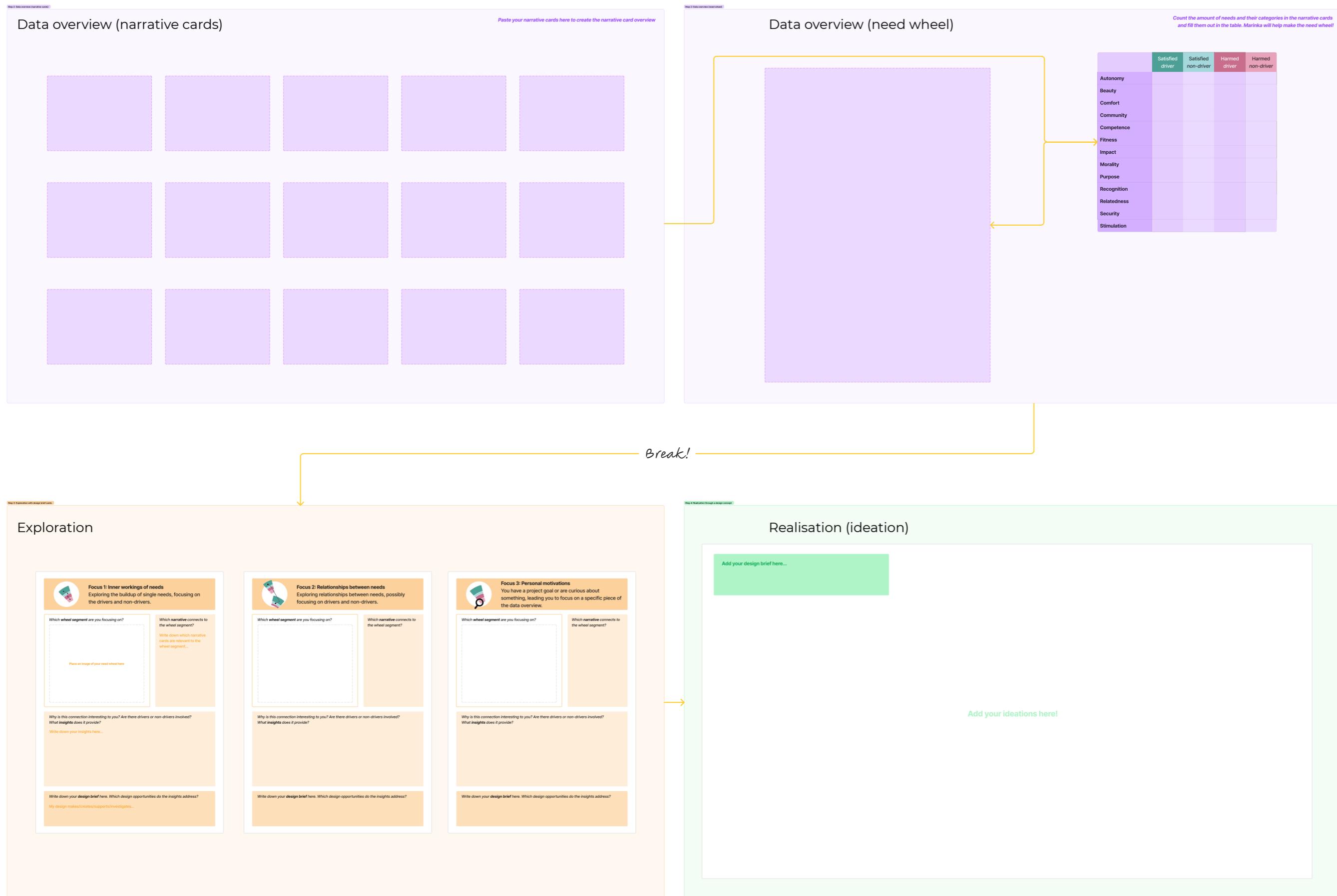
### 2a Exploration Which wheel segment(s) are you looking at?



### 2b Exploration Which narrative connects to the wheel segment?

**3 Insights** Why is this connection interesting to you? Are there drivers or non-drivers involved? What insights does it provide?

**4 Design brief** Write down your design brief here. Which design opportunities do the insights address?



# User test plan - method validation

## 1 Goal(s) of the user test

The goal of this user test plan is to structure the user tests of the revised activity-based need profiling method. Based on the first user test, which involved three design concepts, some suggestions have been made for improving the method. This revised method will be evaluated by the target group of the method, design students and novice designers, respectively in two separate workshops. The goal of these user tests is to investigate how the target group interacts with the method; whether they are able to grasp and use the framework provided by the method and whether they understand the value of the method. These two goals have been described further below.

### Evaluation of usability of the method

This first user test goal aims to understand whether the method is usable by its target group; design students and novice designers. It is meant to investigate whether the framework that is introduced is understandable and whether the flow of the method feels intuitive to designers. This goal is meant to show any points of concern regarding the actual use of the method.

### Evaluation of the value of the method

This second user test goal aims to understand the value of the method to its target group of design students and novice designers. It is meant to investigate whether they were able to apply the fundamental needs and the strategies to create a design concept, and whether they see a place for the method within the field of human-centred design. For the novice designers, it is of interest to investigate how the method would fit within their work as designer.

## 2 Research questions

The research questions are based on the goals of the user test and address the three layers of abstractness, similar to the goals (figure 1).

### Evaluation of usability of the method

- Are the participants able to understand and use the topics (fundamental needs, introspective activities, narrative writing, design brief strategies) that are introduced during the study? (observation, documentation, evaluation form)
- Does the flow of the method feel logical to the participants? (observation, evaluation form)
- What is the effect of the collaborative aspect of the study? (observation, evaluation form)

### Evaluation of the value of the method

- How do the participants react to the method in general and the topics that are introduced? (observation)
- Are the participants able to create a design concept through the process of the method? (observation, documentation)
- Do the participants see value in the integration of introspective activities in the data collection phase of the method? (observation, evaluation

- form)
- Do the participants see a place for the method in the field of human-centred design? (observation, evaluation form)
- Do the participants see value in (aspects of) the method in their daily work as a designer? (evaluation form)\*

\*Applicable only to the second workshop with novice designers.

## 3 User test planning

There are two separate user tests; the first is conducted with three design students at the faculty of Industrial Design Engineering, the second is conducted with three novice designers who have started their work life as a designer in the past two years. This second workshop is conducted online. Both user tests follow a similar structure and planning, which is described below.

The user tests consist of two parts. The first part is introspective, and participants will conduct this part individually, in their own time, in their own home kitchen environments. The goal of this exercise is to collect five introspective narratives, based on five instances of food-related activities in their own kitchen. They receive a guidance booklet and blank narrative cards to fulfil this part of the study. This phase will take approximately one week. The second part consists of a collaborative design workshop, in which the participants will work together to create a design based on their collected narratives following the revised version of the activity-based need profiling method. The workshop will take approximately 120 minutes, with the following schedule.

### Walk in and welcome (~5 minutes)

- Wait for everybody to arrive
- Welcome everyone
- Let them get a drink (in case of physical workshop)

### Introduction to workshop (~5 minutes)

- Goal of the workshop
- Overview of the workshop
- Workshop planning

### Narrative card discussion (~15 minutes)

- Bring out the narrative cards (physical workshop), add narrative cards to the online workspace (online workshop)
- Let everyone become familiar with the narrative cards that have been collected in the introspective phase of the study

### Create need wheel (~20 minutes)

- Explain purpose of need wheel
- Explain how to build the need wheel using the narrative cards
- Fill out need wheel (due to limited possibilities in the online workspace, I will assist with this step in the online workshop)

### Break (~15 minutes)

- As facilitator, I will add the image of the need wheel to the design brief card template and print these for the participants during the break (for physical workshop)

### Explain strategy + design brief cards (~10 minutes)

- Explain play mode (adventure)
- Explain design brief cards

### Formulate design briefs (~20 minutes)

- Fill out three design brief card(s), one of each of the three approaches

### Create design concept (~20 minutes)

- Design one concept with one of the formulated design briefs

### Evaluation and conclusion (~10 minutes)

- Evaluation and feedback round
- Fill out evaluation from (on paper for physical workshop, via Microsoft Forms for online workshop)

The physical user test takes place in Studio Say in Studiolab, at the faculty of Industrial Design Engineering. The online workshop takes place via a Microsoft Teams-meeting, for which the participants receive an invite link.

## 4 Documentation of user test

The user tests will be documented in four different ways. First, as researcher, I will observe the workshop section of the user test and ask questions for clarification if necessary. I will collect written notes based on these observations. Secondly, I will take pictures/screenshots of the workshop, preferably of the materials in use. Thirdly, both during the introspective phase and the workshop phase of the study, participants will document the design process. For example, through the narrative cards, the need wheel and the design brief cards. I intend to collect these documents for evaluation. Lastly, I will ask the participants to fill out an evaluation form at the end of the workshop. This form is intended as a structured way to find any points of concern for the method that haven't been identified through the other three means.

## 5 Overview of user test materials

This section gives an overview of required materials for the user tests, categorised per user test and per study phase (appendix P).

### Physical user test

Phase 1: Introspection (what the participants will receive beforehand)

- Guide booklet for introspective phase of the study, that includes:
  - Introduction of graduation project and study goal
  - Timeline of study (what to expect)
  - Overview of typology of fundamental needs
  - Short introduction of introspection
  - Task explanation (what to reflect on, narrative cards, driver needs / non-driver needs)
  - What to prepare for the workshop
  - My contact details
  - Five blank narrative cards, in A5-format for easier handling on paper
  - Two example narrative cards, in similar format to blank narrative cards

Phase 2: Design workshop (what I will bring to support the workshop)

- Workshop presentation slides
- Blank need wheel template (suitable for use on

### paper)

- Blank design brief cards
- Concept sheet, with space for design brief
- Evaluation forms
- Markers for need wheel
- Snack and drinks
- Thank-you gifts

### Online user test

Phase 1: Introspection (what the participants will receive beforehand)

- Guide booklet for introspective phase of the study, that includes:
  - Introduction of graduation project and study goal
  - Timeline of study (what to expect)
  - Overview of typology of fundamental needs
  - Short introduction of introspection
  - Task explanation (what to reflect on, narrative cards, driver needs / non-driver needs)
  - What to prepare for the workshop
  - My contact details
  - Five one-sided, blank narrative card templates, in PDF-format with text boxes to fill out
  - Two example narrative cards, in similar format to narrative card templates

Phase 2: Design workshop (what I will bring to support the workshop)

- Workshop presentation slides
- Online workspace (Miro or Figma) that supports the last three steps of the method and leads participants through the steps (spaces for data overview, design brief cards and conceptualization)
- Evaluation forms (online via Microsoft Forms)

Date: \_\_\_\_\_

Dear participant,

You are being invited to participate in a research study titled 'Expanding the activity-based need profiling method with introspective activities through a case study'. This study is being done by Marinka Roest, a master student from the faculty of Industrial Design Engineering at the TU Delft. The context of the research is a master's graduation project, to be completed in August 2024.

The purpose of this research study is to validate a design method. This method has been developed to support human-centred design and relies on the theory of the typology of thirteen fundamental needs. The research study aims to provide insights into the function of the design method. The study will take you approximately 3 hours to complete, divided over two separate occasions. The data will be used for analysis, publication and validation of the design method. I will be asking you to introspect on the activity of preparing food in your own kitchen environment. For this, you will need to complete a sensitizing exercise to become familiar with the topic, and you will have to prepare some food in your own kitchen. This part is done individually and can be done at a time of your preference. When this part is completed, you will be asked to participate in a (collaborative) workshop, in which your introspective data will be used to create a design concept through the activity-based need profiling method. After this, you will be asked to complete a short questionnaire.

During the study, data will be collected through photos, observation notes, interview notes, survey answers and the results from the design process you will be asked to conduct. To the best of my ability your data in this study will remain confidential. I will minimize any risks by aiming to record the data in an anonymous way (e.g. photos aim to record method materials (in use) only), and if this is not the case, the data will be anonymised in the data analysis phase. The data will be stored in an anonymous way, for example, by blurring your face in photos in which you are captured in a recognizable way or by giving you a pseudonym, if preferred. Any personal data you have collected yourself during the introspective part of the study will be handled by you and the researcher only and will not be published.

Your participation in this study is entirely voluntary **and you can withdraw at any time**. You are free to omit any questions. If you would like to remove your data from the study at any point (also after the study has been conducted), you are free to do so.

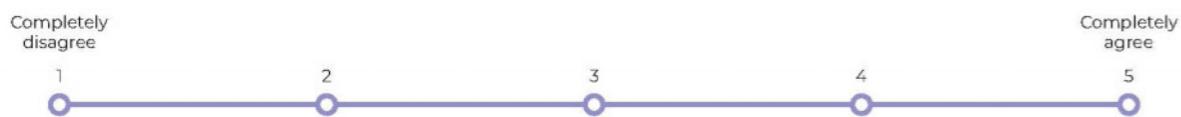
In case of any questions or comments, you can contact me via this email address and this phone number:  
Marinka Roest

PLEASE TICK THE APPROPRIATE BOXES		Yes	No
<b>A: GENERAL AGREEMENT – RESEARCH GOALS, PARTICPANT TASKS AND VOLUNTARY PARTICIPATION</b>			
1. I have read and understood the study information dated ..... or it has been read to me. I have been able to ask questions about the study and my questions have been answered to my satisfaction.	<input type="checkbox"/>	<input type="checkbox"/>	
2. I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions and I can withdraw from the study at any time, without having to give a reason.	<input type="checkbox"/>	<input type="checkbox"/>	
3. I understand that taking part in the study involves the capturing of photo material and written notes, the collection of questionnaire answers and the collection of introspective (personal) data by me, the participant, to be handled in the workshop section of this research study.	<input type="checkbox"/>	<input type="checkbox"/>	
<b>B: POTENTIAL RISKS OF PARTICIPATING (INCLUDING DATA PROTECTION)</b>			
4. I understand that taking part in the study involves collecting specific personally identifiable information (PII) (e.g. name and email address) and associated personally identifiable research data (PIRD) (e.g. photos, questionnaire answers and introspective narratives) with the potential risk of my identity being revealed.	<input type="checkbox"/>	<input type="checkbox"/>	
5. I understand that the following steps will be taken to minimise the threat of a data breach, and protect my identity in the event of such a breach: <ul style="list-style-type: none"> <li>• Data will be stored anonymously (e.g. faces are blurred in recognizable pictures and pseudonyms are used in data storage and publication).</li> <li>• Raw data will only be accessible by and handled by the participant and the researcher. Published data will be analysed and anonymised.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	
6. I understand that personal information collected about me that can identify me, such as name, email address, gender and age will not be shared beyond the researcher.	<input type="checkbox"/>	<input type="checkbox"/>	
7. I understand that the (identifiable) personal data I provide will be destroyed no more than six months after the graduation project is completed.	<input type="checkbox"/>	<input type="checkbox"/>	
<b>C: RESEARCH PUBLICATION, DISSEMINATION AND APPLICATION</b>			
8. I understand that after the research study the de-identified information I provide will be used for the (publication of a) graduation project report, graduation project presentation, and (the development of) a design method free to be used by any member of the public.	<input type="checkbox"/>	<input type="checkbox"/>	
9. I agree that my responses, views or other input can be quoted anonymously in research outputs.	<input type="checkbox"/>	<input type="checkbox"/>	
10. I agree that the results from the design workshop (e.g. the design concept) can be used in research outputs under my name.	<input type="checkbox"/>	<input type="checkbox"/>	

## **Workshop evaluation form**

In this evaluation form, I ask you to evaluate the activity-based need profiling method and its materials, to better understand how it is used and how to improve it further. There are nine questions, with the opportunity to explain further. Please answer as truthfully as possible!

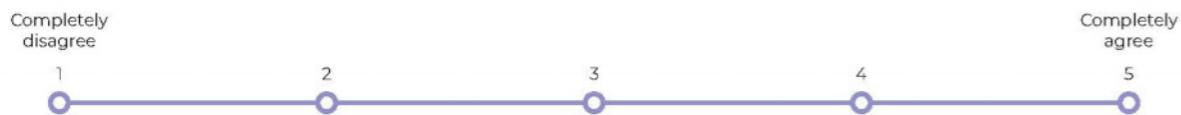
## 1 The design method is **easy to use**.



*Please briefly explain why:*

1. **What is the primary purpose of the study?**

## 2 The **flow of the design method** feels logical to me.



*Please briefly explain why:*

1. **What is the primary purpose of the study?**

3 The design method helped me to get a good understanding of the investigated activity.



*Please briefly explain why:*

1. **What is the primary purpose of the study?**

4 The design method **expands the design space** and **introduces new design possibilities**.



*Please briefly explain why*

1. **What is the primary purpose of the study?**

**5** The design method stimulates novel, unique and authentic ideas.



*Please briefly explain why*

1. **What is the primary purpose of the study?**

6 The **introspective aspect** adds to the value of the design method.



*Please briefly explain why*

1. **What is the primary purpose of the study?**

7 The collaborative aspect adds to the value of the design method.



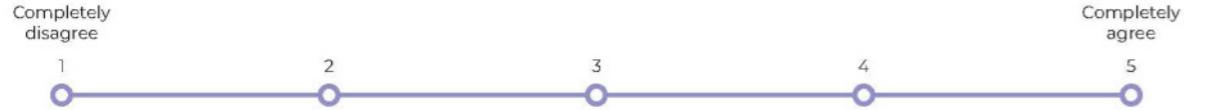
Please briefly explain why:

8 The design method supports human-centred design and is of value to the field.



Please briefly explain why:

9 I see value in (aspects of) the design method within the context of my work as a designer.\*



Please briefly explain why:

\* Applicable only in the evaluation form for junior designers.

## Results of method evaluation - case study 2

This section describes the results of the method validation workshops through the two goals of the user test, by answering the research questions. These answers will be supported by responses given by participants during the workshop and in the evaluation form, and pictures taken during the workshop.

### Evaluation of the usability of the design method

This first goal concerned itself with the usability of the design method, containing questions regarding understanding and flow. This goal is supported by three research questions, which will be answered below.

#### Are the participants able to understand and use the topics that are introduced during the study?

This research question aims to investigate if participants are able to understand and use the introduced topics of the design method, such as the typology of fundamental needs, introspective activities, narrative writing and design brief strategies. Because of the design background of the participants, some of these topics might be somewhat familiar, but this is not something they most likely use regularly in their studies or job.

During both workshops, I found that the participants were able to understand the topics well enough to work with them throughout the workshop. They were able to use the materials as stepping stones to get to the next step, as intended. In the preparation phase, participants were introduced to the fundamental needs, introspective activities and narrative cards, and judging by the cards they brought to the workshop, as well as the narrative card discussion, they had a good understanding of what qualified as introspection and were able to articulate which needs were present and in which capacity. They were able to translate their experiences into the visual need wheel overview and were able to identify insights from this overview in the design brief cards.

Though, participants did mention that it took some getting used to all the unfamiliar topics that were introduced. They felt that they had to familiarise themselves with a lot of new terms and materials in a short amount of time. However, they did think that the buildup of the design method in the workshop handled this well, by using manageable chunks in the form of the steps of the method. The information booklet they received in preparation was able to clearly explain the materials and prepare them sufficiently for the workshop.

These observations are illustrated by the examples in figure 41, responses from the evaluation form (figure 40) and some quotes from the participants.

- “An overview of the drivers, non-drivers and such things would have been practical, because now I needed to go back and forth while filling out the

narrative cards.” (Participant L, during the workshop for junior designers)

- “The need wheel was clear, the design brief cards were clear. They guide you through the process in manageable steps.” (Participant M, during the workshop for junior designers)
- “The suggested start of the design brief really helped us to formulate a design brief. We were quickly able to choose an option out of the suggested words that suited our insights.” (Participant C, during the workshop for junior designers)
- “It does take some work to understand the drivers, non-drivers, harmed needs etcetera.” (From evaluation form for design students)
- “It does cost some reading and understanding the terms before you can use the method.” (From the evaluation form for junior designers)

#### Does the flow of the method feel logical to the participants?

This research question aims to understand whether the design method supports design thinking processes. It is desired that the method actively supports processes that feel natural to designers, instead of designers getting the feeling of being forced to follow steps of a method that do not feel logical or relevant to them.

During the workshops I found that the order of steps of the design method felt intuitive and logical to the participants. They were able to understand the idea behind the order of steps and see that the results from an earlier step actively enabled the activities in the following step. They were able to recognise a design process familiar to them in the steps of the method. In both workshops, the bridge from the second step of the data overview to the third step of exploration felt intuitive in particular. From the need wheel overview, the participants immediately noticed design opportunities in the shape of gaps, conflicts or other ways in which needs were represented in the wheel (and therefore also their own data). They commented that the visual properties of the need wheel suited the process of going from the data to the exploration well.

However, it felt not quite intuitive to the participants of the workshop for design students to reach back to their original data in the narrative cards during the third exploration step. They mainly used the need wheel and their own ideas and interpretations of the fundamental needs to gather insights for the design briefs and reached back to their narrative cards only when they felt they needed more information or inspiration to formulate a design brief. Consequently, this resulted in a bit of a struggle in the ideation phase, where the participants had some difficulty to relate the design concept back to the ‘real world’ which they introspected upon at the start of the process. The junior designers in the second workshop referred back to the narrative cards earlier in this part of the process and actively used them to identify patterns in the data.

These observations are illustrated by the examples in figure 43, responses from the evaluation form (figure 44) and some quotes from the participants.

- “We lacked a little bit of an ideation step at the end, which would make the concept richer.” (From evaluation form for design students)
- “It is logical that we first collected personal data,

- then discussed them to formulate design briefs and find opportunities, and finally ideation." (From the evaluation form for design students)
- "In every step you build further on the previous step." (From the evaluation form for junior designers)
- "It was a thorough analysis of the activity. At first I found it a bit confusing that we would accumulate all the separate activities of breakfast, lunch, snack and dinner into one analysis/design, but when looking at it from a broader perspective of 'preparing food/drinks in your kitchen' it made sense." (From the evaluation form for junior designers)

#### What is the effect of the collaborative aspect of the study?

Based on the insights from the first case study, I hypothesised that adding a collaborative aspect to the design method would counter the limitations of introspection, by combining the reflections of multiple people with different experiences and backgrounds. This research question aimed to investigate whether this is the case.

In the first workshop, two design students worked together, and in the second workshop three junior designers formed a group. During both workshops I found that the collaborative aspect had a positive effect on the process and the result of the workshops. The discussion on the narrative cards with other participants created an extra round of reflection and the different perspectives helped participants to better understand their own experiences and the roles of the fundamental needs in these experiences. In both workshops, participants refined their narrative cards during the discussion (figure 41). In the following steps of exploration and ideation, the ability to associate based on the observations of the other participants was valuable. For example, during the formulation of the design briefs, participants were able to relate back to their own narrative cards based on a suggestion of another participant. Similar associations happened during the ideation phase, which quickly led to the realisation of design concepts.

These observations are illustrated by responses from the evaluation form (figure 40, 43) and some quotes from the participants.

- "[The collaborative aspect] makes you think deeper into the activities you have done and makes you add and adjust them a bit." (From the evaluation form for design students)
- "Always nice to discuss with another mind to find a richer idea." (From the evaluation form for design students)
- "It's interesting to combine everyone's view after the individual preparation. Also brainstorming with more people leads to more innovative connections and ideas in my opinion." (From the evaluation form for junior designers)
- "We can help each other and hitch hike!" (From the evaluation form for junior designers)

#### **Evaluation of the value of the design method**

This second goal concerned itself with the value of the design method, containing questions regarding the value of the results of the method, its value for the designers themselves and its place in the field of human-centred design.. This goal is supported by five research questions, which will be answered below.

#### How do the participants react to the method in general and the topics that are introduced?

This research question aims to understand how the participants see the method and its topics and how they react to it. This could help me to understand whether the participants are interested in the method and are likely to use it or aspects of it in a future project.

The participants appreciated that the method was able to show them a different perspective on their experiences, which led them to ideas they otherwise might not have had. They appreciated the clear communication and the visual layout of the method, especially that of the need wheel. During the workshop, I noticed that the participants were motivated to continue with following steps, especially after having completed the data overview. In the exploration phase, participants only used one of the play modes due to time constraints, but one of the participants commented that they were curious to find out what the other play modes were about and what could be done with those.

On some occasions, the participants were unsure whether they had correctly understood the provided information, for example the drivers and non-drivers. Though, in my observation, their understanding was accurate and they had a good grasp of the goal of the topics and were able to work with it. These doubts might have come from the amount of information that was necessary to work with the method. As said before, some participants noted that it took some effort to understand the topics unfamiliar to them.

These observations are illustrated by some quotes from the participants.

- "At first the 'play modes' confused me a bit, but when reading the description and seeing the icon it became clear. Now I'm really curious what the other two play modes of the method are and I wish I could try them as well. Also the name 'play mode' suggests fun and flexibility which I like and it made me curious what it means and how it works." (From the evaluation form for junior designers)
- "I discovered that I liked activities even more than I thought, because of the reflective

character of the method." (From evaluation form for junior designers)

- "[The method] makes sure you can actually use the fundamental needs in your design. Especially because of the design brief phrases." (From the evaluation form for junior designers)
- "It's nice to draw [the need wheel] like this." (Participant A on creating the need wheel on paper, during the workshop for design students)
- "[The need wheel] looks impressive almost immediately, it's also more clear and more visual. It's a nice way of displaying the data. I'm going to keep this in mind!" (Participant L, during the workshop for junior designers)

#### Are the participants able to create a design concept through the process of the method?

This research question aims to understand whether the participants are able to use the design method to create a design concept. It is also of interest to understand in what way and whether the method was successful in supporting this conceptualization.

The short answer is yes, the participants were able to create design concepts in both workshops. This conceptualization was supported by the design method in multiple ways. Firstly, the addition of introspection during the data collection phase helped to tether the design concepts to the 'real world', where participants were able to relate it back to their own, personal experiences (figure 44). Secondly, the collaborative aspect of the workshops helped participants make associations and build ideas based on each other's suggestions, as was noted in an earlier research question as well (figure 44). Thirdly, the use of fundamental needs, the data overview and the strategies introduced during the third exploration step expanded the design space and showed the participants design opportunities they otherwise would not have identified. Lastly, all these factors caused the participants to create, in their opinion, novel and unique ideas they otherwise would not have come up with.

On another note, to be able to create these ideas, there is a certain amount of information to process. One of the participants noted that they thought not all people would be able to understand and use the provided information to create a design concept; especially designers with not a lot of experience in the design field yet or people not familiar with designing in general.

These observations are illustrated by responses from the evaluation form (figure 40, 43) and some quotes from the participants.

- "You can come up with novel ideas, espe-

cially when you discuss." (From the evaluation form for design students)

- "Since it is based on fundamental needs, it helps to look at experiences from a different perspective, not only at problems but also possibilities." (From the evaluation form for design students)
- "The wheel helped us to see something never mentioned or satisfied, like [the need for] beauty. This awareness led us to find a fun and novel idea." (From the evaluation form for design students)
- "I feel like this is an innovative method that makes you look from a different perspective and creates a new way of connecting the dots leading to new ideas. I also feel like we hardly had any standard ideas and quite quickly went into original ideas and concepts." (From the evaluation form for junior designers)
- "I do think we came to a funny idea, which we wouldn't have come to without the method." (From the evaluation form for junior designers)
- "You get to a nice, innovative concept relatively quickly. You go to a certain level of abstractness and back again." (Participant M, during the workshop for junior designers)
- "This is specifically meant for designers who are able to think more flexibly, especially in the fuzzy front end of design. Being able to go with the flow is quite valuable." (Participant L, during the workshop for junior designers)

#### Do the participants see value in the integration of introspective activities in the data collection phase of the method?

This research question aims to investigate whether the integration of introspective activities in the data collection phase was a valuable addition to the activity-based need profiling method.

The idea that introspective activities would be a valuable addition was first investigated during the final stages of the research project by Huang and Roest (2023) and further implemented during the first case study, where it yielded positive results, other than the limitation of individual introspection. During this second case study, the addition of introspective activities was validated. The limitation of individual introspection was mitigated by the collaborative aspect of the design workshops. During the workshops, it became clear that the participants appreciated the introspective activities in the data collection phase, because it helped them to look differently at and deeper into their daily life activities, making them identify novel and unique insights. These insights were enhanced by the collaborative discussion on the introspective narratives.

Other than that, the introspective activities helped to connect the design briefs and design concepts back to their actual experiences, making them more detailed and personal, and therefore more authentic.

However, one of the participants noted that introspecting on an activity in real time can be challenging, because one would need to split their attention between the activity and writing down their reflections. They were also unsure whether they would remember their experience correctly when writing the narrative at a later moment. Other than that, I noticed that more experience leads to more detailed introspection, by comparing the narrative cards of the participants to my own from the first case study. The participants were unfamiliar with the topic of introspection, or at least had not used it before, and were unsure what to look for exactly. I observed that, for example, the participants had a difficult time identifying harmed needs, as was also said by some during the workshop. During the narrative card discussion, they often added more aspects to their narratives.

These observations are illustrated by responses from the evaluation form (figure 40, 43) and some quotes from the participants.

- *"I felt more dedicated to understand what I aim for or how I feel when I cook."* (From the evaluation form for design students)
- *"You analyse the activity thoroughly and can refer to it for the rest of the design process. This way you get an actual feeling with the activity you're designing for."* (From the evaluation form for junior designers)
- *"It is fun to reflect on your own activities, it makes you appreciate them more, it's almost like meditation."* (From the evaluation form for junior designers)
- *"I had a hard time identifying harmed needs, and if I did, they were usually non-drivers."* (Participant G, during the workshop for design students)

#### Do the participants see a place for the method in the field of human-centred design?

This research question aims to understand how the activity-based need profiling method relates to the field of human-centred design and whether it can contribute in a valuable way. The question also helps to understand whether the design method fills a gap in the field, so that users can use the method to achieve specific goals in human-centred design projects.

The answers to this research question mostly come from the results from the evaluation forms from both workshops. It is difficult to give a definitive answer to this question, as not all

participants were equally familiar with the term 'human-centred design' and if they did, their definitions were quite personal and therefore likely not the same as those from the other participants.

Participants mainly saw value for human-centred design in the introspective and reflective aspects of the method, as well as in the framework of fundamental needs. In their opinion, the design method is human-centred, but in an implicit way. However, they did not explicitly comment on the value of the method within the field. One of the participants did see value in the way the method applied the typology of fundamental needs in a practical and concrete way.

These observations are illustrated by responses from the evaluation form (figure 40, 43) and some quotes from the participants.

- *"The retrospective part and the [fundamental] needs as a basis makes [the method] human-centred."* (From the evaluation form for junior designers)
- *"Human-centred design is really integrated in the introspective activities. Furthermore it's great to have a way to actually integrate the fundamental needs in a design process rather than knowing the fundamental needs as background knowledge."* (From the evaluation form for junior designers)
- *"[The method is] not especially human-centred, it is not so explicit, I think."* (From the evaluation form for junior designers)
- *"[The method] is very human-centred, it is based on individual experiences."* (From the evaluation form for design students)

#### Do the participants see value in (aspects of) the method in their daily work as a designer?

This research question aims to understand how the design method fits into the design field beyond design education. Because of the background of the participants, this question can only be answered based on the workshop conducted with junior designers, who are all working as designers.

The main value that the junior designers saw in the design method was the inspiration it provided in terms of investigation techniques and communication, for example through the need wheel.

However, they did not immediately see a way to use the method in their own work environment. They couldn't directly name a place where they could implement (aspects of) the method in their current projects or tasks.

These observations are illustrated by responses

from the evaluation form (figure 40, 43) and some quotes from the participants.

- *"[The method] brings new inspiration and perspectives."* (From the evaluation form for junior designers)
- *"It's a bit hard for me to think of a subject where I could immediately implement this [method], I would like some examples of subjects. Because 'preparing food in your kitchen' is very relatable but not something I usually design for."* (From the evaluation form for junior designers)
- *"When it is used with other designers, not my normal colleagues."* (From the evaluation form for junior designers)

## PREPARATION



## DATA COLLECTION



## DATA OVERVIEW



## EXPLORATION



## REALISATION

