



puzzled

**a stress lowering interaction
for elderly with dementia**

MASTER THESIS
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**a stress lowering interaction
for elderly with dementia**

DELFT UNIVERSITY OF TECHNOLOGY
2017

SUPERVISORY BOARD

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COLOFON

This thesis contains the final documentation of the graduation project: “Puzzled, a stress lowering interaction for elderly with dementia”

This project completes the author’s master program Design for Interaction at the faculty of Industrial Design Engineering at the Delft University of Technology.

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ABSTRACT

This graduation project focuses on the stressful moments of elderly people with dementia, caused by changes in their environment. A research through design approach was followed with the aim to design a product that reduces the amount of stress experienced by the elderly.

During the analysis phase, five different studies have been performed to identify the behaviour of the elderly in stressful situations, getting an understanding of how dementia influences the daily changes and how stress can be treated in a personal way.

The main objective of those different studies was to point out which stress moments could be influenced by changing the interaction within. Furthermore, a deeper look into the influences of dementia on the experienced stress was conducted.

The context of stress before dinner time is found as most valuable to change the interaction. This context is described by the caregiver and observed by the designer as recurring every day, and this multiple times a day. The elderly struggle to cope with the fact that they might not be able to sit at their usual spot at the dining table.

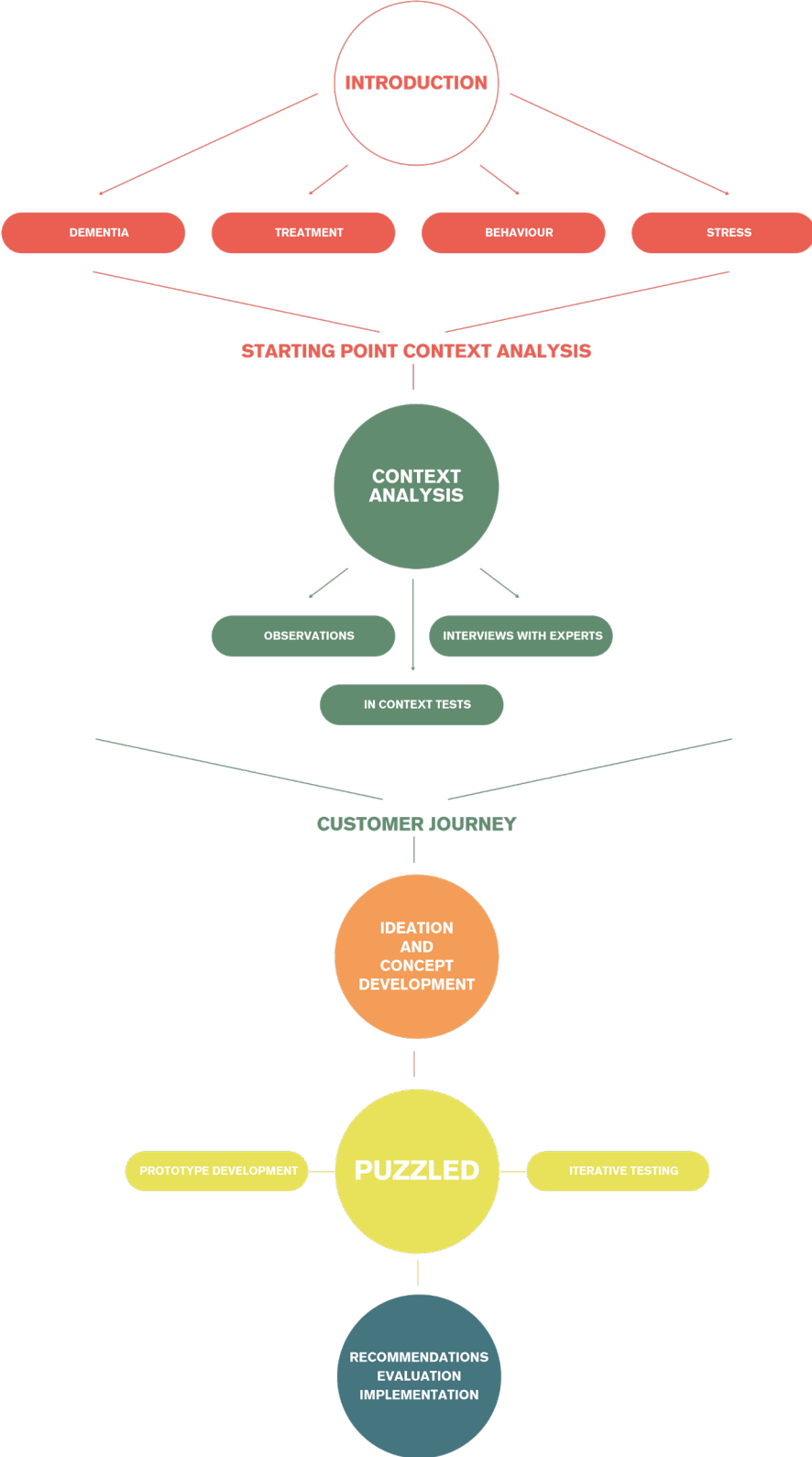
From these insights, it was chosen to develop an interaction that reduces (the) stress from the moment the table is set till they have to go to the table for lunch or dinner.

'Puzzled' supports the cognitive abilities of the elderly and uses distraction as a main tool to lower the amount of stress experienced before dinner time. The concept is introduced by the caregiver right after the table has been set.

Six design iterations were done and tested in context of elderly home de Herbergier in Delft, The Netherlands. During the test the elderly responded positively to the puzzle game and had fun playing it at each stage of the iterations.

Finally, the observations of the iterative test sessions and the feedback from the elderly and the caregivers were used to evaluate and reflect on the introduced puzzle concept. Considering the feedback, recommendations were made to optimize the interaction, user experience and influence on the stress level of Puzzled.

PROJECT OVERVIEW



STAKEHOLDERS

DIOPD

Delft Institute of Positive Design is a research group within the faculty of Industrial Design Engineering at the Delft University of Technology. Delft Institute of Positive Design initiates and stimulates the development of knowledge that supports designers in their attempts to design for human flourishing.

Supervision from DIOPD

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www.diopd.org

Delft Institute of **Positive** Design

DE HERBERGIER

This project is executed in collaboration with elderly home De Herbergier in Delft, The Netherlands. De Herbergier is a small scale elderly home which focuses on a personal care for only elderly with dementia.

The approach on care within De Herbergier group is completely different compared to traditional care facilities. By focusing specifically on the personal needs of the elderly, rather than a focus on a generalised care plan, the well-being of the elderly is respected. This caring mind-set proved to be a perfect environment for the execution of this graduation project.

Supervision from De Herbergier

Jan-Willem Stellingwerf

Care entrepreneur of De Herbergier Delft

www.herbergier.nl/delftcentrum

herbergier
bijzonder gewoon

Throughout this report, important elements will be highlighted with a box in the corresponding color of the chapter. Furthermore, important keywords can be highlighted bold as well.

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1

INTRODUCTION

A recent study of the World Health Organisation shows that worldwide, 47.5 million people have dementia and that there are 7.7 million new cases every year. Dementia is one of the major causes of disability and dependency among older people worldwide and has a physical, psychological, social and economic impact on caregivers, families and society. (WHO, 2016)

One of the main outcomes of dementia is that the elderly person cannot process changes within their everyday lives easily. Every day is different for a person with dementia, caused by their loss of time perception and short-time memory issues. The changes can be e.g. a new face within their environment or even the change from summer to winter time has an impact. This often causes a feeling of insecurity and helplessness. (Beck, 2016; Caregivers of de Herbergier, 2016; DeMarco, 2012)

1.1 PROJECT CONTEXT

The main goal of this research through design project is to contribute to the well-being of elderly with dementia experiencing stress in their daily lives. This stress (resulting in a raise of anxiety and feeling of insecurity) has a direct influence on the elderly themselves, people around them (by the change in behaviour), their caregivers and family members.

The less difficulties the elderly have coping with their environment, the less stress is experienced.

In order to improve this situation a focus has been put on reducing the amount of experienced stress and putting the person in a **positive state of mind**.

Little research has been conducted when it comes to improving well-being of elderly with dementia by reducing their stress level. Most of the products and interventions that already exist focus on memory related issues, brain stimulation and sensorial stimulation and are often focusing on either early stage (reminiscence) or late stage dementia (sensorial). Some examples and their characteristics can be found in figure 1.1.

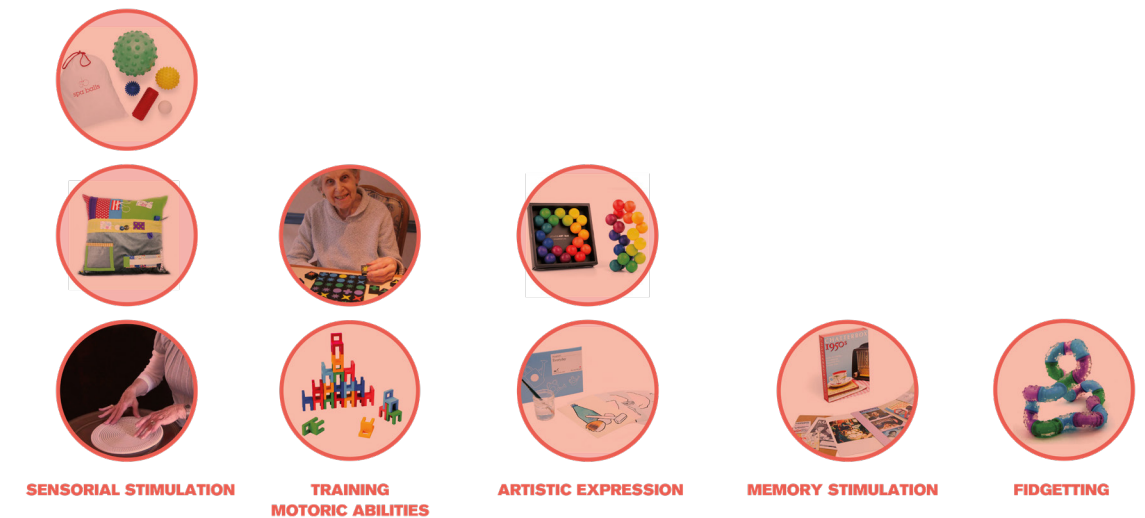


Figure 1.1 - Activities and products that focus on dementia well-being

1.2 DE HERBERGIER

During the course of this project, there has been a close collaboration between the designer and the team of the elderly home de Herbergier in Delft, The Netherlands.

De Herbergier is a small scale elderly home, specialised in care for elderly with dementia. Their focus lays in creating a safe and personalised environment for the elderly. The openness and interest from De Herbergier and their caregivers helped to make this project to what it is. Within the care home there is very little use of unrest sedatives, the doors are not locked; and this means that visitors can walk-in at any time. Moreover, it gives a feeling of freedom and lowers the need of the elderly's of running away. These small adjustments create a safe haven for the inhabitants, which is very important in letting the elderly provide the feeling of safety.

De Herbergier's approach on care is completely different compared to traditional care facilities. By focusing specifically on the personal needs of the elderly, rather than engaging on a generalised care plan, the well-being of the elderly is respected. This caring mind-set proved to be a perfect environment for the execution of this graduation project. A view of the inside of the main living room can be found in figure 1.2.



Figure 1.2 - View on the main living room of de Herbergier, Delft

1.3. DESIGN BRIEF

DESIGN ASSIGNMENT

The aim of this project was to design an interaction embodied in a product design. The target group for the assignment are elderly with dementia staying in a caring home.

The context of the assignment is set to the environment of 'de Herbergier' and specifically to one group of dementing elderlies having the same stage of dementia. In order to find a specific interaction caused by stress, especially the common areas of the elderly home were taken into account, rather than an individual room where the elderly people sleep e.g.

The assignment of this master thesis was:

Design an interaction for an individual person, that aims to reduce the stress (and hereby keep the person in a positive state of mind), caused by changes in daily patterns.

An abstract visualisation of the assignment can be found in figure 1.3.

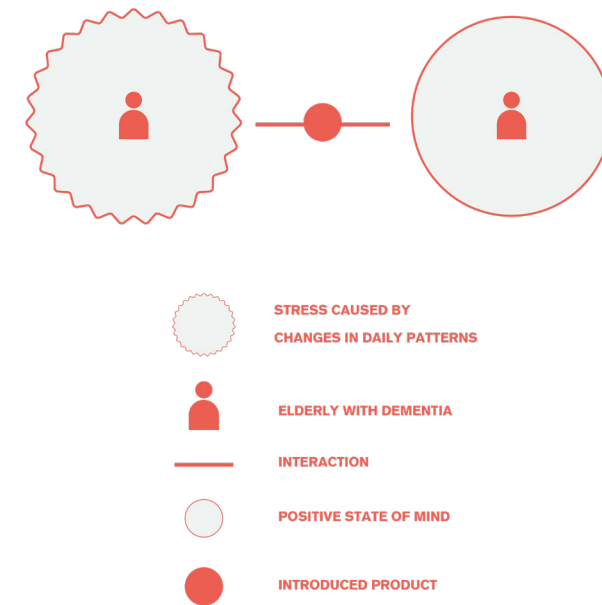


Figure 1.3 - Abstract visualisation of the assignment

APPROACH

In order to provide a meaningful stress reduction, a profound understanding of the elderly's daily context and characteristics is essential. Many different stress moments occur during the day and night, each with their own characteristics and possible solutions. These moments create a complex, and often narrow, interaction context to identify. Especially when combined with the characteristics of dementia.

Different ways of defining the context have been used throughout the project, each focusing on different aspects of the interaction. First, a literature study has been conducted in order to identify the (design) framework of dementia, stress and behaviour. Next, some preliminary tests were carried out in order to understand which aspects could influence the stress reduction. Additionally, through brainstorming and linking to the conducted research a specific direction has been chosen. Finally, the ultimate direction has been iteratively improved by testing and refining a physical testable 1:1 prototype.

1.4. DEMENTIA

What is dementia and how does it develop over time? How does someone react to his or her environment? Answers to these questions with a focus on an elderly home are given in the next paragraphs.

A MOSTLY MISUSED GENERAL TERM

Dementia is a general term for different forms of causes and illnesses that imply a reduction of the brain functions, influencing impairment of the memory, behaviours and thinking. When experiencing dementia, the brain cells start to degrade and the brain gets irreparably damaged (Plaats & Verbeek, 2016). Often dementia is used as a synonym for Alzheimer's disease, but there are more forms of dementia than only Alzheimer. In the following paragraph the different forms of dementia will be discussed as well as the implications they have on the daily lives of the persons. Along the report dementia will be used as a general term, and Alzheimer's as a term where the information specifically focused on this type of dementia and memory decline.

DIFFERENT FORMS

According to Legg (2016), the symptoms and progression of the disease depends on the type of dementia a person has. In order to get a better grasp on what dementia exactly is, a quick overview of the different forms is given below:

ALZHEIMER

Alzheimer, or also known as Alzheimer's disease, is one of the most widely spread and common forms of dementia. Up to 80 percent of the dementia cases include Alzheimer's. It is a slowly progressing disease where the average person lives in between four to eight years after the diagnosis.

Alzheimer's physically affects the brain, including the build-up of certain proteins and nerve damages. This implies that (due to the damage of the hippocampus) short-time memory is reduced drastically. Moreover, the disease is mostly known as the forgetfulness disease.

Within Alzheimer's there are three main different stages, each with its own implication on the daily lives of the elderly. According to the Alzheimer's Foundation of America (2016) the following three stages and their characteristics can be distinguished (a more elaborate in depth stage distinguishing can be found in figure 1.4):

early (mid stage)

Within this stage some minor behavioural changes and short-time memory problems occur:

- Forgetting words and/or misplace several objects
- Forgetting something they just read
- Asking the same question over and over again
- Having increased problems in making plans or organizing things
- Not remembering certain names when meeting new people

middle (moderate stage)

- An increased loss of memory and confusion
- Problems in recognizing family and friends
- Repeatedly telling the same stories and continuously repeating certain motions
- Decreasing ability to perform complex tasks
- Lack of concern for hygiene and appearance
- Requiring assistance in choosing clothing to wear for a day, season or occasion

late (severe stage)

- Recognize faces, but forget names
- Mistake a person for someone else
- Delusions (e.g. preparing to go to work even though they do not have a job anymore)
- Strong need for tactile stimulation, nurturing, companionship and comfort
- Basic needs may not be recognized anymore (e.g. hunger, thirst). There is a need for help with all basic activities

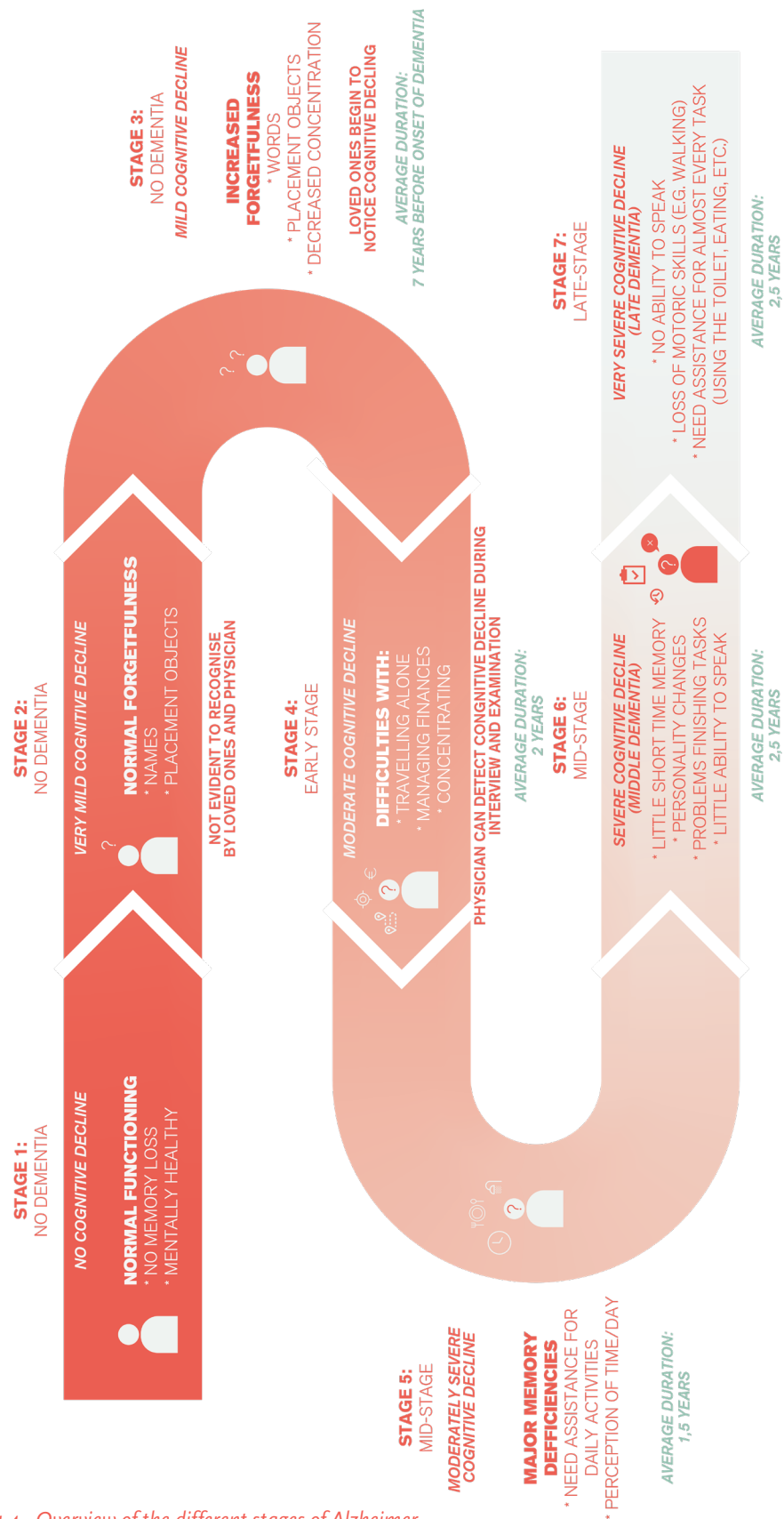


Figure 1.4 - Overview of the different stages of Alzheimer

All these effects of the brain damage include that the person is less and less independent and has to rely more on external help and support.

There are very thin lines between the different stages of dementia (Alzheimer's). Therefore, it is often difficult to assign a certain stage to a person, since the disease can evolve faster than expected. (Caregivers of de Herbergier, 2016).

In order to create a context that can lead to a design, there has been chosen in this project to focus on a very personal level (every person acts and behaves differently) for the design and not generalizing it upfront. This bottom-up approach enables the outcome of a very specific solution which might work for other people and situations as well.

Dementia can have different causes and effects. The following main other types of dementia are discussed to give a complete overview of the illness and its impact on the quality of life of the elderly. (Alzheimer's society, 2000; Chiu, Chen, Yip, Hua, & Tang, 2006)

DEMENTIA WITH LEWY BODIES

Dementia with Lewy bodies is a specific form of dementia where clumps of a protein form in the cortex. The cortex is an outer layer of the brain where critical functions such as memory, language and perception take place. Lewy bodies can be seen as an addition to Alzheimer's (main disturbances are memory loss and confusion) where it might cause sleep disturbances, hallucination, problems with balancing and other moving difficulties.

FRONTOTEMPORAL DEMENTIA

Frontotemporal dementia is often associated with a group of dementias that cause changes in personality and/or behaviour. In addition, language deficiency can occur as well.

OTHER TYPES OF DEMENTIA

Many other types of dementia can be distinguished, these refer to different causes of brain injuries but have the same disturbances. Some of the other types are:

Vascular dementia

Brain damage cause by blockage blocked blood vessels. Might occur after a stroke or other brain injuries.

Parkinson's disease

Parkinson is not necessarily a form of dementia itself, but it can produce dementia similar to Alzheimer's in its later stages. Here problems with movement and motoric abilities are present.

Mixed dementia

Multiple types of dementia-causing brain abnormalities are present. For instance, Alzheimer's and vascular dementia resulting in severe memory problems.

CHARACTERISTICS OF DEMENTIA

When overlooking all the different types of dementia, some main characteristics (figure 1.5) important for the rest of the project can be distinguished:

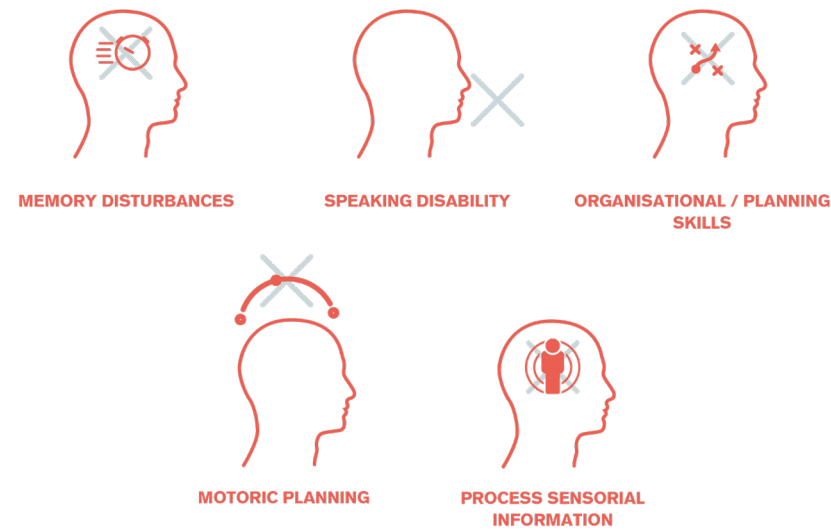


Figure 1.5 - Characteristics of dementia

First of all, the influence of memory disturbances has a large impact on the daily lives of persons with dementia. Due to issues with short-time memory, it puts a lot of pressure on their lives. E.g. when one of the visiting family members asks them what they ate for lunch, they often cannot answer the question. In order not to fail, they recall a similar situation from their long-term memory. Failing behaviour is something that elderly with dementia try to avoid at all times; when failing in a certain task, the stress level and insecurity raises.

Secondly, disturbances in the ability to speak – also known as aphasia – is distinguished. This disturbance is mainly occurring at a late stage dementia, where multiple brain zones and connections are disturbed.

Following, problems with motoric planning and executing skills on demand (apraxia). Moving objects from one place to another gets more difficult in combination with motoric capabilities.

Furthermore, agnosia is an important disturbance, since it links to the inability to process certain sensorial information (e.g. not recognizing certain objects in a room). Many objects, especially modern looking objects, can become unrecognisable for them. Since, the long-term memory is more apparent in their daily lives, objects that look too modern are not recognised (Plaats & Verbeek, 2016).

Finally, disturbances in planning and organisational skills are occurring when suffering from dementia. This often shows through problems in executing sequential tasks, abstract thinking and problem solving. Since the short time memory is disturbed, the ability to learn new tasks is undermined as well. There is still ability to learn, but only when rehearsed long enough.

In addition, people with dementia often suffer from a lack of interest in things, the further they evolve in the stages of dementia, the more apathetic they become. Since this lack of interest occurs, it has an influence on the ability to start new things or activities.

DECLINING OF DEMENTIA

When looking at the later stages of dementia, a faster cognitive decline is observed. The average durations mentioned are only an indication (see figure 1.4). The serenity can imply a quicker decline, e.g. going from stage 4 to stage 7 in a time period of weeks. According to Plaats and Verbeek (2016) the decline can be slowed down by providing the right environment and care. More elaboration will be given on this when discussing the treatment of dementia.

The specific focus to tailor this project on is set to and early/mid-stage dementia. The reason for this is that it is still possible for the elderly to execute some tasks (cognitive abilities) and this makes it more relevant for comprehensive stress reduction.

1.5. BEHAVIOUR

One of the main changes to a person with dementia, rather than memory loss, is the change in their physical behaviour. People with dementia are often more aggressive. Due to the fact that the person operates at lower brain stimulation levels (Plaats & Verbeek, 2016) their personality might change in later stages as well. E.g. they suddenly start swearing, while in their previous life they were really against it. The norms of the person start fading away. In this chapter, we go more into depth which changes in behaviour exactly occur and set a frame where possible design intervention can happen.

LEVELS OF OPERATION

In order to better understand the (changing) behaviour of persons with dementia, Plaats and Verbeek (2016) distinguished 4 levels of operation (Figure 1.6) of the brain that are linked to dementia. Understanding specific behaviour is important within this project in order to define which different reactions occur from experiencing stress, or from change in behaviour.



Figure 1.6 - Levels of operation without experiencing dementia

The first, and most simple layer, is the level of ‘the uncontrolled movements’ and single impulse that enters the brain. Regarding neurologic disturbances; reflexes, touch impulses and paralysis manifest in this layer of the brain.

As for the second layer of our brain’s existence different impulses are being combined in order to respond to the coordination of movements, simultaneously feeling of haptics and the direction of the force, shaping of the image what someone sees, hears and feels. At this level neurologic disturbances as apraxia, memory and gnostic disturbances show up. Apraxia is the motoric disability to perform certain movements regarding speech. (Hendriks, Truyen, & Duval, 2013) An important part of this level is that it acts as a kind of firewall for incoming impulses. This is important for people to not include all the impulses that reach them all the time. Stress and anxiety are formed at this level.

At the third layer, emotions that are elicited by the incoming impulses. At this stage of operation, the drawee knows consciously what he/she feels and can think of/act to what should happen to the emotions. This can be expressing them, holding them back, react to them in a conscious way, etc. There is a certain choice available at this level.

Emotions do play an important role in the processing of impulses, at level 1 and 2 there is also existence of emotions but they don’t become immediately explicit. Reactions at this level are often impulsive, intuitive or improvident. At stage 3 and 4 emotions can be thought through.

Within the processing of impulses there is an important factor: ‘quantity’. The amount of impulses someone can handle, differs from person to person. Wanderers are looking for impulses all the time, zen-dementing elderly are always at ease and just sit. They cannot cope with external impulses anymore and if there are too much impulses they just close their eyes. (Plaats & Verbeek, 2016)

The damaged brain of someone with works slowly and it is often impossible to process different impulses at the same time.

For the fourth level, different brain functions come together and they start to plan consciously, make choices consciously, take responsibility, have a look at themselves, adapting to changes, grasping of time existence and criticising. More complex brain functions exist here as well: existence of time, motivation, planning and organising, making well thought trough choices, postponing needs, etc. Character changes are elicited at this level as well.

With almost every brain damage level 3 and 4 are affected because this is where most of the connections in the brains lay. As an effect to that, a lot of the acts get more unconscious, reflexive and impulsive. Anxiety plays a big role in this translating into unreasonable aggression. The person gets more egocentric and loses self-knowledge.

Due to this anxiety, the person’s well-being is influenced in a negative way. A constant build-up of anxiety can lead to recurring stress moods and eventually into depression (Plaats & Verbeek, 2016). Since persons with dementia are more and more dependent on help of their environment, it is important that they can do things themselves and gain self-worthiness from their actions. By giving them a moment to regain their self-worthiness (by accomplishing something), a possibility arises to improve their overall well-being.

Connected to this phenomenon of losing the processing power of level 3 and 4 brain levels, complex tasks are not processed anymore and emotional stress from the environment cannot be processed correctly.



Figure 1.7 - Levels of operation when experiencing dementia

The difficulty when having dementia is that every impulse becomes a threat, because you do not know what to do with it. The processing of the impulses is done at level 1 and 2 now, where only uncontrolled and not thought through movements and decisions happen (see Figure 1.7). This brings the person back to an often so-called 'child-like state'.

For many dementing elderly, it is important to have a certain structure in their lives. Giving structure is not always possible by letting activities happen at a certain time. A time on its own is not relevant for them. A certain trigger, e.g. setting the table, will let them know that it is almost time for dinner, rather than the clock on the wall pointing at 18h o'clock.

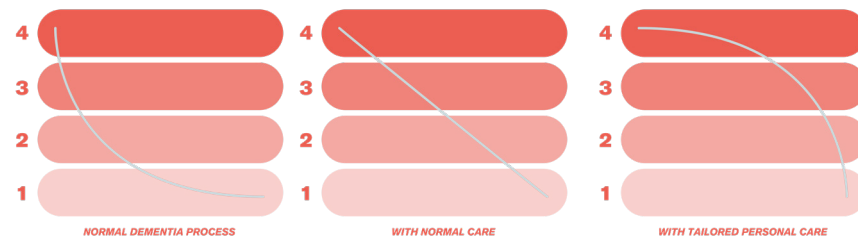


Figure 1.8 - Declining patterns of dementia with different care

With the right personal care and support there can be a slowdown of the dementing process. In figure 1.8 the different declining patterns can be seen.

If a right care is provided, a lengthening of the emotional awareness and full consciousness capabilities is available. This is mainly achieved by creating a platform that improves the elderly well-being, which is also a design scope in this project.

TOWARDS A MORE AGITATED BEHAVIOUR

According to (Cohen-Mansfield, 2001, p. 361) agitation with dementing elderly is defined as: 'inappropriate verbal, vocal or motoric activity which an observer cannot define as the outcome of an unfulfilled need or confusion of the individual'.

Because elderly with dementia cannot process the impulses of their environment that well anymore, there is a risk that confusion comes up. These moments of confusion are expressed by agitated behaviour.

Different agitation behaviour can be distinguished (Figure 1.9). (Cohen-Mansfield, 2001)

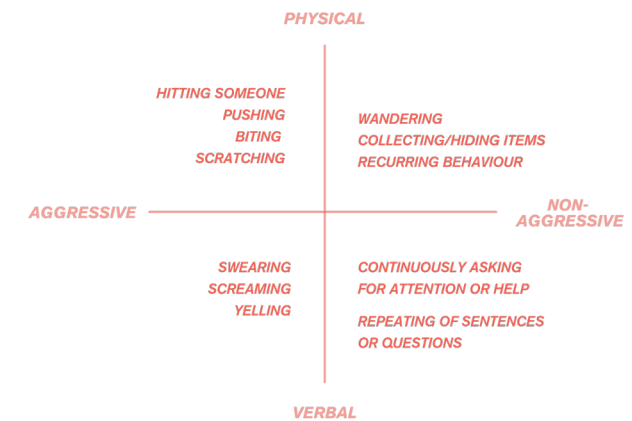


Figure 1.9 - Agitation behaviour according to Cohen-Mansfield (2001)

Agitated and disturbing behaviour is a big problem for people with dementia. Around 90% of dementing elderly can have at some point in their lives experiences with agitated uncontrolled behaviour. In elderly homes, around 75% of the inhabitants would have problems with agitated behaviour. (Desai & Grossberg, 2001)

Regarding the quality of life and well-being of the elderly, agitated behaviour can have a large impact on their daily lives. This behaviour can often lead to a raise of the experienced stress due to a negative reaction of and on the environment.

EXPLANATION OF THIS BEHAVIOUR

Different explanatory behaviour models can show certain causes of the aggression/disrupted behaviour.

Changes in stimuli can induce stress. The Progressively Lowered Stress Threshold Model (Hall, 1994), uses psychological theories about stress, adaptation and coping. One of the expressions of increased stress is that the elderly is confused and it becomes more difficult to get in touch with them. This effect leads to a moment where they stay in their own bubble and are not distracted. The model (Figure 1.10) shows five important causes and its ability to be influenced of the increasing stress:

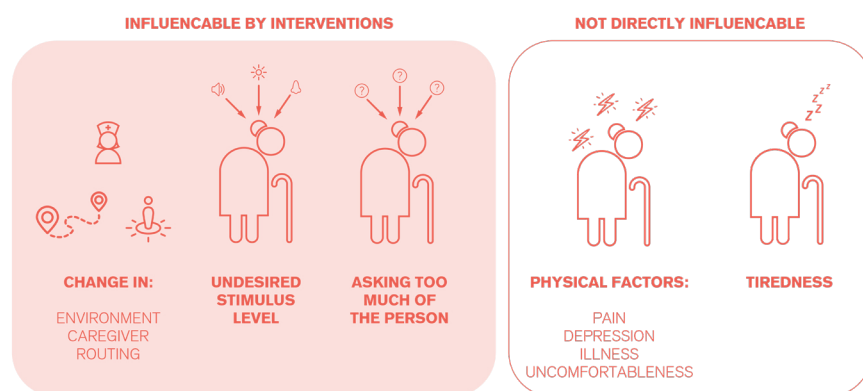


Figure 1.10 - Causes of stress increasing

Furthermore, Holmes and Rahe (1967) propose that the loss of resources is the primary source of stress. These resources can be seen as a container of possible reactions to fight a situation. If the container for a certain situation is empty, it is most likely that stress arises.

Another model, the adaptation/coping model of (Dröes, 1991) assumes that the problems the dementing elderly experience during their illness start with adapting and coping with new circumstances. Often their coping capabilities diminish along the stages of the dementia. Problematic behaviour is seen by Dröes as being stuck/inadequate way of coping with the changing situation.

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1.6. STRESS

Stress is one of the main elements of this project. It is important to have thorough understanding of the phenomenon in order to cope and regulate the stress in an efficient and meaningful way. This chapter will guide the reader through the cause of stress towards how it can be handled.

WHAT EXACTLY IS STRESS?

Several researchers have defined the phenomenon of stress (Lazarus, Folkman, Selye) each with their own focus. Selye (1978, p. 64) defines stress as:

a state manifested by a syndrome which consists of all the non-specifically induced changes in a biologic system

Whereas R. S. Lazarus and Folkman (1986, p. 63) sees stress as:

a relationship ('transaction') between individuals and their environment

For elderly with dementia there is a clear link in between Lazarus' definition of stress and how they experience it. A safe environment is key for people with dementia (Beck, 2016). The environment is often the main trigger of a stress reaction for elderly with dementia, since there is no clear processing of the impulses that are happening around them. In combination with the short time memory, less control is possible on their behavioural reaction. This is an important factor to keep in mind during the context research phase.

THE LAZARUS THEORY OF PSYCHOLOGICAL STRESS

Two concepts are central to any psychological stress theory: appraisal, i.e., individuals' evaluation of the significance of what is happening for their well-being, and coping, i.e., individuals' efforts in thought and action to manage specific demands. (Krohne, 2002; R. S. Lazarus, 1993) These two concepts will further be explained and used throughout the project in order to understand the context of stress and how to interfere with it.

APPRAISAL

As already mentioned before stress is regarded as a relational concept, i.e., stress is not defined as a specific kind of external stimulation nor a specific pattern of physiological, behavioural, or subjective reactions. Instead, stress is viewed as a relationship ('transaction') between individuals and their environment (R. S. Lazarus, 1991).

Within that person-environment transaction there are two main processes happening. First of all, there is appraisal, which is a key factor if there is a need to understand stress-relevant transactions (Krohne, 2002). The concept of appraisal is based on the fact that stress processes are depending on the expectations someone has towards the specific outcome of that certain situation. Krohne (2002) explains that even if there is a similar emotion in environments that are the same, objectively there can still be differences in how it is experienced as for the quality, intensity and the duration of an (stress) emotion.

When specifically looking into stress occurring by changes in daily patterns of elderly with dementia, the stress is seen as psychological stress. Lazarus and Folkman (1984) explains psychological stress as follows:

'Psychological stress refers to a relationship with the environment that the person appraises as significant for his or her well-being and in which the demands tax or exceed available coping resources'

(Lazarus and Folkman 1986).

As for the personal side, important factors are: motivational dispositions, personal goals and values and expectations of the outcome of the situation.

Moreover, appraisal can be divided in two main stages: primary appraisal and secondary appraisal. Within the primary appraisal, three main components are eminent: goal relevance, goal congruence and the type of ego involvement (see figure 1.11).

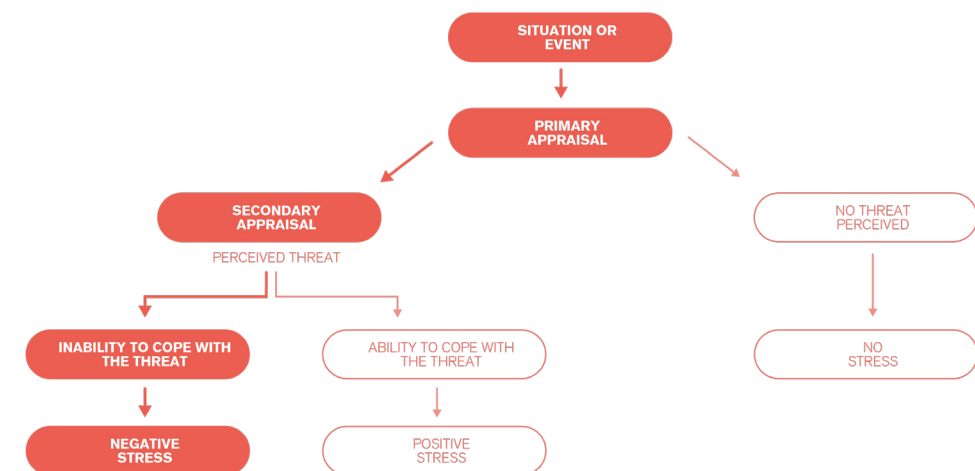


Figure 1.11 - Model of appraisal (Lazarus & Folkman, 1986)

Goal relevance deals with the fact that if an encounter refers to things the person cares about. Goal congruence refers to the extent to which an episode proceeds in accordance to personal goals. Type of ego involvement labels aspects as self-esteem, moral values, ego-ideal or ego-identity. (Krohne, 2002; R. S. Lazarus, 1991, 1993) In the lives of dementing person's decorum loss can happen (Caregivers of de Herbergier, 2016). This means that moral values e.g. can change during the process of dementia. An example of this change is e.g. suddenly start swearing while the person was very devout at a younger age.

For the secondary appraisal, there are three components distinguished as well: blame/credit, coping potential and future expectations.

Blame or credit results from an individual's appraisal of who is responsible for a certain event. (Krohne, 2002) By Coping potential Lazarus means that a person will evaluate his/her behaviour (and check if there is a potential to deal with the situation) or cognitive operations to positively influence the relevant encounter. Future expectations refer to the possibility of the outcome of the encounter regarding and with respect to either goal congruence or incongruence.

Specific patterns of primary and secondary appraisal lead to different kinds of stress. Three types are distinguished: harm, threat, and challenge (Lazarus & Folkman, 1984). Harm refers to the psychological damage or loss that has already happened. Threat is the anticipation of harm that may be imminent. Challenge results from demands that a person feels confident about mastering. These different kinds of psychological stress are embedded in specific types of emotional reactions, thus illustrating the close conjunction of the fields of stress and emotions. (Krohne, 2002)

EXAMPLE OF AN ANXIETY REACTION

Lazarus (1991) defines 15 basic emotions, nine of them are negative (anger, fright, anxiety, guilt, shame, sadness, envy, jealousy, and disgust) compared to four positive ones (happiness, pride, relieve, and love) when looking specifically into an anxiety reaction, e.g. a sudden encounter with a lion. Hereby the pattern of primary and secondary appraisals goes as follows:

There must be some goal relevance to the encounter, in this case it is staying safe and not getting attacked. Furthermore, the goal incongruence is high, the personal goals of being safe are hindered by a possible threat of an attacking lion. Finally, ego-involvement concentrated on the protection of personal meaning against existential threats. In this case, this would be the possibility to stay strong and fight against the lion.

If we look at the same situation at a more general level, distinct appraisal patterns related to stress are described as core relational themes. The theme of anxiety e.g., is the confrontation with an uncertainty and existential threat. The core relational theme of relief, however, is 'a distressing goal-incongruent condition that has changed for the better or gone away' (Lazarus, 1991). Thus, a clear relationship in between anxiety and relief can be distinguished by this example. Stress, in this case an outing of anxiety, e.g. by trembling, occurs in order to cope with the situation.

The different forms of appraisal have been used in the customer journey to structure the process and being able to understand the journey on a deeper level.

COPING

Whereas appraisal showed the mechanism behind stress situations, coping guides towards dealing with certain situations. In this section, the theory of coping will be explained and specified towards stress reduction.

Coping is intimately related to the concept of cognitive appraisal and, hence, to the stress relevant person-environment transactions (Krohne, 2002). Folkman and Lazarus (1986) define coping as:

The cognitive and behavioural effort made to master, tolerate, or reduce external and internal demands and conflicts among them.

Krohne (2002) says that coping actions or methods are not classified according to their effects, but rather to characteristics of the coping process. This process includes behavioural and cognitive reactions in the individual. When linking this to the process of dementia behavioural reactions are very often the way how coping is done, since the elderly are cognitively less capable in their reactions. Coping can be seen as sequential single acts that form an organised coping episode. Different coping actions can be distinguished by the focus on different elements of the process (Lazarus & Folkman, 1984). Two coping options are possible: firstly, change the person-environment realities behind the negative emotions or stress (problem-focussed coping) or secondly focus on reducing the emotional state and change how the demanding situation is seen/experienced (emotion-focus coping).

The different approaches that has been discussed so far are not directly focusing on the cause or factors that create the stress experience, but rather on preserving the state of positive well-being. In the following section, a deeper look into how stress can be treated is given.

1.7. TREATMENT

In order to treat and influence agitated behaviour resulting from stress, it is key to look for the direct causes behind the behaviour. An analysis of the behaviour within the context is a good first step. For the specific result to be viable, a multidisciplinary view should be conducted. (Verkade, Meijel, Brink, Schmitz, & Peijnenburg, 2007)

To show the importance of knowing the background of someone with dementia in order to deal with the agitated behaviour, underneath an anecdote experienced at de Herbergier can be found underneath.

After the table was set and Mrs. K was seated at the table she started to show agitated behaviour. At first instance, there was no known cause of this behaviour. This behaviour continued for several amounts of times later on at other lunch or dinner moments, but no real pattern was distinguished. Ultimately the caregivers spoke with family members and found out that Mrs. K always had a dessert after her meal. For her the trigger to show the agitated behaviour was a small spoon on the table when it is set. Since this insight, the caregivers always provide a small spoon for her, even if there is no dessert on the menu that day.

This small anecdote really shows the importance and also potential of small interventions in order to reduce the amount of stress experienced by the elderly as well as the importance of a tailor-made solution to the experienced stress.

Moreover, when looking at small interventions that influence the behaviour in a non-pharmaceutical way, they can be grouped as psychosocial interventions. Those interventions can be very diverse, a one-fit-all standard intervention is not likely to work since the occurring behaviour is linked and different to the person. The analysis of the situation and background of the dementing person is always guiding for the choices of the intervention (Verkade et al., 2007).

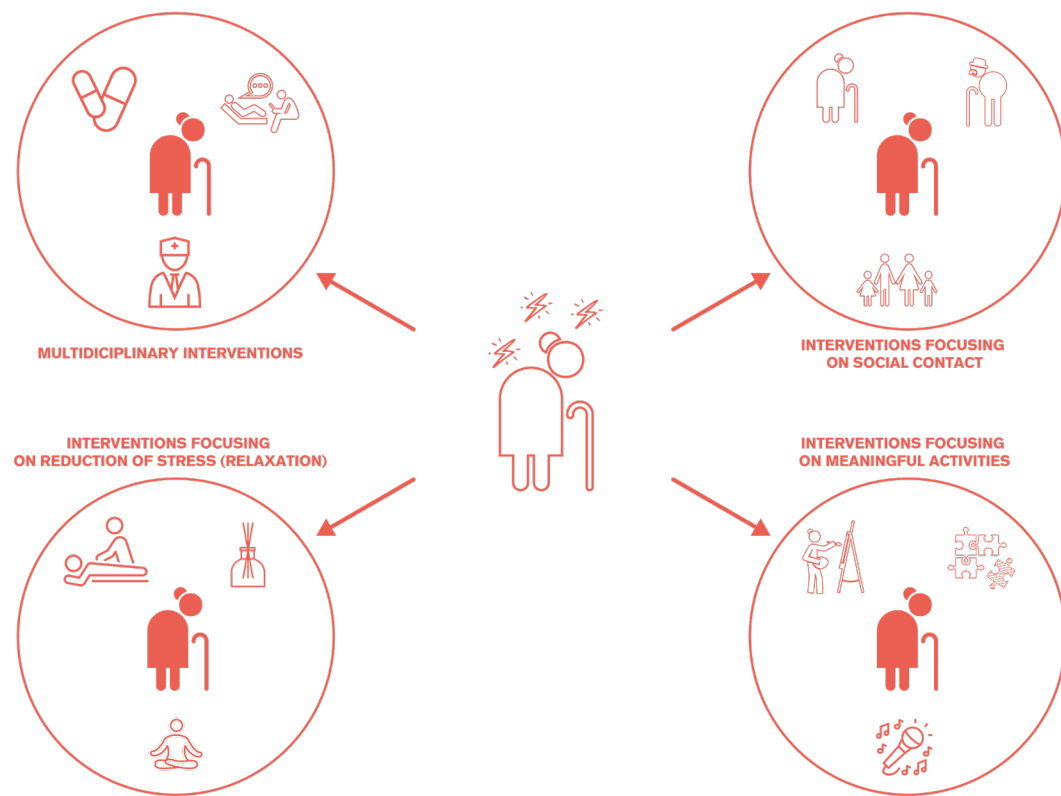


Figure 1.12 - Four different ways to treat agitated behaviour (Cohen-Mansfield, 2001)

Cohen-Mansfield (2001) distinguishes four different ways to handle agitated behaviour (see figure 1.12). For this project, a focus will be put on the last two interventions; meaningful activities and reduction of stress.

Some dementing elderly get agitated by overstimulation of their senses by the environment, an assumption could be made that an interaction focusing on lowering the stimuli might tackle the experienced stress (e.g. relaxation).

Some interventions have been tested by Brooker et al. (1997), like music, aromatherapy, calm environment, etc. When looking into meaningful activities different ways, proven to work, can be used to reduce the agitation: reminiscence, puzzles, cooking, physical activity and handi-crafts. (Verkade et al., 2007)

Multidisciplinary interventions are not applicable in this project due to the involvement of pharmaceutical medication. This is placed out of the scope of this project since the goal is to tackle the stress in an interaction-driven way. Furthermore, interventions focusing on social contact are not relevant to look into since the project focuses on an elderly home rather than a home situation. When an elderly is still living at home, often social exclusion happens, in an elderly home this is less the case.

The previously mentioned interventions are all practical based. In order to have a theoretical framework to base the decisions on, following mood regulation model of Gross (1998) is taken into account (see figure 1.13):

The model consists of five strategies to change the experienced mood. Firstly, a method to deal with mood is whether the person wants to get involved in the situation or not (situation selection).

Next, situation modification focuses on changing the situation in a way that changes its emotional impact. This can be e.g. seeing the situation in a more humorous way.

The third method is attention deployment. This method makes use of distraction, concentration or rumination to get the attention away from the cause of the mood influencer.

Furthermore, cognitive change involves changing how one appraises a situation so as to alter its emotional meaning. This can be for instance through humour, distancing and reappraisal.

Lastly, response modulation involves attempts to directly influence experiential, behavioural, and physiological response systems. These systems can be either expressive suppression, drug use, exercise or sleep.

Agitated behaviour can have many different causes. It is important for both the elderly and the caregiver that an analysis is made of the background and current behaviour of the elderly. This analysis acts as a guideline for further interventions. Furthermore, in order to come up with a working product, the mood regulation model of Gross will be used as a base throughout the project to direct ideas and design directions.

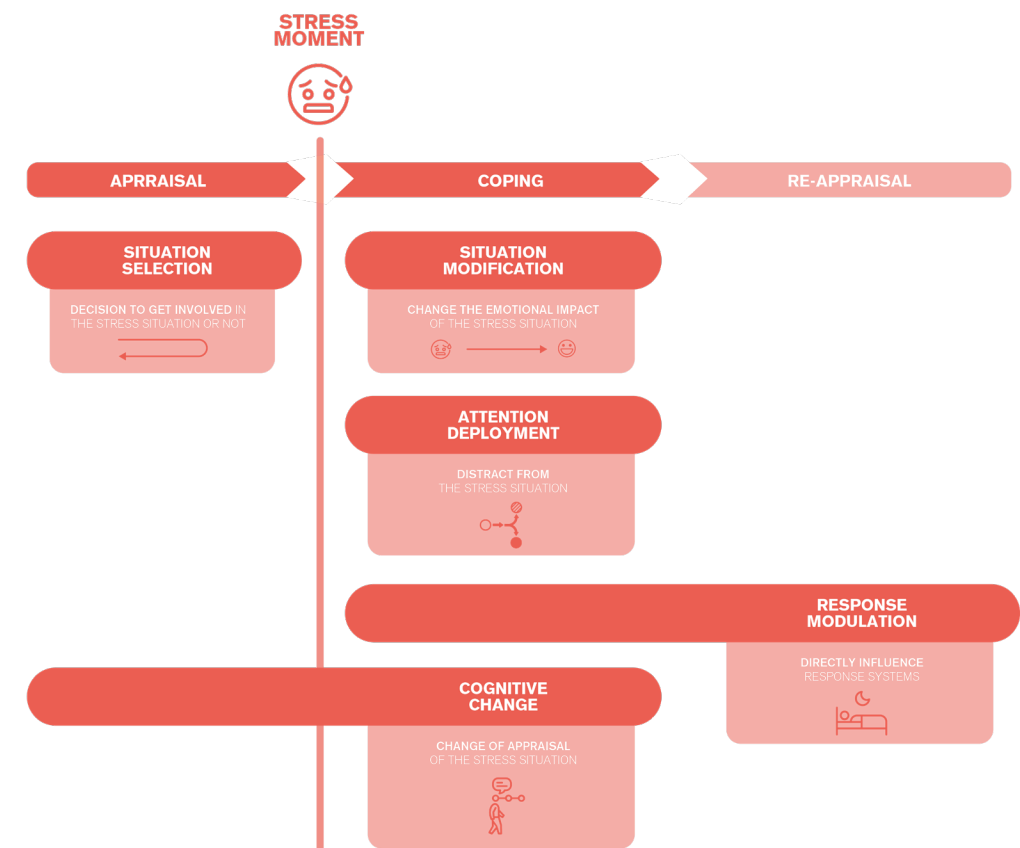


Figure 1.13 - Mood regulation model of Gross (1998)

1.8. STARTING POINT CONTEXT ANALYSIS

Regarding analysing the context of daily stress moments experienced by elderly with dementia, what is essential to focus on in order to gain an understanding in their world and formulate a design concept?

Underneath the main conclusions and implications of each section are concluded with its focus on the continuation of the project.

DEMENTIA

Every person experiences and behaves differently when having dementia. Dementia is more than only experiencing memory disturbances. It affects the whole being. Not being able to cope with failure puts a lot of stress in their lives. Even though there are categorisations for the disease and which characteristics change over time, every person with dementia is different. Elderly with dementia experience a lack of structure in their lives, e.g. day and night become blurred. Exact time is less relevant for them since they do not link it to a certain event. Furthermore, the ability to perform complex tasks is often lacking. This way they become more dependent on caregivers and external help. Failing behaviour is something that elderly with dementia try to avoid at all times.

In order to develop a suiting concept, **it is important to look at the individual person**, rather than developing a general one-suit-all solution. Furthermore, a focus on **providing a safe and known environment** is key for a stress-less behaviour. Providing a **solution that is fail-proof** will enhance the elderly's self-confidence and result in an improved well-being. Considering De Herbergier as an environment, the final solution should be as **easy as possible to set up for the caregivers**, so they can focus completely on the elderly.

When conducting the context research, it is important to **look for recurring patterns in the stress behaviour**. By doing this the final outcome might have a bigger impact on the well-being of the elderly, and it is more relevant to test iterative concepts in context.

BEHAVIOUR

When looking at the behaviour of elderly with dementia, the reactions are often impulsive, intuitive and improvident. Processing of external impulses is difficult for them, especially when there are too many impulses. Their emotions become blunter, the motoric abilities diminish and cognitive processing of information is not that easy anymore. Since complex tasks are not processed anymore anxiety raises. Every impulse that is captured, but not correctly processed, is seen as a threat. Expressed anger and anxiety often comes from the impotency to react in a proper way to a situation. This implies that a stress feeling is experienced all day long.

Since the brains of a person with dementia operate in a less complex way, it is important to focus during the project on **simple, processable changes and interactions**. During the context research phase, there will be a **larger focus on micro moments** to change will be put, rather than big stress moments with many people involved.

Considering the processing of impulses around the elderly, **a provided solution to the stress should not create more confusion**. Emotions and the emotional reaction to a certain situation play an important role. Since emotions and behaviour are a personal expression, **a specific (tailored) solution to the stress is key**.

STRESS

Within the process of dementia stress can be caused by different factors. As already discussed in the respective section, stress is mainly caused by changes in the environment of the elderly and an overload of, or too little experienced, stimuli.

When coping with the stress a focus should be put at **a solution that asks for as little cognitive effort as possible**. A **safe environment is key** for people with dementia, therefore it is important to reduce (or distract) **the incoming impulses from the environment** during the stress moment.

TREATMENT

In order to identify a fitting solution for a person, it is important **to get to know the person as much as possible**. This analysis of the person is key to guiding the choice of the intervention. **Focusing on an individual stress moment**, rather than a group moment is designated. The **intervention(s)** itself should be as **simple** as possible.

With a personal care and support there is a possibility to lengthen the emotional awareness and full consciousness. Therefore, **the caregiver interacting with the elderly should be the mediator of the design**.

Lastly, a person with dementia is more dependent on help of their environment. Focusing the final outcome on **an intervention that asks minor effort of the caregiver** can be interesting in order to keep full focus on the elderly.

In the following sections a search for a specific interaction to adapt was made. Together with the insights of the analysis ideas and concepts will be formed.

2

ANALYSIS

In order to identify the different stress moments of elderly with dementia, their needs and concerns, a thorough investigation of the daily context should be made. What are the causes of the experienced stress? How does this show in their (stressful) behaviour? And particularly of interest in this project; which interactions promote a diminishing of their stress level already?

2.1. IN CONTEXT RESEARCH

Since dementia asks for a personal approach and specific care (Beck, 2016; Caregivers of de Herbergier, 2016; Plaats & Verbeek, 2016; Treadaway, Prytherch, Kenning, & Fennell, 2016), a more in depth look into the specific context was conducted.

The choice of working within the context of 'de Herbergier' was mainly made because of their different approach to dementia and the care. De Herbergier focused their core business on giving care on a very personal level and taking time to support the elderly where needed. This setting gives a perfect base to come up with a design platform where more is possible than for instance in a classic nursing home.

The following main, and sub, research questions are aimed to be answered through analysing the context of stress situations caused by daily changes of elderly with dementia:

1. **Where in 'de Herbergier' do daily changes occur?**
 - a. Which of those moments do include a change in a specific pattern/routine?
2. **What in those daily changes cause stress for the elderly?**
3. **How do caregivers initially deal with stressful situations?**
 - a. Which aspects of the stressful situation can be changed by a caregiver's intervention?
4. **Which behaviour is shown by the elderly when experiencing stress?**
 - a. What is the cause of this agitation?
5. **How does De Herbergier look at solving stress and what is their policy regarding this?**

Since there are thin lines in between the different stages of dementia, following research question is taking into account as well:

6. **Which stage of dementia, connected to a specific person, is most suitable to reduce the experienced stress in?**

Within each research method/test there will be elaborated on more specific questions for that chapter.

2.2. OBSERVING ELDERLY IN THEIR DAILY ROUTINE

In order to get a grasp on the daily routines several broad observations (shadowing) have been conducted by the researcher over a period of two days at different times of the day. The goal of this observations was getting a general overview on the complete routine of the elderly in combination with possible moments of stress. In the observations following specific research questions were put forward:

1. **Where in 'de Herbergier' do daily changes occur?**
 - a. **Which of those moments do include a change in specifically a pattern/ routine?**
2. **How is initially dealt with stressful situations by the caregivers?**
3. **Which behaviour is shown by the elderly when experiencing stress?**

OBSERVATION SETUP

Two different observation techniques were used to gain insights in the daily routines. Firstly, the researcher used shadowing to gain insights at places throughout the elderly home. Secondly, naturalistic observation was used to gain insights at stress moments happening in the main living room. At first, the observations were focused on every stage of dementia, whereas later conducted studies were focusing on one specific stage/person.

MAIN OBSERVATION INSIGHTS

Since the main goal was to develop a product that can be used with other people around, the focus of the results is put onto the stress moments occurring in the main living area. The main living area is where most of the stress moments occur. If the person is visually not in contact with the source of the stress, the stress does not occur.



In figure 2.2 a floorplan and its corresponding stress/changes in daily routine moments can be found. As for the causes following division has been made according to the theory of Hall (1994) as found in figure 2.3. The division will only be focusing on moments that can directly be influenced by an intervention.

Directly influencing the stress has a bigger and immediate impact than trying to solve it in an indirect way, e.g. with fragrance.

The 'other' category does not fit in one of the other three, whereas there the focus is put on categories which show a positive influence on a general well-being.

In order to understand the reasoning behind why agitation is experienced, underneath a more elaborate analysis can be found underneath concerning the different moments (see figure 2.3).

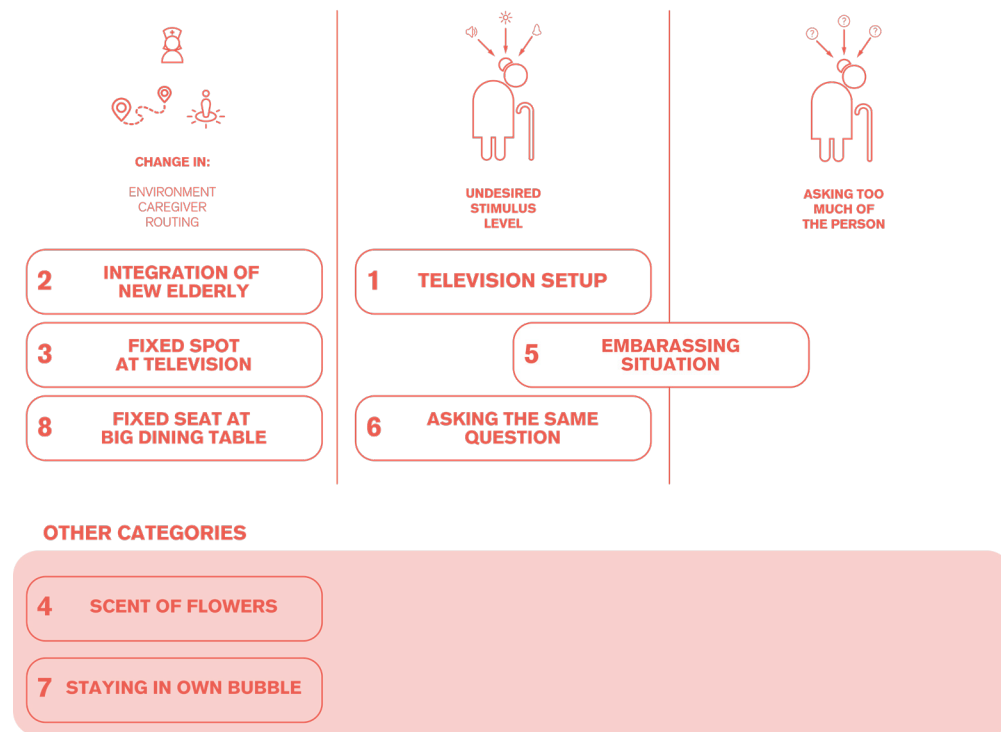


Figure 2.3 - Categorisation of the stress moments

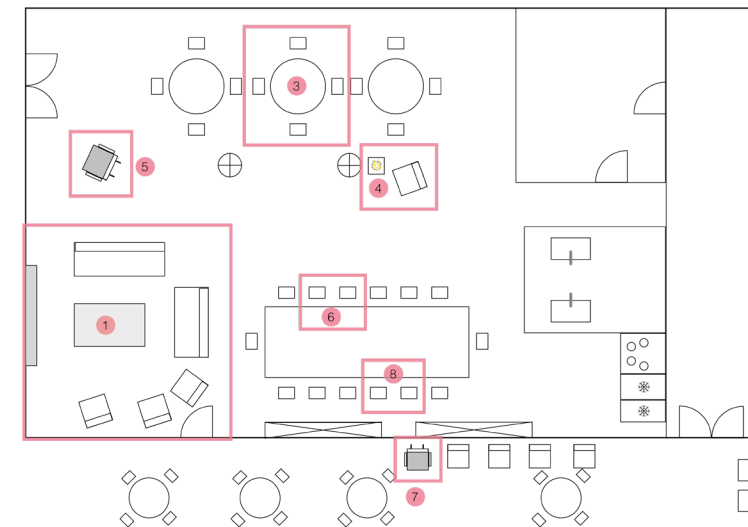


Figure 2.2 - Floorplan and stress moments of de Herbergier

2.3. CAREGIVERS' AND HERBERGIER'S VIEW ON TREATING STRESS

The caregivers are a very important part of this graduation project. They form the base of interaction with the elderly. Therefore, in order to know their point of view on stress moments, sensitizing booklets were spread to 5 caregivers which they had to fill out during multiple days.

The results of these booklets showed many different stressful moments during the day, but also the uplifting moments. Additionally, a semi-structured interview was conducted. The interview questions can be found in Appendix 7.3, and focus mainly on the deeper layers of why the stress occurs. Furthermore, the context mapping booklet setup can be found in Appendix 7.4

CAREGIVERS' VIEW ON STRESS

Caregivers in general experience a lot of stress in their daily job, both from the elderly as well as themselves. Many different situations were distinguished during the interviews. Mainly focusing on agitated behaviour on a personal level, they try to interfere with the elderly in a subtle way. When agitation occurs, it is often solved by talking to the elderly and soothing them. Furthermore, an influence is seen of the stress level of different elderly at the same time. Stress seems to be contagious in a similar environment. If one of the elderly starts to shout, it is most likely that another elderly will act and interact as well.

HERBERGIER'S VIEW ON STRESS

De Herbergier as an institution wants to give the elderly an as comfortable stay as possible. Their policy focuses on a very personal approach with a lot of attention to detail and personal wishes. When a stress situation occurs, they try to find a suitable solution for that person in combination with the caregiver's experience.

Concerning the stress occurring about the sitting spot, de Herbergier wants to include as much flexibility as possible. In an ideal situation, there should not be a fixed spot for everyone. But, the situation evolves in a way that everyone claims their own spot in the end. If a certain place is not free, this can often give a stressful situation where a caregiver has to interfere by asking the person to move.

“
**DEMENTING IS A VERY
STRESSFUL SITUATION**

”

Dr. B. Beck, 2016

2.4. CHOICE TO CONTINUE WITH THE SITTING SPOT STRESS

Deliberately chosen between the different stress moments, the stress formed by whether or not the sitting spot will be free when Mrs. X need to go to the diner, seemed to be the most interesting and intriguing situation. Not only for lunch or dinner Mrs. X has fixed spot to sit, also for watching television and spending the day she has one. This shows that Mrs. X is really attached to it and is the perfect participant for the tests in the project.

WHY DOES THE STRESS OCCUR?

In order to develop a solution for the moment of the sitting spot stress, knowing why a certain event occurs is important to keep in mind during the process of ideation, in order to come up with a suitable and specific working solution.

The stress concerning the sitting spot occurs due to following reasons:

1. A situation occurs where the elderly knows what they want (having certainty that the spot will be free) but does not act to it immediately.
2. The anxiety that their daily pattern and grip on their life will not be there.

WHO IS INVOLVED?

In order to complete the view on the sitting spot stress it is important which parties are involved in that specific stress situation. In the following figure, the different people involved in the stress situation are mapped. Additionally, their function and influence on the sitting spot is added. (see figure 2.4)

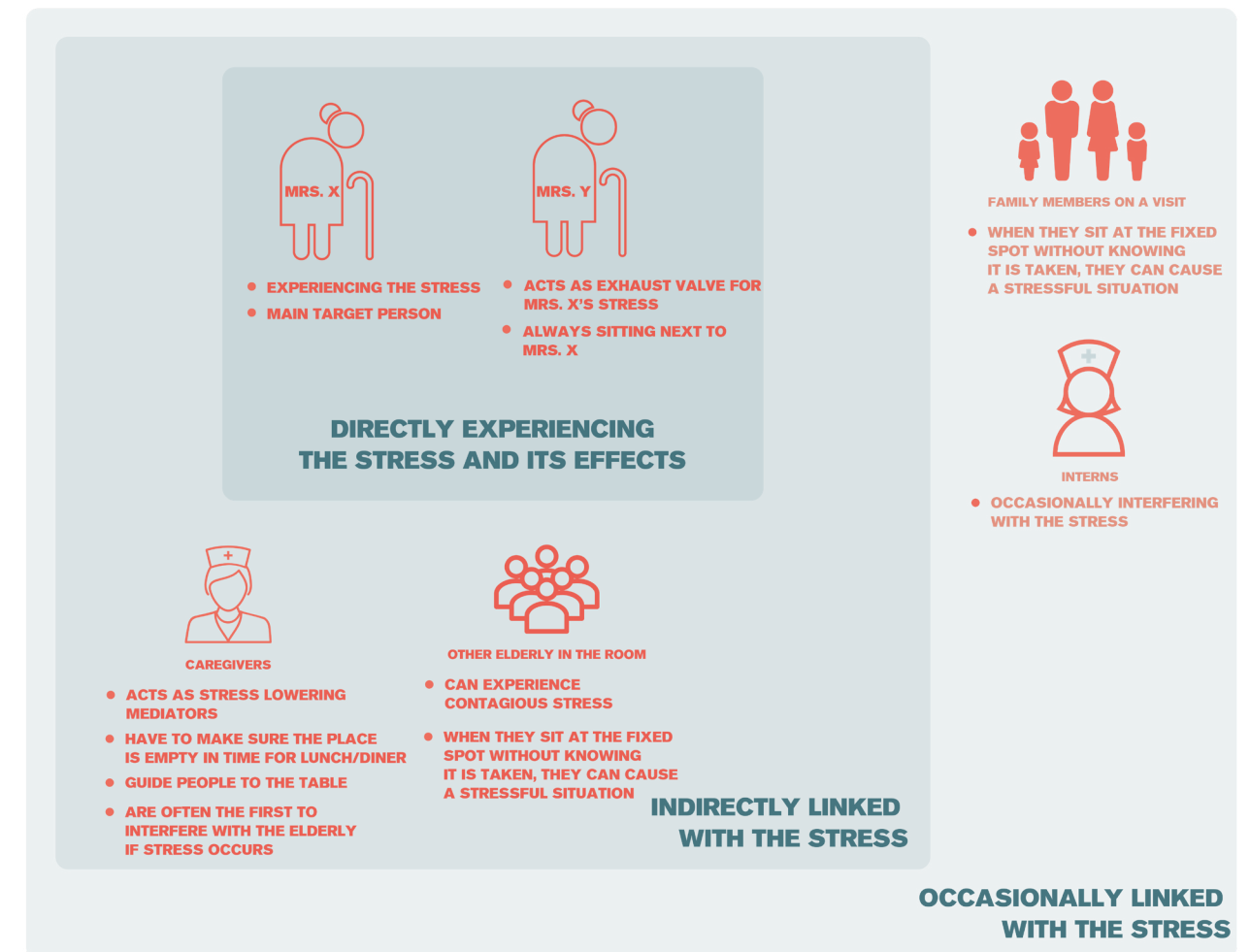


Figure 2.4 - Stakeholdermap

WHY IS THIS SPOT SO IMPORTANT?

First of all, having the same spot to sit everyday gives the elderly a certain structure, a certain grip to their hectic and stressful life. Even if their short-time memory is not that performant anymore, recognizing their own spot and knowing that they should sit there is still possible. This shows that some behaviour is still possible to be taught and stored in the long-term memory.

Furthermore, for Mrs. X it is not really about that specific chair at the table, but rather about the persons who are sitting next to her. If they are not there, she keeps questioning when they will arrive. Thus, for Mrs. X it is really important that she can talk to the people she likes.

Concluding, when reducing the stress that occurs when Mrs. X sees someone wandering around this also has an effect on her surrounding and surrounding people. Less contagious agitated behaviour is shown e.g. asking the same question or shouting. This can be beneficial for de Herbergier and in general for the stress experienced during the day of Mrs. X as well as the other elderly.

2.5 A MORE IN DEPTH LOOK INTO THE SITTING SPOT STRESS

In order to get more in depth information about the behaviour caused by changes in daily patterns and more specifically the stress concerning a sitting spot, an interview with a geriatric psychologist Dr. Bart Beck was conducted. Dr. Beck has been head psychologist in behavioural therapy of the Pieter van Foreest elderly home in Delft, The Netherlands.

The notes (in Dutch) of the interview can be found in Appendix 7.2. Underneath, the main insights of the interview regarding the stress situation are provided in a summary:

During the interview, it seemed clear that the issue with a fixed spot is not only applicable to de Herbergier. A fixed spot is important, while it gives structure to the elderly. In addition, by giving structure in daily routines, a possible sense of time returns.

According to Dr. Beck, the stress that exists is not necessarily about the chair itself, but more about the location at the table.

Some persons do not want to sit facing the window because it might distract them too much, as well as making them agitated because of the extra impulses coming from outside. For this situation, it is more important that they have the right persons around them, people who they like. In addition, offering a spot where they can see people entering the room might give them more control and safety.

There is a constant flow of being appealed on as a person with dementia. This induces an amount of experienced stress because often he/she does not know how to deal with it. The observations showed that even if someone is already sitting at that specific place at the table, the elderly is not eager to interfere themselves to claim their place, before they actually have to go to the table.

When trying to solve the stress regarding someone sitting at the spot already, talking someone round helps, but is often not enough because the same question raises over and over again. The stress stays within the process. The fixed spot at the table seems to be essential for most of the elderly, it is an automatism to go to 'their' spot. From Dr. Beck's year-long experience he can state that a feeling of safety in combination with structure and personal space is key to the well-being of a person with dementia. Often when a spot becomes free after someone died for instance, it will be taken by the newcomer. This can cause problems in many ways, e.g. two

people who do not like each other are forced to sit next to each other.

The big question arises within this situation if the problem is really the fixed spot, or whether the elderly people do not know what will be expected from them.

Several solutions concerning the fixed spot and the confusion are already used (e.g. a placemat at the table with their own picture or having their own old chair) but these things are not applicable in de Herbergier's situation. De Herbergier wants to include as much independency as possible. Since the main problem is not necessarily the confusion, but rather the anxiety that someone will sit at the spot and the insecurity and lack of control of the situation. (more elaborate information can be found in the explanation of the customer journey (chapter 2.8))

Within dementia predictability remains of the utmost importance. Since the elderly see upon every change in their environment as a threat, it is designated giving them as much handhold as possible. For some persons, it is not that bad someone sits at their spot and are still quite flexible, for others it can be very stressful. If it occurs that someone sits at the spot when it is lunch/diner time, talking with the elderly does help, but it is not always a solution.

As a person having dementia you constantly live in a stressful situation. The further in the stage of dementia, the more situations you can't deal with emerge. There is a constant appeal to you, but you do not know what to do in every situation. This makes the process stressful and the person anxious. Due to the declining of the short-term memory ability, every situation can be experienced as being new. The more a person is used to an environment, the safer he or she feels. Even if there is no direct stress noticeable in the behaviour of the elderly, there can still be an inert internal stress phase.

Two main questions can be asked: Does the stress occur if there is nobody sitting on the spot? Or does it only occur when there is already someone sitting and the person is worried if it will be free at the time dinner is served? Both questions will be answered in the coming chapters where a deeper look on the specific interaction is given.

2.6. FOCUSING ON A PERSON

As it is important for the final design first to focus on one specific person, and later on if the same concept can also be applied to other people, a choice to work with specific elderly has been made. This person will function as main test person throughout the project. Underneath, a personal fact-sheet of this person can be found (figure 2.5).



Figure 2.5 - Fact sheet of Mrs. X

The different characteristics are important to continue with in the ideation and analysis process. Some striking insights from her background are that her short-time memory only lasts around 3 minutes, and sometimes even shorter. She really likes to be in the company of people, which can be relevant to the design solution. Furthermore, the cognitive abilities show that the mind is still capable to process visual written information.

In the specific case of Mrs. X, the stress of her favourite/fixed spot at the table is not experienced when she is not in the room. This shows that visual appearance of the stress trigger is an important part in whether of if the elderly will be stressed or not.

2.7. TEST: REACTION ON THE SITTING SPOT

Knowing which reaction, a person gives when someone is sitting at their favourite spot is the first question to be tackled. In order to find out, a small intervention test has been conducted. The goal of the test was to see how stress regarding the sitting spot is shown and which parts of the interaction are there to be changed towards a less stressful behaviour.

All tests conducted in this graduation project are mainly executed by a caregiver of de Herbergier. This has been a deliberate choice. As a researcher, you can be perceived as a threat and someone intruding their space. In combination with the fact that the caregiver knows perfectly how to react in different situations, this seemed to be the best solution in order to have an objective view on the interactions and test results.

TEST SETUP

For this test, the researcher acted as a person who intruded in the sitting spot of the elderly. 15 minutes before the diner started the researcher took place at the specific sitting spot (see figure 2.6). Several cameras were placed in order to have a good view on what exactly happened. The test took around 25 minutes, from the time the table was set. At the moment of the test there was a person sitting next to Mrs. X at the television sitting space.

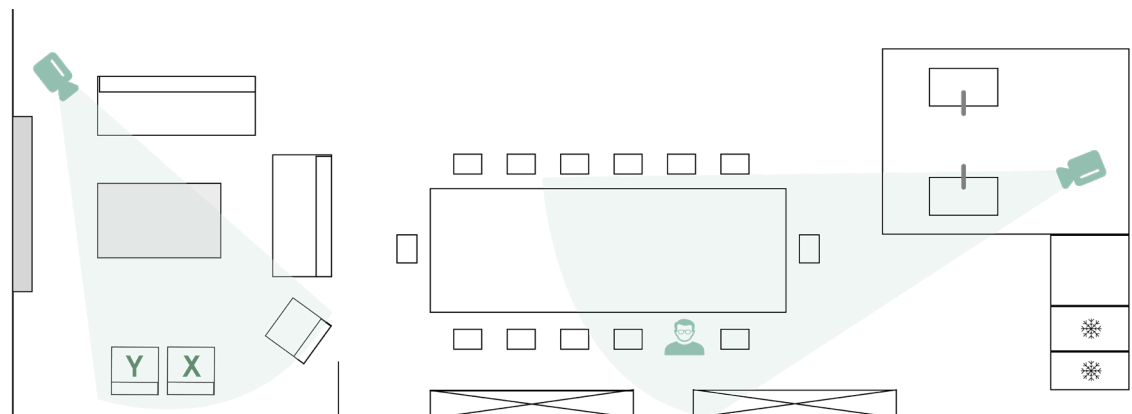


Figure 2.6 - Test setup

RESULTS

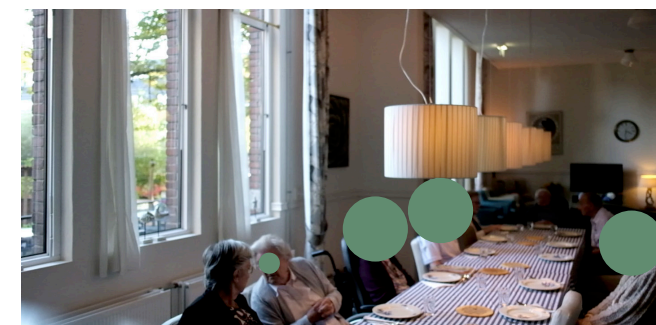
Following results can be distinguished from the test:

- Mrs. X looked, during a period of 20 minutes, 5 times to her watch
- Mrs. X started talking about the spot 6 times during the test
 - Either questioning if the spot will be free in time
 - Saying that it is her spot
 - Questioning if they should go for lunch/diner already
- Mrs. X looked to the specific spot at the table for 7 times.
- Mrs. X stood up once in order to get the researcher from the chair
- Mrs. X asked the researcher politely to go away and sit somewhere else.

OBSERVED INTERACTIONS



Mrs. X asking if the person sitting on her spot can go away



Mrs. X talking to Mrs. Y about their sitting spot

CONCLUSION

This test showed that a lot of confusion exists in whether the elderly should already go to the table to eat or not. Once they realise, take action themselves in order to make the spot empty. The stress continues for around 10 minutes during dinner time by talking about the sitting spot. Mrs. X constantly looks for clues in her environment in order to justify her actions.

2.8. TEST: PAPER ON CHAIR

In order to see if Mrs. X is still capable of linking cause and event, a small test was conducted. The test involved taking away the chair (so the spot at the table will be completely free) and see if there would be less stress experienced during that time.

TEST SETUP

After the table was set, a caregiver took Mrs. X's chair away from her spot and placed it next to her at the place where she currently was sitting (at her favourite –fixed– sofa at the television). The caregiver gave an explanation on why the chair was there and left a note on the chair with her name on.

The reason behind only putting a paper on the chair was to find out if there was still cognitive ability in linking the cause and event of the stress.

RESULTS

Mrs. X asked several times during the test why the chair was standing next to her and why her name was on there. She kept looking to her spot at the table, but did not realise that her chair was next to her because no one else would sit on her spot. Other elderly asked Mrs. X why her name was on that chair, while she did not remember the explanation she couldn't explain it. Moreover, not all the caregivers were aware of the test; resulting to not being able to answer the question either.

When it was time for lunch she went to the table, but her chair was not placed back by the caregiver yet. She took another chair and solved the situation herself.

The chair did attract some attention, because of its unusual place in the room.

CONCLUSION

This small test showed that there is no cognitive ability anymore to understand cause and effect for Mrs. X. Furthermore, when not everyone is aware of what was actually happening, more confusion is added to the situation. In general, the conclusion can be put forward that giving certainty the spot will be free does not solve the stress, on the contrary it adds stress to the situation due to the confusion element. The stress keeps existing, even when the explanation why chair is there, is given several times. This is mainly owing to the lack of short time memory and the capability of understanding cause and effect.



Mrs. X questioning why there is a chair



Interest is shown by the other elderly



Mrs. X asking her neighbour what the chair is doing next to her

2.9. CUSTOMER JOURNEY

The different tests and observations can be combined in one stress related customer journey. The focus of this journey is mainly on how big the stress impact is during different phases. The customer journey includes the journey when someone is sitting at the Mrs. X's spot at the table. (see figure 2.7)

Two main times can be distinguished when analysing the stress journey. First of all, there is the so-called 'waiting time'. This is the period before the stress moment starts by the trigger of setting the table. No stress is experienced by the fixed place phenomenon. Secondly, the 'action-time' focuses on the actual stress moments. Because there is a short time memory issue, those stress moments can follow up quite fast. This is mainly because Mrs. X forgets about the answer on the previous stress moment. This answer can be given by a caregiver, but as well by one of the other elderly (e.g. the person who is always sitting next to her).

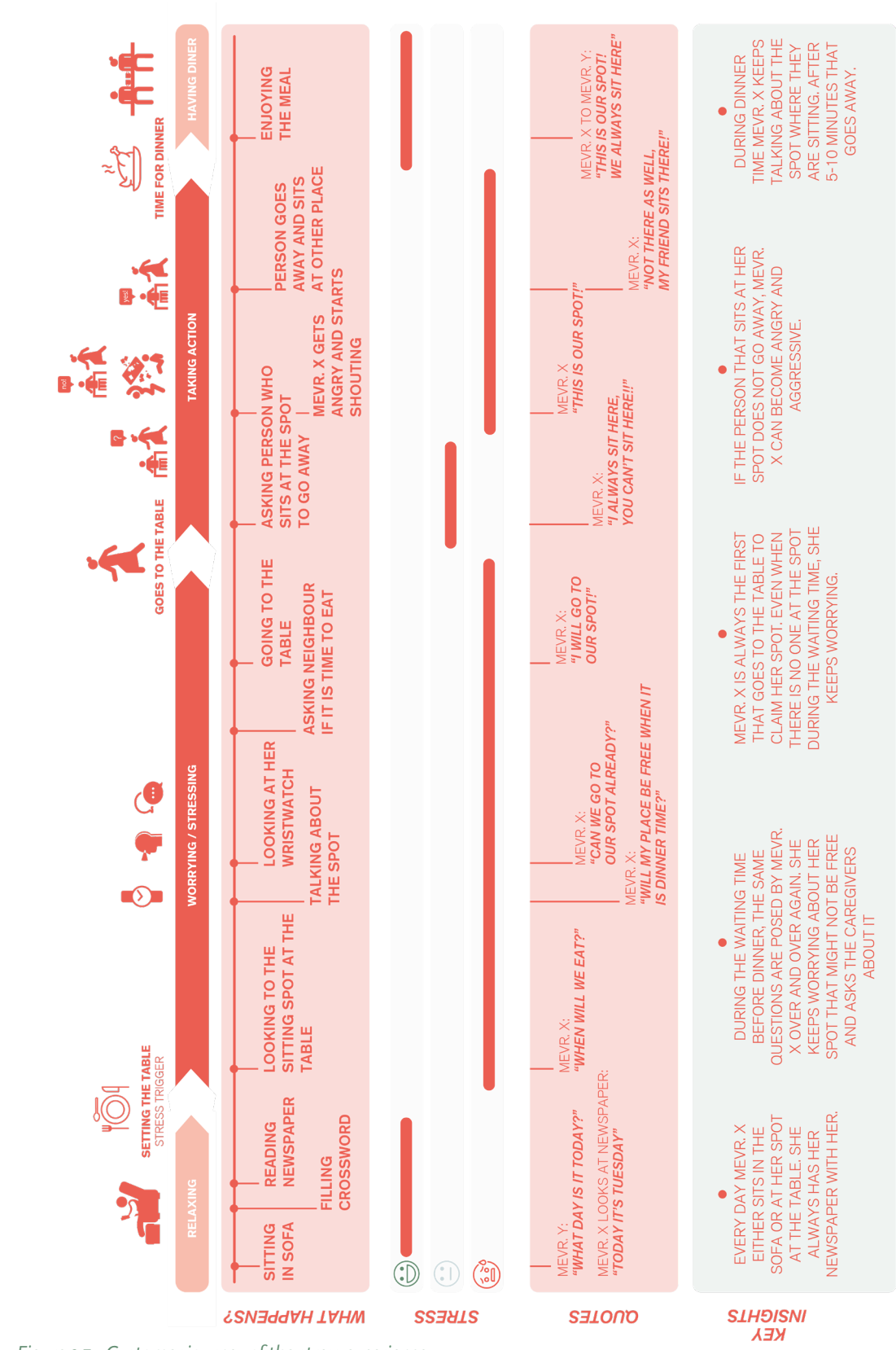


Figure 2.7 - Customer journey of the stress experience

DIFFERENT TRIGGERS

The observations made clear that in all the observed processes there were two main triggers of the stress. One of them is setting the table. This specific interaction (mostly done by the caregivers) shows the elderly that diner will be served soon. One of the measurements de Herbergier already takes to reduce the stress for Mrs. X and other elderly, is to setting the table as lately as possible. This in order to shorten the amount of experienced confusion, anxiety and general stress towards diner/lunch time. For most elderly setting the table shows them that it is soon to be diner time and they already move to the table. While others, like Mrs. X, are not exactly sure about the specific time they have to go. This induces, and raises, the uncertainty concerning when it is exactly time for diner.

The second trigger, to an increasing in stress, is the moment Mrs. X decided to take charge of the situation and politely asks the person sitting at the table to go away. If they refuse to find another place (for any reason possible) an escalation of stress is observed.

These two triggers can be used as a starting point for ideation on either solving or reducing the amount of stress for Mrs. X.

DIFFERENT SITUATIONS

In order to get a clear view on the different situations, a simplified customer journey has been made. (see figure 2.7a, b and c)

Three different situations can be distinguished by the conducted observations. Firstly, the behaviour when there is no one sitting at the spot during the stress period is distinguished (see figure 2.7a). This period does have the least influence on the stress experienced by Mrs. X, but nevertheless a slight increasing of anxiety is observed. Moreover, the main reason for the stress is that Mrs. X believes that there is still a chance that someone will sit at her favourite spot when it is time for her to go to the table.

Secondly, sometimes it occurs that when someone (another elderly or some family member) sits at the spot and is not eager to go away (see figure 2.7b). In this situation, we can see the most excessive experienced stress. The normal build-up stress from the time the table is set is still felt, but in this scenario a second more severe stress trigger is felt. The moment that the person at her spot denies to go away, a more aggressive behaviour is seen (cfr. Cohen-Mansfield (2001)).

A higher experienced stress moment can have an influence on the environment as well as on the elderly themselves for the rest of the day. The second trigger (the person at the spot saying no) and especially the outburst of aggression of Mrs. X can be seen as the stage of emotion-focused coping of R. S. Lazarus (1991) (more information see chapter 1.5 about stress). The outburst in aggression is for Mrs. X. a way to stand her ground but without any proper reasoning. This behaviour is mainly caused by the lack of complex cognitive capabilities, as discussed in section 1.6.

Lastly, the third situation has a similar walkthrough pattern of the first two stages, but include a less hectic end phase (see figure 2.7c). Here Mrs. X still gets stressed about the fact that someone is sitting at her spot, but he or she does go away (see chapter 2.7). With this action, her stress is relieved and she has a much calmer diner/lunch time. Nevertheless, Mrs. X keeps talking to her neighbour about the fact that this is her spot and she always sits there.

Concluding, the experienced negative results of stress are mainly similar throughout the three different scenarios. Nevertheless, two striking points pop up during the process. First, the stress escalates when there is someone sitting at the spot already after the table is set (trigger). Second, a fluctuation in stress behaviour is detected during the waiting time, in between the table setting and the time to go to the table. This can be an interesting opportunity to focus on in the conceptualisation phase.

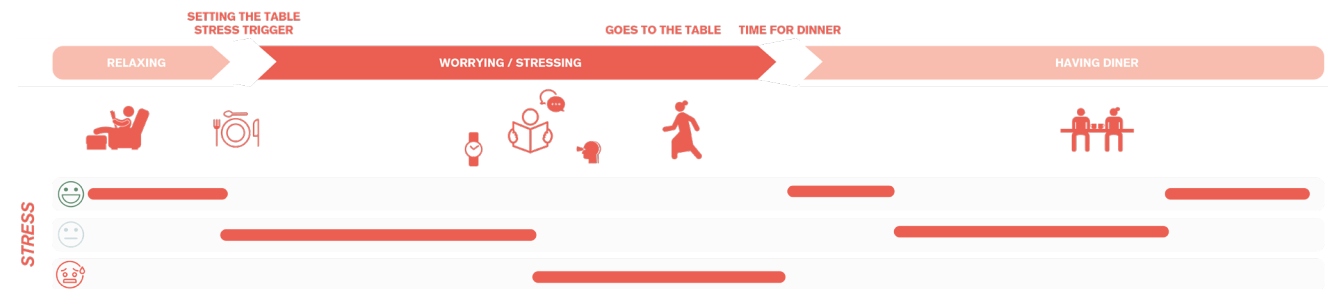


Figure 2.7a - Simplified customer journey - no one sitting at the spot



Figure 2.7b - Simplified customer journey - someone sitting at the spot denies to go away



Figure 2.7c - Simplified customer journey - someone sitting at the spot immediately goes away

2.10. OPPORTUNITIES FOR DESIGN

Taking the insights from the literature and context analysis into account, the most interesting opportunity lays within tackling the experienced stress during the waiting time after the visual trigger of setting the table has been experienced till the moment when Mrs. X actually goes to the table.

Within this timeframe there are several possible solutions regarding stress reduction. First of all, a decision needs to be made regarding the influencing time. The final concept can either be a solution to reduce the stress over the complete amount of waiting time, or otherwise focus on only a segment. (see figure 2.9)

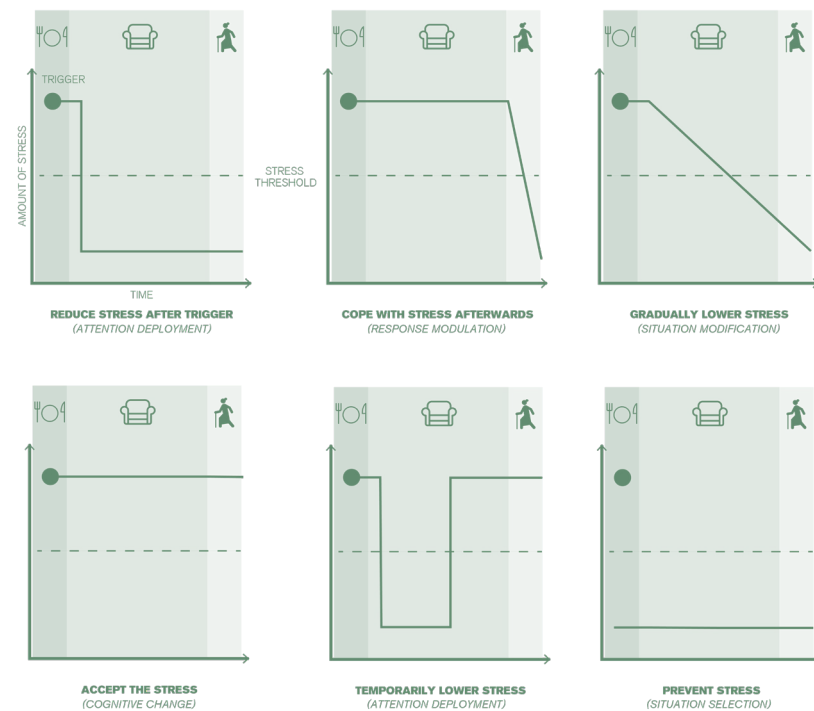


Figure 2.9 - Possibilities for intervention

In addition, one can make a choice to either reduce the stress to a certain amount, take it away totally (and temporarily) or to use as much stress as possible in a certain way without creating more confusion. Many different people around the interference spot make it very complex to find a way to deal with the stress and focus on one person.

Moreover, since other elderly are in a different stage of dementia and have different capabilities, it is good to keep their reaction in mind during the conceptualisation phase.

Different design directions within several of these design spaces will be explored during the conceptualisation phase. The ideas will be checked against the literature insights and context insights for its validity and practicality.

2.11. PERSONAL DESIGN CRITERIA

The designer criteria provide the author's personal view on the analysed context and highlights the most promising design insights. Since this chapter shares a subjective vision and no objective information, it is formulated in the first person.

During the literature and context analysis phase, it quickly became clear that the subject of solving or lowering stress for elderly with dementia was a difficult one to tackle. Therefore, I decided to solve the stress as much as possible, only even slightly, improve the well-being of the elderly. If there is a period of 10 minutes each day they do not experience stress and feel happiness, it would be already a great accomplishment!

Furthermore, personally I do not want to fool the elderly. What I mean is that they should be kept in their dignity and supported in that. An interaction that increases their self-esteem could be a possible solution for this.

Regarding to the experienced memory issues, I think they should not always be stigmatized, but could be used as a pro within an interaction.

Lastly, often people refer to dementia as a child-like stage and family members and of course the elderly themselves do not want to be reminded of that. Personally, I wanted to design an interaction that really focused on the capabilities of the elderly and using the specific design elements in such a way that it looks and feels suiting for adults.

3

CONCEPTUALISATION

This chapter presents the project's design goal, the different interactional and environmental elements. Furthermore, an overview will be given of the product and interaction qualities the final design should have and the guidelines to be followed in order to create a suiting product.

3.1. DESIGN GOAL

The insights from the analysis phase, the selected interaction context and the designers vision are the base of the rephrased and more specified design goal below. This design goal offers a direction in which brainstorming sessions were set up, design direction and its ideas were sketched and concepts developed.

Create a moment of distraction, resulting in less stress experienced regarding the sitting spot, during the day by developing a meaningful intervention for the elderly that can be used at their spot in the sofa in between the setting of the table and going for lunch/diner.

Following, the different key elements of the design goal are elucidated.

MOMENT OF DISTRACTION

As the elderly with dementia live in a constant stressful situation (Verkade et al, 2007; Beck, 2016), it is important to have a moment of non-stress during the day. Within this moment, they do not have to worry about their environment and the impulses it sends. Connected to this it is important to create a safe haven for the elderly where failure is excluded.

MEANINGFUL INTERVENTION

According to Gross (1998), different mood regulation techniques can be used to reduce stress impulses. A meaningful interaction in this case means that there are elements which add to the well-being of the elderly, rather than just forming a solution to a problem. There should be an extra layer within the product that enables this, e.g. as mentioned before focusing on increasing their self-esteem and happiness level.

A link between the meaningful interaction and moment of distraction can be made by both focusing on an effective reduction of the stress level and hereby influencing the well-being directly.

USE AT THE SPOT

For Mrs. X it is significant that the daily program should stay as close as possible to normal. To use the concept, it is important that prototype can be used at her sitting spot near the television. Moving her away from that spot in times of stress causes even more confusion and stubbornness. Mrs X. always looks for excuses to not experiencing stress of changes in her environment. For instance, if there is an exercise class in the room next door, she always has some excuses ready not having to join in.

Moreover, every little thing that changes in their environment is seen as a possible threat and can lead to immediate confusion and even severe stress (Beck, 2016).

This makes it really difficult for the designer to interfere and come up with an innovative solution. A designer is trained as an innovator and tries to find new solutions to existing problems, but in the case of dementia there is really minimal possibility. The design space is so narrow that sometimes the only solution is using something known. This is also whereabout Plaats and Verbeek (2016) focus on in their research, creating as known environment as possible.

MOMENT OF INTERACTION

A deliberate choice was made for the time in between the table is set (trigger) and the time where the Mrs. X should go to the table. This choice arose by its recurrence throughout every different scenario (see chapter 2.9).

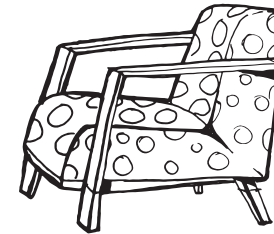
All the different elements of the design goal were taken into account as thoroughly as possible throughout the ideation and conceptualisation phase.

3.2. INTERACTIONS + ENVIRONMENTAL ELEMENTS

When looking at the customer journey and its different moments of importance, different interactions and environmental elements can be distinguished. To create a specific design space for the ideation main elements will be discussed in following subchapters. Referring to the fact that there is a narrow design space to work in, all the details of the interaction are important.

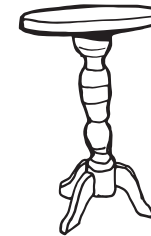
ENVIRONMENTAL ELEMENTS

The environment and surroundings of Mrs. X contain a lot of elements (whether or not distracting). Underneath the different main impulse elements, important for Mrs. X's daily existence can be found.



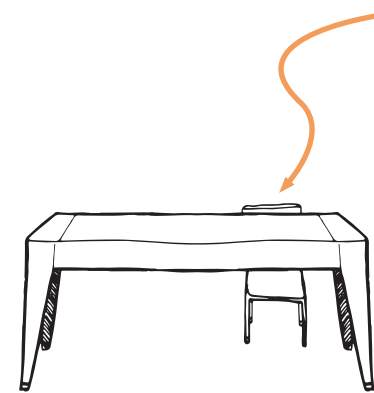
MRS. X'S SOFA

Not a day goes by without Mrs. X sitting on it. The caregivers of de Herbergier know this since she started to live there, it is her spot and no one else should claim it. This situation and object has its importance, in order not to spread more confusion, the concept can be built around the sofa.



SMALL SIDETABLE

A small side table is also available as an object. It is mainly used for putting Mrs. X's newspaper on, or some drinks.



CHAIR AT THE DINING TABLE

Another environmental element of importance within the stress moment is her chair at the dining table. The second intermediate test showed that the chair itself can be a means to distract Mrs. X but can as well cast more confusion on the situation.

SPOT AT THE DINING TABLE

As mentioned before, the sitting spot at the dining table is more than only a chair. It is the complete environment. The persons around Mrs. X play an important role in her behaviour, she wants to create certainty in her life by sitting next to the same persons every day.



NEWSPAPER

Mrs. X's newspaper is an element throughout the day by which she can get grip in her daily existence. If someone asks her what day it is she immediately looks at her newspaper and tells them the date. Because of its significant importance to Mrs. X, this could be an interesting element to design for.

INTERACTIONS

As for the interactions happening in the moment of stress following interactions are distinguished:

- Triggers
 - *Setting the table*
 - *Discussion with someone who is already sitting at the table*
- Looking at the spot to verify if no one is sitting there
- Looking at the watch
- Discussing with her neighbour
- Asking the caregivers if the place will be free

These different interactions will guide the designer in the ideation process and acts as a starting point to develop meaningful interactions with.

3.3. PRODUCT QUALITIES AND GUIDELINES

The analysis phase showed some clear qualities and guidelines for product use for people with dementia. This allows the designer to have a clear focus on the specific interactions and using them to create a highly-detailed product and prototype. These product and interaction qualities are used and referred to at the concept development chapter (see chapter 4). These qualities are derived from the analysis chapter and observational research (see chapter 1 & 2).

PRODUCT QUALITIES



COLOURFUL

In order to attract the attention to the product colourful colours should be used. Since colours used for children toys are often vibrant and perceived as child-like, colours should not be too vibrant. (Caregivers of de Herbergier, 2016)



CLEAN

The product should look clean and it should be clear how it has to be used in order to prevent confusion.



COGNITIVE LOAD

During the development of the prototype attention should be paid to the amount of cognitive capabilities the product uses in order to lower the stress.

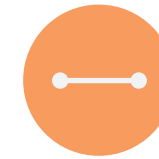
INTERACTION QUALITIES

Following interaction qualities play an important role in how the stress lowering should be addressed. The end product preferably should have following qualities:



PREDICTABLE

The interaction should be predictable, this means that it should be clear for the elderly what the next step in the process is.



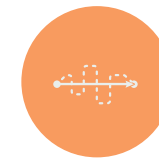
SIMPLE

The interaction should be as simple as possible in order to avoid confusion.



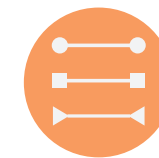
ENGAGING

The interaction should be engaging in a way that the elderly like to use the prototype and that it fosters interest.



STRAIGHTFORWARD

No extremely difficult step should be included in the design. It should be a to-the-point product with little extras. This to prevent the raise of stress.



REPETITIVE

The flow of handling the product should be repetitive. This to induce the learning ability of the elderly.

GUIDELINES

The intervention should be just giving enough distraction and not getting bored/agitated by it. The two intermediate tests showed that the environment should be taken into account as well. Especially external distractions, e.g. other elderly asking questions or showing agitated behaviour. The concept should be easily explainable to others by the elderly, or caregiver, in order not to raise the confusion and stress.

According to Plaats and Verbeek (2016) it is important to include elements that are as close to reality as possible. Every unclear part should be filled in by the person's brain and this is often not possible in the stage of dementia they are in. If the image and cause of the prototype is not clear it evokes confusion and creates more stress due to failure behaviour.

Other guidelines to take into account are: novelty of the product, intrinsic motivation of the elderly, active involvement of both elderly and caregiver and collaboration.

3.4. IDEATION

The ideation phase forms the passage from the research- towards the design process and shows different ways of approaching the design goal and translating the guidelines and qualities into the context of the stress moment.

Different directions are distinguished and briefly explained underneath. These directions form a starting point for two brainstorming sessions and the further design process.

DESIGN DIRECTIONS

In order to have a framework to ideate in, several relevant design directions were set up through analysing all the insights of the analysis and context phase. Following design directions are taken into account:

When looking at the different interactions and reasons for the stress happening after the table is set, we can distinguish following possible solutions:

1. Interfering at the table itself in order to make other people aware that it is a place of someone else
2. Interfering at the Mrs. X's sofa in order to create a meaningful interaction at that specific place.
3. Interfering Mrs. X's thinking process and giving insight in the waiting time.
4. Let Mrs. X accept that there is someone at her spot
5. Make it impossible for someone to sit at the spot in the stress time
6. Make the waiting time nicer (less stressful)
7. Taking ownership of the place at the table themselves
8. Indicating the waiting time to reduce the stress
9. Interfering by distracting them from the cause of the stress

These nine different design directions act as a base to build the how-to's for the brainstorming sessions on. The ideas and possible concepts will be validated through the insights of the literature and of the preliminary tests executed at the elderly home.



Figure 3.1 - Collage of ideation sketches made during the brainstorm sessions

3.5. CONCEPT CLUSTERS

In order to come up with different suitable ideas and broaden the view of the designer, two brainstorming sessions have been set up. These sessions were held with designers (graduated and non-graduated) from the Design for Interaction program at the TUDelft. Underneath the clusters of ideas and the corresponding mood regulation technique according to Gross (1998) can be found. Corresponding with the clusters, ideas can be found at the right side of the page.

GIVE CERTAINTY - *situation modification*

This cluster focuses on proding a way of control and certainty to the elderly. This can be e.g. by giving them ownership of the sitting spot at the table. This situation modification asks for some cognitive effort of the elderly since they have to understand the link in between cause and effect. Furthermore, there can be chosen to develop an intervention that reminds and soothes the elderly that the spot will be free in time.

MEMORY HINT - *situation modification*

The cluster of memory hints focuses on the use of long term memory in combination with new elements. A book with pictures of them sitting at their regular spot can be used to show and make them comfortable with the fact that the situation does not change over time, they always sit at that spot.

CLOCK - *attention deployment + situation modification*

The clock cluster focuses on providing a time guide that is placed in front of the elderly's sofa. It guides the person through the waiting time before the diner and distracts them from looking at the spot. The clock is activated once the table has been set.

LINKING SPOT AND ELDERLY - *situation modification*

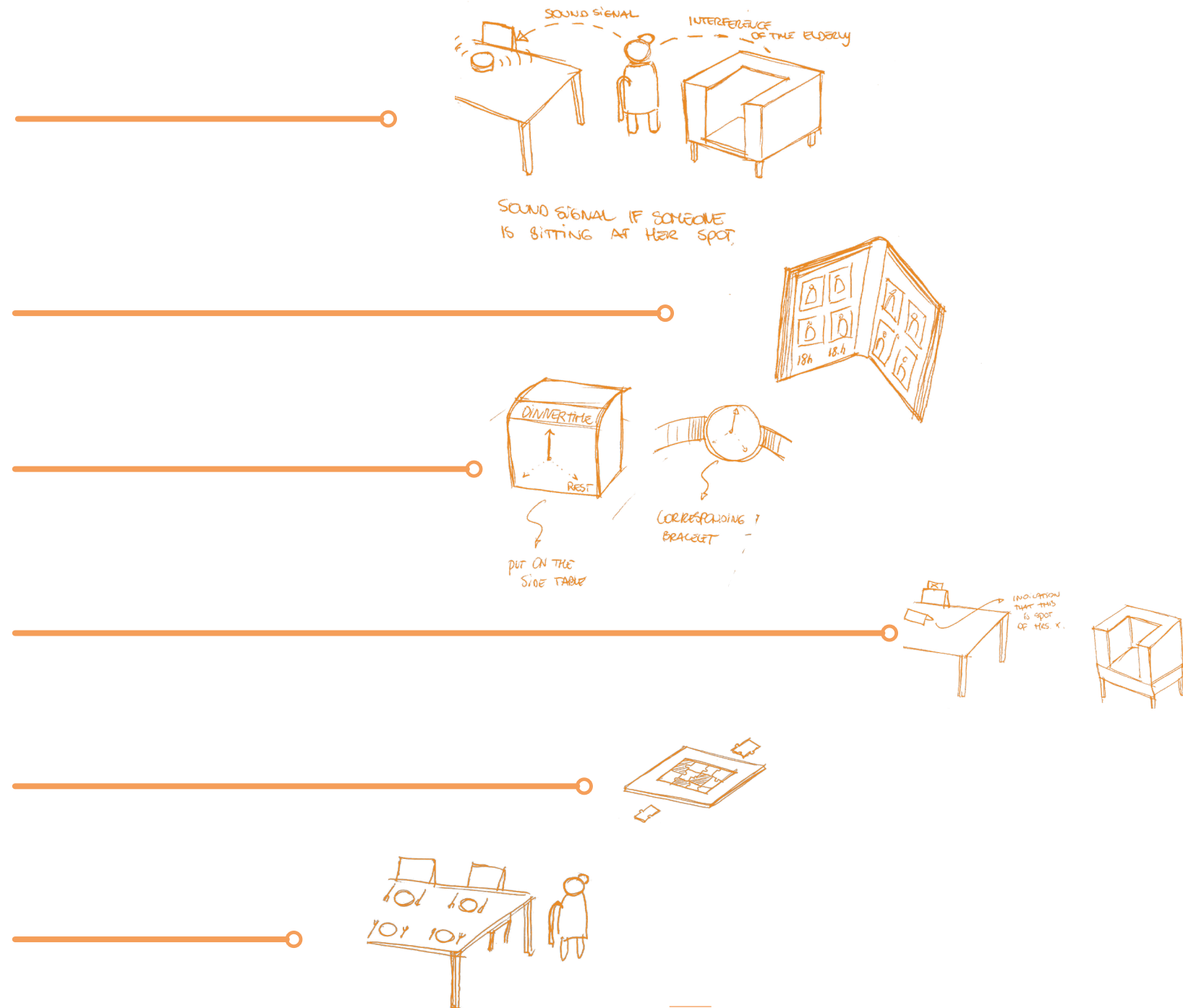
Linking the sitting spot and the elderly provides ways for the elderly to take charge of their own spot. By giving them means to change the environment around the chair they can either attract or move away persons. It adds to their self-confidence and gives them a possibility to control the situation themselves.

MEANINGFUL DISTRACTION - *attention deployment*

During the waiting time, the elderly are distracted in a meaningful way from the stress trigger. This can be through a game, reading, filling a crossword, exercising etc.

USE OF THE TRIGGER TO LOWER STRESS - *response modulation*

This cluster focuses on involving the elderly experiencing stress in setting the table and by this being around when someone might interact with the spot. It distracts them from the stress by doing something else at that moment. Moreover, they do not stay at their sofa, but are still around and can see the spot.



3.6. POTENTIAL OF DISTRACTION AND MOVEMENT

Concluding all the insights from the analysis phase, the brainstorming sessions and their validity, there seems to be the biggest potential in using distraction as a means to lower the stress. According to literature, response modulation is seen as a viable source to reduce stress. (Gross, 1998) Furthermore, many forms of exercise reduce stress directly, and by preventing bodily illness, exercise has extra benefits for the mind.

Regular physical activity will lower your blood pressure, improve your cholesterol, and reduce your blood sugar. Exercise cuts the risk of heart attack, stroke, diabetes, colon and breast cancers, osteoporosis and fractures, obesity, depression, and even dementia (memory loss). Exercise slows the aging process, increases energy, and prolongs life. (Harvard Health, 2011)

Moreover, this is especially applicable to Mrs. X since she does not walk and exercise that often anymore. Observations showed that most of the day she sits in her sofa or at the table.

Distraction as a means showed throughout the process as being an effective way to reduce stress, but it should be used in the right doses. When too much questions arise, the distraction can work counter wise.

3.7. 'MOVE ME', A DISTRACTION IN A MEANINGFUL WAY

Move Me is a concept that focuses on distraction as a tool to reduce stress, as well as movement to train less used muscles. The concept involves the use of moving patterns whereby the elderly should move an element to different places.

The concept focusses on following elements:

visually appealing (colourful)

providing enough impulses to distract

can be used in the sofa, preferable get them out of it

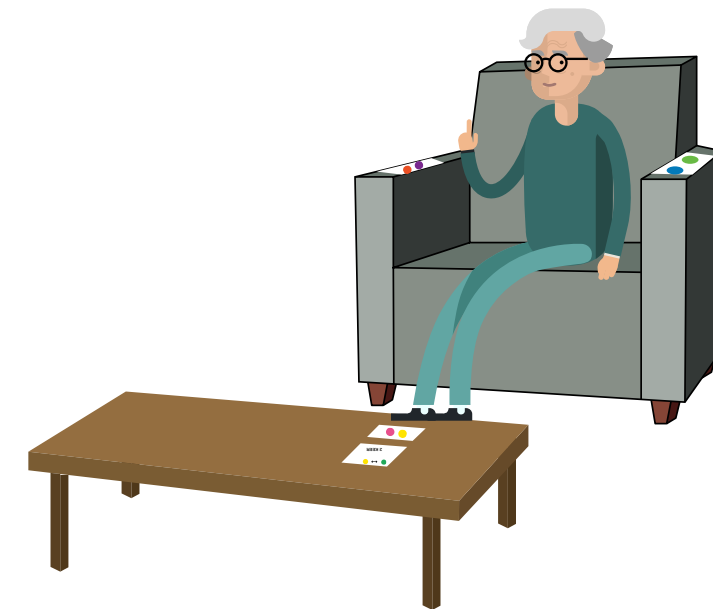
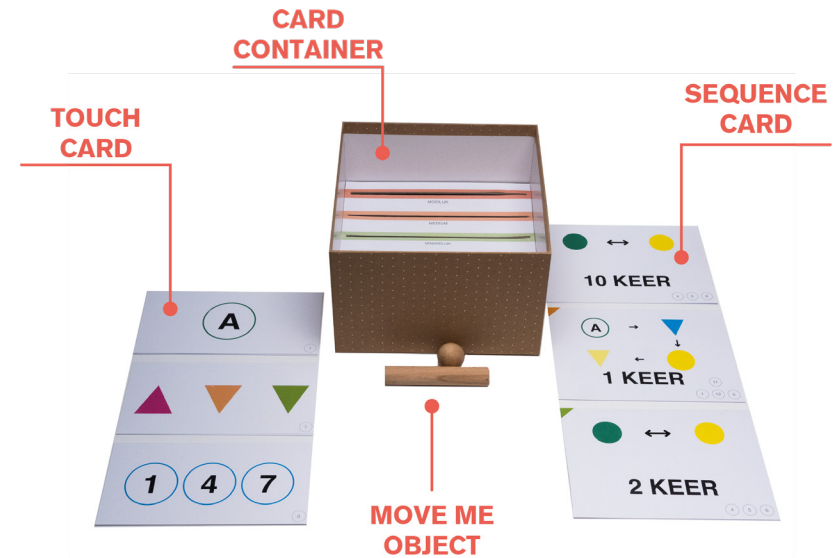
intuitive

possible to play alone

use of unexpectedness

include structure in the process

simple and enjoyable



HOW DOES 'MOVE ME' WORK?

Move me consists of four different elements: a card container, sequence cards, touch cards and an object to move around. The sequence cards provide a guideline for the elderly in which sequence the object has to be moved around. The touch cards are the indicators for the sequence placed at either side of the sofa's armrest and in front of the elderly (a setup can be found in the image above). The move me object should be moved around touching the different touch cards. By this movement the person is forced to do an exercise in a fun and meaningful way. A full explanation and manual of the concept can be found in Appendix 7.6.

4

DESIGN ITERATIONS & EVALUATION

In order to develop the concept in a structured way three different focuses during the iterations are used in order to improve the prototype. First, a focus on the elderly is set. This includes cognitive capability, focus during the game and understanding of the game.

4.1. TEST 1: MOVE ME CONCEPT

Amount of distraction time during the test: 2 minutes

The first test with the 'Move Me' concept showed some important aspects regarding the unwillingness to start the game. Mrs. X did not seem interested because she could not understand the game. This resulted in a lot of confusion and caused a feeling of stress.

Testing the concept in a not-stressful time was already a big task for her. Concluding these observations, a choice was made to simplify the concept as much as possible. Make it less complex and more engaging. Inclusion of simple repetitive steps was taken as a first step to improve the concept. Furthermore, Mrs. X felt ashamed to play it alone. She really likes to have people around her (see personal fact sheet in figure 2.5), therefore a choice was made to further develop the concept towards a game that can be played with two or more persons.

Concerning the setup of the game by the caregiver, some complex issues were encountered during the testing. Setting up the game asked a lot of attention of the caregiver (many different elements had to be combined) and mistakes were easily made.

4.2. TEST 2: PUZZLE CONCEPT

Will the elderly be distracted from the sitting spot stress while playing the puzzle game? Does it provide enough distraction instead of confusion about the game? Is there still a possibility to learn new things and processes?

In the first iterations, an answer is formulated to these questions. The specific effect of the game towards the elderly and their environment was researched as well.

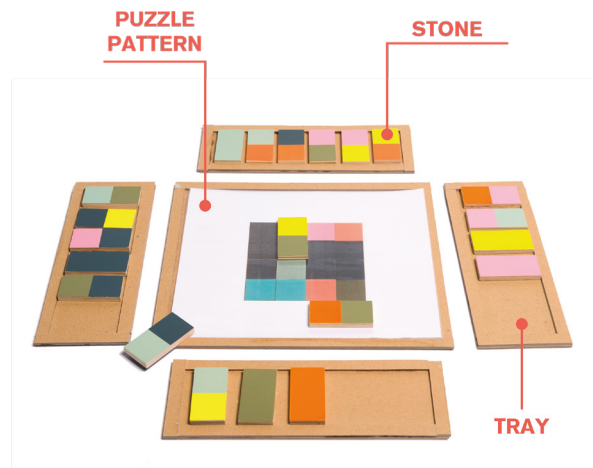
USER RESEARCH

Two elderly with middle stage dementia participated in all design iteration tests (referred to as Mrs. X and Mrs./Mr. Y). The two test participants do not have the same level of cognitive capabilities. All tests were conducted by the same caregiver of De Herbergier (in order to provide consistent testing), right after the table has been set. In the beginning of each test, a (similar) short introduction of the game was given by the caregiver. After the introduction, the elderly were asked to place the puzzle stones at their respectively spot.

During all tests, except one (iteration 4), the caregiver was specifically asked to be a mediator between the game and the elderly. This to enhance enthusiasm and make sure that as little mistakes as possible were made in order to prevent failing.

THE DESIGN

After the first user test with the 'Move Me' concept based on movement and distraction the designer realised that the concept was too complex and had way too many elements that needed taken care of. In order to make the game easier and engaging to play, a puzzle game was developed with the focus on an as simple interaction as possible within the available design space.



PUZZLE PATTERNS

For the puzzle game three different patterns were developed, taking into account different difficulty levels and time consumption. The patterns consisted of rectangular shapes with different color combinations.



STONES

More stones than needed to fill the pattern were provided. No same color combination was available.

TRAY

Four trays are available as a holder for the stones. The trays should be placed at each of the sofa's armrests.

GOAL OF THE GAME

The goal of the puzzle game is to each place a stone at the playing board. The players are trained to recognize certain color combination and patterns and use their cognitive abilities. Furthermore, motoric gripping abilities are trained as well. The game is finished when all the stones are placed at the respective spot at the playing board.

TEST INSIGHTS

Elderly-game interactions

Both elderly used the prototype with positive interest for about 20 minutes.

During the testing Mrs. Y asked several times if she should place a stone on the whitespace as well. The whitespace seems to induce confusion. It is not completely clear for the elderly that the stones should be put at the coloured patterns only. Furthermore, it was really hard to place the stones at the right spot, since the division of the pattern was not clear.

The way the elderly interacted with the prototype was mostly similar. Nevertheless, there is a cognitive difference in the abilities, it was for Mrs. X difficult to use her spatial awareness. If a stone was not at the right orientation, she had difficulties to see where it should fit.

Moreover, the extra stones in the game seemed to be confusing. The elderly did not know what to do with them. In order to prevent failing behaviour, they started thinking of solutions themselves and stacking them.

Elderly-caregiver interactions

The elderly listened carefully and were concentrated on the explanation of the caregiver about the game. The explanation was important for the elderly to get acquainted by the flow of the game and to fulfil a personal approach to the game.

Caregiver-game interactions

It is proven difficult for the caregiver to hold all the different boards at once. A simpler setup should be provided in order to make it feasible for the caregiver to focus as much on the elderly as possible during the game.

Environment-elderly-game interactions

There was some interest about the game of other people in the room. In order to provide a safe environment, the caregiver chose to keep the external impulses away from the interactions happening at the game.

During the game the elderly were concentrated on playing the game and did not experience any stress regarding the sitting-spot.

FEEDBACK FROM THE ELDERLY AND CAREGIVER

After playing the game the caregiver asked some small questions about the game. Both the elderly indicated that they liked the game, but the colours were not similar to the stones. Mrs. Y kept asking how the game was named. This happened over 8 times throughout playing.

“

You have to think how it works, but when you know it, it plays well.

Mrs. Y

“

They did a great job in playing the game and it distracted them wonderfully

Caregiver

“

So, the name we can still think about?

Mrs. Y

“

I think the game is nice, it takes some time to get acquainted by it, but it is nice!

Mrs. Y

“

If the game will be sold I think it will sell well.

Mrs. Y

OBSERVED INTERACTIONS

Underneath some screenshots of the video material can be found together with the observed interactions.



Mrs. X hesitates if it is the same color of stone and on the pattern.



Even with a the noise of the television, Mrs. X keeps focusing on the game.



Mrs. Y asks if the game is bought or not.



Mrs. X wonders if she has the right stone after putting a wrong one on the board.

DESIGN RECOMMENDATIONS

The following design recommendations were derived from the observations of the designer during the test and of the recommendations given afterwards by the caregiver.

FUNCTIONALITY

Simplify the setup of the board in combination with providing one main area to take the stones from.

Optimise the distance between the patterns.

The colours of the blocks should be the same with the pattern in order to avoid confusion.

INTERACTION

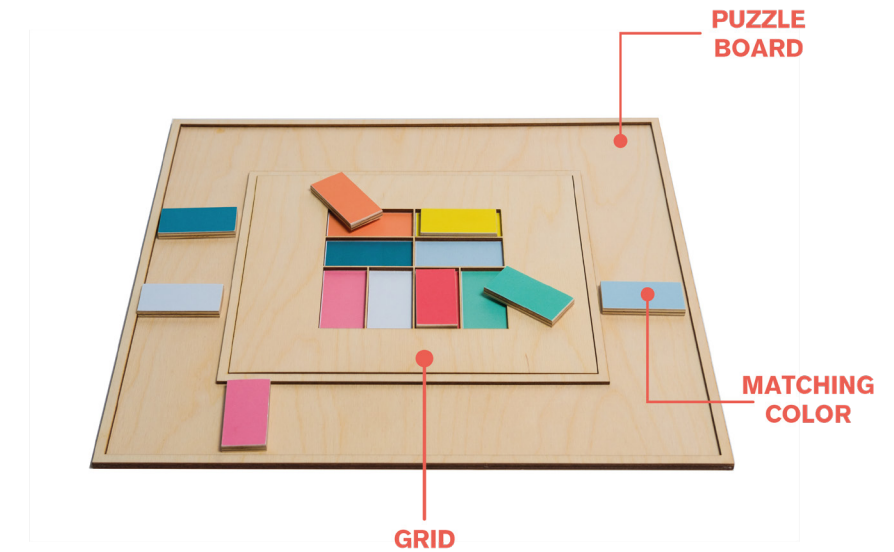
The amount of stones need to be adapted in order to make it less confusing and have a clear end of the game.

A grid in the same colour of the board can be added to get rid of the confusion of placing the stones at the whitespace. Moreover, make it clearer where to exactly place the stones.

The caregiver should act as a guide throughout the game. E.g. by supporting where needed. Create a safe environment.

4.3. 3RD ITERATION

IMPROVED DESIGN



Compared to the previous design of Puzzled, some changes were made to the different elements of the game. Underneath a short explanation on the elements can be found.

PUZZLE BOARD

The puzzle board has improved in a way that it is one big playing field, with in the middle the pattern. The stones can now be placed around the pattern. This change improves the interaction for the caregiver (since he does not have to support the different trays) and for the elderly (since they have a better overview on the remaining stones).

GRID

An additional grid has been provided as an overlay for the pattern. The grid has the function to eliminate the confusion where the stones have to be put on the playing field. Furthermore, the grid now shows a clear distance between the different stones and adds to the visibility if a stone is at its place or not. Finally, the grid is slightly lower than the height of the stones.

MATCHING COLORS

In the previous user test it became clear that the stones have to be similar in color in order to keep the game low cognitive. In this prototype the colors have been adjusted to match the pattern.

EXTENSION OF THE PATTERNS

Compared to the other user tests, the patterns have been adjusted to the needs of the elderly. Three different difficulties are now apparent in the game. A simple pattern to start with is used as a guide for the caregiver to explain the concept. This pattern only exists of full colored rectangles as seen in figure 4.1.



Figure 4.1 - Rectangular puzzle pattern

The medium difficulty uses different color combinations with the same size of rectangular stones, but in a different configuration. The used pattern can be found in figure 4.2.

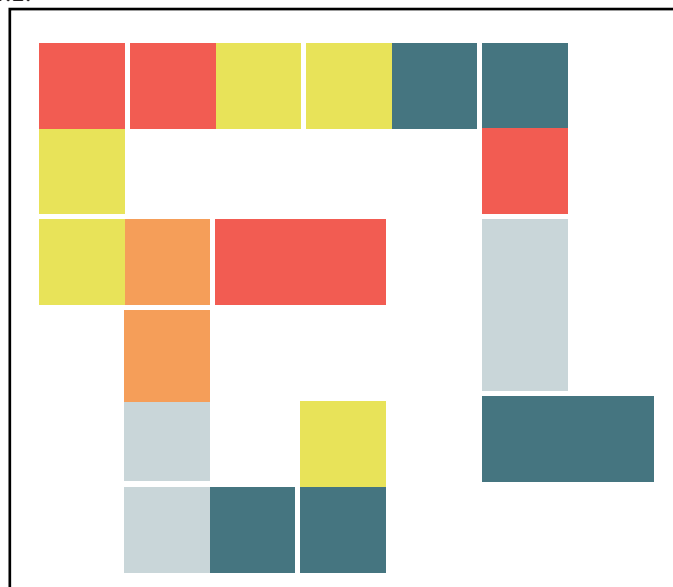


Figure 4.2 - Snake puzzle pattern

Concluding, a for the elderly more difficult pattern was introduced. This pattern consists of diamond shapes. The change in difficulty lays within the change of the used shape and orientation of the stones and its pattern (see figure 4.3).

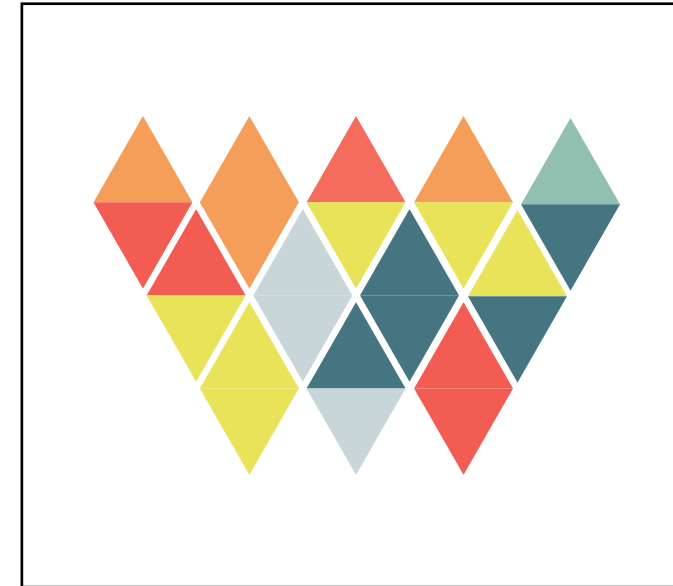


Figure 4.3 - Improved diamond pattern

TEST INSIGHTS

Elderly-game interactions

Both elderly used the prototype with positive interest for about 16 minutes.

During the test, it seemed that the second player (Mr. Y) was cognitively more capable of playing the game. A big gap between Mrs. X and Mr. Y existed. The puzzles were too easy for Mr. Y (especially the snake pattern), while Mrs. X sometimes still hesitated if it was the right stone to place because of its colour.

During the game the facial expression of Mrs X. stayed the same, nevertheless she enjoyed the game and was enthusiastic about it. There was a large focus and attention towards the game. External impulses were not noticed and could not get her distracted.

Having exactly the same amount of stones helped to have a clear ending of the game. No stacking occurred. The game became too easy because there is no confusion about which stone to place. This resulted in a shorter playing time. The game should be just involving enough that the player doesn't get bored and distracted by the environment.

There is some room for self-initiation of certain elements of the game. There is a need to finish all the stones at the board. Creativity is still there for the elderly. This happened several times through the testing (iteration 3 + 4). If there are stones that are left she begins to make the rules herself. If there is no pattern, and the bricks alone, there won't be that creativity. There is a certain guidance needed. No impulse to do something.

Even the difficult pattern became easy for the elderly. It seems that there is still room for learning between the different patterns.

If there are no impulses from the game left, they get easily distracted by their daily habits (newspaper, environment, talking, sitting spot, etc.) The impulses coming from the game are just right. When it became too difficult or there was no clear end goal, the motivation to play it went away.

Laying the puzzles with two persons, rather than alone, makes it more engaging for both elderly. They nudge each other to complete the game and stay concentrated.

During the game, it showed that Mrs. X did not want to fail. Sometimes it shows in the small details (facial expression, looking for things). She expresses this by thinking 'did I do something wrong?' On the other side, the interaction is subtly simple and gives the elderly satisfaction if they do it right. This shows in smiling when completing a puzzle or making fun of it. This behaviour is encouraged by the caregiver by explicitly giving them a reward by complimenting them. There are not that many moments that they realise that they do something right in their lives anymore! Those small moments could be called micro-happiness moments.

Elderly-caregiver interactions

The caregiver stayed around to help, but did not have to interfere as much as the first two tests. The participants did seem to understand the logic of the puzzle.

Caregiver-game interactions

Replacing the patterns seemed to be difficult for the caregiver since the height of the grid is the same as the border.

Environment-elderly-game interactions

During the game, medication was provided to Mrs. X. She was able to immediately focus on the game after the medication was inhaled.

FEEDBACK FROM THE ELDERLY AND CAREGIVER

When asking a question which pattern Mrs X. thinks is the most difficult, she thinks (but doesn't remember immediately due to the short time memory of max 3 mins.) that it's the last pattern. Her expression goes blank when she doesn't know something. She has no idea what exact moment the caregiver is talking about.

Overall the patterns have been received in their way of difficulty.

“

But what is exactly the goal of the game?

Mrs. X

“

Dear people, I think you did a great job! It works really well for you all!

Caregiver

“

Shall we play the game? Then I'll start.

Mr. Y

“

The diamond pattern makes it extra nice to play, some variation in the game.

Caregiver

“

The color combination of the stones is totally perfect now!

Caregiver

OBSERVED INTERACTIONS

Underneath some screenshots of the video material can be found together with the observed interactions.



Mrs. X nods and shows that she understands the explanation of the game.



Mrs. X has to think thoroughly to find the right stone. Stress raises slightly.



Mr. Y determinedly puts a stone on the playing field.



Mrs. X questions the goal of the game. She does not completely remember what the purpose is



When there are no impulses from the game anymore, Mrs. X immediately looks to her newspaper.

DESIGN RECOMMENDATIONS

FUNCTIONALITY

Optimize the changing of the patterns by the caregiver and indicate their difficulty. Extra difficulties (both in patterns and stones) can be added to lengthen the play-time. Extra pattern is added where there is less structure in the pattern (snake), full coloured and half coloured.

INTERACTION

In order to make the game more challenging more differentiated patterns can be added. (colour combinations and shapes)

Improving ability to learn the game throughout the game. (with low cognitive effort)

Make patterns more difficult in order to lengthen the game and have as much distraction from the stress as possible.

4.4. IS IT POSSIBLE TO PLAY THE GAME WITHOUT CAREGIVER?

GOAL OF THE TEST

Within the fourth test the goal was to observe to what extent it was possible to have as little influence and attention by caregiver in the game.

The same prototype has been used as the previous test but with an improved diamond pattern. (see figure 4.4)

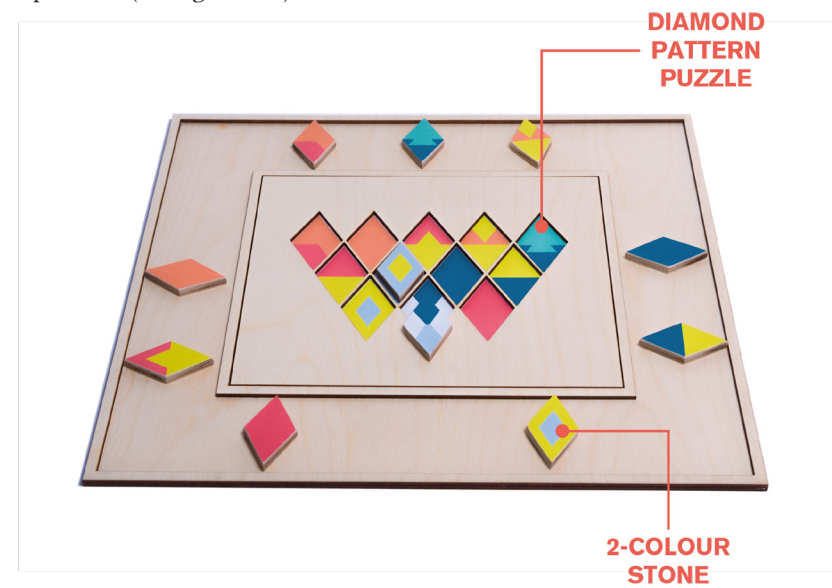


Figure 4.4 - Improved design of the diamond puzzle

IMPROVED DESIGN

Compared to the previous prototype the only change that has been made is the improvement of the diamond pattern as seen below in figure 4.5. The pattern stayed the same, but the stones changed. They now include patterns with more than three points in order to make it a bit more difficult to link and recognize them.

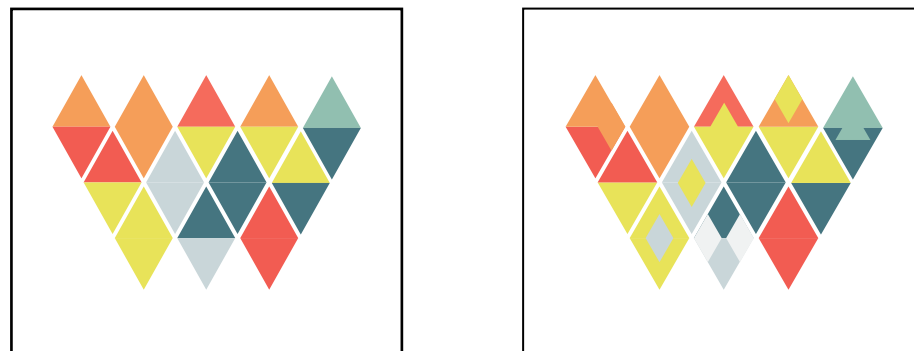


Figure 4.5 - Old pattern (left) and new pattern (right)

TEST INSIGHTS

Elderly-game interactions

Both elderly used the prototype with positive interest for about 18 minutes.

If a stone is not in the correct orientation, Mrs. X cannot process turning it around in her mind. There is a lack of spatial awareness and ability to process visual information in the mind. The development of a stone without direction might solve this problem.

If all the stones are on the board at the right place a quiet moment appears. A reward might be necessary to create the micro happiness moment when playing without caregiver. Now the caregiver often acts as a reward by saying that they did a great job!

Elderly-caregiver interactions

The caregiver only gave the introduction to the game and changed the patterns, was not involved in playing the game itself. He did not stay with the elderly during the game. The elderly were able to play the game without constant help of the caregiver.

Caregiver-game interactions

The caregiver did not have to interfere during the game. If problems popped up the elderly were able to solve them themselves. The caregiver only changed the patterns in between the puzzling.

Environment-elderly-game interactions

During the game, the elderly were always concentrated on the game. When the game has ended; no impulses were given anymore by the game. Mrs. X got distracted immediately and focused back to her sitting spot and newspaper. During the game, there is no stress towards the environment and sitting spot. Generally speaking, there is a period of 15mins of no stress during that day. This seems little, but keeping in mind that dementia is a very stressful illness (Beck, 2016), it is already a huge accomplishment and addition to the well-being of the elderly.

OBSERVED INTERACTIONS

Underneath some screenshots of the video material can be found together with the observed interactions.



Mrs. X and Mrs. Y actively follow the explanation of the caregiver.



Without thinking, Mrs. X puts the right stone on the playing field.



Mrs. Y checks with Mrs. X if she has the right stone.



Mrs. X gets distracted by the conversation next to her, but immediately focuses back on the game.

FEEDBACK FROM THE ELDERLY AND CAREGIVER

When asking a question which pattern Mrs. X. thinks is the most difficult, she thinks (but doesn't remember immediately due to the short time memory of max 3 mins.) that it's the last pattern. Her expression goes blank when she doesn't know something. She has no idea what exact moment the caregiver is talking about.

Overall the patterns have been received in their way of difficulty.

“

Where can we buy the game?

Mrs. Y

“

What is the name of the game?

Mrs. Y

“

If you sell it you will become rich! Do we share in the profit?

Mrs. Y

“

Each time they play the game they become better and better!

Caregiver

DESIGN RECOMMENDATIONS

FUNCTIONALITY

Developing other shapes of stones that eliminate the need to turn it around. Not a pattern that is based on orientation, but based on colour and completion of an area.

INTERACTION

Optimizing the setup of the game for the caregiver, including clear specification of the different level and its corresponding stones.

Change of the most difficult pattern in order to make lengthen the game and provide more challenges.

4.5. FOCUSING ON THE IMPROVEMENT OF THE OVERALL EXPERIENCE

GOAL OF THE TEST

This iterative test had as a main goal to assess if the players can keep being concentrated on the game with more difficult patterns.

IMPROVED DESIGN

Compared to the previous prototype the only change that has been made is the improvement of the diamond pattern as seen below in figure 4.6. The pattern stayed the same, but the stones changed. They now include patterns with more than three points in order to make it a bit more difficult to link and recognize them.

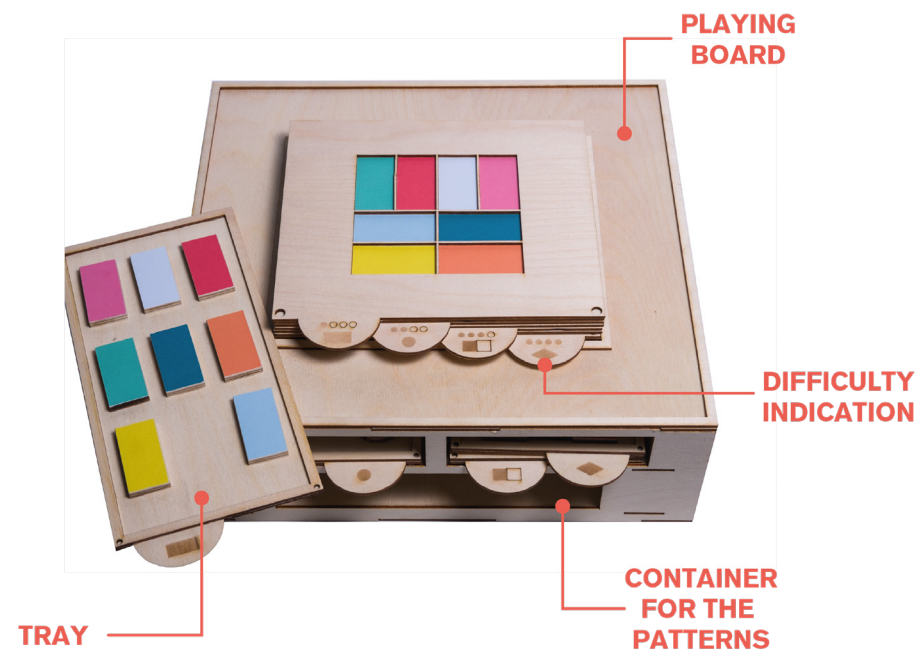


Figure 4.6 - Improved design

CHANGE IN SETTING THE GAME UP

The overall appearance of the game has been totally changed in this design. Now it is possible for the caregiver to set the game up upfront, so he does not have to lay the stones and patterns. It is possible to immediately start with the puzzling.

INDICATION OF DIFFICULTIES

With this concept the caregiver has more freedom in including different difficulties and the sequence they are played. E.g. if there is a lot of noise in the room, it might be likely that more easy patterns are going to be played. By only providing some of the available patterns, it is possible for the caregiver to adapt the game to the needs of the elderly.

PLAYING BOARD

The playing board and the storage of the different stones have been included in one big element. This to make it easier for carrying the prototype, as well as to attract attention and interest from elderly in the environment. Different trays are available each with their corresponding icon of the stones. If a certain pattern is completed the pattern can be stored immediately in the box in order not to interrupt the flow of the game.

ADDITION OF A FOURTH PATTERN

In order to lengthen the game and provide more possibilities for the caregiver to adapt to the needs of the elderly, there was chosen to include a pattern with concentric circles as playing stones (figure 4.7). Those stones have the advantage that they are easier to recognize since they do not have any direction.



Figure 4.7 - Improved circular pattern

TEST INSIGHTS

Elderly-game interactions

Both elderly used the prototype with positive interest for about 15 minutes.

The patterns were really easy to solve, no extensive thinking was necessary to lay them at the right spot. Patterns with two colours are still too easy. The patterns seemed to be too different to really have an impact on the difficulty level.

Environment-elderly-game interactions

The environment was really calm during the game, this had an influence on the behaviour of the elderly. It was easy for them to complete the puzzles. A large improvement could be seen comparing to the former test.

OBSERVED INTERACTIONS

Underneath some screenshots of the video material can be found together with the observed interactions.



At the end of the game Mrs. X smiles and is happy about her accomplishment.



Mrs. X keeps focusing on the game and following the steps of Mrs. Y



When a puzzle is solved the caregiver can easily pick the pattern and store it in the container



Even when the caregiver is away, they are still able to complete the puzzle on their own.

FEEDBACK FROM THE ELDERLY AND CAREGIVER

After the test has been finished, the caregiver asked the participants how they liked the game. Underneath some quotes can be found. Furthermore, another elderly that was in the room got attracted to the game and started asking questions about it. She is referred to as Mrs. R.

“

It is quite some fun to place some stones ('steentje leggen')

Mrs. X

“

Now we have to find a name: "I see, I see what you don't see"

Mrs. Y

“

I do recognize the shapes and patterns from my childhood.

Mrs. R

“

I really liked playing the game!

Both Mrs. X and Mrs. Y

“

There are so many small differences in the colors, you can make mistakes quite easily

Mrs. R

DESIGN RECOMMENDATIONS

FUNCTIONALITY

Include patterns that are more alike, and use more than 2 differences within the patterns in order to create just enough confusion to make them think more if it fits and lengthen the process of the game.

4.6. FINAL ITERATION

GOAL OF THE TEST

The goal of the final test is to conclude the different iterations that have been made and assess the prototype on its functions and effect on the behaviour of the elderly.

This test was not conducted in the normal environment of the stress situation, but since the weather was nice, it was held outside. Since the concept has been proven to distract the elderly from the stress situation, this new environment does not have implications on the outcome of the test. The main goal in this test was to validate if the improved patterns were more difficult to solve and if the compliments added to the micro-happiness moments of the elderly.

IMPROVED DESIGN

Compared to the previous prototype there were some small additions to the prototype. Underneath a short explanation of the changes can be found.

Je ziet er goed uit vandaag!

Je kan trots zijn op jezelf!

Jullie hebben het super gedaan!

Wat een prestatie!



Figure 4.8 - Addition of compliments to the prototype

ADDITION OF COMPLIMENTS

Throughout the different iterative tests it became clear that the game should include some elements that show the end of the game/pattern. Previously, a decision to have exactly the right amount of stones has been made in order to fulfill this need. In the final design, a series of compliments is added in order to improve and elicit a micro-happiness moment throughout the game.

A series of four compliments were added, each showing after the completion of the game. The four different compliments are listed next to figure 4.8.

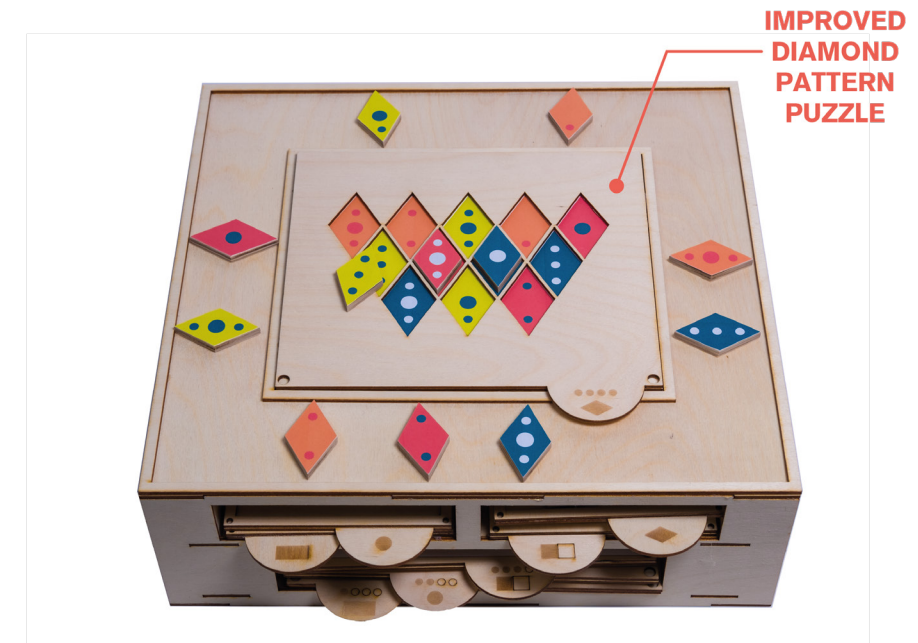


Figure 4.9 - Improved diamond pattern

IMPROVEMENT OF THE DIAMOND PATTERN

For this last iteration, the most difficult pattern, has been adapted (see figure 4.9). The addition of more similar patterns and colors to the stones should raise the difficulty level.

TEST INSIGHTS

Elderly-game interactions

Both elderly used the prototype with positive interest for about 25 minutes.

Mrs. Y remembered the name of the game she gave herself when the caregiver arrived with the prototype. This shows that if the concept is presented enough there might still be some parts that are kept in their memory.

There was no clear increase of difficulty during the game when changing the patterns. Sometimes (even with the easy patterns) there were some hesitations.

The small compliments during the game (included in the game) made them smile and say that they not often are complimented anymore.

Caregiver-game interactions

The structure of the game made it really easy for the caregiver to change the patterns and do it in a quick way.

Environment-elderly-game interactions

The game was played outside instead of at the normal spot. Because it was played in the sun, sometimes it was difficult to see the difference in colours.

In the middle of the game another elderly was interested in joining the game, but she could not reach the playing board with her wheelchair.

OBSERVED INTERACTIONS

Underneath some screenshots of the video material can be found together with the observed interactions.



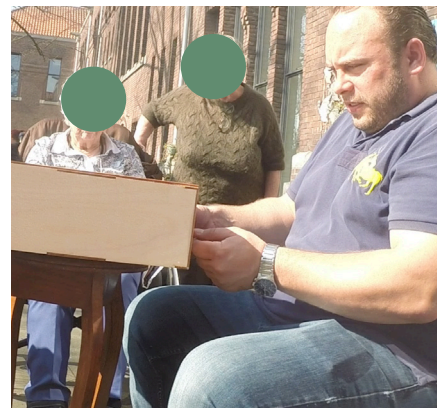
Mrs. X's newspaper is always around :)



Mrs. X experiences a happy moment during the game when a compliment is given.



The caregiver has to give a more in depth explanation about the most difficult pattern



Another elderly shows interest in the game (Mrs. R and Z)

FEEDBACK FROM THE ELDERLY AND CAREGIVER

During the test different quotes were collected regarding the flow and experience of the game. Some of them are collected underneath.

“

They don't tell me this that often anymore (about the given compliment)

Mrs. Y

“

Are we going to play: "I see, I see what you don't see"

Mrs. Y

“

Where should I put the stone?

Mrs. Y

“

You don't hear this not that often anymore on our age

Mrs. Y

“

Do I have to put one stone on the board?

Mrs. X

4.7. FINAL CONCEPT DETAILS

After each iterative test the concept was improved to the specific needs of the elderly. Major and minor changes were made. Following, an explanation of the final design and all its elements can be found.

PLAYING BOARD

The final design includes a playing area around which the different stones can be placed. Additionally it is possible for the caregiver to set the game up upfront. The different patterns are stackable for a convenient flow of the game.

TRAYS

Different trays are available to store the unused stones onto. On the trays there is space available for two sets of stones. This was deliberately chosen in order to be able to change the difficulty of the same patterns, e.g. with the diamond pattern. More explanation on this will be given in the recommendations section of this report. The different trays are indicated with their corresponding pattern icon (rectangle, round, two-color rectangle and diamond).

DIFFICULTY INDICATION

On each pattern there is an indication of the difficulty which can be used to pick up the pattern in an easier way. This indication gives the caregiver a good view on which patterns have been played already and which should still be played.

PATTERNS

Puzzled initially consists of four different patterns, each with their own difficulty level. Different shapes of stones are used to add some variation and new impulses to the game, as well as make it easy for the caregiver to set the game up. When further developed the patterns should be interchangeable to make it better adaptable to the distraction needs of the elderly.

COMPLIMENTS

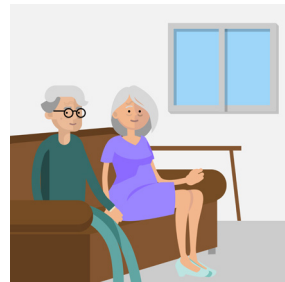
When completing a pattern, by storing away the tray, a compliment becomes visible. Those compliments add to the experience of the prototype and induce a micro-happiness moment. It distracts the elderly from the functional aspects of the game that has to be completed, e.g. changing the trays and put new stones on the board.

Overall this concept has been positively received throughout the testing phases. However small the distraction from the stress was, it added to the well-being of the elderly.

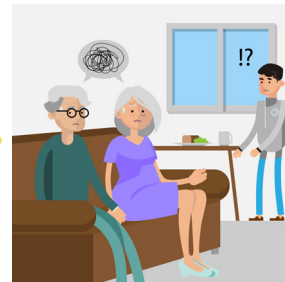


4.8. USER SCENARIO

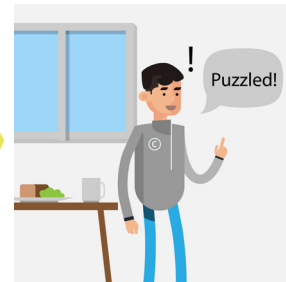
Underneath a walkthrough of the usage of the final prototype can be found.



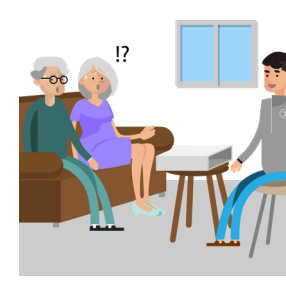
Mrs. X and Mrs. Y. are enjoying their time before dinner.



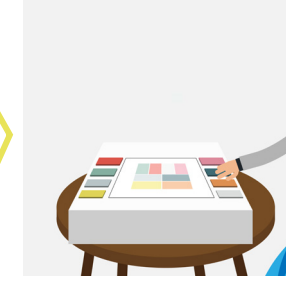
When the caregiver sets the table they get stressed because of their sitting spot.



The caregiver notices their stress and decides to introduce Puzzled to them.



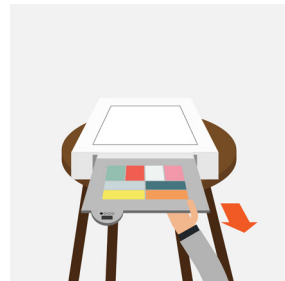
The caregiver takes the time to introduce the game.



The caregiver arranges the first stones on the board and says they can start playing.



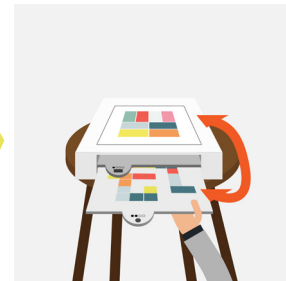
At their own pace Mrs. X and Mrs. Y start putting stones on the right spots.



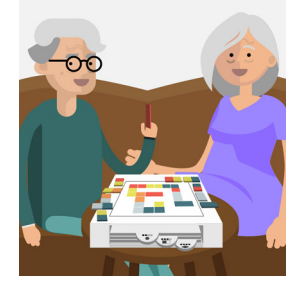
When they completed the pattern, the caregiver changes the puzzle and stores the tray in the box.



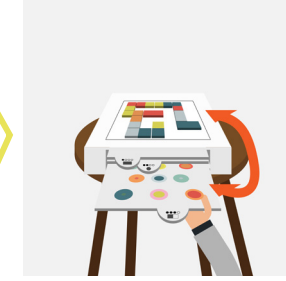
A first compliment is revealed and Mrs. X and Mrs. Y start smiling!



The caregiver places a new pattern on the playing area.



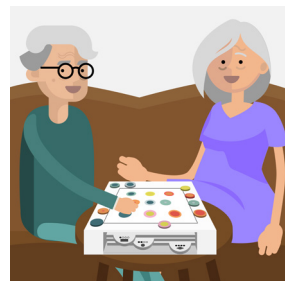
Mrs. X and Mrs. Y enjoying a more difficult pattern, they do a great job!



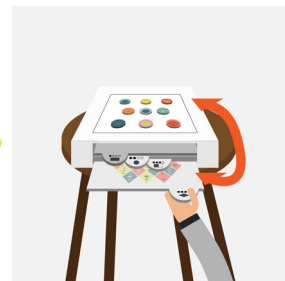
The pattern has been completed and the caregiver reveals the compliment.



Mrs. X starts laughing about the compliment!



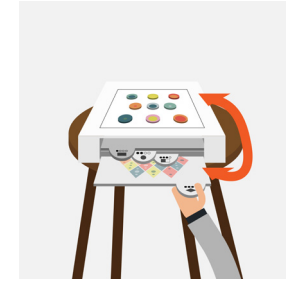
There is a lot of noise in the living room and Mrs. X. experiences problems with finding the right stone.



In the end they flawlessly finished the pattern. The caregiver changes the pattern and shows the compliment.



Both Mrs. X and Mrs. Y enjoy playing the game. They are up for the final stage!



The caregiver changes the pattern a last time and puts the corresponding stones on the playing field.



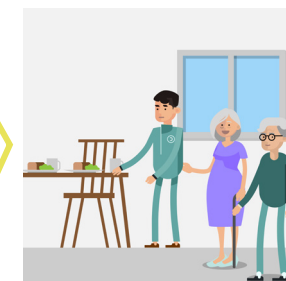
They have beaten the record! What an accomplishment!



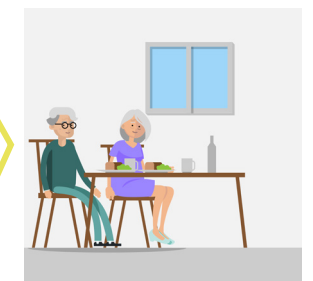
The game has finished and it is time to have dinner!



The caregiver congratulates Mrs. X and Mrs. Y and asks them to get ready for dinner.



The caregiver guides them to the table.



During the game Mrs. X and Y did not experience any stress about their spot so they can have a calm dinner now! Enjoy!

4.9. CONCEPT EVALUATION

In order to identify whether the design goal was met, and if the final concept fits within the policy of de Herbergier, two concept evaluation interviews were conducted. The questions can be found in Appendix 7.6

Previously the user scenario concludes the design iterations and summarizes a possible flow of playing the game Puzzled in the context of stress experienced regarding dinner time.

The multiple design iterations all provided the possibility to test the concept in the real user context. This makes it possible to evaluate the concept concerning real-life situations and adaptations.

Throughout the iterations, the concept was evaluated on the guidelines and qualities formulated in the design brief. In addition, following criteria will be evaluated as well:

1.	Amount of stress reduction for the elderly
2.	Ease of use of the concept for the caregiver
3.	Influence on the well-being of the elderly
4.	Influence on the learning ability
5.	Fit of the concept within the care policy of de Herbergier

A MOMENT OF DISTRACTION

By initiating the concept of Puzzled, a moment of distraction has been introduced during the waiting time before the dinner/lunch time. One of the observing behaviour of the elderly regarding the stress is constantly looking and talking about the spot at the table.

During the tests, it showed that there was enough distraction and impulses coming from the game in order to not be stressed about the spot. Both the elderly did not look at the spot at all during the tests. When there were moments they got distracted by their environment, they could immediately focus back on the game.

*“The concept can bring calmness due to the concentration needed for the game. It is not always about distraction, but also about focusing.”
> Caregiver of de Herbergier*

Based on these insights from the test sessions (see chapter 4), it can be stated that Puzzled successfully creates a moment of distraction.

IMPROVEMENT OF THE WELL-BEING

The elderly showed pleasure and fun during the different iterative tests. The amount of distraction differed from test to test, but there can be stated that how small the distraction is, it has already a big impact on the well-being of the elderly.

Moreover, not only the distraction itself adds to the well-being, but the compliments and accomplishments during the game show the impact of a positive state of mind.

The concept, as is, did not only affect the participants, it affected the elderly around as well: “It is nice to see that other elderly want to know what the prototype is and want to join in.” It shows that there is a certain recognition to the concept.

LEARNING ABILITY

“If the concept would be presented each lunch time for about a month then they might remember that they played it. If you do not do it consistently, then the remembering goes away.” > Caregiver of de Herbergier

During the tests, it shows that there is still an ability to learn new things within the game. The gradual built up of the different patterns showed that an increasing of the difficulty add to the ability to use learnt knowledge from a previous stage.

FIT WITHIN DE HERBERGIER

In order for the project to succeed, one of the conditions is that the concept fits the policy of De Herbergier. During the interviews one of the caregivers said this:

“As being a caregiver, you gave me the right instruments to distract them in a meaningful way. It is one concept as a whole, clear and intuitive.”

According to the care entrepreneur the final concept perfectly fits the policy of De Herbergier. It shows a specified solution to a personal problem, which is widely usable as well. The concept has been tailored specifically to Mrs X. Each time the concept improved according to her wishes and behaviour, but there are other elderly who already benefited from it as well. The final design fits perfectly within De Herbergier because of its modularity, and possibility to use it for different situations.

“Other caregivers would be delighted to use the concept as well, it gives them a backbone to interact with the elderly. Some of them do not have a social aspect in them and then this is an ideal way.”

In general, it can be stated that the concept fulfils the design goal set in section 3.1. The concept proved to improve the well-being of the elderly and takes away the stress during a normally very stressful moment. In the following chapter recommendations will be made and a reflection on the project will be given.

5

RECOMMENDATIONS, IMPLEMENTATION & REFLECTION

In this chapter recommendations towards the further development of the final design will be given as well as more details about the implementation of the concept. Furthermore, a personal reflection of the designer on the graduation process will be presented.

5.1. RECOMMENDATIONS

In order to further optimize Puzzled, some recommendations are made regarding the parts of the concept that need more attention.

Firstly, the patterns as they are now need improvement. During the tests, it seemed that the patterns were sometimes too easy to solve, resulting in a too short distraction time. More possibilities to choose the difficulty as a caregiver taking into account the state of the elderly. A possible solution to this problem is illustrated in figure 5.1.

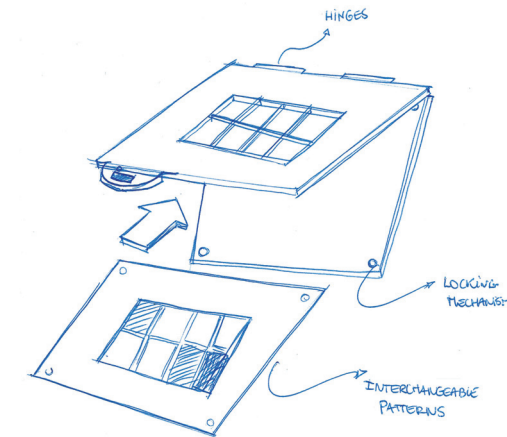


Figure 5.1 - Possible solution for more flexible patterns

Furthermore, when talking about the concept to experts, there seemed to be touchpoints with other situations of stress as well. For instance, this could be for elderly with hallucinations or when they are feeling homesick. Moreover, other groups can be targeted as well: children with autism, ADHD, etc. A specific solution for each target group in combination with the base concept as is, would be a logical next step.

The physical appearance of the concept is quite bulky at the moment. Improvements regarding size, transportation should be made as well.

A stakeholder that has not been involved during the project are the family of the elderly. Puzzled could be a perfect bonding for the elderly and their family. It gives a certain structure to the family to support the elderly in their process of dementia. This could be a possible direction to continue in.

In regarding distribution and further testing Puzzled in other situations it should be optimized for small batch production. Here fore, there might be some considerations needed towards the used material and assembling techniques.

Following a more in depth look on the implementation is given.

5.2 IMPLEMENTATION

FURTHER DEVELOPMENT

As mentioned already in the concept recommendations, there are some interesting opportunities to further develop the current concept for. When this graduation project has come to an end the goal is to further develop the concept and start a hand-made production of 10 prototypes. These prototypes will be spread for testing to other elderly homes. With those insight further iterations will be made till a producible and sellable product. Furthermore, a possibility might exist to distribute the concept within the consortium of de Herbergier.

FUND RAISING

To accomplish the goal of making a sellable product, funds will be raised by the designer through a crowd-funding platform, e.g. Kickstarter. In addition of raising funds this has the advantage that the product raises in public awareness.

COST CALCULATION

The one piece prototype used in this graduation project roughly costed, including assembling time, 200 euro. When optimizing the design and production techniques, the aim is to have a sellable small-batch prototype of 150 euro, excluding VAT.

TESTING IN OTHER SECTORS

Good contacts are established with a school in Prague specialised in care for children with Autism and concentration disturbances. They are eager to test and further improve the concept so it does fit for other target groups as well.

5.3 DESIGNER'S REFLECTION

Puzzled originated from the aim to improve the well-being of elderly with dementia. In the beginning of this process I did not have any direct connection with elderly with dementia. For me the process of learning to understand them, design for them and make them happy was a huge eye-opener.

The complete process of designing a suitable interaction that fulfilled the design goal and added something meaningful to the lives of elderly has been a long one. Nevertheless, along the way I learned a lot about myself and how I behave in the context of testing and delegating. I was not always able to keep a clear focus on the end goal, but all steps I took were valuable in some way. Certain learnings I will not forget and value for the rest of my life.

Starting with a really broad context of stress moments experienced by elderly with dementia made me take a long time to understand what exactly was happening. This process gave me rich insights which I could use later in the project to specify the design to. The narrow design space where I had to work in did not make it easy for me. A lot of the things I tested did not work out. Nevertheless, they showed me how to continue with the project. At the moment, I finally found something that did take away the stress I felt intensely happy! This happiness was at first instance not directed to my project, but to the fact that I found a contribution to improve the well-being of the elderly.

It is really nice to see that a simple interaction can have such a big impact on the happiness level of people. Puzzled seems simple for us, but for elderly with dementia it is a huge accomplishment to play the game.

I do believe that the approach of distraction is the most valuable and effective way to interact with the stress. Inherently it has already been used by the caregivers through the use of humour or talking. With Puzzled it became a bit more explicit.

Certain learnings you cannot derive from literature, you have to experience them. During a lecture, I gave at my previous university, this was one of the takeaways I gave the students. Immerse yourself into the context, not only by literature but by experiencing every single detail of the interaction yourself.

As a designer, I learned through this project that you have to keep pushing yourself into a direction you might not want to go into. The persistence can include some nice rewards. During a long stage of the project I was persistent in not continuing with a development of a toy. In the end Puzzled did become a toy in some way, but it has much more impact and is specified for the target group taking into account their view on the product.

This project has been a great pleasure for me and a big challenge for my personal being. I had to stretch my boundaries and keep going, even when I felt it was enough. I can say that I am finally ready for a next stage in my life, getting into the working world!

6

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APPENDICES

7.1. STAGES OF ALZHEIMER'S DISEASE

No Dementia Stage 1:

No Cognitive Decline

In this stage the person functions normally, has no memory loss, and is mentally healthy. People with NO dementia would be considered to be in Stage 1.

No Dementia Stage 2:

Very Mild Cognitive Decline

This stage is used to describe normal forgetfulness associated with aging; for example, forgetfulness of names and where familiar objects were left. Symptoms are not evident to loved ones or the physician.

No Dementia Stage 3:

Mild Cognitive Decline

This stage includes increased forgetfulness, slight difficulty concentrating, decreased work performance. People may get lost more often or have difficulty finding the right words. At this stage, a person's loved ones will begin to notice a cognitive decline. Average duration: 7 years before onset of dementia

Early-stage Stage 4:

Moderate Cognitive Decline

This stage includes difficulty concentrating, decreased memory of recent events, and difficulties managing finances or traveling alone to new locations. People have trouble completing complex tasks efficiently or accurately and may be in denial about their symptoms. They may also start withdrawing from family or friends, because socialization becomes difficult. At this stage, a physician can detect clear cognitive problems during a patient interview and exam. Average duration: 2 years

Mid-Stage Stage 5:

Moderately Severe Cognitive Decline

People in this stage have major memory deficiencies and need some assistance to complete their daily activities (dressing, bathing, preparing meals). Memory loss is more prominent and may include major relevant aspects of current lives; for example, people may not remember their address or phone number and may not know the time or day or where they are. Average duration: 1.5 years

Mid-Stage Stage 6:

Severe Cognitive Decline (Middle Dementia)

People in Stage 6 require extensive assistance to carry out daily activities. They start to forget names

of close family members and have little memory of recent events. Many people can remember only some details of earlier life. They also have difficulty counting down from 10 and finishing tasks. Incontinence (loss of bladder or bowel control) is a problem in this stage. Ability to speak declines. Personality changes, such as delusions (believing something to be true that is not), compulsions (repeating a simple behavior, such as cleaning), or anxiety and agitation may occur. Average duration: 2.5 years

Late-Stage Stage 7:

Very Severe Cognitive Decline (Late Dementia)

People in this stage have essentially no ability to speak or communicate. They require assistance with most activities (e.g., using the toilet, eating). They often lose psychomotor skills, for example, the ability to walk. Average duration: 2.5 years

7.2. INTERVIEW WITH PSYCHOLOGIST DR. B. BECK

Geur invloed op volledige groep (vooral indirect, oplossing eerder direct)

Belang vaste eetplek is groot -> geeft structuur terug + mogelijk tijdsbesef terug

Stress ontstaat door dat er iemand op hun plaats zit.

Gaat hem over plaats aan tafel, niet om stoel.

- Mensen die er rond zitten

- Behoefte rond eten etc.

Inpraten kan het zijn dat dezelfde vraag terugkomt - blijvend in stress proces.

Veiligheid en persoonlijke ruimte belangrijk + structuur

Geen harde effecten bij geur

Omgeving zelfde ruiken + zelfde geluiden op achtergrond -> baat bij hebben voor dementerenden.

Sneller thuis voelen, minder stress

Vb. Klok die je pas hoort als hij niet meer tikt.

Tussen opname (verhuizing) na weken mensen gewend geraken aan medebewoners, geluiden etc.

Vaste plaats (standaard) essentieel

- Automatisch gaan mensen naar hun vaste plek

Sommige mensen moet je niet aan raam zetten naar buiten kijken - onrustig worden

Anderen willen niet met rug naar deur zitten, weten wat erbinnen komt, persoonlijk waar je veilig voelt.

Als er iemand bijkomt is de enige plaats vrij van diegene die weggevallen is.

Dementeren is een zeer stressvolle situatie

Placemat voor vaste plaats - Ontstaat er ook stress als er niemand op die plek zit?

Veelvoorkomend probleem? Of schijnprobleem?

Is het probleem een vaste plek? Of ik weet niet wat er van mij verwacht wordt, ik zit in een situatie, gaan we eten/niet eten. Moet ik betalen/niet betalen, hoe gaat dat nou?

Meestal weten ze wel dat ze gaan eten. Geur van eten enzo. + tijdindicatie in sommige gevallen.

Sleuren aan iemand om die weg te krijgen.

Eigen stoel meenemen, herkennen eigen stoel

Dementie is meest belangrijke -> dementie roept angst op. Vooral beginstadium. Comfort verhogen - discomfort verminderen

Als je in bedreigde ik zit / verdwaalde ik. Voorspelbaarheid het meest belangrijke. Elke dag zelfde uitzicht en omgeving veranderd niet, meest veilige. Zodra je nieuwe situaties krijgt moet je nadenken en plannen.

Dementerenden leren nog wel, beginfase, (leren code vd deur), leren waar hun kamer is. Er is nog leervermogen. Principe van foutloos leren uitgevonden. Heleboel energie insteken - inslijpen.

Dementie -> voorspelbaarheid heel belangrijk en niet geconfronteerd worden met het falen.

“weet je nog wie ik ben?” weet het niet maar zou het wel moeten weten. Lijdt tot stress.

Voorspelbaarheid is allerbelangrijkste. Weten wat er gebeurt.

Op deuren 2 foto's (oude foto, jonge foto) deuren lijken allemaal hetzelfde. Omdat geheugen achteruit gaat, herinner wel nog vroeger.

Sommige mensen reageren niet meer op hun achternaam, wel op voornaam.

Naam van man vergeten. Reageerde er niet op.

Zomerhoed ophangen, herkenning kamer.

Angst ontstaat omdat veiligheid - verandering in dagelijks patroon

Ondanks dat de vaste plek er al is, bv als familie komt. - oplossing bieslandhof: Als je met familie bent, ga weg uit woonkamer/afdeling en ga ergens anders zitten.

Voor de drukte en iemand toch op zn vaste plek kan zitten.

Sommige mensen vinden het niet erg, andere heel erg - leidt tot stress.

Wat is plezier, Karel van Bro

Voorspelbaarheid x3. Zo min mogelijk verrassingen.
Kleur op deur/wc op deur. Indicatie wat wat is.
Ook al werkt het maar voor 1 persoon, zelfs dat zou mooi zijn
Vaak oplossingen door met de oudere te praten, of diegene die op de plek zit.
Soms werkt dit gewoon niet.
Geef mensen zoveel mogelijk voorspelbaarheid, vastigheid, structuur. Allemaal belangrijk bij mensen met dementie.

Wat doe je als iemand op iemand anders vaste plek zit – onderzoeksvraag
Oudere beter mee laten omgaan. Stress wegnemen.
Hoe groot is dat probleem? Vragen a persoon om weg te gaan.
In sommige gevallen is het probleem wel groot als tijdsspanne te kort is tussen eten en als de persoon er zit. Ontstaat er bij de persoon stress als die eraf gehaald wordt?
Placemat met naam etc.
Ofwel oudere duidelijk maken dat op dit moment niet zo erg is dat er op dat moment iemand op die plaats zit en wel zal weg zijn tegen dat het etenstijd is.
Stress daarrond verminderd
Diegene die erop gaat zitten, zorgen dat persoon te weten komt dat het een vaste plek is.
Als andere oudere er gaat zitten.
Sommige mensen denken dat huiskamer hun woning is/huiskamer, bewoner heeft vriendelijk gevraagd om weg te gaan, maar ze gaan niet weg. Gebeurt soms.
Oorzaak rond structuur belangrijk: dement zijn is stressvolle situatie. Omdat je continu tegen dingen aanloopt en niet weet hoe je het moet oplossen. Komt mensen tegen maar je kent hun naam niet.
Mes, vork, lepel – soep eten. Met mes soep eten. Duidelijkheid bv door alleen lepel te laten liggen.
Dement zijn betekent dat er doorlopend eisen aan je gesteld worden waar je niet aan kunt voldoen.
Complex.
Hoe wc doorspelen etc. Continu zaken van hoe zit het nu. Maakt iets uit als je in het begin vh proces zit of niet. Midden in de nacht wakker worden, donker. Waar ben ik in hemelsnaam. Hoe zit het nu?
Als je niet meer weet dat je hulp nodig hebt, maar je wordt wel geholpen, ook stressvol. Bv bij hulp bij douchen.
Afstandsbediening doet niet, verkeerd om.
Dementie continu gebeuren. Beginstadium, naamherkenning.
Betalen voor eten, etc? Oplossing, brief met gratis kost en inwoon. Eten gratis.
Feit dat je continu een appel op je gedaan wordt met je moet iets doen maar je weet niet wat, is lastig.
Sommige familieleden testen hoever ze zijn in het proces. Bv wat net gegeten, vraag maakt ouderen onzeker. Moet antwoord op hebben, maar zou wel moeten weten.
Elke situatie kan op een gegeven moment nieuw zijn, hoe vertrouwd de omgeving, hoe veiliger ik me voel.
Vaste plekken onthouden hangt af van stadium.
Wit muren, beangstigend. Te clean
Contrasterende kleuren bij servies etc.
Continu bezig om omgeving zo veilig mogelijk te maken.
Eindfase, alleen reactie op zintuiglijke prikkels.

Stress verminderen -> betere levenskwaliteit
Speciale videobanden, langzamer, niet teveel informatie. Om info te verwerken.
Wat is de levensloop, gewoontes, wat heeft deze persoon van ons nodig.
Onbegrepen gedrag – komt van niet goed in vel zitten. Wat moeten doen om beter in vel te voelen, wat niet doen.
Individuele benadering heel belangrijk.

Tijd gestructureerd door helpen mee te koken etc.
Hoe zou het zijn als je bij het eten zelfde muziek zou draaien. Conditioneren in positieve zin.
Tune bij serie – roept verwachtingen op.
Hoe kan het kader van bekendheid gebruikt worden.
“Wat heeft deze persoon van ons nodig” Veranderend doorheen de dag. Smorgens begrijpen dat hij opgenomen is, savonds door vermoedheid.
Begin kan je prikkels niet meer verwerken. Tussendoor rusten bv.
Hoeveel prikkels heeft deze persoon nodig om zich plezierig te voelen?
Zinnvolle tijdsbesteding, wat mensen leuk vinden. Als je praat over hier en nu, is stress. Praat over vroeger en laat dingen zien.
Eigenwaarde terugvinden. Als je kan vertellen wat je vroeger leuk vond.
Geheugenmuseum Humanitas. Roept herinneringen op. Vooral leuke herinneringen.
Sommige mensen vinden het heerlijk om iets voor de andere te betekenen. Bv kopjes afwassen.
Wat heb je nodig om je lekker in je vel te laten zitten, vertrouwde omgeving, dingen die je herkent.
Kopjes die je herkent etc. Bij dementie is er nog steeds leervermogen. Sommigen herkennen niets meer -> verder in het proces.. In begin van slag. Naar verloop van tijd wennen ze er aan.
Sommige vinden weg naar hun kamer, anderen vinden die op goed geluk.
Hallucinaties
Veilige geborgen omgeving creëren. Wat geborgenheid is hangt van persoon af.
Smaakverschillen, pindakaas vroeger niet lekker, nu wel.
8-9 mensen op een huiskamer, bij rusten etc soms 1 a 2 in de huiskamer.
Is het de angst, of is er onrust ik weet niet precies wat er aan de hand is.
Onrust door feit dat iemand anders opzit.
Wat moet er dan gebeuren om dat gevoel van veiligheid te waarborgen?
Als dat plekje zo belangrijk is, velen bereid om op te staan, anderen niet. Hoe kunnen we voorkomen dat het tot een handgemeen komt.

Als bij de persoon van belang is, hoe kan er duidelijk gemaakt worden dat de plek voor de man of vrouw is? En hoe kunnen we de man ook rust gunnen?
Zou er rust ontstaan wanneer die oudere weet dat de plaats zal vrijkomen? Als ze gaan eten gaat u hier zitten, + wat is er nog meer voor nodig? Daar geldt weer, als het consequent zijn, dan slijt het ook weer in. Die leert ook wel van het komt wel goed. Gevoel van vertrouwen. Als we inconsequent zijn, ene keer wel andere keer niet. Dan verloopt dat conditioneringsproces ook niet zo goed.
Tijdsindicatie etc als oplossing. Timer dmv klok
Stress blijft door zichtelijk geen verandering.
Zit je vast aan het plekje? Wat maakt nu net dat de plek zo belangrijk is? Omdat andere oudere daar dicht bij zit, deur, toezicht op deur, bloempot. Etc.
Sommigen wel / niet naar deur laten kijken -> onrust.
Vooral personen die er rond zitten, omgaan met mensen die op een bepaalde manier eten.
Leuk om te kijken, zit het hem in het plekje omwille van uitzicht, ook bepaalde andere dingen?
Mensen gaan altijd op vaste plek zitten, bv kopse kant van tafel.
Niet raar dat mensen plek herkennen. Telkens opnieuw zelfde plaats. Wordt ingeslijt in je geheugen.
Man wordt rustig van muziek, zit hele dag in de kamer. Veilige omgeving. Foto van overleden vrouw, kunstwerk, stereo.
Belangrijk wat uit verleden belangrijk is voor die persoon.
Wat heeft de man nodig om in deze wereld zich goed te voelen. Wat weten we van zn persoonlijkheid, gewoontes, rituelen. Wat heeft deze persoon nodig?
Behoeft aan vastigheid en voorspelbaarheid. Vaste plek.
Hoe kan je die veiligheid geven, ookal wordt die plek ingenomen door iemand anders.
Hoe kunnen we het oplossen als de persoon echt niet van die plek af wil. Wat zouden we de man

kunnen bieden om toch het gevoel van veiligheid te hebben.

Mensen kunnen soms heel dwangmatig zijn. 3u van voordien met plek bezig.

Kunnen we het zodanig inrichten dat iemand anders niet geneigd is op die plek te gaan zitten?

Kunnen we ervoor zorgen dat die plek leeg is en willen we dit ook. Beleid van huis?

Hele stapel magazines/boeken op die plek leggen, of persoonlijke spullen van de man neerleggen zou dit een ander weerhouden van te gaan zitten? Of juist uitnodigen. Zodra de specifieke persoon er gaat zitten het weghalen.

Algemene literatuur: hoe ervaring mensen die aan het dementeren zijn, veiligheid, dit is de essentie van wat gebeurt er in die hersenen, wat kun je wel, wat kun je niet. Stress die oproept, hoe stress verminderen en gevoel van welbevinden voor elkaar krijgen.

7.3. QUESTIONNAIRE STRESS MOMENTS CAREGIVERS

1. Hoe ziet mijn dag eruit?
 - 1.1. Kort overlopen van hun dag om de herinneringen terug te halen.
“Graag had ik samen met jou je werkdag overlopen, kan je mij bij het overlopen de belangrijke momenten aanduiden?”
 - 1.2. Overlopen van de momenten waar de verzorgende naar uitkijkt
 - 1.2.1. Meer duidelijkheid hoe situatie precies in elkaar zit
“Graag had ik van je geweten hoe de situatie normaal gaat?”
 - 1.2.2. Waarom ze het net zo leuk vinden?
“Waarom vindt u dit zo leuk?”
 2. Een week uit mijn leven!
 - 2.1. Focus op de leuke moment voor hunzelf.
 - 2.1.1. “Wat was voor jou het leukste moment die je hebt opgeschreven?”
 - 2.1.2. “Kan je het moment meer in detail beschrijven/overlopen?”
 - 2.1.3. “Waarom was dit zo leuk voor jou?”
 - 2.2. Focus op minst leuke moment voor hunzelf.
 - 2.2.1. “Wat was voor jou het minst leuke moment die je hebt opgeschreven?”
 - 2.2.2. “Kan je het moment meer in detail beschrijven/overlopen?”
 - 2.2.3. “Waarom was dit niet leuk voor jou?”
 - 2.2.4. “Wat heeft precies tot deze stresssituatie geleidt?”
 - 2.3. Focus op leukste moment voor de oudere
 - 2.3.1. “Wat was, gedurende die 5 dagen, het leukste moment voor een oudere?”
 - 2.3.2. “Kan je het moment meer in detail beschrijven/overlopen?”
 - 2.3.3. “Waarom was dit leuk voor de oudere?”
 - 2.4. Focus op minst leuke moment voor de oudere
 - 2.4.1. “Wat was, gedurende die 5 dagen, het minst leukste moment voor een oudere?”
 - 2.4.2. “Kan je het moment meer in detail beschrijven/overlopen?”
 - 2.4.3. “Waarom was dit niet leuk voor de oudere?”
 - 2.4.4. “Wat heeft precies tot deze stresssituatie geleidt?”
 - 2.5. Vragen over zelfgekozen stressmoment (indien nog niet aan bod geweest)
 - 2.5.1. “Voor mij leek dit een interessante stresssituatie, kan je mij de situatie eens overlopen”
 - 2.6. Vragen over zelfgekozen leuk moment (indien nog niet aan bod geweest)
 - 2.6.1. “Voor mij leek dit een interessante gebeurtenis, kan je mij meer duidelijkheid geven wat er precies gebeurde?”
 3. Jouw persoonlijke superkracht!
 - 3.1. “Ik zie dat jouw persoonlijke superkracht ... zou zijn, waarom heb je die precies gekozen?”
 - 3.2. “Hoe zou deze kracht je helpen bij je dagelijkse werk?”
 - 3.3. “Welke invloed zou dit hebben op het humeur van de ouderen?”

7.4. CONTEXT MAPPING BOOKLETS SETUP

EEN WEEK IN HET LEVEN VAN ...

plaats hier een foto of tekening van jezelf!



Mijn naam is
 ik ben jaar en werk al
 jaar als
 bij de Herbergier! In mijn vrije tijd
 besteed ik voal tijd aan

Hoi!

Vanaf nu is dit jouw persoonlijk boekje! Voel je vrij om dit volledig te personaliseren!

De informatie in die boekje zal mij helpen bij mijn onderzoek naar het **verminderen van stress bij dementerende ouderen**. De gegevens in het boekje zijn alleen voor academische toepassingen, indien het gepubliceerd wordt zal dit anoniem gebeuren. Het invullen van dit boekje neemt per dag ongeveer 5 minuten in beslag, dit voor 5 dagen lang.

Het boekje bestaat uit 3 opdrachten. Opdracht 1 en 3 kan je kiezen wanneer je deze maakt, bij opdracht 2 doe je dit best op de dag zelf.

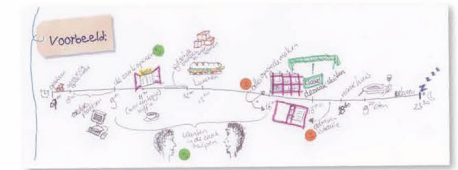
Het is de bedoeling om na het invullen van dit boekje een kort interview (maximum 1 uur) af te nemen om het boekje samen te doorlopen en bespreken. Ik zou graag weten op welke momenten het interview het beste kan plaatsvinden, je kan me dit laten weten via WhatsApp of email (zie hieronder).

Indien je specifieke vragen hebt kan je mij altijd contacteren op andreasdlandere@gmail.com of op 0610704247.

Veel invulplezier en alvast bedankt!
 Groet,
 Andreas

1.2 Naar welke momenten kijk je het meeste naar uit als je gaat werken?

Duid de leukste momenten aan op de tijdlijn van je werkdag met een **groen bolletje en een nummer!** We komen hier tijdens het interview op terug!



Einde van je werkdag

3

1 Hoe ziet mijn dag eruit?

1.1 Wat gebeurt er zoal tijdens een werkdag?
 Denk hierbij aan wat je zoal doet op een normale dag in de Herbergier. Plaats hierbij de meest relevante moment op de tijdlijn, vanaf het moment dat je in de Herbergier aankomt. Hierbij graag de begin en eindtijd vermelden.
 Mogelijke relevante momenten kunnen bijvoorbeeld zijn: "Ontbijten met de ouderen" of "Afwassen".
 Indien je het makkelijker vindt kan je de laatste dag beschrijven waarbij je in de Herbergier gewerkt hebt.

 Start van je werkdag

2

2 Een week uit mijn leven!

In dit onderdeel is het de bedoeling om gedurende een werkdag te letten op leuke en stressvolle momenten tijdens je dag. Dit kunnen kleine zaken zijn.

Om meer inzicht te krijgen in de **leuke/stressmomenten voor jezelf en voor de ouderen** in het bijzonder vraag ik je om dit bij te houden in dit boekje. Je kan ervoor kiezen om nadat je het moment beleefd hebt het onmiddellijk in het boekje in te vullen, of het na je shift te doen. De bedoeling is om op het einde informatie over 5 dagen te hebben.

In verband met informatie met betrekking tot de oudere gaat het om momenten waarbij zij stress/angst/verlegenheid/onrust ervaren. Een voorbeeld hiervan kan bijvoorbeeld zijn dat ze zich onrustig voelen wanneer iemand / een medebewoner begint te schreeuwen. Probeer het moment zo goed mogelijk te beschrijven. Hier gaan we dan tijdens het interview dieper op in.

Tip: om je later beter te kunnen herinneren wat de situatie precies inhield kan je de naam van de persoon (hoeft niet steeds dezelfde te zijn) vermelden waarover het ging. Deze informatie blijft natuurlijk **confidentieel!**

4

DAG 1

vandaag is het:

Voor jezelf

Bij een oudere

de oudere heet:



leuk moment



stressvol moment



de oudere heet:

5

DAG 2

vandaag is het:

Voor jezelf

Bij een oudere

de oudere heet:



leuk moment



stressvol moment



de oudere heet:

6

DAG 3

vandaag is het:

Voor jezelf

Bij een oudere

de oudere heet:



leuk moment



stressvol moment



de oudere heet:

7

DAG 4

vandaag is het:

Voor jezelf

Bij een oudere

de oudere heet:



leuk moment



stressvol moment



de oudere heet:

8

DAG 5

vandaag is het:

Voor jezelf



leuk moment



stressvol moment

Bij een oudere

de oudere heet:

de oudere heet:

Notities

Hier kan je dingen noteren die je graag zou melden tijdens het interview of extra bijkomende informatie die bij de ingevulde dagen horen.



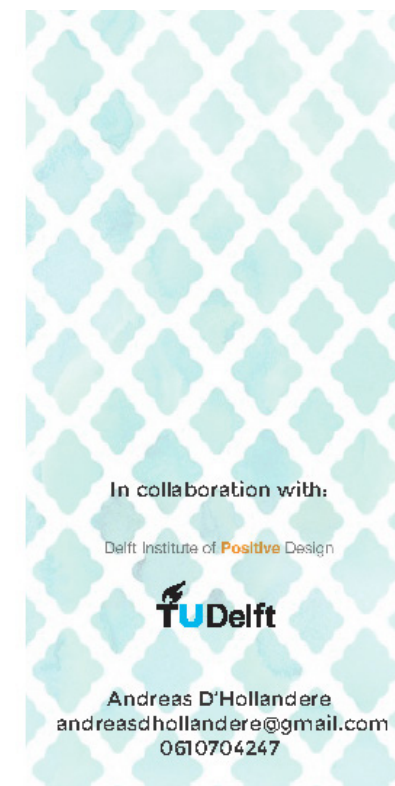
3

Jouw persoonlijke superkracht!?

3.1 Als jij een superheld was met een bepaalde superkracht, welke zou dit dan zijn?

Dit zou mijn superkracht zijn:

Omdat:



In collaboration with:

Delft Institute of **Positive** Design



Andreas D'Hollandere
andreasd hollandere@gmail.com
0610704247

7.5. BRAINSTORM SESSIONS

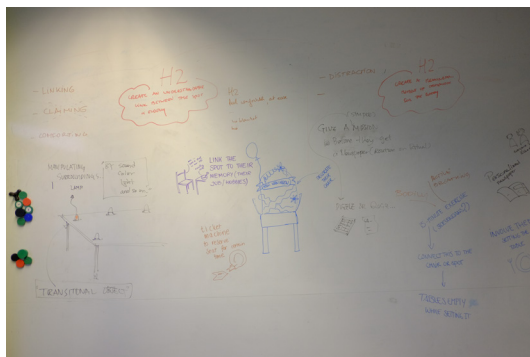
For the brainstorm sessions different how-to's has been set-up, each time focussing on a different (and more specific) are of the design space and design directions. In the beginning of each brainstorm session a brief introduction to the project was given and the how-to's were introduced.

HOW TO'S OF FIRST BRAINSTORM SESSION

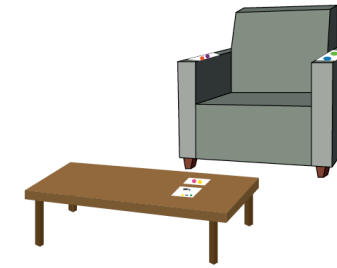
- How to give the elderly more certainty that there will be no one at their spot
- How to indicate that the person that wants to sit at that spot, the elderly really wants to sit there for diner
- How to stimulate own intervention of the elderly to solve the problem
- How to reduce the overall stress level
- How to decorate the space so that no one else is happy to sit there (blocking off)
- Transfer a feeling of safety even when the favourite spot is taken by someone else
- Make the elderly clear in advance that the place will be available at the right time (predictability)

HOW TO'S OF THE SECOND BRAINSTORM SESSION

- Use the 15 minutes most effectively to lower the stress level
- Create an understandable link between the spot and the elderly
- Create a meaningful moment of distraction
- Use the trigger to lower the stress level



7.6 'MOVE ME' CONCEPT

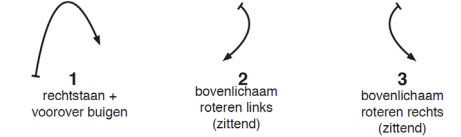


HOE WERKT HET?

DE OEFENINGEN IN DIT BOEKJE ZIJN TELKENS GEFOCUST OP HET BEWEGEN VAN HET LICHAAM IN EEN BEPAALDE MANIER OM ZO SPIEREN DIE NIET MEER GEBRUIKT WORDEN TE STIMULEREN.

IDEALE DOEL IS OM DEZE 'OEFENINGEN' MEERDERE MALEN PER DAG TE DOEN.

3 VERSCHILLENDE BEWEGINGEN ZIJN INGEBOUWD IN HET CONCEPT.



VERSCHILLENDE COMPONENTEN

DE TOOLKIT BESTAAT UIT 3 ALGEMENE ONDERDELEN. ENERZIJDS HET TE VERPLAATSEN VOORWERP (HOUTEN BOLLETJE), VERDER HEB JE EEN SEQUENTIE KAARTJE (2) EN TELKENS 3 AANRAAK KAARTEN (3)



SEQUENTIEKAART

DE SEQUENTIEKAART KOMT IN 3 MOGELIJKE MOEILIKHEIDSGRADEN. MAKKELIJK (GROEN IN LINKERBOVENHOEK), ORANJE (IETS MEER COGNITIEF EN FYSIEK INTENSIEF) EN ROOD (COMPLEX). HET IS AAN DE BEGLEIDER OM UIT TE MAKEN WAT ER VAN TOEPASSING IS. VOOR MEVR. VAN VEEN ZOU IK EEN ORANJE OF RODE KAART AANRADEN DAAR ZIJ NOG GOED COGNITIEF KAN DENKEN.

ONDERAAN RECHTS STAAN DE BIJHORENDE AANRAAKKAARTEN VERMELD DIE VOOR DEZE OEFENING NODIG ZIJN.



AANRAAKKAART

DE AANRAAKKAART DIEN OM DE BEPAALDE BEWINGEN NAAR TOE UIT TE VOEREN. HET AANRAKEN VAN DE KAART MET HET BOLLETJE IS IN EERSTE INSTANTIE VOLDOENDE. WANNEER MEVR. VAN VEEN HET EENMAAL GEWOON IS KAN JE OOK VRAGEN OM HET BOLLETJE TE LATEN LIGGEN EN IN EEN VOLGENDE STAP TERUG OP TE NEMEN EN TE VERPLAATSEN.



WAAR LEG IK DE VERSCHILLENDE ONDERDELEN NEER?

IN HET GEVAL VAN MEVR. VAN VEEN WORDT DIT SPEL VANUIT HAAR ZETEL GESPEELD. DE AANRAAKKAARTEN (1) WORDEN OP ELKE LEUNING VAN DE ZETEL GELEGD EN EEN TJE OP HET SALONTAFELTJE VOOR HAAR. DE SEQUENTIEKAART (2) KOMT VOOR HAAR OP HET SALONTAFELTJE BOVEN DE AANRAAKKAART.



HOE INITIALISEER IK HET SPEL?

HET DOEL VAN DIT SPEL IS OM DE SPIEREN SOEPEL TE HOUDEN EN TEvens OM AFLEIDING TE BIJDEN VOOR DE TAFELPLEK-STRESS DIE MEVR. VAN VEEN ERVAART. JE KAN HAAR BEST UIT-LEGGEN DAT HET DIEN OM HAAR SPIEREN SOEPEL TE HOUDEN, MAAR NIET DAT HET DIEN OM HAAR AF TE LEIDEN.

WANNEER DE UITLEG GEGEVEN IS KAN JE HAAR UITLEGGEN DAT JE ZE TELKENS HET DESBETREFFENDE KLEURPATTERN/CIJFER MET HET BOLLETJE MOET AANRAKEN EN TERUG GAAN ZITTEN, VOOR ZOVEEL SEQUENTIES DIE AANGEGEVEN STAAN.

DE EERSTE PAAR KEREN KAN HET WAT VERWARREND ZIJN EN IS HET HANDIG OM ERBIJ TE BLIJVEN ZITTEN EN HET EVENTUEEL EENS VOOR TE TONEN.

WANNEER ALLE KAARTJES VAN EEN BEPAALDE MOEILIKHEIDSGRAAD ZIJN DOORLOPEN KAN JE VRAGEN ALS ZE NOG MEER WIL, OF ZELF DE KAARTJES OPRUIMEN EN VEILIG WEGBERGEN VOOR DE VOLGENDE KEER.

7.7. CONCEPT EVALUATION QUESTIONS

1. Where are you happy about in this concept?
2. Which points can still be improved?
3. What is your personal experience with the product?
4. Are there things you think can be improved specifically to Mrs van Veen within the concept?
5. Why do you think it does fit, or doesn't fit with Mrs van Veen?
6. Do you see yourself using this concept in other situations then to distract Mevrouw van Veen or applicable to other people?
7. Or even completely other situations outside de Herbergier (elderly without dementia e.g.)
8. Do you think it fits within the care policy of de Herbergier?
 - a. Why? Why not?
9. Will other caregivers dedicate some time for the elderly to play the puzzle?
10. If played regularly do you think there can be a consistent reduction in stress?

