THE USE OF THEATRE IN DESIGN FOR BEHAVIOUR CHANGE

AN ACCESSIBLE AND EFFECTIVE METHOD FOR PHILIPS

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PHILIPS DESIGN

30 NOVEMBER 2015

UNIVERSITY OF TWENTE

INDUSTRIEEL ONTWERPEN

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S1328727

Industrieel ontwerpen

30 November 2015

Philips Design, Eindhoven

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PREFACE

When you are familiar with theatre and you are involved in design somehow, you will know how logical the combination between these two fields of study actually is. The idea to use theatre to get a better understanding of the user and context of use to create and test designs arose during the first meeting with Gavin in Eindhoven. Jelle was able to give very valuable input throughout the project, as he is enthusiastically involved in researching the possibilities in combining theatre and design. Many thanks also go out to all the employees at Philips who attended the workshops for this project and made time to have in-depth conversations about the possibilities of the project. The interest, enthusiasm and faith in such an innovative, experimental project that Gavin, Jelle and many others expressed really helped to shape the method into a valuable, original and applicable tool.

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SUMMARY

In this project, the possibilities of theatre in designing for behaviour change are researched and tested, a method is made of this. A kitchen appliance that helps elderly to adopt a healthier lifestyle is designed with the help of theatre, therefore it is the case study of the theatre-method. The result of this project is a clear and complete manual that describes how to use theatre in the process of designing for behaviour change, this manual is extended with a workshop-kit that makes planning a theatre-workshop more accessible and fun.

Assessing many articles about behaviour change, healthy behaviour and the use of theatre in design is the first step of the project, practical information was gathered with the first theatre workshop. This analysing phase proved that especially in the field of design for behaviour change, a good understanding of the target group with their routines, habits, environment, triggers and motivation is key. Using theatre, designers can get to the core of these factors that cause specific behaviour. Information about the way of working at Philips shows that a theatre-method could be very successful when it is developed and promoted in the right way.

Based on the articles and the first workshop, specific theatre exercises are chosen and created that all lead to specific goals and can be used at different moments in the design process. The outcomes of the workshop are used to develop ideas for the 'case-study' of the project. More research on issues of elderly and the style of Philips will help in a later stage to make the product more suitable for the context where it is designed for. Four moments are distinguished where theatre can be a great addition to the design process:
- To gather insights in the user and the context of use during the discover-phase,
- Get more empathy for the user when the information is already gathered (this can be used in any phase of the process),
- To be able to generate ideas that will actually change the behaviour, so are tailor made for the target group, during the ideation-phase,
- Test concepts or basic prototypes in an early stage, so during the concept or prototyping phase.

The cluster of different exercises with their own goals were enriched with suitable warming-up and finishing exercises to complete the method. This leaded to a layout for the manual. A feedback session, interviews with specialists on the field of theatre and a second theatre workshop are organised to gather more insights about the exercises, way of giving a workshop and the way of implementing the method within Philips. Parallel to this, the ideas that were generated for the case study are developed and clustered to six product concepts from which three were chosen, these were used as an input for the second theatre workshop.

Beside the manual, a workshop-kit is designed to make planning a theatre workshop more accessible and fun. This kit consists of a timeline (for a workshop of three hours), exercise cards and some extra information, all folded together in a compact package. During the second theatre workshop, one of the concepts for the case-study was chosen and further developed. However, a last theatre workshop is required to detail the product a bit more and test the last theatre exercises. With this last input, both the method and the case-study can be finished and plans are made for the implementation of the method in Philips. The latter is done with a very short course on how to give a theatre workshop and a small video-instruction.

The final product, as described in the first few sentences of the summary, is a workshop-kit, manual and design for a product. The manual and workshop-kit are delivered in a physical prototype version, this can already be used within Philips. The case-study is developed to a detailed product description with a drawing, specifications and materials.

The way how the developed method is translated to a directly usable, physical product seems to be very valuable for both Philips and the field of study about the use of theatre in design. This project doesn't only explore a new field of application of theatre (specific for behaviour change) but also offers a concrete application of the method. Although the theatre-for-design method is already applicable and the delivered materials of good quality, there are still enough possibilities for further research and development of this method. The recommendations presented in the end of the report can pose as guidelines for follow-up assignments or researches.

SAMENVATTING

In dit project zullen de mogelijkheden van het toepassen van theater voor het ontwerpen voor gedragsverandering worden onderzocht en getest, hier zal een methode van worden gemaakt. Een keuken product die ouderen helpt om een gezondere levensstijl aan te nemen zal worden ontworpen met behulp van theater en zal daarmee het boegbeeld zijn van de theater-methode. Het resultaat van dit project is een duidelijke en complete handleiding die beschrijft hoe theater kan worden toegepast tijdens het ontwerpen voor gedragsverandering, deze handleiding is uitgebreid met een workshop-pakket die het plannen van een theater workshop toegankelijker en leuker maakt.

In de eerste stap van het project, de analyse-fase, zijn artikelen geraadpleegd over gedragsverandering, gezond gedrag en het gebruik van theater in ontwerpen. In de eerste theaterworkshop is praktische informatie opgedaan. Deze fase wees uit dat juist in het veld van ontwerpen voor gedragsverandering, het doorgronden van de doelgroep met haar routines, gewoontes, omgeving en motivatie centraal staat. Met theater kunnen ontwerpers doordringen tot de kern van al deze aspecten die specifiek gedrag veroorzaken. Informatie over de werkwijze binnen Philips wijst uit dat een theater methode erg succesvol kan zijn mits het op de juiste manier ontwikkeld en gepromoot wordt.

Gebaseerd op de artikelen en de eerste workshop zijn specifieke theater oefeningen ontwikkeld en gekozen die elk leiden tot een specifiek doel en gebruikt kunnen worden op verschillende momenten in het ontwerpproces. De resultaten van de workshop vormen de basis voor de ideeën die voor het 'boegbeeld'-product worden gegenereerd. Meer onderzoek naar specifieke problemen bij ouderen en naar de stijl van Philips zal in een later stadium helpen om het product goed te laten aansluiten bij de context waarvoor het wordt ontworpen. Vier momenten worden onderscheiden waarop theater kan worden toegepast in het ontwerp proces:
- Inzichten opdoen met betrekking tot de gebruiker en de gebruikscontext tijdens de analyse fase,
- Meer empathie voor de gebruiker opwekken (toe te passen tijdens alle fases),
- Effectieve en passende ideeën genereren tijdens de idee-fase,
- Vroeg concepten of simpele prototypes testen, tijdens de concept- of detailleringsfase.

De cluster van verschillende oefeningen met elk hun eigen doel zijn verrijkt met passende warming-up en afsluitende oefeningen, dit leidt tot de lay-out van de handleiding. Een feedback sessie, interviews met theater-specialisten en een tweede theaterworkshop zijn georganiseerd om meer inzichten te verzamelen over de oefeningen, manier van organiseren van een workshop en de manier van integreren van de methode in Philips. Parallel hieraan zijn de ontstane ideeën voor het 'boegbeeld'-product verder ontwikkeld en geclusterd tot zes categorieën, de drie die hiervan gekozen zijn vormden de input voor de tweede theater workshop.

Naast de manual is een workshop-pakket ontworpen die het plannen van een theater workshop toegankelijker en leuker maakt. Het pakket bestaat uit een tijdlijn (voor een workshop van drie uur), oefening-kaarten en extra informatie, allemaal met de manual samengevouwen in een compact pakket. Tijdens de tweede theaterworkshop is één van de concepten voor het product voor gedragsverandering gekozen en verder uitgewerkt. Er is een derde workshop nodig om het product uit te werken tot het gewenste niveau en de laatste theateroefeningen te testen. Met deze laatste input worden zowel de methode als het 'boegbeeld'-product afgewerkt en worden plannen gemaakt voor de implementatie van de methode in Philips. Dit laatste zal gedaan worden met een instructie-video die uitlegt hoe een workshop gegeven kan worden.

Het eindproduct, zoals beschreven in de eerste alinea, is een workshop-pakket, handleiding en ontwerp voor het product. Van de handleiding en workshop-pakket zijn fysieke prototypes/producten gemaakt, deze kunnen al gebruikt worden bij Philips. Het product voor ouderen is ontwikkeld tot een beschrijving met specificaties, materialen en een ontwerptekening.

De manier waarop de ontwikkelde methode is vertaald naar een direct bruikbaar, fysiek product is erg waardevol voor zowel Philips als het studiegebied van het gebruik van theater in ontwerpen. Dit project exploreert niet alleen een nieuw toepassingsgebied van theater (ontwerpen voor gedragsverandering) maar bied ook een concrete toepassing van de methode. Hoewel de methode al te gebruiken is en de afgeleverde materialen van goede kwaliteit zijn is er altijd ruimte voor vervolg onderzoek in dit veld. De aanbevelingen bieden suggesties voor vervolg opdrachten of onderzoeken.

1 INTRODUCTION

Philips is constantly searching for new innovations that will improve peoples' lives. A great way to improve lives is to encourage healthy living, which is something Philips tries to do as much as possible. Behaviour change strategies are frequently used at Philips as they are in line with the goal to enhance the quality of life of people and to guarantee a healthy lifespan. Another important focus of Philips is user-centred design; a good understanding of the user and context of use is therefore essential. Theatre can be a great method to enhance the design process of behaviour change products and/or services and ensure the centred focus on the user in the final design. In this project an extensive research is done to the use of theatre in design for behaviour change. Applying this design method in kitchen appliances can be a great way to encourage a healthier diet and a more sustainable way of living, such a design is made during the project as a 'figurehead' of the method. In the process of creating a high-quality method and an example product for this, several research questions are answered. The main research questions are the following.

1. How can theatre be used at Philips throughout the design process of products that focus on behaviour change to get a better final design?
    a. What different types of behaviour change strategies are used in consumer products and/or services?
    b. What is the most suitable theatre method that could be used in a design process?
    c. How can a case study of the design of a product reflect the effectiveness of theatre in design for behaviour change?
    d. How can the use of theatre in design for behaviour change be made suitable Philips?

This report describes the chronological order that is followed in the design-process of the theatre-method and the product for behaviour change for elderly. The design-process of both these deliverables will be described in separate paragraphs throughout the report. This structure suits the approach of this 'design research' best.

Chapter two will elaborate on the analysing phase, answers to the first four questions are given in different paragraphs. Chapter three is about ideation. Ideas are generated for both the product for behaviour change and the method that uses theatre in design for behaviour change. The fifth, sixth and seventh research questions will shortly be answered here. In chapter four, the method will take more shape, where the manual is designed based on new gathered insights. The first question is answered partly again, using information from real life experience and interviews with professionals. The product will also be further developed, further answering questions six and seven. Chapter five will detail the product and the method further. In this part, questions one, six and seven are answered slightly again as new insights are gathered. Chapter six presents the final design of the product and method, offering a final answer on the questions one and seven. Chapter seven sums up if the questions have been answered and concludes the project. Chapter eight contains recommendations for a follow-up project or research are given. In chapter nine, all the sources are listed. The appendix contains all background information, elaborated outcomes of workshops and interviews and images that are not directly relevant for the main report but do support the choices that are made for the project.

2 ANALYSIS

2.1 INTRODUCTION

As the project uses the input of a combination of many different principles and methods from design for behaviour change and for theatre in the design process, a structured analysing phase is key for useful results. Even though the different parts of the analysing phase are all connected, they are divided in some categories according to the research questions. For each category, the importance of the information for the total project is explained.

To answer the research question about behaviour change, several aspects that have to do with behaviour change are investigated. Not only the main behaviour change principles are listed, also an important framework of behaviour change (including some general information about habits and behaviour), a benchmark of behaviour change products and some ethical dilemmas are touched upon. Some suitable principles are chosen and integrated in the workshop to get more specific ideas in different directions.

The key information for behaviour change is off course the behaviour that should be encouraged. This research is linked to the research question about the case study to prove the use of theatre in behaviour change. In this section, different health advices for all age groups are researched and listed. This section finishes with the choice of a target group for the case study.

Different researches are discussed that describe ways and methods to use theatre to improve the design process in different ways, this is the first step in answering the research question about . In this section, the way how Philips currently uses methods that improve creativity, empathy with the target group, etcetera, will also be investigated. When enough information is gathered, a plan is made for the workshop, inspired on some of the methods from the research, own experience and maybe some knowledge about the current way of working of Philips.

As a final part in the analysing phase, the current way of working at Philips is assessed. This gives insight in the possibilities of integrating the use of theatre into the existing design environment and hereby is related to the research question about making the method suitable for Philips.

All this information is combined and a short plan on how this information will be used in the rest of the project is drawn up.

2.2 BEHAVIOUR CHANGE

To get all the required information about behaviour change to answer the research question, not just articles about the definition and application of behaviour change are investigated and linked to each other, an ethical consideration and benchmark also give insight in the way behaviour change is applied in (consumer) products.

Articles
Three articles are assessed and summarised with regards to behaviour change. (A framework for) behaviour change, by V. Buil, S. van Dantzig and K. Leuschner (2014) poses as the basis for the rest of the behaviour change-related research that is done. The summaries of the articles can be found in Appendix A. The connecting elements and the most important findings of the articles are presented here.

Buil, Van Dantzig and Leuschner (2014) explain that the goal of Philips is to create meaningful innovations that support creating the healthy lifestyle users want and need. With their products and services they can improve life standard by encouraging/influencing behaviour. The question is: when and where? These form the 3 axis of behaviour change (the model that is proposed in this article): 3 sources of influence on behaviour and different time ranges when they have influence. The sources of influence are divided in the Rider (internal: stands for

reflective, deliberate and rational processes), Elephant (Internal: stands for automatic, impulsive and emotional processes) and the Environment (External: stands for influences from the physical, social and virtual environment). The reflective system controls behaviour in a rational, long-term way, it is therefore called the slow system. This is the rider. The quick reactions are provided by the automatic system, the Elephant. Emotions, impulses, gut feeling and rules of thumb are the base of this fast system. Conflicts between these two happen when rational options do not match the feelings or the long-term outcome clashes with immediate reward. The environment consists of the physical environment (facilities, tools, geography, weather, climate, etc.), social environment (social context like family, friends, communities and culture) and the virtual environment (apps, internet, digital world). The layers of influence consist of the Key scene (crucial moments that contribute to a specific larger behaviour goal), story (cluster of events that led up to the current (key) scene) and background (stable factors in person's life that form the context) (compare all of these as if it is a movie). An internal (from rider or elephant) or external (from environment) trigger is always required to activate behaviour. The most successful solutions for behaviour change address multiple cells of the matrix.

Wendel (2014) defines four main phases in designing for behaviour change. First, it is important to understand, this phase contains discovering how we make decisions, create an action funnel and define strategies for behaviour change. The second phase is to discover, it is important to define the outcome, actor and action to get a suitable product. The next step is to actually design, a behavioural plan should be made, together with user stories. Then the interface and actual product can be designed. The last step is to refine: make an impact assessment, gather insights and ideas and look at changes and measurements. To understand how we make decisions, the model of the elephant (emotional, unconscious, automatic) and rider (rational, conscious, deliberate) is used. Six different stages of behaviour change (that remind of the transtheoretical model) are divided but are not always so lineair, they are divided into: Unaware, Contemplation, Preparing, Exploring, Internalising and Maintaining. Each stage requires a different approach when it comes to behaviour change. In general, the first two phases focus on creating a basic level of motivation, while the later phases are more focussed on supporting new behaviour and letting it grow into a persistent habit. Another important thing to understand is the action funnel, we act only if we pass all of 5 following stages: Notice a cue, Feel a positive emotional reaction, Rational cost/Benefit evaluation yields positive results (this part is skipped when the behaviour is a habit), having the ability to do it right now, The timing is right (this is also skipped when behaviour is a habit). Many stages go simultaneously and are not necessarily passed in this order. The three main strategies to change behaviour that Wendal uses are to support conscious decisions, making/changing habits and automating behaviour 'cheats'.

Michiea, Ashfordb, Sniehottac, Dombrowskid, Bishopb and Frenchb (2010) give an overview of all behaviour change techniques used to promote a healthy lifestyle. The list is presented with all the defined techniques that would help with the behaviour change for healthy eating and physical activity. Placing this taxonomy back into the framework for behaviour change discussed earlier in this paragraph (Table 2.1, Buil, Van Dantzig and Leuschner, 2014) gives a good combination between specific techniques and a general overview of behaviour change. The techniques for behaviour change (for healthy eating and exercising) are not specifically designed for products or services, however, the insight that is shown in these techniques can be used in that sector as well. Different design strategies that encourage behaviour change will focus on several of these points to make the effect of the product or service notable and sustainable. These techniques can also be connected to the framework of behaviour change, the article that was touched upon before. All the different BCT's are placed in the three by three matrix to get an overview of how the different techniques actually influence behaviour. Some fit in more than one cell and are named in all cells that are applicable.

	Background	Story	Key Scene
Rider	1 (provide information on consequences in general), 2 (provide information on consequences of behaviour to the individual), 21 (provide instruction), 22 (demonstrate behaviour), 30 (identification as role model)	5 (Goal setting, behaviour), 6 (goal setting, outcome), 7 (action plan), 8 (barrier identification), 10 (review of behaviour goals), 11 (review of outcome goals), 18 (focus on past success), 21 (provide instruction), 22 (demonstrate behaviour), 27 (follow-up	13 (reward successful behaviour), 15 (generalisation of target behaviour), 20 (provide information on where and when to perform behaviour), 21 (provide instruction), 22 (demonstrate behaviour), 33 (self talk), 34 (use of imagery), 40 (anticipation of future rewards)

		prompts), 35 (relapse prevention)	
Elephant	2 (provide information on consequences of behaviour to the individual), 28 (facilitate social comparison), 30 (identification as role model), 36 (stress management/emotional control), 37 (motivational interviewing)	9 (set graded tasks), 16 (self monitor of behaviour), 17 (self monitor of behaviour outcome), 25 (agree behavioural contract), 26 (practice), 36 (stress management/emotional control)	12 (reward on effort or progress), 13 (reward successful behaviour), 14 (shaping), 19 (provide feedback on performance), 31 (prompt anticipated regret), 32 (fear arousal), 34 (use of imagery), 36 (stress management/emotional control)
Environment	3 (Provide information about others' approval), 24 (environmental restructure), 28 (facilitate social comparison), 29 (plan social support), 39 (communication skills training)	20 (provide information on where and when to perform behaviour), 23 (teach to use prompts), 24 (environmental restructure), 29 (plan social support), 38 (time management)	4 (provide information about others' behaviour), 23 (teach to use prompts), 24 (environmental restructure), 28 (facilitate social comparison), 29 (plan social support)

Table 2.2. Integrating the Behaviour change techniques in the framework for behaviour change.

Research to specific behaviour change methods shows that well-working methods, like gamification address to more than one cell in the matrix of behaviour change, and therefor incorporate more of the techniques that are described above. A product that changes behaviour well therefore uses several of the techniques as described above and therefore address to several cells of the matrix. In order to do this, a good understanding of the user, activities and context is required.

Benchmark
This benchmark is used to get an idea of what behaviour change products already exist and how they can be placed in the framework of behaviour change. This gives insight in how behaviour change is applied in real existing products. To keep this report compact, the complete research can be found in Appendix B.

All fourteen products (sources: Broughall (2015), FitBit (2015), Fowler (2014), Henn (2013), Jacobs (2014), Newman (2015), Mitchell (2014), PR Newswire (2015), Roy (2014), Superflux (2014), Wong (2015), Young (2013)) have one main way to change behaviour. Based upon their main way of behaviour change, the fourteen products are placed accordingly in the three by three matrix of behaviour change (from framework of behaviour change: Buil, Van Dantzig and Leuschner, 2014). This division can be seen in table 2.3. Note that this main way is not the only way, focussing on more cells is exactly what makes behaviour change products effective.

	Background	Story	Key Scene
Rider		- Withing Blood pressure monitor & Tinkle - MyFitnessPal - Aria Scale - Nike fualband & Jawbone UP	- Countertop
Elephant			- Slimware - Wii Fit & Your Shape Fitness
Environment			- TempTraq, Lumo lift & June bracelet -HAPIfork

Table 2.3. Products divided in the matrix of behaviour change.

A lot of the products focus on tracking results and setting goals. This makes the 'story of the rider' cell, where conscious behaviour change is done, a very important one. All other products focus on the key scene, as this is the most important moment when it comes to executing specific behaviour (and the last chance to change behaviour). Off course, the other cells are also important when looking at behaviour change: all products change behaviour in more than half of the cells, some even in all the cells. All products require motivation to

change to start with, otherwise the products would not be bought and used consistently. Only if the products are used every day, or at least very frequently, they will have the desired effect.

Ethical consideration

More and more integrated technologies find their way to the market, helping the user to find the right healthy recipes, move enough, stay in contact with others (for motivation) and track results. The future kitchen of Ikea announces a time (in 2025) where the kitchen is a technology hub where all devices keep track of your activities to give feedback and perform suitable actions. With such a development towards behaviour changing and nudging appliances, questions arise whether this is really what the users want. Roy (2014) criticizes the quantified self-movement by stating that the obsession of Silicon Valley to build products that enable people to quantify, track and analyse every aspect of themselves force accountability on the lazy. Quantified self's growing popularity stems from a belief that any problem can be solved, as long as enough data is gathered to solve it. Henn (2013) is also sceptical about the amount of information that is gathered. Talking about the HapiFork, she wonders who would really want to share details about every pound lost or gained and argues that it might be more suitable for hardcore athletes than the mass market. An interesting experiment was done by SuperFlux, a man (70) who lives alone receives smart devices to track and monitor his diet, health and sleep from a distance. A video shows how Thomas finds tricks to keep the smart devices (and therefore his children who are keeping the records) satisfied. He ends up stirring in a salad with his smart fork while eating fries and chicken. This questions the way people deal with these 'uninvited' tracking devices, there is always a way to get around them. Dorrestijn and Verbeek (2013) discuss some of these ethical considerations of behaviour change, their article is summarised in the Appendix A.5. They state that the balance between domination and freedom should be carefully searched: "Persuasive technology and nudge are useful and necessary contributions to design for wellbeing, but an appropriate understanding of freedom is required. Design for wellbeing should attempt to influence human behaviour but also enable a critical relationship with the influences." (Dorrestijn and Verbeek, 2013, p. 54). Though young people can usually find their way with new innovative technologies and adjust to the 'smart' environment that we are coming to live in, the elderly might have some more problems with that. The key problem (when we look at the transtheoretical theory or the six stages of behaviour change made by Wendal in 'Design for Behaviour Change') lies in the phase before realisation of the problem. If people are willing to change, products and services can be a great tool to keep and enhance this motivation and make progress. If others decide for the elderly that they need to change (which might be more frequently the case then elderly deciding for themselves), products should have a strong persuasive character to convince the elderly anyway to use the products. Another thing to consider in the final design is how relevant all the statistics and results actually are, the value might be in keeping the product simple and straightforward.

Conclusion

The best way to start designing for behaviour change might not be to choose specific principles or strategies like gamification or nudge, the key is to evaluate the problem, user and situation to find solutions that are really suitable. Although specific strategies are really useful in some situations and though they can pose as a great inspiration, to get a product to change behaviour in the long term, a good understanding of many factors is key. The framework discussed in the first article is a great base for the required research and the other theories and strategies enrich this framework with examples, background information and extra thoughts.

There is a lot of knowledge and literature about behaviour change, there are comprehensible theories and specific steps that need to be taken to design for behaviour change. Then why is it so difficult to change the behaviour of the users in the long term? The users have the knowledge about what a healthy lifestyle is, the designers have the knowledge about how to encourage a healthy lifestyle, why doesn't it always work?
Key in this problem is the understanding of the user, not the general group of people that will use the product, but the individuals. What happens on that Saturday morning when Frida walks into the kitchen, ignores the running shoes she took out the day before, takes a donut from the fridge and lies on the couch all day? Why is Thomas stirring in a salad with his smart fork to get the rewards of this powerless electronic device, while eating fries with chicken? Who are we kidding?
The problem doesn't lie in making the products more stimulating, or more difficult to ignore. As the article of Verbeek considered, it is important to respect the freedom of choice of the user, the balance between dominance and freedom must be ensured. The solution lies in understanding the user, getting into their minds and discovering why the products don't work like they should according to the theories. Exactly for this

purpose, theatre is a very helpful tool. It gets designers to look through the eyes of the user, in specific, realistic situations, while still having the knowledge of a designer.

2.3 HEALTH ADVICES AND TARGET GROUP

With increasing knowledge about health and healthy lifestyles and more and more products that encourage healthy behaviour making it to the market, it seems like an illogical fact that lifestyle diseases are still one of the main causes of death in the western world. Why is it so difficult to live a healthy lifestyle? It is key to encourage healthy behaviour in a way that will work, chapter 2.2 showed some good ways to do this. After looking at behaviour change and how this can be applied in products, this section will focus on the thing that the product should convey, the healthiest behaviour. Information is found about general health advices for all age groups, when the target group has been chosen, more specific problems are searched to create a product/service that gets to the core of healthiest behaviour for this group (this further research can be found in chapter 3.3).

Looking at the prevention of lifestyle diseases, there are different advised behaviours for the different age groups. A table with the most important health advices that were found in several sources can be found in the Appendix D, the sources of these advices are also given in Appendix D. A summary of all the advices is presented here to keep the report clear and compact. Based on the different advices and other gathered information, the target group is chosen.

In the early stages of life, until the stage of 'child', the advices are more directed to the parent than to the involved person itself. Important advices are to encourage and educate about consuming different notorious foods and drinks, avoid restricted diets, make mealtimes a positive experience and provide healthy snacks. It is important to realise that the target group for products addressing to the first few life stages is divided in the parents and the child, the focus will shift in these phases from more focussing on the parents to being more and more targeting on the child.

Based on the advices that are given through the years, it can be concluded that different stages in developing a healthy lifestyle can be distinguished. In the first stage, until the life stage of 'teenager', the parents play a large role in assisting the child to develop a healthy lifestyle. This phase has a lot of influence on the behaviour of the person during the rest of their lives. Until the person is an adult, the influence of the way they were brought up can be seen in their lifestyle. The first responsibility to take care of themselves can set the tone for years to come for teenagers. It is important to avoid unhealthy habits like using tabaco and consuming alcohol and junk food, getting enough sleep and exercise and ensuring a complete and varied diet. Usually, the decisions in the sector of lifestyle are not very conscious and are influenced by the dynamic lives that this age is associated with. This opens up a market for behaviour changing products but at the same time poses as a challenge: how can be addressed to a dynamic group without many financial recourses and unawareness about their behaviour? The health advises get more general passing through the different stages. As the most forming years are over, the adults are best off just by remaining a generally healthy lifestyle. Advices like ensuring a healthy and varied diet, taking enough exercise and sleep are the most important. A difficulty in this age group is that work and starting a family might take up a lot of time, leaving little time to focus on their lifestyle. In this stage, the importance of knowing a healthy lifestyle to be able to conduct it to their children is very important. From the life stage 'senior' onwards, living healthy becomes more and more important. The fitness of body and mind slightly starts to decline, risks to get chronic conditions get larger and more aid is required with daily tasks. In this group, a healthy lifestyle is key to avoid undesired conditions and to keep the quality of life high. Extra advices are given, like taking regular check-ups, engaging in social activities, accepting help and reducing sugar, fat and salt intake. Challenges might be to encourage 65+ers to keep investing in their health and to keep reminding them of the desired behaviour.

Sustainable behaviour
In a world with a growing population, it is increasingly important to be conscious about food-waste, over consumption, sustainable food options, etc. A product and/or service can help to encourage the desired behaviour and remind the user to be actively involving in sustainability with regards to the food industry.

Encouraging sustainable behaviour is something that can be done in all age phases, although the method to do so might differ. Looking at the field of kitchen appliances, encouraging sustainable behaviour could be searched in food-consumption, food-waste, etc. Some advices to handle food more sustainable are presented in Appendix D. If there is a possibility in a later stage to involve these advices, they are used in the product/service that will be designed.

Choice of target group
A challenging and interesting target group in the perspective of this project are elderly (65+). This is usually not the group where most behaviour change health products are made for, as they are generally not so interested in the hype around healthy lifestyles and the products that go with this. However, with the chances on chronic conditions increasing, this might be the most important group who should adopt healthy habits. Not only are elderly a challenging group to design for when looking at behaviour change, also with the view on applying theatre in the design process, this is an interesting group. Hardly any designers will be in the group of 65-plus and have therefor never experienced being in this age group. Although everybody has experience with this group up to some extent (taking in mind parents, grandparents, etc.), the challenge lies in living into an elder character yourself and experiencing what they would experience. Choosing this target group means that the theatre exercises are tested without the knowledge of the attendants about how it really is to be an elderly person. This makes it possible to assess the exercises without having this as a variable. Also within Philips, there is an interest in creating products and services for elderly, several projects focus on this target group. With the integration of the departments Health and Consumer products, much information about health conditions will be nearby, this can be very valuable for the design of the product for elderly.
It can be seen in the previous paragraph, about health advices, that the amount of health advices increase a lot with age. This list doesn't even take into account the increase of chance on chronic diseases, the required help with all daily (and weekly/monthly) activities and the impairment of both the physical and the mental state of being. In order to be able to create a suitable product for this target group, more information should be gathered about specific issues that are connected to getting older.

2.4 THEATRE IN THE DESIGN PROCESS

Theatre should be used in design to overcome communication barriers, to enable co-creation and involvement of and collaboration with the users. Theatre can help designers to achieve greater empathy with users and the context of use. It stimulates creativity in different ways and therefore helps to find new interactions, solutions or even concrete ideas. Five scientific articles are assessed thoroughly (and several others are scanned) to investigate how all these expected positive results of theatre can become reality. Main focus points are what exercises are used, how (in what context, with what people) these exercises are executed and what the results are. The summaries of all the articles can be found in Appendix C, the conclusion of the articles is written below.

Many articles address to the fact that there are no overarching methods, structures or terminology to describe the use of theatre in the design process. These articles deliver overviews of existing techniques and offer their own interpretations of the use of theatre in design. Though the goals differ slightly in each research, they all come down to understanding the user with their context and activities and their interaction with (concepts of) products (either by living into the user, involving them or finding common ground).

The main focus points of the different articles are stated to give an overview of the variety of the use of theatre (or comparable practices that are called by different names) in design. Ryöppy, Lima and Buur (2015) stress the similarities between (and therefor stimulate the combination of) post dramatic theatre and participatory design, where users/the audience is actively involved in the process of the design/performance. They also introduce 'object theatre', where actors live into the object to play out interactions. Majidipour and Razzaghi (2012) also state the correlation with participatory design and also stress the importance of using scenario's in design. They researched creating scenarios based on theatre (with the use of abstract cards) and finding shapes for products based on movement and poses. Brandt and Grunnet (2000) used Forum theatre, where the audience suggests changes during the play, and improvisation, to make and change small scenes, to enable co-

creation and develop more and more suitable ideas. They promoted the use of props to visualise ideas. Kouprie and Sleeswijk Visser (2009) clearly focus on the empathy part and promote theatre as a tool to step in and out of the users life to gather valuable insights. Iacucci, G., Iacucci, C. and Kuutti (2002) gathered and developed nine different techniques that aim to explore ideas, communicate concepts and test scenarios and concepts. Several techniques involve future users to see their interaction with a mock-up of the concept. The other articles promote scenarios, forum theatre and the comparison between design and theatre once more (Bodker, 2007, Sawyer, 1995, Rice, Newell and Morgan, 2000).

The gathered knowledge will be used to create exercises that will work specifically well for behaviour change. Some techniques that would work in the context of design teams within Philips, are frequently mentioned and/or seen as very valuable are tested. Examples are: Forum theatre, object theatre, movement theatre, the use of props, improvisation. These methods are suitable because they can be done with a varying group of people, doesn't require much theatre-experience and really focus on the user. The last point is the most important as Philips carries out the strategy of human-centred design, always focussing on the user. Their slogan: 'Innovation and you' also shows this approach. Methods that use the real target group or (future) users aren't chosen because gathering these people every time a project-group would like to do a theatre workshop is not ideal. The exercises will not be copied directly but will be altered and shaped by the workshops that are hosted during the project to test the methods. The articles mainly pose as a prove that theatre is a great tool to use in design and as an inspiration to find different ways to apply it.

2.5 CONNECTIVITY CURRENT PROCEDURE

An important factor to consider when making a method is the context in which this method is placed. A research to the current way of generating ideas should be executed to find a suitable way to integrate the new method with the existing methods of Philips. It should also give insight on whether the methods that should work in theory, are actually used and actually work effective. All required information is found by interviewing designers at Philips with a short questionnaire about the way they generate ideas in their projects, by attending and analysing a day-workshop at Philips and by analysing a new collection of tools that is introduced (and installed) recently at Philips Design, the Toolstation.

Toolstation
A new tool of Philips to overcome communication barriers, generate and visualise ideas and think in different, creative ways, is the collection of colourful, varied shapes. This station is created as a reaction on the need of many designers in rapid co-creation teams to find a common language. Something that would enable everybody to visualise their ideas, regardless their drawing or storytelling skills. The designed tools spark creativity, support intuition, flexibility and collaboration, stimulate people's senses, are fun to use, function as a third medium for people to express themselves and communicate with each other, levels terminology and thus confusion about use of words, lessens hierarchy since everyone is dealing with a new 'language', get the most out of people individually, help the group to find common ground and work on a shard goal, help to capture and share their process. The tools form a visual language that poses as an extra language that enriches our vocabulary and sparks our imagination. It helps to think beyond the obvious and helps to take people's ideas seriously. The toolstation is a library of tools where facilitators can shop together their own toolkits for co-creation workshops. The toolstation consists of three parts: a place with tips, the actual library of tools that can be collected and the 'Do It Yourself' or order station. The available tools are very different, some very abstract, some very figurative, very small (2x3x5 cm) to very large (20x30x80 cm) props are available, 2D and 3D.

The articles that were discussed in chapter 2.2, about the use of theatre in the design process point out that the use of props can be a great help in the creative process. Especially if the props are not to specific and leave space for the actor to interpret the shapes in the way that suits their idea. A smooth transition could be made from using the larger, more abstract tools to acting. Using acting could be a method on its own, or could be an addition to the toolbox.

Interviews
A first talk with a main project manager of Philips Design showed that there are many people working in projects where a good idea generation is key, these projects are all very different so the idea generation is inevitably divergent as well. Generally all the projects work with workshops to generate a lot of suitable ideas. They start out really broad and work to some clustered ideas, sometimes models are created for visualisation.

Three designers answered questions about their way of working in the idea generation. The main goal is to find the different methods that are used and to get ideas how the theatre method could be integrated with the existing methods. The complete interviews can be found in Appendix F, a relevant summary is given here.

The three interviewed people were a user experience designer (mainly involved in Rapid CoCreation groups), the creative lead/project leader of behaviour change for healthy behaviour and an interaction designer working in group innovation of light instruments. All state that the amount of effort invested in the idea generation depends on the project, a broad project means a broad idea generation, a very specific assignment means idea generation in specific problems. The light project is based on idea generation, mainly with building and experimenting. The idea generation practically always takes place using workshops. Usually these workshops take place during one (part of a) day, first ideas are generated really broad, then ideas are combined and converged depending on requirements, sometimes prototypes are made. Having a CoCreation setup is preferred, with an eclectic group of the contractor, designers and insiders. The light project works with experimenting, not so much with workshops, this is done in a later (more defined) stage. Methods that are used a lot during the idea generation are silent brainstorm (using a lot of post-its), scenario based design, user experience flows (to place products in their context), different ways of associating with drawing and words, crafting, prototyping. In digital projects or value-seeking projects, the idea generation is not always with visuals. None know of any tools recommended by Philips or standard things that have to be used. Before the ideation, a discovery phase is very important, where desk research is done and personas and experience flows are created. During a Hackethon, theatre is already sometimes used in combination with props to play out ideas and test them in that way (usually in a later stage, for design testing). The toolstation could suit with this, it is visual, abstract and quick. The light project uses the same tools as the other two projects (costumer journeys, personas) though the way of ideating is very different. All the used methods work quite well for the divergent project groups, the problem is not the lack of ideas but more the limited time and good briefing. Having users or representing people there at the workshop helps to choose and test concepts quick and efficient. Lately, theatre was used in the light project, it works good to get a grip on the user experience, personas and journeys. Over all, the three designers were open to the idea of using theatre in the design process. Their answer also showed that in such a broad spectrum of used methods, theatre in design could find a good place.

Workshop bathroom experience
Attending a workshop of the project 'connected bathroom experience' gave insight into how different methods were used in real life. The workshop was actually a four-day event, each day specifying on another subject. The one that was attended was the first in the row and focussed on understanding different needs in different age-groups: how could de (connected) bathroom help these divergent personas? The day started with a short introduction to the topic and a game to get to know each other and to understand that the bathroom has different purposes for everybody. Then the group was divided among three different personas: a child, a young couple and a 47-year old lady. In the first stage, different possible challenges and problems were defined, later, specific solutions were found while also looking at a given set of products (that could be made 'smart'). Cards were used to bring in 'life events' for the personas, the impact these events would have on their lives (and especially the life in the bathroom) was determined. During the day, some demonstrations were given of things that were already made within that project. The personas really formed the red thread through the workshop, creating suitable and interesting personas is key for this type of workshop.

Conclusion
The idea generation is a dynamic process that differs for every project. There are many strategies that are used to get insight into the target group and possible solutions/ideas. In projects that are really specific (not focussed on out of the box idea generation), executed with a small amount of people and require a really quick idea phase, theatre might not be the most suitable solution. It would fit really good with other strategies like scenario based design, user experience flows, creating personas, journeys, but also with testing existing ideas

or concepts. By creating a method that is applicable to different projects and can be combined with already used methods, theatre can be a very valuable addition to the current way of idea generation.

Before the ideation, the discovery is very important. This phase of gathering knowledge is key for a good and effective idea generation. Theatre can help to find the right feeling of the user, not only during the gathering of the information during the discovery phase, but also during the briefing of others at the beginning of a workshop. The research definitely pointed out that using personas and other tools to get insight in the target group are really important in most projects, this gives confidence that a method to enhance these tools is a great addition to many projects.

One way to make a generally applicable method is to make a framework with different exercises that can be fit into it. This way, different goals can be completed using theatre, according to the project, goal of the idea generation, amount of people, background/expertise of people and available time. The small exercises can be divided in either deepening into the user, creating new ideas and testing ideas.

In section 3.7, more attention will be paid to this point of integrating the theatre-in-design method in the current environment of methods and tools. In that section, (possible) common ground will be discussed with the design process in general and some specific methods and tools which are also discussed here.

2.6 CONCLUSION

The conclusion of the behaviour change part stressed that it is important to have a good understanding of the situation where the behaviour should be changed. Only when this is analysed well, a good solution (where more than one aspect is addressed to) to change the behaviour of the users of the product can be found. The part about theatre in design showed that many different techniques exist and that integrating theatre in the design process is definitely a valuable attrition. Most techniques focus on living into the user, getting insight in their world and accompanying needs. Connecting these insights to behaviour change shows that precisely for this field of study, theatre is the perfect addition to get valuable information about the situation. Using theatre, designers can get to the core of human behaviour, experience, motivation and situational triggers that cause specific behaviour. Inserting the information gathered during the workshop of Philips and the insights gathered about possible ways to integrate a theatre-method into Philips, show that Philips-designers are open for (and ready to try) theatre in their various workshops for design. It will be challenging to find a suitable format for this method that can be used in different projects, in chapter three, a way to apply the method will be found. Looking at the specific health advices and the investigated products for behaviour change also showed that there is quite an available market for good behaviour change products, also for elderly. This gives perspective for the product that will be the figurehead of the method. All this information gives hope that the method can become a success within Philips but also shows that much more (practice) information and hard work is required to make it a clear and well-working method that will actually be adopted by the behaviour change designers. In the next chapter, the ideation, steps are made to work towards the shaping and application of the method and a design for a product.

3 IDEATION

3.1 INTRODUCTION

In the second phase of the project, the ideation, all the information that is gathered during the analysis will be applied in creating ideas. Thoughts will not just be developed for the 'case study', the behaviour change product for elderly, but also for the theatre-method in general.

The gathered results of chapter 2 are translated into a plan for a workshop, which is hosted within Philips Design. Different exercises and methods are tested to discover their value in the design process. The outcomes of the first theatre-workshop are listed, specifically, the personas that were created and the ideas and concepts that were developed for the personas. These outcomes pose as the basis for the ideas that are visualised in the idea sketches and therefore continue to answer the research question about the case study. An extensive evaluation will give recommendations for future workshops and the method in general. The insights gathered about the theatre exercises and workshop in general are helpful to answer the research question about the theatre-in-design method.

Looking at the larger picture, a recommended structure for the method is developed in paragraph 3.6. This uses all the information gathered in the project so far to create a suitable set-up for a method that incorporates theatre in design for behaviour change. This is a large step towards answering the research question about the method for theatre in design.

It is investigated how the method can be applied in the design cycle. This doesn't just mean looking at the large process but also investigating the possible integration with techniques and tools that are already used within Philips a lot. This section can be seen as a more in depth and theoretical follow-up on the section 2.6 and therefore also answers the research question about the suitability for Philips partly.

To give more depth to the ideas for the case-study and make them more suitable, a short assessment of the specific issues that elderly encounter is also done, this doesn't just result in a more suitable product for the elderly but also gives insight in whether the personas that were created in the workshop (with accompanying problems) actually match reality. Therefore, it both answers the questions about the case study and the theatre method. Some short researches are done on the style of Philips, in which the product/service for elderly that is created as a case study should fit.

Sketches are made to give body to the loose ideas that were generated during the workshop and to keep these thoughts alive before a follow-up workshop is executed. They also integrate some more in-depth information into the ideas, to make them more realistic. The bulk of ideas is organised by clustering the ideas into six groups of products with services. This section is linked to the research question about the case study.

3.2 FIRST THEATRE WORKSHOP

Description

For the theatre workshop of that is organised for this project, there is an interesting opportunity in the interaction between the product and the user. Aspects that can be investigated in workshops during the idea phase would be what kind of personas can be formed that fall within the target group, what kind of products could stimulate specific behaviour, the way the message about healthy behaviour is brought across to the user, the reaction of the user on this type of products.

Interesting methods which are extracted from the articles used in paragraph 2.4 are combined with the scope of this project and own experience to find the following theatre exercises.

1. Forum theatre: Actors acting with an object, audience suggests different things.
2. Improvisation: Making types within the target group, combining in groups and concluding with 4 personas.
3. Improvisation: Using the health advices to develop acts with products that want to convey these advices to the user.
4. Testing different ideas by object theatre: people pose as products and others as users. Abilities can be taken away from both groups to get new idea's (this can be done in different circumstances, the watchers can give tips or challenges: 'now you are 20 years in the future!')
5. Behaviour change principles: Groups are informed of different behaviour change principles and asked to find new products and interactions using their own interpretations of these principles.
6. Movement theatre: only use your body to peruse the user to do a specific thing: use these forms, outlines in the ideas.

From these exercises, an appropriate combination is formed to get to the goal of the workshop. The goal (in short) is to get a good understanding of the traits, needs and routines of the target group, find creative suitable ways of interaction between the product and the user and to find specific ideas for products.

The program that has been made for the workshop can be found in the Appendix E.1. A visual simplification of the program can be seen in Figure 3.1.
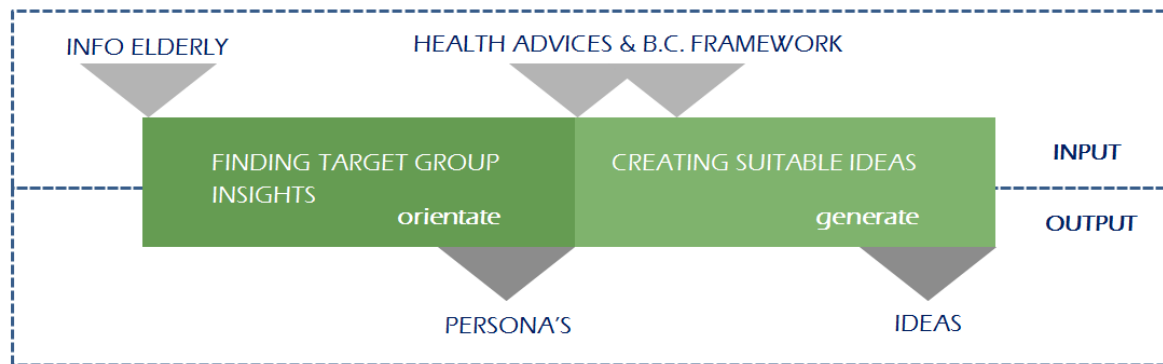

Figure 3.1, Visual simplification of workshop.

Organisation

All aspects of the workshop should be thought through, so no variables will stay unconsidered. Important things to consider are the group of contestants, the environment of the workshop, the approach, the use of props and the general applicability for Philips. All these factors are determined now and will (in principle) stay the same for all the workshops.

It is important to offer the possibility to all attendants of the workshop to express their ideas at any point, about the workshop, the exercises, the project, ideas for the product or the personas, etcetera. A large whiteboard would be a good way to quickly write down ideas and iterate on ideas of others. There should be a comfortable and open atmosphere at the workshop, a group between 8 and 20 people would be good to get enough input while at the same time keep it personal. In this group, it would be best to have people from a lot of different backgrounds, like students, designers from Philips, actors, etcetera. This way, a lot of different insights can be used to find new ideas and extrovert people will stimulate others to get out of their comfort zone.

Another point of consideration is the use of props. One research was extremely positive about it, it could help visualise ideas and find creative interactions. However, it is important to guard against specific props that will encourage stereotyping and lead to clichés. Some general forms and providing materials to make props during the workshop would be a good way to keep the props as neutral as possible and give the attendants the possibility to express and explore their ideas in a physical way.

An important focus point should be to make a smooth transition from how Philips is currently generating innovating, human centred ideas to the new methods introduced in this project. Only if this transition is done carefully and with respect for shy and reticent workers, new methods can be successfully introduced in the

working environment of Philips. Therefore, it is stressed that the workshops are an experiment and that it doesn't always have to go right, people shouldn't be forced to be a part of an exercise.

The workshop is promoted in various ways. The activity is promoted on a personal level, to other interns and designers directly and by providing more information in an e-mail. Posters were spread at Philips Design, the design can be seen in Appendix E.2. A short pitch about the workshop was done after a day-workshop of another project, the student theatre association of Eindhoven and the Philips Inters Committee are approached to enter the workshop and the tutor (and other designers) were asked if they would know other interested people. A promotional text that was used in the emails (and partly on the poster) and can be found in Appendix E.2.

Results

The specific information that was gathered for the product for elderly is summed up here. The personas, specific ideas that were generated and thoughts that were linked to these personas can be found in Appendix G. It is advised to take a quick look at the personas in the Appendix to get an idea why these specific ideas are created for these personas.

Created specific ideas

For Nel:
Buddy. This clever robot helps Nel through the day. From getting up, eating breakfast, brushing teeth the right amount of time, going to the supermarket, having thee, eating lunch, taking in the right pills, choosing right snacks, doing house chores, making a walk, making and eating dinner, watching nice programs to going to bed. Buddy cannot speak, but uses other signals to show Nel what she should do.

For Bob:
Two concepts were developed for bob. One cooking help, with semi-prepared meals that are delivered at his house and a digital hologram that helps him prepare the rest (like a cook instructor). It also connects Bob with other users in the community (of about 5 to 10 people) to communicate about their cooking, eating and other things. The other concept is a story sharing machine. It enables Bob to tell a story to a random person that he can choose based on different characteristics like age, sex and topic. The possibility to save numbers (or block numbers) enables Bob to call a 'known' person (or a random).

For Harry:
The final concept is a sort of blender (or juicer) that tricks you into playing a short memory game before deserving a smoothie. After every right pair Harry gets on the first side of the triangle, he is allowed to pick a piece of fruit (ingredient for his smoothie) from the other side. The group used another person to check the concept, without any explanation, it turned out to be very clear what the required tasks were. Besides playing the game their self, the user could choose to make a memory game for a friend.

For Jan:
The product for Jan was a clever robotic dog that could adjust his behaviour and tips to the behaviour of Jan. He was not able to speak, but with barking and lights he directed Jan to the right behaviour. The dog can also encourage Jan to make contact with other people, to take him out for a walk, help with cooking, barking when something bad is put into the fridge, etc.

More Ideas:
- Walking stick matches walkers with each other and counts steps
- Cooking help with recipes connects with others that tell you how to cook > cooking together on distance
- Smoothie maker with memory game
- Memory game with family memories > connected with children
- Game in elderly home for children to play with grandparents: questions about now and about 70 years ago.

- Robot dog is connected with other devices: barks and shows light on device, use it and dog is happy > working with goals on a day?
  - Check-up's, eating healthy, cooking yourself, going for a walk

These workshop-outcomes, together with information about specific issues of the elderly and information about the style of the products and services of Philips form the basis for the idea sketches of new products (see chapter 3.4).

Evaluation

Images of the workshop can be found in Appendix E.3.

General course of the workshop
After a short introduction to the six attendants (of which two were a bit late) about the project and the target group, the warming-up started. The physical worming up was done with the 'woosh', passing this imaginary energy around made the group energetic, awake and a bit concentrated. The next step was to get into the acting. Several exercises were done while walking around through the room randomly. The first was to pass imaginary coloured balls, the challenge being to keep the distinction between the balls. One ball got warm and one very cold to higher the pace of passing, eventually they were handed back to the host. This exercise helped a bit with getting into the imagination that is required for acting but still some more concentration and empathy exercises were required. During walking around, different emotions (sad, scared, in love) were acted out and step by step enlarged on a scale from 0 to 10. This helped to get out of the comfort zone of expressing emotions. The last thing while walking around was living into an old person. Walking like one and feeling like one. When they were ready, the participants could start communicating with each other in their role, some reminders like 'Can you still hear properly?' and 'Do you even like talking to other people?' helped to make more interesting conversations. This worked quite well but was slightly stereotypical and somewhat unfocused. To get some more believable types, an exercise was done to where two people face each other with 10 meter distance, only if the one person says a sentence really believable, the other may step one step closer. If the two are close enough to shake a hand (or help the other off the floor in one case), the couples change roles. This exercise was really important and helped everybody to get into the realistic acting. When walking around again and living into one specific character, the benefits could be seen. Asking questions like 'What is your (character's) name?', 'Are you married, and do you have children?', 'In what kind of environment do you live?', 'How many social contacts do you have', helped to develop really specific types of elderly. The characters got the assignment to get to know each other, this took some time to get going, but eventually caused interesting conversations, deepening the characters even more. Finally, the attendants described the other characters. All turned out to be quite correct, divergent and specific.

After a short break, the characters created in the first part were the basis of the idea generation. The generation consisted of three parts: inspiring thoughts and ideas on health advices for elderly, inspiring ideas on the framework of behaviour change and testing and developing the ideas with the use of object theatre. The first health advices were some guidelines to think in the right direction. It might be difficult to generate suitable ideas for a healthier lifestyle if the desired behaviour is unknown. The ideas that were generated were not very specific yet but helped to get specific thoughts that are personalised per character. Explaining the framework of behaviour change, with the rider, the elephant and the environment took a bit more time than planned. Eventually it helped to get more specific and guided ideas to change the behaviours of the different characters. Whether it is really important to involve this theory really depends on the type of product or service the workshop is aiming for, it is really specifically used for behaviour change. During both steps that are just described, the ideas were stuck to the boards with the descriptions of the characters using post-it's. The final step was the most challenging. The group of eight people was divided into four pairs. One of each pair would be the object, the other would be the persona they were before. The pairs would first look at the ideas on the post-it's on their character's board and would then invent a concept inspired on these thoughts and ideas. The use of the product or service should be acted out, this gave new functions, interactions and ideas. It was striking that most groups initially thought of human-like robots that guide the elderly person through the day, encouraging healthy behaviour. It was notable that giving limitations really sparked the creativity on this field. Taking away speech as the first thing made almost all the groups rethink their concepts, making them more interesting and less obvious. The second challenge of making the product a kitchen-product, encouraging a

healthy eating pattern altered the concepts some more. Acting out the product was not done automatically all the time, the attendants did not seem to stay in their roles of user and product but kept discussing the idea in between. Constant remembering to make the product specific for that character and reminding the character to be sceptic and critical made the acting out more useful and interesting. Eventually the final concepts were presented, the groups were allowed to give the product some of the original capabilities back (like speech or moving around). The products were very different and sort of matched the elderly. However, the products could have also been used by the other characters and the users did not seem to be critical or sceptical towards the products. It seemed like the object theatre really helped with developing the ideas and thinking outside the box but was not optimally used to find the genuine opinion of the characters. Some more attention and time should be invested in living into (and staying in) the character to get everything out of this method as possible. The workshop was concluded with a last enthusiastic whoosh, afterwards, some attendants complimented the host on the nice workshop, the atmosphere was really good.

Attendants

The group was not so big, we started with six people (the workshop host not included). In the second part of the workshop, two others joined in, making us a perfectly sized group of in total nine people. In this group, most were internes at Philips, one girl was an actor at the student theatre organisation and one guy worked as a designer in a project about a connected bathroom. The interns all had different backgrounds, including for example trend watching , business creation and industrial design, making it in total a very divergent and young group. The reason why the group was not so big was not due to a lack of interest of others or lack of energy put into gathering people. The different ways to try to gather people were asking around to designers within Philips whether they were interested (and e-mailing them with more information and an agenda invite), spreading posters at Philips Design, pitching about the workshop after a day-workshop of another project, e-mailing the student theatre association, e-mailing the association for Philips Interns, asking my tutor for other potential interested people. The general finding was that people are very interested in the research and the workshop, but they can't make free time for a quite long workshop that doesn't immediately concern their own projects and work. For a first workshop, that was very experimental, it was really comfortable to have a rather smaller group with enthusiasts. This makes it easier to create a safe and open atmosphere where all ideas can be created. It was notable that the attendants were all very open to trying new things, this could be correlated with the age, this could be investigated with further workshops. Having an attendant who has experience with theatre was really valuable to get the others to take the exercises seriously and to really live into the emotions and character and step out of their comfort zone.

Own evaluation

Even though it was just a pilot, a first test of the ideas, the workshop was a real success. It gives a lot of energy and faith to see the great results and the positive reactions of others. It might not be in the nature of everybody to act, however, this workshop showed that the level of acting isn't the most important. The dedication to try it and the creativity to use personal knowledge in a totally different context are key for a good workshop. It helps to do a lot of exercises to make sure people become comfortable with acting. It was clearly visible that they were somewhat insecure about their actin in the beginning as there was a lot of laughing and making jokes. This might have also been a result of feeling a bit uncomfortable with the group or the location (quite a serious business where the interns want to show their professional attitude). Later, after the exercise for realistic playing (with two people facing each other), the attendants became a bit more serious and this was immediately seen in an improvement of their acting. Whenever the concentration became less, or people started to become caricatures again, a reminder to this exercise helped to get the focus back on living into the role of an elderly. It was interesting to see how the characters of elderly that were created were all so different. It was challenging to get characters that are really 'out of the box' but by asking many questions about their personality, looks and environment, the attendants were triggered into creating a very specific, realistic character. It was good to see how the ideas that were generated during the second part of the workshop were really specific for the characters. In the beginning, these ideas were very abstract and quite standard. Later on, when the framework was introduced, the ideas became more specific and original. This was done by giving an explanation, using a drawing of the rider, elephant and environment and by handing out cards with examples of products in the different categories (based on the benchmark, can be seen in Figure 2.2). Introducing the framework was a good addition to this workshop and giving the change to write ideas on the post-it's worked good for the group as well. This might have worked well because it is a technique used in the current workshops of Philips. The negative result of this 'comfortable' method was that many attendants had trouble living into the character again and really acting like the object. Staying in the flow of being outside

your comfort zone and acting out all your thoughts through a character might be better to ensure that the level of empathy with the target group stays high. This might be challenging, as the post-it's part seems required to create and visualise ideas. Noting that the use of object theatre was an experiment and that the group was going to discover how it would go together made the atmosphere informal, unforced and the expectations not too high. This probably helped to experiment and just try the technique. It was surprising how well the attendants took on the challenge and were open to try it. About half of the attendants used props to depict and stimulate their ideas. The abstract props were not steering the ideas but seemed to be an addition to already existing ideas. It seemed to be a good addition to the workshop in the character phase (used to depict walking sticks), during the object theatre, tools were used to depict the product. This could be a good thing; it can help to get a better idea of the product, but it also takes a bit away of the object theatre as the person uses a prop to depict the product instead of being it themselves.

Figure 2.2. Cards with products to explain the framework of behaviour change.

Evaluation by attendants
A digital evaluation form was send out to gather feedback about the workshop, the different answers to the questions are summarised now.

Most (6 out of 8) of the attendants were interns at Philips Design. One person was a digital innovation designer and one girl an industrial design student and actor at the student theatre association.
More than half of the attendants never used theatre in any form in the design process before. One had a workshop before in this field and one has some experience with bodystorming. One noted that he never used theatre in this form but that it is always integrated in the design process because living into the consumer and the possibility of the product is always important. One external attendant used acting out to empathise with the target group and bodystorming for inspiration. This result, combined with the knowledge gathered when speaking with other designers of Philips, shows that this method is quite new while the thought behind is already (subconsciously) used. This could either result in many interested and open reactions or in sceptic and resistant reactions.
Every attendant expressed to have enough information to live into the elderly, however, there are not many answers to this specific question (4). One of the attendants that missed the first briefing noted that it was easy to think in stereotypes without specific information or data. One attendant noted that she used information about her grandparents as an inspiration. The information was given through a short presentation (about 5 to 10 minutes) and consisted of information about the changes that go with getting older (needing help with ADL's and IADL's, chronic conditions that become a risk, health advices, stressing diversity in the group of elderly). It seems important to provide some form of reliable information to avoid stereotyping and spark creativity.
Living into the elderly was described with the following terms: Fun (five times), insightful (four times), useful, little bit uncomfortable, awkward in the beginning, surprising. One noted that it is important to live into the target group because the way of interacting with products can be very different for different groups. Communicating with other 'elderly' was noted to be insightful by one attendant as it was spontaneous and interesting to hear about the other stories. It seems to be fun and very useful to live into the target group (and communicate with each other) but it takes some courage to overcome the fear of acting. The risk is that it

becomes too much fun and the acting is not done seriously. Exercises are required to get good concentration while still keeping the acting out fun.

Living into the character gave the following discoveries for the attendants: Understanding a different aspect on how older people and specific characters create specific needs and value spaces in reference to them, That it is harder than initially thought, it makes you understand how the person thinks and what they do (behaviour), you learn to empathize with the user, you'll think like one throughout the workshop. One person doesn't know what he discovered with the exercise. One noted that just living in the character did not reveal much new information, the interaction and observation of others was very interesting. It is good to see that the exercise actually helped with living into the target group. If it could be done with more concentration, it could help everybody better to feel with the characters and learn from each other.

The rating in Table 2.4 shows how the different exercises were rated and how much they were liked ánd helped during the workshop. The number in the second row shows the amount of times the exercise was chosen to be nice and helpful.

Warming up: Passing the Woush	4	66%
Warming up: Passing the coloured balls	2	33%
Warming up: Emtotions 0-10	1	17%
Character: Walking as elderly people	4	66%
Realistic acting: Stepping closer	3	50%
Character: Finding one character	5	83%
Character: Getting to know each other and describing on boards	5	83%
Generation: Using health advices and post-its	4	66%
Generation: Using Rider/Elephant/Environment	3	50%
Conceptualisation: Object theatre (with character and object)	6	100%
Other	1	17%

Table 2.4. Rating of the different exercises of the workshop.

One attendant noted that describing the character took a bit too long, that the generation of ideas was difficult and could be better supported. She also noted that the object theatre made her aware of how to physically invite people to use a product and how to translate this movements into a product. It is good to see that using object theatre is rated as a very helpful and fun exercise for everybody. Though the way it was used during the workshop was already very useful, by adding exercises that help with living into the characters again, object theatre can be used even better. The exercises that worked directly to ideas or characters are generally rated higher than the warming-up or concentration exercises. This is a logical choice, however, it should be noted that these exercises wouldn't be so helpful when the warming-up exercises were not done. Other attendants also noted this after the workshop during conversations. The balance between working towards- and actually doing the direct exercises that work to the goal should be found per workshop depending on the group.

Using Object theatre was noted to be: Challenging (three times), Insightful (twice), understandable, nice, fun (twice) and full of inspiration. The answers on this and the last question show that challenging exercises can still be considered as very helpful. This outcome should be used to encourage other attendants to take on the challenge of doing a difficult exercise because it can be very insightful and fun in the end. One attendant noted that object theatre is an interesting method that he hadn't tried before. The main criticism would be that the task moved on too fast. The push for time in the workshop made it difficult to develop ideas when the scenario changed so rapidly. This can be solved in another workshop by taking more time (more than half an hour) to test the ideas using object theatre.

About half of the attendants used props during the workshop. One person noted that he did not use props but that he should have done that. Most of these props were quite small (about 10 cm), just one of the bigger props was used. It seemed like the abstract were a good addition to the workshop. One attendant noted that the shape of a pyramid gave inspiration and helped to explore movements to give feedback to the user. One attendant noted that he might not have used the small props right when depicting the product, so he stopped using them. A short evaluation of the props is send to the makers of the toolstation. This toolstation can be a channel to spread the method of using theatre in design, this can be discussed with the makers of the toolstation when the method has some more body.

A few tips that were noted that could improve the workshop are the following: making an "Empathy Map" first, People laughed a lot, maybe try to make it more serious (but maybe the laughing was a good thing too), Having real prototypes later will help a lot. The last point was also noted by another attendant, he also stated that the rest (the basic of acting) is already somehow integrated in ideation processes. For one attendant, the most

difficult was to go from persona to idea, there was no real starting point. Guiding the ideation process could help to get some specific ideas, to avoid creating human like robots. The empathy map can give a better overview of the target group then the presentation did, this can be a good addition. Making the workshop more serious is a good idea (mentioned before), however, more concentrated would be a better word. Having real prototypes would be a good option for a workshop in another stadium in the design process, this might be tested in another workshop.

The attendants were very enthusiastic about recommending this type of workshop to others. The type of projects it would suit to are the following: this method is more appropriate for service design as appose to product design (It is about understanding the user and their needs which seems more relevant in their interaction with a service or a product-service solution), it would be helpful for user insight in other projects, before engaging with the real user, every project, it was a great way to understand the target group so it would be suitable for every workshop where that is needed, empathy/user insights workshop, co-creation project with target groups that have language/communication barriers. It is great to see that the reactions are so positive to implement this type of exercises in different projects.

Some final thoughts are: 'Overall I think the workshop was good, next time, further explain the "Elephant, rider environment" exercise because I think people struggled to understand the concept', 'Very fun and "low threshold"', 'would be cool to use it more for design workshops, esp. for empathy part', 'Great workshop, really enjoyed it!', 'I liked it, especially the object theatre. You have a nice, enthusiastic attitude, and you are able to motivate the participants.', 'NICE'.

Improvements for next time
- Getting to know each other a bit first, to make the attendants more comfortable, this will help with the acting and expression.
- Getting a quicker way to write down the created personas (set a maximum amount).
- Doing an extra empathy-exercise again before the object theatre. This could help the attendants to live into the characters again.
- Taking more time and attention to explain specific theories or frameworks like the one about behaviour change.
- Taking more time for the object theatre, to create more ideas and find interesting interactions. The time pressure can block creativity and the flow of new ideas.
- Trying a different form of idea generation (instead of using post-it's) to stay in the characters and keep the empathy with the target group high. Make sure to guide this process.
- Involving the use of theatre in the conceptualisation phase of design, so using prototypes and characters to test these.
- Finding a more divergent group of attendants with regards to age and function.

3.3 DEVELOPING THE METHOD

Suggested structure

Categories
Theatre can be used on different moments in the design process. The first three of the following list were tested in the first workshop. The fourth should be tested in a later workshop.
- Discovery phase > Creating personas
- Discovery/Ideation > Getting empathy for personas
- Ideation/Conceptualisation
- Testing concepts/prototypes

Each phase has its own goals and therefor requires its own exercises and flow in the workshop. The specific way of designing the workshop also depends on the available time. A structure from which specific exercises can be chosen is suggested.
In table 3.1, it can be seen that many exercises are usable for all the three purposes of using theatre in design. The warming-up's are meant to get into the acting in general, feel more comfortable with the group (get to

know each other) and with acting, step outside of the comfort zone. The core, that actually leads to the desired outcome is obviously different for each goal. The exercises to create personas all have to do with living into one specific character. The exercises for creating ideas are based on object theatre and giving challenges to change the product. To test concepts, object theatre can be used as well. Prototypes can be controlled by one person (making the movements, sounds, etc.) while another person lives into a character from the target group. A final exercise is an energetic occlusion of the day and gives the attendants a positive feeling about the workshop.

A generalised method could be created but researching the current way of working and speaking with designers showed that every project is different and that the needs therefore differ a lot. Making a flexible method, for example with different exercises that van be combined, it can be used in much more cases and in a more suitable form.

In a manual, all the specific exercises should be described, so workshop-hosts that are not familiar with the exercises can still give the theatre workshop. In each description, some more information, for example the goal, duration and pictures should help workshop-hosts to choose the right exercises.

Stage	Discovery	Discovery/ Ideation	Ideation/ Conceptualisation	Conceptualisation/ Prototyping
Goal	Finding Target group insights	Evoking Empathy	Creating ideas suitable for the target group	Testing developed concepts and prototypes
Theatre gives:	Broad-minded insights	Personal experience	More suitable products	Insightful testing in earlier stage
Warming up (Physical)	- Paintball/Shaking every part of your body - Whoosh - Billy billy bob			
Warming up (Getting to know each other)	- Visiting you neighbour - Name gestures			
Warming up (Concentration)	- Walking around and passing imaginary objects - Counting 0 to 20 together			
Warming up (Emotions)	- Walking around and show emotions from 0 to 10 - Facing each other and saying lines			
Core	- Walking around finding character, context and activity - Getting to know other - Describing others	- Getting into the personas - Living through daily activities	- Object theatre with challenges - Forum theatre	- Testing prototypes with object theatre - Forum theatre - Movement theatre
Final exercise	- Whoosh - Billy billy bob - Discussing the outcomes of the workshop			

Table 3.1. Overview of the different activities with their goals.

During the Discovery, the goal of a theatre workshop could be to get insight in the target group, this does not only include creating personas, but also finding activities (and therefor, routines) and the context where the people in the target group live their lives in. The workshop in the Discovery/Ideation phase doesn't necessarily have to generate outcome like personas, idea's or re-designs, it can also just be a great tool to get more empathy, as an end goal. When personas are already created, theatre can help to live into these characters and this on its own can be of great value to the rest of the project. In the ideation, creating suitable ideas is key. This can also be a goal in the Conceptualisation phase, to get some good variations or new interactions/ functionalities. In a later stage of the project (Conceptualisation/prototyping), theatre can be used to test and perfect the products.

It should not be forgotten that the method specialises on behaviour change. The exercises that are created suit very well with this topic, but also the introduction and title of the manual should show this field of application.

The manual would have to contain the following items:
- Small introduction to the principle of theatre for design
- Overview with all activities and the different purposes
- Table of content: where can the user find which exercise
- All the exercises with: title, goal, group size, duration, focus (and reflection) points and description
- Information about how to organise such a workshop
- Suggested structures for workshops of half a day, a whole day and two days.
- Extra attention points for and required skills of workshop-hosts
- Tips on how to reflect well on the activities (with the whole group, guided by the host)
- Information on what to do with the results of the workshop and how to share them

Theatre in the design process

This section will give some more specific (possible) common ground of the design process in general and the theatre method that is developed. Focus will also be on specific methods and tools that are used as a part of the design process and how theatre can be an addition to these tools. This information is used to specify the exercises of the method (with regards to output and goals) and to be able to support why theatre is a good addition to the current process. This section can be seen as a follow-up on section 2.5, where the connectivity with the current procedure was investigated.

The simplified representation depicts the design process as it is generally carried out in design. There is not one clarified process that is used within Philips, this is due to the fact that every project is different and each requires a different approach. A generalised overview is given in Figure 3.2, to give some visual insight in when theatre can be used. This generalised overview is based on the design cycle that is taught at the University of Twente, it might be used slightly different in each project but the key stages are roughly the same. With the red arrows, information is given about at which points theatre could be used. This will also be the points that should be covered with the 'case study', the design of the kitchen appliance for elderly. Evoking empathy can be done throughout the whole process and the techniques of creating ideas can also be used to develop ideas into concepts.
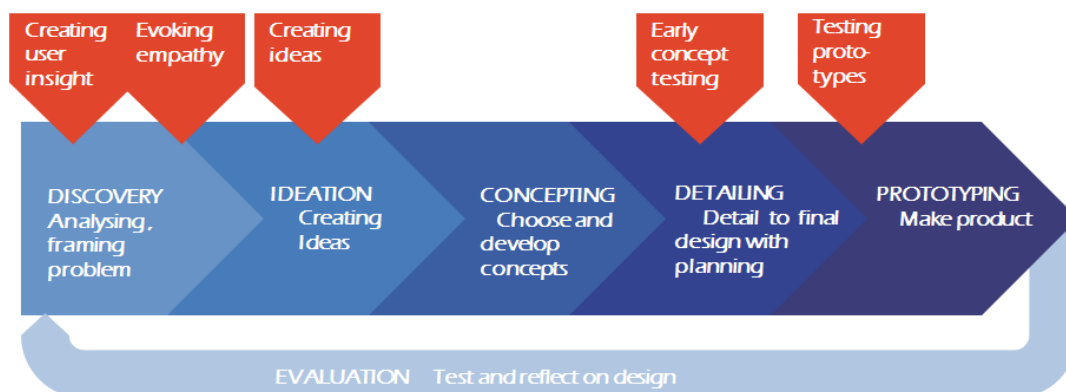

Figure 3.2. Simplified design cycle with specific moments when theatre can be used.

Instead of looking at the design cycle in general, specific tools and smaller methods can also be investigated to find common ground with theatre. Some of the information about tools is gathered in literature, the rest is gathered through real-life experience at Philips.

The process that covers conceptualisation and prototyping can be done by means of Rapid Co Creation (. The process of Rapid Co creation is widely used in Philips in the trajectory from Idea to Market, with the goal to create a strong value proposition that is balanced in terms of relevance, validity and feasibility. This method helps to quickly develop an idea into a specific proposition using the insights of different stakeholders of the project. It is all about the circle of framing, prototyping, reflecting and reframing. During these rapid co-creation sessions, people from different field of study work together to combine their expertise to find suitable solutions. Theatre can be a good tool in this process to overcome communication barriers because of the common way of communicating (through acting). In specific it can help in the reflection, to test the prototype that is made with people that live into the target group. Adding a bit of theatre in an intense co-creation session also gives some variation, which helps to think in a different way and approach problems in another way.

Tools that are currently used a lot during the discovery phase to frame the target group and context are called UX (user experience) tools. One tool that is used a lot in Philips is the Experience flow (Swaminathan, 2014). The unmet needs of people are spot, contextualised and then addressed to by distilling vast amounts of qualitative and quantitative information into a large poster that makes immediate sense to everyone. The poster shows the journey a person or people make through their experience of a place, their interactions with people, and a product or service over time. Before the user insights are gathered with fieldwork, the existing information is gathered. Theatre can help in this stage to already get a good idea of the context and activities of the user, this helps with framing the needs and enables researchers to clarify what information they want from the fieldwork. This good start can make the process of making the experience flow quicker and more efficient. After the research, scenarios and storyboards are made to see how the gathered opportunities would work in the real world, theatre can be used to create these. Theatre can also help to live through the experience flow (something that designers do) and really get a good impression of it.

Personas are descriptions of fictional characters, based on a combination of qualities, lifestyle patterns, needs and desires of the researched people (Wikipedia, 2015). Personas help make the work more people-focused. It's easier to design for 'Sue' than it is for 'the target user'. When enough information about the target group is available, theatre is a great tool to develop personas. It becomes much more realistic and complete when the personas are acted out and therefor have a posture, charisma and characteristics that might not directly be described in personas. Designers are or meet the personas and therefor have a better understanding and image of these characters.

As referred to in the section about experience flows, theatre can be used to create scenarios. A scenario is a fictional story about the "daily life of" or a sequence of events with the primary stakeholder group as the main character. There are best- and worse-case-scenarios, and everything in between, they create a relatable context around personas.

Silent brainstorming is a method that is used a lot within Philips. This way of brainstorming is based on using post-it's to write down ideas. These ideas are put up the wall and then clustered. This methods gives everybody the possibility to share their ideas and avoids people from dominating the brainstorm. This method seems to be perpendicular to using theatre, as that is based on expression and using the body more than the mind. It was also seen that in the workshop, after the part where post-it's were used to generate ideas, the theatre part was much more difficult. When a workshop is based on silent brainstorming, a good warming-up is key to get 'into the body' and 'out of the mind'.

Bodystorming is almost exactly acting and therefor has much common ground with this theatre method. Bodystorming is technique of physically experiencing a situation to derive new ideas. It requires setting up an experience - complete with necessary artefacts and people - and physically "testing" it (Witthoft, Geehr, 2010). Bodystorming can also include physically changing your space during ideation. By being physically active, new creative ideas are generated. The difference with the theatre method that is created is that it is more complete, it uses a good warming up and structured exercises so that the maximum result is achieved and the

threshold to start doing it is low. Some designers expressed that the part where they 'had to act out the product or service' was not their favourite one. This comes back to the required warming-up, without it, acting (or bodystorming) will not have the desired result and is quite scary to do. The theatre method can be seen as a bodystorming 2.0, it requires some more time but has much more result and is experienced much more positive.

Apart from specific methods that combine very well with the theatre-method, the general approach of Philips also offers perspective for this method. The focus is always on the user, human-centred design is one of the most important pillars that Philips stands on. The slogan 'Innovation and you' also reveals that the user is key in their designs. The main unique selling-point of this theatre method is that it enables outsiders to step into the life of the user (either to get discover things, get more empathy, create ideas or test concepts), this is perfectly in line with the user-focussed strategy of Philips.

It should be realised that using theatre in the design process is not a method that stands on its own, it should be seen as an addition, gathering some basic information in the discovery phase and developing concepts and prototypes are still recommended (though this could be integrated in a theatre-workshop). This is also what is done in this project. Theatre is used as the red thread to create and develop suitable ideas but a lot of extra research and some working-out is done without the help of theatre. In a later stage in the project, an assessment will be made about what insights and outcomes were gathered thanks to using theatre in the design process. This will be done with evaluating and analysing the workshops and the project in general. This should give valuable information about what theatre can exactly add to the design process.

3.4 DESIGNING THE PRODUCT

Specific issues elderly

Why would a healthy lifestyle be adopted? This would be to avoid lifestyle diseases, feel fit and live a long and happy life. Therefore, it is important to discover what would be (or already are) the problems that could be resolved or prevented when following the health advices. This information will give more depth to the concepts and test whether the concepts that were developed would actually address to problems that the elderly have. Using desk-research and an interview, more information about problems that elderly encounter are found. Because the product will be a kitchen appliance, it would be easy to choose a problem that is connected to nutrition, looking at other problems give a good context of these problems and might bring a good combination of problems that can be addressed.

- Loneliness: 900.000 Of the more then 2,9 million seniors in Holland feel lonely. Loneliness can have severe effects, it increases the blood-pressure, the level of stress and the chance of depression. Lonely elderly prove to have a 14% higher chance on an early death than an average senior, this makes the chance on an early death twice as large as it is with seniors who are overweight. Staying active, doing volunteering work and/or attending activities lower loneliness and the chance on social isolation (Nationaal ouderen fonds, 2015).
- Safety: 92% of the women and 71% of men above 65 years old are afraid of opening the door at night. Half of them leaves the house less often due to the feeling of insecurity (Nationaal ouderen fonds, 2015).
- Falling accidents: A research of 'VeiligheidNL' shows that the amount of deadly victims among seniors (older than 65 years old) has risen with 37% in the period of 2007-2012.
- Dementia: Not just the condition itself, also the care that goes with it brings problems. 82% of the care-takes of a demented elderly is overloaded or is at a great risk of being overloaded (Klerk, 2005).
- Home care: 40% Of the retirement home residents think that the care is given to rushed and that the employees have to little time for a confidential conversation (Klerk, 2005).
- Malnutrition: A frequent problem among elderly. National (from Holland) prevalence rates show that malnutrition is a problem at 25 to 40 percent of the elderly in hospitals, 20 to 25 percent of the elderly in retirement houses and 15 to 25 percent of the elderly that receive care at home suffer from

malnutrition. In the case that malnutrition is detected and resolved in an early stage (when elderly still live at home), significant health benefits can be achieved (Nationaal ouderen fonds, 2015).

- Overweight: Also a large problem among elderly as the body needs less energy due to decrease of muscles mass and physical activity (World health organisation, n.d.).

Challenges with nutrition (World health organisation, n.d.):
- Cooking becomes a problem for the elderly, due to less mobility, strength and energy.
- Food becomes less tasteful due to the impairment of taste receptors so the urge to eat (healthy) becomes less.
- Problems with shopping for groceries due to less mobility.
- Problems with lack of social contact

Eating with friends or family can be just as important as vitamins. A social atmosphere stimulates the spirit and helps to enjoy food. When a meal is enjoyed, it is easier to eat enough and healthy. When one lives alone, it takes more effort to eat with friends and family, however, this effort is worthwhile. Setting dates to have lunch or prepare with family, neighbours or friends will be a great help against loneliness and to stimulate creating a healthy eating pattern.

Problems of elderly: Interview with specialist van de GGD, Lotty de Weert

The complete interview is presented in Appendix H, a summary is given here.

Fall accidents in the private sphere (like falling from a step at home) is the main problem that Lotty tries to tackle in her work. These types of fall accidents are less common if elderly (1) make their home safer, (2) change their behaviour (recognising and avoiding dangerous situations, doing balance exercises, etc). Education is the only method that was used to get the elderly to change their behaviour. Approaching elderly happened through 'intermediates', group education is offered and hosted in collaboration with elderly federations and welfare work for elderly. Demonstration materials, written education material, group conversations, instructions and physical exercises were used to prevent falls. Individual education is provided by neighbourhood nurses and volunteering at-home visitors for elderly who received a training. They use written education material and checklists (for altering the house to make it more safe) from the consumer and safety foundation. General practitioners receive a 'clinical lesson' to ensure they can inform elderly about fall prevention during the consultation. Different printed educational material is spread on personal and community level. In each township, a sort of health-fair is organised specifically for elderly, the admission is free and there are many different stands and activities, chances to win little prices, several tests. The total program of education was executed during one year per township.

The participation of elderly in the different educational activities differed per township, this makes the effect the program had very different. Questionnaires showed that the education did not reach everybody, the knowledge did actually grow and that a part of the elderly is willing to do/change things. The amount of fall accidents was lowered a little bit but didn't help as much as hoped. Elderly that participated in balance-training (a course of five or more meetings) scored much better on behaviour change and showed far less fall accidents. Other researches to the effects of health education showed in general that a long term attention and repetition is required to achieve effects. Off course, it is logical that not all elderly can change their ingrained habits. Not everybody sees a possible fall accident as a risk or problem for themselves. People who had such an accident before recognise the problem more often, they are willing to change their behaviour and are open for information about this.

This interview shows that a large problem was that elderly were not aware of the problem and didn't feel the need to change their behaviour for that reason. Having personal contact to convey the message helps, but eventually, the elderly themselves are the only one who can actually change their own behaviour. This knowledge can be used when the final product for behaviour change is designed.

Conclusion
The largest problems for elderly are connected to loneliness, safety, falling accidents, nutrition (both over- and undereating) and chronic conditions like Alzheimer and high blood pressure. There is much more to getting older than what can be described with conditions and diseases, the impairment of taste or of the mind for

example can have a series of effects as described in this section. This information gives some valuable insight in what normal life could look like when getting old, this insight can be used in a next theatre workshop. When it comes to changing the behaviour of the elderly, they must recognise the problem and be stimulated in an engaging way in order to change their behaviour.

Insights from the theatre workshop
All this gathered information about issues of elderly can be compared with the insights about elderly that were found during the first theatre workshop (where not so much information was given beforehand). Many of the personas that were created in the theatre workshop reflected some of these problems, like problems with eating, loneliness and chronic conditions. Some of these problems were presented in the beginning of the workshop, the ones that were not presented were generally not used so much. This is not unexpected because not everybody has a lot of information about elderly and their challenges in life. This shows that it is key for a theatre-workshop to provide enough valuable information in the beginning of the workshop. It should be considered carefully if it is more important that the attendants discover the problems themselves (so little information should be provided) or that they should build correct and very complete personas and context's (a good basis of information should be provided to avoid stereotyping). This is good to keep in mind while making the manual, the choice should be made by the workshop-host but should be well considered. For the next workshop, as a test, very little information can be provided, to see if the attendants also come up with these specific challenges. When organising a theatre workshop within a project group, the problem of providing information might be less of a problem as the attendants are already informed about their own project.

Philips' style

In order to be able to design a product for Philips, the style of Philips should be understood first. With some specific features, the product that will be designed can be fit into the current product line of Philips seamlessly. A broad spectrum of products is analysed on shapes, colours and materials. Also, the way of providing services by Philips is assessed shortly. The information is gathered from analysing the products shown on the website of Philips Electronics N.V. (2015).

Shapes
The shapes look very elegant and refined. There are always rounded corners or other round shapes. Usually the shapes involve double curved surfaces combined with some sharper corners, to make the product look more mature. Buttons are usually round (or rounded) and in some cases combined with a rounded, organically-shaped frame in another colour around it. The shapes where the products are based on are geometrical shapes, with the cube/cuboid and cylinder being the ones that are the most frequently used. Some products have completely different shapes because the ergonomics and functionality require it. In all products, the shape is dependent of ergonomics, this can be seen in thick handles, hand shape-following handles or shapes and the placing of buttons.

Colours
Usually the products are white or black. Many products have accents of beige/grey, silver/grey or pastel colours like light pink/salmon or light blue. Bright colours like azure blue are sometimes used as an accent but to not dominate. These colours give the products a serene and elegant look. Especially also for elderly, this colour setting will be very attractive, these pastel colours will definitely be used for the product that will be designed.

Materials
 Most products have a plastic housing. By giving the surfaces a glossy look the products look luxurious. Some products have a more silk-like shine, this is usually used in the white or light coloured products, this makes the products look elegant and luxurious. Small chrome strips or buttons also add to the elegance and luxuriousness of the products. In some products, accents (or sometimes larger surfaces) of stainless steel are used to give a more robust and bold look. Really raw natural materials (like wood or stone) and industrial looking materials (like metal) are hardly ever used.

Figure 3.3. Collage with different products of Philips.

Services

Beside products, Philips invests a lot in services. It is also important to look at what type of services Philips offers and how these services are executed. With this information, the product with service that will be designed will fit into the line of expectation that are associated with Philips.

The main services that Philips offers to all consumers are software-updates: to ensure that products keep working well, fix specific bugs, get new functions and maybe even to keep customers connected to the brand and reparation: with warranty, online questions-and-answers, service points and online information about reparation. A good example of a real product and service combination is the Lifeline (can be seen in the collage of products in the bottom middle). This product is a wearable with speaker and service for elderly that registers a falling movement. When a falling movement is registered or the button on the wearable is pressed, a connection will be made with a call centre. The voice of an employee will be heard through the speaker and he and the elderly can communicate about what happened and whether extra help is required. This example shows that the human contact is still very important when designing services. Especially for lonely elderly, it can be very comforting to hear a real voice comforting (or just talking to) them.

Idea sketches

Overview

To visualise the ideas that arose during the workshop and further deepened based on the information about elderly and their challenges/problems. The sketches are just an impression of all the possibilities and all the functionalities that the products can have and can be found in Appendix I.

Clustered ideas

The bulk of ideas as seen on the Appendix I are all very diverse and some do not really comply with the requirement of the product being a kitchen appliance. To give some structure to the ideas, some fast clusters are made that combine most of the ideas of the image to some organised sketches.
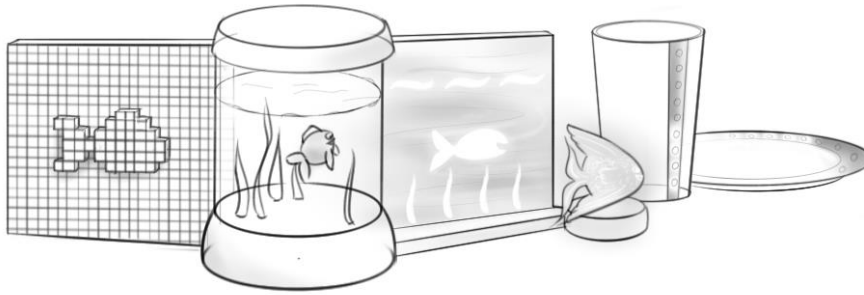
An image of a fish should encourage elderly to eat and drink enough as the water level indicates the amount of consumed water and the seaweed the amount of consumed food due to a connection with a smart cup and plate.

Figure 3.4: Sketches of cluster 'fish'.

Blending food becomes required for some elderly. Blending can be combined with physical activity, memory exercises or with analysing the food/drinks and suggesting some extra healthy ingredients
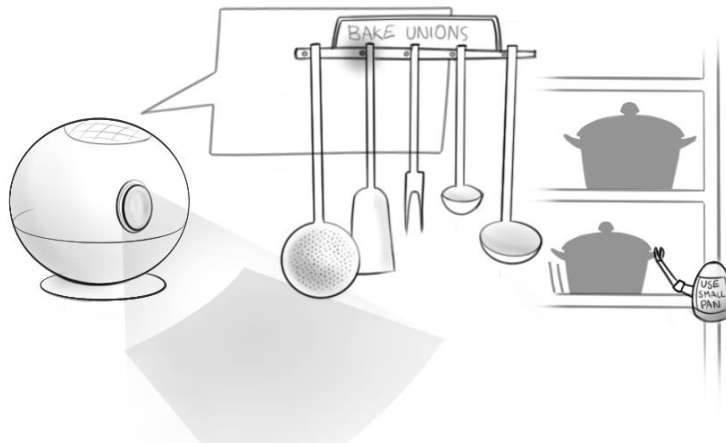
Figure 3.5: Sketches of cluster 'blender'.

A cooking help will enable elderly to cook healthy meals again. It can project or pronounce the recipe, indicate the tools that are required or even be a physical help to get pans.
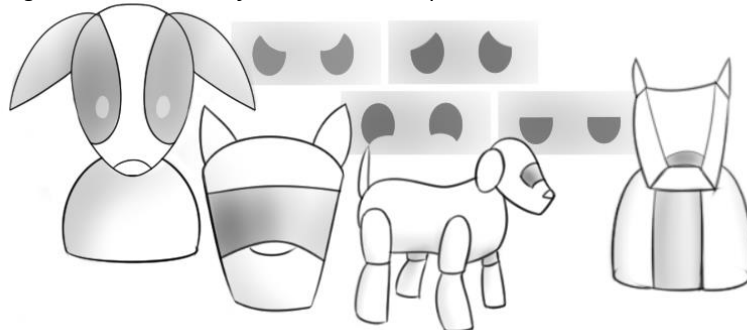
Figure 3.6: Sketches of cluster 'cook-help'.

This simplified robot-dog encourages elderly with barking and facial expressions. It is connected with other devices and gives feedback with unhealthy behaviour like putting fat snacks in the fridge or good behaviour like making a fruit smoothie.
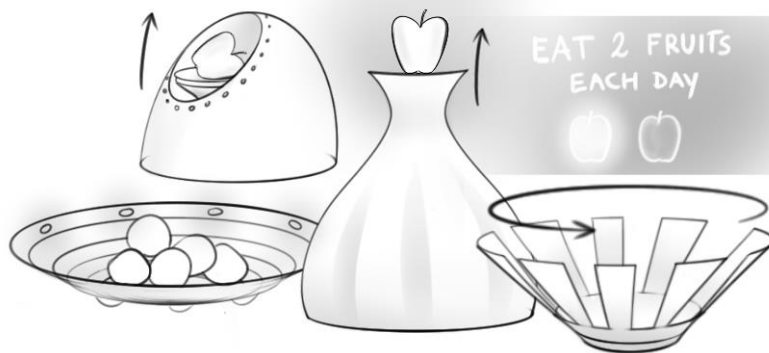
Figure 3.7: Sketches of cluster 'robo-dog'.

This persuading fruit-scale or snack-presenter draws attention to healthy snacks with movement and light and suggests snacks by presenting them in an appealing way (again with light, movement and isolation).
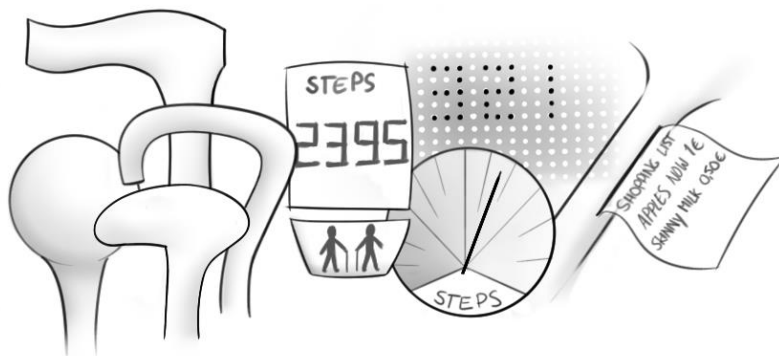
Figure 3.8: Sketches of cluster 'snack-box'.

A walking stick can help with finding a walking partner, counting the steps (with presenting a goal) or could even print a shopping list or some healthy food that is discounted to encourage walking to the supermarket and buying healthy food.

Figure 3.9: Sketches of cluster 'walking stick'.

Based on workshop

These ideas are not all directly generated during the theatre workshop. However, all of the ideas can be related to the workshop somehow. The fish might be further away from the ideas that were generated, although the relation can be seen with the idea of the robot dog: having a 'cute' animal that encourages specific behaviour. The blender with the memory game was created in the workshop, the other variations follow from this. A cooking help was created during the workshop, this was more like a digital friend and cook-help, a simplified and altered version is depicted in the idea-cluster. The robot dog was an invention of the workshop and was based on the ideas that were generated with the challenges (not so much on the concept that was presented in the end). The fruit scale or snack-box was not invented during the workshop, however, many personas got the advice to eat healthy snacks, these ideas fit with these advices. Many of the characters had a walking stick and one of the final concepts helped the old lady with walking by holding her hand, this could have been an inspiration for the last idea-cluster. It is difficult to say exactly what ideas were generated during the workshop, as own inspiration always plays a part as well. Discussing the ideas with three other attendants of the workshop gave some more insight in what ideas were derived from the workshop. All of them (directly) recognised the cook help, the memory-game-blender and the robot dog, the walking stick was recognised by the person who had this (similar) idea during the workshop but not by the others as it was not an idea that was presented to the rest of the group. After some discussion, it was concluded that the fish was derived from the Robo-dog, as it was connected to a cup and plate and the Robo-dog was also connected to different devices to track activity. The persuading fruit scale was not recognised immediately, but looking at the advices that were given, this concept made sense (like described above). As a conclusion, it can be stated that many different ideas that were generated in the workshop were usable in some way in the project, either directly or indirectly. The way of using the generated ideas can be done in many different ways. They don't have to be copied one on one, but can pose as an inspiration of very divergent solutions that can be combined, developed and altered to make a large amount of suitable ideas.

4 CONCEPTUALISATION

4.1 INTRODUCTION

This section of the report describes the steps that are made from ideas to more detailed concepts.

The plan for the manual that describes the method to use theatre in design for behaviour change is further developed into a first version. This concept-manual will contain the required information as described in chapter 3.3. In a feedback session (an internal presentation of the project of 20 minutes followed by a discussion of 25 minutes with designers and other interns of Philips), tips on how to improve the manual and implication of the method are inquired. The outcomes of this event is linked to the research questions about the theatre method and the way to make the method suitable for Philips. These insights will also be used in the next phase of the project to detail the method and way of implementation. To get some more insights from theatre-experts, two professional actors/directors give some advices for specific exercises that can be helpful in this method. The gathered insights help to answer the research question about the theatre-method.

For the product for behaviour change, a few interesting ideas are chosen and worked out until product plans with all the functionalities and interactions. This is an important step in answering the research question about the case study.

The concept-product and the concept-manual are tested in a last theatre workshop, the workshop has led to a choice of concepts. This product/service will be further developed in the next phase of the project. The workshop also gave insight in the suitability of the method for Philips and the effectiveness of the exercises.

4.2 DEVELOPING THE METHOD

Layout manual

The structure as proposed in chapter 3.6 is detailed to get a more specific overview of the required pages with necessary content for the method. The overview can be seen in Appendix J. Using this overview and all the gathered information so far, a first version of the manual is made. This document contains an introduction, all the exercises, specific information for the workshop-host (guidance and tips), suggested structures for semi-standard workshops and tips what to do after the workshop with the outcomes, all with a suitable attractive lay-out. Three example pages are shown in Appendix J.

The most important thing is to make comprehensible exercises of the cores. The warming-up exercises are existing activities that come from the theatre world, the cores are created during this project and are quite vague at this stage. In order to get others to understand the manual and be able to use it to create a workshop, comprehensible exercises with clear descriptions should be made. A part of the table from paragraph 3.6 is used to base this structure on. The different steps that are clustered lead to the same goal and have a clear in- and output. In the table 4.1, these in- and outputs of the different exercises are categorised to their goal.

Most in- and outputs follow up on each other very smoothly. This is an interesting fact that will be used in the further detailing of the manual. All exercises are described in detail in the manual, it is not relevant to place all the descriptions in the main report as it would take up too much space. The lay-out of the manual is inspired on the poster that was made for the first workshop. It shows two light beams that shine on theatre masks, the beams represent the two points of view of theatre and design that are combined. Different colours are used to clarify the different goals and types of exercises and should help the workshop-host to find the right exercises quickly.

Goal	Finding Target group insights	Evoking Empathy	Creating ideas suitable for the target group	Testing developed concepts and prototypes
Exercise	Create personas	Live in personas	Challenged object theatre	Object theatre
Input	Some information about target group	Personas	Empathy	Empathy and concepts
Output	Personas	Empathy	Suitable ideas	Improved concepts
Exercise	Create context and activities	Live into context and activities	Forum theatre	Forum theatre
Input	Personas and information about target group	Context and activities (experience flow..)	Empathy	Empathy and concepts
Output	Context and activities (experience flows..)	Empathy	Suitable ideas	Improved concepts
Exercise				Movement theatre
Input				Concepts
Output				Shapes/forms for the concepts

Table 4.1. In- and outputs of the different core exercises.

Feedback session

During the feedback session of 21 October 2015, a group of designers and some interns have attended a presentation of the work of this project and shared their thoughts about the project. The presentation didn't go in depth about the method, it gave a short introduction on the project and the method that is created. The main focus point of the feedback session is to gather information on how the method can be integrated in Philips and to get some general thoughts about the project. Questions like: 'Would you want to apply this method in your project? ' and 'How can we get others, who don't know the project, to try this method?' were posed. The complete session was a good opportunity to get some publicity for the project which can make later implementation easier and to gauge interest for such a method in general. By involving others in the process of creating the method, the method becomes more suitable for Philips and more people will be willing to try it as they already know about it. Employees of Philips Design are invited and a limited amount of places is available for interns from both design and research.

Of the more than 22 applications for the workshop, a group of nine designers and interns actually attended the session. After a presentation of about 15 minutes, the feedback part started. A lot of useful input was given and some specific ideas and recommendations for the project follow out of this session. The feedback is listed in Appendix K. The most important and feasible feedback-points are creating cards to visualise the planning of a workshop in a physical way and gather a group of early adopters. Focus points like 'highlight the benefits of the method' and 'clearly define the goal' are used for the manual. Other important, but large feedback-points are written down in the recommendations-section in the end of this report, this will be the starting point for a follow-up assignment for the next student.
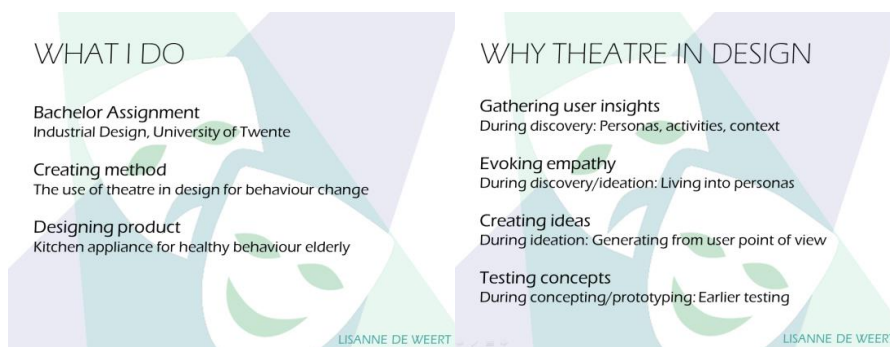

Figure 4.1. A few sheets from the presentation during the feedback session.

Interviews theatre experts

A drama-teacher at the student theatre association in Enschede (and former industrial design student) and a professional actress from Utrecht (who also gives theatre-workshops to researchers) were interviewed to get some more information about organising a workshop and suitable exercises (Thomas and Weikamp, October 2015). The main topics was the warming-up (how this could be done best with unexperienced, high educated people), problems that are encountered during workshops and the required input of the workshop-host. The core of the gathered information is listed here.

About the warming –up:
- Warming-up is always required, for everybody. Even professional actors sometimes take 1/3 of the total rehearsal time to warm up. This should be stressed in the manual, it changes the mind-set, creates a stronger group (trust), learns to make mistakes, learns to talk with the body instead of the voice. Besides, becoming physically tired helps to make more impulsive decisions. The warming-up can be shortened but should always be there. With a good warming up, everything afterwards is possible.
- Always start the warming-up with some physical exercises (Whoosh, billy billy bob, paintball). It helps to 'get out of your head' and into the body. Always use an energiser when energy is low. This also counts for concentration or emotion exercises when these aspects lack.
- Making the exercises specific per core might work better. The different forms of theatre (like object theatre, movement theatre) are all made as a complete package with their own goals. The warming-up exercises of these methods can be used to make the warming-up more suitable for the core.
- Other exercises to help with the concentration/character warming-up are: talking the other of the chair (so convincing) or asking 'can I join?', which is only allowed when it is believable.
- Warming-up for emotions: make duo's and both get one sentence that you keep repeating, with the whole group together. Insert more and more emotion in these sentences.
- As a workshop-host, always join the warming-up, especially the group part, creates equal atmosphere. This is really important in such a workshop, not to be the 'boss'.
- As being open to feel emotions of yourself and the character is important in the workshop, an extra warming-up for this could work. For example, doing the emotions 1-10 exercise first as yourself and then as the character (the user/target group) gives insight in different postures and body language. Take some time to assess what different postures go with different emotions.

General:
- (High educated) people often ask why specific exercises are required, they tend to be nosy. A good introduction with information about what problems it solves and what goals it serves helps to avoid later questions. Things like 'research shows' and other proves work best. Showing the host understands the world of the attendants is key, in this case, that is easy. It is very important to create and show the value of the method, all about (self-)promotion.
- When you want to introduce another exercise, that might be scary to do for some or want to describe a value of something, start with explaining things they know or can relate to and build up on this. It triggers attendants to think with the host and use their logic to discover the use of it themselves. Get them into the 'yes'-mode.
- It is useful to use existing methods, but is not very interesting for the person following the workshop, it doesn't need to be mentioned in the manual.
- A key mechanism to make things less scary, is to let everybody do things at the same time so nobody gets all the attention. This works for both the warming-up as the core.
- Another thing that works is to take responsibility as the workshop-host. If you tell somebody to act a specific scene and it is not good, it is not the fault of the players but of the host, as he told them to play it like that. A variations is to ask the audience what the players should do and so put the responsibility for the success of the scene in their hands.
- Try to avoid saying 'but' after giving a compliment about a scene. It gives a negative annotation to the compliment (which can make players insecure and closed) and can be said in a different way.
- Ensure a safe, open environment. This is done by setting the good example as a host. Always try to be a bit more crazy than the players to make them feel comfortable, it gives the comfort zone a different dimension. This can be done with clothing and with acting.

- When you, as the host, show how to do something, try to do it either much worse (to trigger the players to do better) or much better (so they will have something to work towards) than the group, then they will not just imitate you.
- If people don't want to join, assess if you could convince them to join in or that you should save your energy and let him/her watch from the side. If you want to convince people who were forced to do it, stress that the outcomes will be valuable and their input in the group is important. This can be done in the introduction for every workshop, show the people what they will work towards. There should be room to listen to the people who don't want to join, it helps to talk about it quickly and to stress that it should be seen as an experiment.
- If people are scared (can be seen on the posture and in the eyes, making jokes, laughing a lot, asking a lot of questions), they should be rewarded a lot. It should be stressed that it is okay to make mistakes and that it is good that they learn, it is not just about the result.
- Avoid answering questions all the time in the workshop. Some practical or crucial questions are okay but time shouldn't be wasted on explaining everything all the time, just try it!
- Theatre helps with expression, self-knowledge, overcoming fear, having fun and enhancing the group dynamic. It serves more than just the practical goals.
- It is good to be able to show something during the workshop, like a small scene that is performed to the rest. This shows what is done and people can get feedback from each other, this helps for the rest of the workshop.
- Epic theatre, or narrative theatre works better for this goal then Stanislavski as some distance between the character and the player is good. The designers don't really have to become the users, they need to feel what it is to be like the user.
- The way to sell the method to a company in general or to the attendants of a workshop is different. Both sell-points need to be described in the manual, as they are both important for the workshop-host.

Two last thoughts: 'Theatre is not the goal, it is the means.' 'Theatre can only be experienced!'

This feedback, insights and tips are integrated in the manual (especially the part with tips for the workshop host), workshop-kit and next theatre workshop. It is difficult to capture all experience of these people in just a few lines of text, it could be an idea (either in this project or in a follow-up project) to give a short course or workshop for the people at Philips to get a feeling for the way to host a successful theatre workshop.

4.3 DESIGNING THE PRODUCT

Product concepts

The most important criteria to choose the ideas that will be developed into concepts is whether it gives interesting possibilities to test/apply theatre methods to evaluate and expand the concepts. This would mean that interesting interactions and functionalities are desired. An assessment of the six idea groups with their positive and negative points gives insight in their suitability for this project, this can be seen in Table 4.2. Taking all the positive and negative points into account and judging on the criteria of how interesting the ideas would be in the next theatre-workshop, the following ideas are chosen: The snack-box, The fish and the cook help. The combination of these ideas is a good base to test the different methods in the theatre-workshop as they are very different and can all be worked out in many different ways.
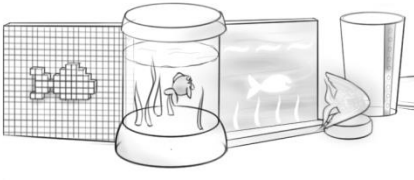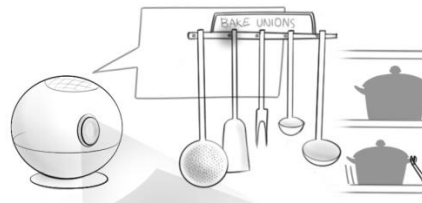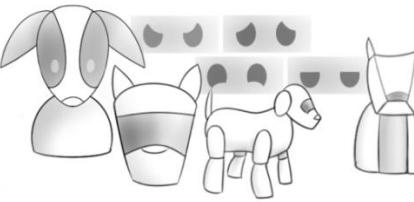
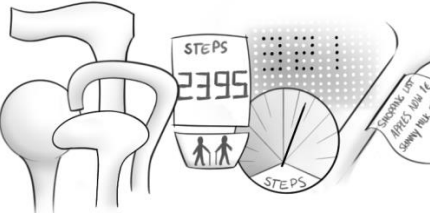| 1. Fish	2. Blender	3. Cook-help
An image of a fish should encourage elderly to eat and drink enough as the water level indicates the amount of consumed water and the seaweed the amount of consumed food due to a connection with a smart cup and plate.	Blending food becomes required for some elderly. Blending can be combined with physical activity, memory exercises or with analysing the food/drinks and suggesting some extra healthy ingredients.	A cooking help will enable elderly to cook healthy meals again. It can project or pronounce the recipe, indicate the tools that are required or even be a physical help to get pans.
+ Interesting, expandable functionality + Challenge to depict the functionality with theatre	+ Recognisable product, so fast understanding + Interesting interactions can be played out with theatre	+ Could have many different functionalities + Challenge to depict for example projection
- Challenge to depict the functionality with theatre - Physical appearance is large part, difficult to experiment with using theatre	- Existing product with some extra functionality, not really innovating - Really broad, needs to narrow down to specific idea	- Too vague now, needs more definition - Challenge to depict for example projection
4. Robo-dog	5. Snackbox	6. Walkingstick
This simplified robot-dog encourages elderly with barking and facial expressions. It is connected with other devices and gives feedback with unhealthy behaviour like putting fat snacks in the fridge or good behaviour like making a fruit smoothie.	This persuading fruit-scale or snack-presenter draws attention to healthy snacks with movement and light and suggests snacks by presenting them in an appealing way (again with light, movement and isolation).	A walking stick can help with finding a walking partner, counting the steps (with presenting a goal) or could even print a shopping list or some healthy food that is discounted to encourage walking to the supermarket and buying healthy food.
+ Many possible interactions with user and other products + Expressions that follow from theatre can be depicted in the product	+ Interesting what can be done with the persuasive presentation of fruit with the human body. + Movement and presentation can be explored with theatre	+ Interesting to play interaction with theatre + Different extra functionalities could be found with theatre
- Challenge to integrate real useful functionalities besides warning - Many connections makes understanding and installing product difficult	- Doesn't have many different functionalities - Light is hard to depict with theatre	- Not a kitchen product - Important functionality only works when many elderly have this product - Displays can be hard to depict with theatre

Table 4.2. The six different product concepts with positive and negative points.

Now, these ideas are worked out to the level of basic concepts with the functionalities. The appearance will not be further determined as it can be too steering in the next theatre workshop. By just giving the functionalities, the attendants can use all their creativity to determine the right form of the products during the second part of the workshop.

Snack-box

Requirements. The product should:
- Store healthy snacks for 3 days
- Present a healthy snack 2 times a day
- Know whether the snack has been taken or ignored
- Present the snack in the most attractive way
- Stimulate taking healthy snacks

Extras. The product could:
- Preserve the snacks longer

Fish

Requirements. The product should:
- Indicate the amount of consumed water that day
- Indicate the amount of consumed food that day
- Pursue the user to eat and drink enough
- Alarm if too little food or drink is consumed

Extras. The product could:
- Give feedback on the type of food/drink consumed

Cook-help

Requirements. The product should:
- Enable the user to choose a (healthy) recipe
- Encourage the user to cook and eat healthy
- Inform about the recipe in a comprehensible way
- Indicate which tools should be used

Extras. The product could:
- Hand the required materials to the user
- Inform about shopping list for recipe
- Read a recipe from a book out loud

4.4 SECOND THEATRE WORKSHOP

Description

A lot of the methods are already tested in the first workshop. This second workshop should give some insight in the exercises that can be done to test and choose concepts and to develop a concept further. The program will consist of exercises that are inspired on the literature revision, the experience of the previous workshop and the interviews with theatre-experts. The input for the workshop will be the personas that were created in the previous workshop and the descriptions of the concepts that were chosen.

Important things to be discovered in the workshop are:
- Living into the existing personas (of the previous workshop, merged into three divergent personas).
  o Will new characteristics be found while living into the personas?
  o Are different context and routines find when living into the characters?
  o How will the players be able to live into the characters without any extra knowledge about the target group?
- Object theatre: playing out the concepts
  o Does this give radically new functions or just small adjustments?
  o Is it easy to imagine the products without a physical example?
  o What new things are discovered when all the concepts are tested with all the different personas?

- o What new things are discovered when the concepts are placed in special context or unexpected events happen?
- Choosing one concept and working out this concept with Forum theatre.
  - o How do the players react to the feedback of the audience?
  - o What situations are invented and how do they change/detail the concept?
  - o What effect does it have when the product doesn't have a positive effect/when the product is not used well?
- Movement theatre to determine the form of the product.
  - o How do people react on such a undefined, free way of using the body for design?
  - o Can these forms actually be a good example for forms?
  - o How can the poses and gestures be depicted in more realistic and more abstract shapes for a product?

The detailed program for the workshop can be found in Appendix L. In short, the introduction contains some general information about the project, but not so much about the target group. The warming-up lasts about 20 minutes and contains exercises of all the four stages. When getting into the personas, the existing personas are used and more information about the context and activities is gathered when characters meet each other (and show their house to the others). After explaining the concepts shortly, object theatre helps to develop the concepts. The characters testing the concepts and the people playing will all change, so each concept is played and tested by different characters/people. The choice of concepts is the last part before the break. After this, forum theatre is tested, where the audience gives tips/challenges/changes places with one of the players. The last exercise is movement theatre, an extra physical warming-up may be required to get 'into the body' again. In this exercise, body poses and movements are used to persuade specific behaviour. A short evaluation followed by a last energetic exercise end the workshop. The total duration is three hours.

The amount of people who signed up for the workshop is not big, this makes the workshop less representable for 'Philips designers' as a group. However, it is a good representation of how a theatre-workshop would work for a small project group, which gives valuable information about the applicability of the method. The exercises are altered slightly to make it suitable for a small group of people, Forum theatre is already a good exercise for a small group.

Organisation
Like the first workshop, the workshop is hosted in Workshop space 1 and some abstract large and small props are available. The promotion was done with personal approaches, e-mails and posters. The input that is required for the workshop are the personas that were created in the previous workshop.

Personas
Some of the personas that were created during the previous workshop are merged to get three very different interesting personas. The result is the following collection of personas.

Riet
- 87 years old
- Lives in an elderly home
- Keeps repeating things, light form of Alzheimer
- Very helpful, likes sharing, polite and caring, a good listener and interested in others
- Quite fit for her age
- Family oriented
- Husband died 10 years ago from diabetes
- Has a 63-year old sun and grandchildren, they don't visit so often as she would like
- Before moving to elderly home, had problems with eating enough
- Used to be quite social but more quiet now, feels lonely sometimes
- Doesn't feel like she needs help

Harry
- 92 years old
- American, fought in the second world war (he might have a trauma from this)
- One son (has own company in Holland) and two daughters

- Can come across grumpy while not intended
- Used to be physically fit in younger years, frustrating that he gets so immobile quickly
- Doesn't get enough exercise, quite lazy
- Is confused with many things > light form of Alzheimer
- Likes to have male friends
- Prefers unhealthy food
- Is open to change some things in his lifestyle

Jan
- 77 years old
- Used to live in the countryside, now in the city
- Used to have 10 cats, now has 2
- Doesn't have teeth
- Visits his brother in the elderly home often, they used to take care of each other
- Social (a bit a Casanova)
- Never got married but had many girlfriends
- Likes to tell stories
- Doesn't really stand up for himself
- Goes to the supermarket every day (for the free coffee)

Results

During the last theatre workshop, object theatre was used to test the tree different chosen concepts with the three different personas. Not much information was given about the concepts (no sketches, no detailed descriptions) so the attendants were free to interpret the ideas their own way. Playing out different versions of the ideas resulted in good designs for the product, the snackbox was eventually chosen. This concept was worked out very well to match the needs of the personas, especially Nel would be helped a lot with this product as she had problems with remembering when to eat. The different versions for the snackbox are worked out here, the best ideas are combined to a detailed design for the snackbox.

In the snackbox that was designed for and by 'Jan' and 'Harry', the snackbox is a physical box that sometimes opens and shows several food sorts. The lid opens electronically and the icons are related to the food that is inside. The box could be filled with snacks that match the diet requirements. The size, desired achievement and added value has to be determined further.

The snackbox that worked very well for Nel did not place the attention to much on the snack or on pushing the user to take one, but on creating a nice reminder to take a healthy snack. This was done by using light and music to attract the attention of Nel, the light and music made the snack attractive and brought her in a good mood to take and eat the snack. The snacks would not be visible if no snack is provided and only the presented snack is visible when it is presented. This way the user is surprised every time and the moment to get the 'mystery snack' becomes something to look forward to. Another method of the snackbox that was tried before, was telling Nel that an apple was chocolate, so she would take the snack thinking it was something she really liked while actually it is something much healthier. The snackbox could also be placed in the fridge to preserve the snacks longer as Nel was concerned that the snack that was offered to her would not be good anymore.

General findings were that the device should not be too complicated, it doesn't have to be connected to a smartphone or give much information about nutrition, this would only make it confusing for the elderly. If some information about the food-intake of the elderly could be gathered with the product, this would be interesting for the caretaker or family, it doesn't really need to be presented to the elderly themselves. Having some sort of alarm is useful to remind the user to eat. Having many notifications could be confusing or overwhelming for the user, especially when they have Alzheimer. Contextual alarms would therefore be better, being adapted to the context of use and taking into account that it doesn't have to be an emergency alarm to remind an elderly to take a snack. The configuration of the product was challenging, the most simple way would be best.

The workshop mainly gave insightful information about why the elderly don't always eat properly and what would trigger them to eat good. By playing out scenarios with the product and the user, the story around the use becomes visible, this gives useful information about why some alarms do work and others don't.

Evaluation

Own evaluation

Eventually, only four people could make it to the workshop, three of them could not make it in time, so the start of the workshop was postponed with one hour. Making the workshop shorter inevitably leaded to leaving out some exercises. Hopefully another workshop can be planned to still test these methods. The fact that many people are interested in the method but don't have time for a three hour workshop shows that the method might work if it is planned by a project leader and is applicable to the project. If it would be an additional, general workshop-method standing-alone, it would probably not work so well.

Practically no information about the target group was given beforehand, in contradiction to the other workshop, where a short presentation about elderly was given. This test, to see how people would react without prior information worked quite the way it was expected. Attendants stated that they did not have so much information about elderly and that they therefore took older people from their environment as an example. It is however difficult to compare this workshop to the previous one, as the personas were already created and so a lot of extra input was not required. When a workshop like this is done with a project group, it will be less of a problem to get the right information, as everybody will know the required amount of information when working on the project.

It took some time for the attendants to get into the acting, only one of the attendants had some experience with theatre (10 years back) so this was not so strange. With the different warming-ups, people started to get more 'out of the minds' and 'into the body'. Especially the billy billy bob worked well to get them up and moving. The workshop host joined, the group of five was good, but also probably the minimum for this exercise. With a group of four or maybe three, the Whoosh would still be an option. The exercise of the 'new neighbour' was surprisingly creative, there were stories and emotions related to the neighbours which made it much more interesting. It was notable that the attendants were not the most expressive as they could be during the emotions warming up, this is also related to the lack of a group to blend into so being too 'visible'. Combining this emotion scale with living into elderly people (so doing one scale with emotion 'sad' again inside the character) helped to discover the difference in posture and poses. The last warming-up exercise, believable lines, worked very well. The attendants really tried to be as believable as possible. Over all, compared to the previous workshop, the problem was not getting the people to become more serious (less laughing) but more out of their comfort zone. It is good to see that every workshop and group is different and that the exercises still fit for the different groups.

Living into the existing characters went well because there were specific guides for the characters. The fact that the attendants could make small additions or changes to a persona made it easier to get divergent characters. It might have been more difficult to live into the characters very realistically in comparison to making a character yourself because they are not so much your own ideas about a persona. Nearly all the attendants had elderly people they know in mind, this helped to live into the characters.

In general during the Object theatre, the interaction between the product and the user was played out very good, the characters were critical and kept their characteristics. It might have helped that the personas had some specific characteristics that were interesting during the interactions (like: 'Does not feel like she needs help.' Or 'Is willing to change his lifestyle a bit.'). Some attendants had the tendency to describe their actions in words, or instead of being the product, being somebody explaining the product to the user. This didn't really help with defining the product themselves. After a little while, some attendants realised that acting like a human-like product is not the goal of the exercise. With this conscious thought and the use of the props, products became more and more simple, having functionalities involving lights, music and movement (instead of speech). The fact that the attendants tend to get out of their role as the user and into a more analytical role was also seen in the first workshop but was way less now, having a more serious groups will lead to more lived in acting which makes it easier to stay in the role.

Because the workshop only lasted two, instead of three hours, the forum theatre and movement theatre could not be done anymore.

In the end of the workshop, the snackbox is chosen as the final concept. The reason for this was that the most interesting interactions and ways of presenting came out of this (shining a light on it, playing some nice music).

It is logical to choose this concept when the choice is mainly based on the workshop, after all, the fish could also be interesting but the caregiver has to be taken into account and the concept didn't work for the personas that were used in the workshop. The cook help and the fish were not developed far enough in this workshop to get a good concept for it. The snack-box worked well thanks to some iterations that made it a simple, effective and appealing product for elderly. This concept is worked out based on the outcomes of the workshop until a detailed plan is created.

Having just 4 other actors in the group made it a bit more scary probably. People were not able to blend in with the group and go unnoticed, everybody played a valuable part. This was both a good and a bad thing, whether it would work with real project groups depends on the motivation of the group. If the group is small but really open to try it, it will work very good. If the group is small because everybody cancelled and nobody wants to participate, the workshop will not have a large positive impact.

Some suggestion that were given by the attendants are the following. Take this roleplay to the actual user, for example, make it a game with the elderly to test the concepts and get their insights. They will like it and it will give valuable insights. This might be interesting to look at in a follow-up project, however, this method is specifically created to give insight in the user without having to arrange a meeting with them. Another suggestion was to host a workshop in the experience lab. This gives a more house-like atmosphere and also makes it easier to test specific concepts in their real user-context.

Props were a good addition to the workshop. About four large, one middle and three smaller sized props were used during the workshop. They were used for very different things, from being a box to a button. It helped the attendants to visualise a product that was not so human-like. With one attendant using his mobile phone as a prop to give light and music, the idea arose for some digital props. With a simple radio or music box and some lights, extra functionalities can be explored. It can be a possible topic for a next research to look at different types of props that can be added to the workshop-kit.

Attendants evaluation

Of the four attendants, three filled in the evaluation form. All four are employees at Philips Design, a difference with the previous workshop, where there were mainly interns. The three who filled in the evaluation were a designer, people research consultant and a strategic design consultant. None of them used theatre in the design process before and only one had some theatre experience.

Hardly any information about the target group was provided beforehand, only one of the attendants expressed that he had enough information about the target group. Somebody else stated that he had 'kind of enough info', another stated that this knowledge came with the workshop. By not providing much information, they learned from each other and used own experience.

In the next question, about the experience of how it was to live into the elderly, one attendant would have liked to receive some information about how elderly feel (depression, loneliness, etc.). The others described the exercise as being insightful, because he learned from observing how the other's acted and had to challenge the empathy for the elderly beyond stereotypes .

The things that were discovered when living into the user were the following. 'The difference in this way of workshop was that the user always stayed the focus. Product and planning did not get all the attention till the end where solutions had to be created. I liked this focus on the users.' 'A combination of physical and cognitive limitations of an elderly .' 'How to empathize with the user beyond what's obviously affecting propositions. How movement, perception and history affect experiences.' These are all very positive discoveries and show that living into the user really gives different insights than just reading about them.

Exercises that were especially appreciated (both fun and helpful) were the Warming up: Billy billy Bob (3x), Warming up: New Neighbour (3x), Character: Getting in a persona (3x), Character: Getting to know each other (2x), Testing: Using 'object theatre' to test the concepts (2x). Other exercises that were done but not appreciated specifically were: Warming up: Emotions 0-10 and Realistic acting: Stepping closer when believable. Both these exercises demand concentration and confidence in acting, this make these exercises a bit more scary or uncomfortable to do, this is why they are probably not appreciated that much. However, without these exercises, the acting would be superficial and the group not as bonded.

The opinions about the object theatre were the following: 'It was challenging at first. In between it was fun also. It seemed like the product needed rules or boundaries to behave in a certain way.', 'Challenging but after a bit of warm up and iterations it became insightful.', 'Fun but at times I think the objects steer and can potentially limit the discussion.'. These conclusions show again that this challenging exercise is insightful. It also shows that having either some guides or giving different challenges would be useful, this was not done in this workshop (challenges were given in the previous workshop) and could have helped to get better outcomes.

All of the attendants used props during the workshop, during the last part of ideating (for different design ideas), to enact challenges faced by an elderly and to interact with touch devices and to simulate the concepts. One pair also added a few props which enhanced them (e.g. smartphone was used to play music, to flash lights...etc.). The idea to make extra props that could give light or sounds, was also discussed in the 'own evaluation' part.

The question whether the attendants would use this method in their own project or recommend it was answered positively: 'I would recommend it. I myself need to understand and practice the way of using it a bit before really practicing it.', 'Yes definitely.', 'Yes, with open-minded stakeholders (e.g. Design community), but it would be challenging for me to facilitate (have to have confidence even though I've never done it before).'. This shows that the enthusiasm is present to use this method, the only obstacle is the lack of experience. Having a clear and extensive manual will help a lot to get a good understanding of how to facilitate such a workshop. Giving a short course on giving this type of workshops would be a great solution as well, this might be combined with the final presentation at Philips or would be a good recommendation for the next project.

Some last remarks/thoughts: 'I think capturing the right attitudes of the target user group are most important. It might be easy to imitate them physically, though it is difficult to really get the persona in one's head.', 'It was a great experience. I admired the enthusiasm and energy of the facilitator. This is something that is not only crucial but hard to replicate if I would conduct such a session myself. Any practical training on how to facilitate such a session will be useful. Good luck with this endeavour Lisanne.', 'It was a good use of time, and I think I will try to apply it.'.

Tips on how to integrate this type of working better in Philips: 'I really liked this way of working in the workshop. It would be helpful for me if you could tell me where can this be used or which phase.', 'In my opinion, it was great the way it was because it helped the participants reflect on existing experiences and observations about the target group. This helped them gain deeper insight and build empathy for the elderly. If I had to improve something it will be to conduct these sessions in a more appropriate environment that will enrichen the context.', 'Let's do theatre in the experience lab - we will already have the environment to stimulate more ideas, allow for non-verbal communication (e.g. when users point to things, or interact with other elements from the actual situation).'.

The point of the first remark is explained in the manual. The others both advice to use the experience lab of Philips Design to host the workshops. A next workshop will be organised to test whether this could be a good environment for the workshops or whether it would be too steering (as it is more difficult to think about a different kitchen if there is already a kitchen there then if there is nothing yet).

Over all, the workshop was reviewed as very valuable. It is great to see that there are quite a few people who would apply this method in their projects. This gives energy and courage to organise a small course to teach these interested people how to organise and host such a workshop.

Because not all the exercises could be tested due to a lack of time, a last workshop is organised to test the forum theatre and the movement theatre. Improvements for next time are the following.
- Host the workshop in the experience-lab of Philips Design.
- Send out the invite through the e-mail of Gavin to attract more attendants.
- Tell more about the method to get the attendants enthusiastic to use it.
- Keep challenging the product to avoid becoming too human-like.
- Provide more information about the target group

All information gathered in this workshop will be integrated in the manual and workshop-kit to make the method even better. The outcomes of the workshop with regards to the product for behaviour change are discussed in chapter 5.3.

5 DETAILING

5.1 INTRODUCTION

In the detailing phase, both the product/service for behaviour change and the theatre method are finalised.

The theatre-method is finalised, the final theatre-workshop (described in chapter 5.4) give the information that is required to perfect the method. The result is a final version of the manual that describes all the activities and contains a lot of general information, all in an attractive and comprehensible format. Working out an idea to complete the method has led to a physical workshop-plan-kit. This kit makes it easy and fun to plan a workshop and is described in chapter 5.2. The manual and workshop-kit are an answer to both the research question about the theatre-method and the question about the suitability for Philips as it these tools make the method of using theatre accessible, attractive and comprehensible for people at Philips. Further answering this question, a plan is made on how to integrate the method into the existing ecosystem of design methods that currently exist within Philips.

The concept for the product for elderly that was chosen and further developed in the second theatre workshop as described in the previous chapter is worked out in chapter 5.3. A Final workshop leads to more functionalities and a detailed design. The evolution of the product and the final design that results of the workshops with regards to the 'figurehead' product is and the rest of the information with regards to the workshop is found in chapter 5.4. These are some of the final steps in answering the research question about the case study of the method.

5.2 DEVELOPING THE METHOD

Physical workshop planner

Based on a talk with a researcher from Philips, who showed a toolbox with different cards with methods, the idea to make a physical card-system for this method was born. This idea was confirmed during the feedback session of 21 October, where others showed their interest in this idea. The goal of this card-system would be to trigger people to plan a workshop by making it fun and accessible. The cards should have some basic information about the exercises and should depict the goal in a blink of the eye. More information about the exercises can be found in the manual, where each exercise has a page with explanation.

An interesting way to depict the cards with functionality is to use a timeline. The cards of the exercises have specific widths that correspond with the length of the exercise. The colour of the cards show the type of exercise and the lightness/tint of the colour shows the specific goal of the exercises (just like the colours that are used in the manual). The length of the exercises should be the average of the time-slot that is determined before. The length of the card is just an indication for the duration, off course, the exercises can be done in more or less time. Most of the warming-up exercises would be short (between 5 and 10 minutes), some core-exercises, or finishing discussions, might be middle-long (10 to 25 minutes) and some core-exercises might be long (25-45 minutes). These characteristics of the exercises will also be named in the manual.

As described in section 3.2, the in- and outputs of the different exercises follow up very good. This can be depicted in the cards. A cut out shape on the left of each card could depict the required input, a sticking out shape on the right side of the card could depict the output of the exercise. This way, it is easy to puzzle the exercises in each other according to the required in- and output. It also makes it easy to see (in one glance) what extra input is required for the workshop and if all the required outputs are generated with the workshop. The idea is not so much that the whole workshop needs to fall in each other like a puzzle. The required inputs can be given in another way than a theatre exercise or might be generated in another exercise than the one before the exercise where the input is required.

The combination of the timeline with the colourful puzzle-like workshop cards make it fun, clear and low-threshold to plan a workshop. The manual will explain all the extra required information. It could engage people in the process of involving theatre in their own project/design process.
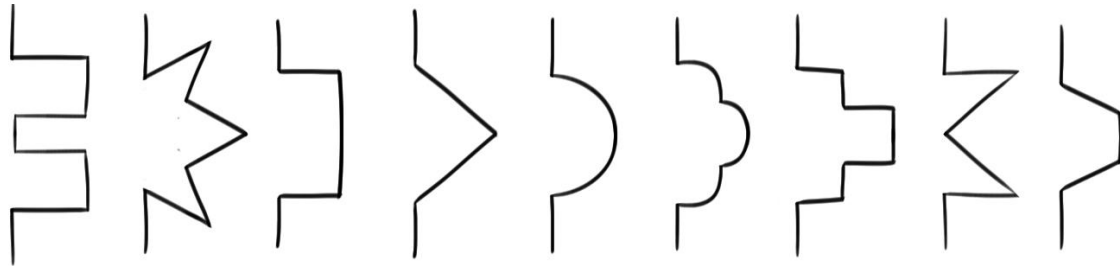

Figure 5.1. Different shapes for the cut-outs of the cards.

To bundle the cards, the timeline and the manual, a suitable package should be designed. This could be a box, board or bag, the timeline might even be able to be the package to save material and keep the kit compact. Using the timeline as the basis for the complete package would set some challenges to get everything into the package in an organised way but would make it compact and material-efficient. Some sketches and small mock-ups of paper are made to discover if it would be possible to use this way of packaging the selection of materials. The package should support the right way of discovering the method. First triggering people to look inside, then providing some compact, basic information, offering the manual, then opening the rest and showing all the exercises with the information and the timeline. When all the information is given at once, it can be unclear and discourage people to start working with it. The way of unpacking the materials can give insight in the way of using the method. After some sketches and tests with folded paper, an opening-procedure where the timeline is folded around the manual and exercise cards was selected. The closed package will trigger to open the first flaps, the manual will be visible and the insides of the opened flaps will give general information. When the manual is taken out, the next set of flaps can be opened, showing the timeline and the packages of exercise cards. The legend and some instructions will be shown and the user can immediately start planning a workshop.

A point of attention is the material of the timeline. It should be firm, so it can handle being folded for several times without breaking. The material should be able to lay flat when unfolded. Information must be printable on the material. The package should be affordable and have an acceptable weight. A perfect material would be that of board games. These boards are usually composed of black texture paper and high glossy litho wrap with durable chipboard inside. This makes the boards last long, light and flat when unfolded. There are companies that print custom boards but the pre-determined shapes leave little room for creativity with regards to the way of folding the board. Using some tutorials and the right material, it is possible to make any shape board with some basic materials available at craft-stores. A real sized mock-up of old pieces of paper is made to investigate the required size of the package and the division of the areas with regards to text and images. This information is used as a basis for the layout in Indesign.

The exercise cards can be made of many different materials. The cards should be compact, durable and professional. Being able to make notes on the cards and erase these would be a great functionality that enables planners to make slight (temporary) changes to the exercises. A good option to get sharp shapes is using the laser cutter. Thin materials like thick paper, cardboard, wood, foamboard or Perspex would be suitable to make the cards. The information could be placed on the cards by gluing printed information on the cards, using the adhesive side of the foamboard, printing on thin cardboard or thick paper, placing a piece of paper between two parts of Perspex, transferring an image to Perspex. It should be decided if the paper is connected to the card-material before or after laser-cutting it in the right shape. As the most important requirements are having cards that are quite strong, look professional and last a long time, using Perspex with a layer of printed paper would be a good option. Some tests with sprayglue shows that with the right type (and a really thin layer) of glue, it would be possible to glue the Perspex on top of the printed paper, so the cards stay thin (this makes packaging the complete toolkit easier and more compact) and have a glossy, luxurious finish. Some tests with laser cutting, different glues, perspex and paper showed that the best option for making the cards is printing the cards on paper, connecting the printed side of the paper to the Perspex (with a really thin layer of glue) and then laser-cutting the Perspex together with the paper. When an extra border around the print of each card is

made (with the same colour of the card), the chance that the print will partly fall off the cards is smaller. 1,5 mm Extruded Perspex is chosen for the cards, this thickness keeps the cards compact while still giving them strength and body. The casted variety has a slightly better surface quality and is easier to process, however, due to the large price difference and the simple and not exhaustive (no complicated forces will act upon the cards) appliance of the material, the extruded version is sufficient.

A complete prototype is made to see the sizes in real life and try the use of the workshop-kit. The sizes of the cards that are initially chosen seem to be a bit large, this makes the use of the cards more difficult and the kit less compact. The timeline of two times 1,5 hour is not very convenient because it is full really quickly with the long exercises. To make sure that the kit doesn't open unintendedly, the flaps are equipped with small strips of Velcro tape. Images of the prototype can be seen in Appendix O. The sizes of the cards are changed (the same height but twice as narrow) and the scale of the timeline is adapted with it. This way, the whole kit is more compact and the exercise cards and timeline are easier to handle.

The final version of the workshop-kit is printed on high quality paper so the kit will stay good for a long time. The way of making it is the same as for the prototype, with thin cardboard and special bookbinders-tape, this is also the way to make boards for games and gives a strong and long-lasting product.

Putting method into use

The manual and workshop-kit form a great base to set up a theatre workshop. All required information is there in a comprehensible, accessible and fun way. However, one thing could be the obstacle preventing people from hosting such a workshop and that is the real life experience with either hosting or attending a theatre workshop. The idea to organise a short course on how to organise and especially host such a workshop is a great starting point and could immediately make people enthusiastic. This is not feasible in the time that is left and will be a recommendation for a follow-up project. A video is another great option, it is a long-lasting, accessible and quick way for interested people to see how the method can be put into practice.

One of the most important things in order to get the method to be used is to spread the word about the existence of the method among as many people from Philips (Design) as possible. As discussed in chapter 2.6 and proven in all the theatre-workshops, the toolstation is a great addition to the method, this can also be seen the other way around. When designers are interested in depicting something with props, they might also be interested in trying some theatre-exercises with it to depict the ideas or products even better. The workshop-kit that is created (or at least a manual) can therefore be placed in the toolstation. The personal connections that were made can also spread their enthusiasm about the method. The group of people that attended more workshops or personal meetings will hopefully be that group of early adopters of the method that will encourage others to use the method as well. One of the attendants is so enthusiastic about the method that she used the theatre-method in a presentation about useful tools and methods that can be used for Rapid CoCreation. This is a first step towards getting publicity for the method at a group of people who might actually apply it. Two other interns are also interested in using some theatre exercises in workshops that they will host for their projects. This is also a great way to spread the word about this new method.

5.3 DESIGNING THE PRODUCT

Features

A very interesting design for the product would be based on the product designed for Nel. Interesting features to make the product the most suitable could be the following.
- The snackbox (partly) 'hides' the snacks for the user, one snack at a time is presented so it is always a surprise what it would be.
- The box doesn't 'talk', it just gives amusing notifications using attractive music and lights.

- The box can be filled by the caretaker or the family of the user once every three days. The times that the snacks are presented can be set on the device easily.
- A noise sensor could measure the amount of noise in the room to adapt the volume of the musical alarm to.
- The light that shines on the snack can be adapted to the type of snack (and maybe even the surrounding light), so it can have different intensities and colours to make the snack look the most attractive.
- The snackbox itself should look attractive while not taking in too much space. Desirably, it doesn't have to be connected to a power-plug to make it mobile and easy to use. This would also make it possible to place the snackbox in the fridge.
- If the box is placed on a place where the user is not always present, an extra indicator (portable or placeable in another room) can be added that reminds to take a snack and gives the same types of notifications as the snackbox itself.
- If the snack is not taken from the snackbox, it is taken back into the snackbox and presented a little while later. This way, if the timing was not convenient (for example when the user is out of the house or in the bathroom) the reminder will come again and the snack can still be eaten another time.

Extra details

Before the final design can be made, some more input for the product is required. Because the second theatre workshop had to be shortened and there were just four attendants, not all desired exercises could be done, this resulted in some missing information for the product. A last workshop could use the detailed description of the product and the personas as an input. The tip could be followed up to host the workshop in the experience lab of a living space (complete replica of an apartment available in the building of Philips Design) the last advices can be used and the last exercises can be done. The forum theatre should give more information about the scenarios around the use of the product and specific features, the movement theatre will help to define the form. After this workshop, the product can be fully defined.

5.4 FINAL THEATRE WORKSHOP

Description

As described in the previous section and in the evaluation of the second workshop in section 4.4, another workshop is required to get all the desired information to finish both the theatre method and the product for behaviour change. This workshop could also be a good time to present the manual together with the workshop-kit, to get people enthusiastic about using it. The planning of the workshop was made quickly as the main content is the part of the second workshop that could not be done. The warming-up and living into the personas is required again for a good outcome of the later exercises. Some other warming-up exercises are tested and the part to live into the characters is done quicker. This workshop, instead of keeping the attendants 'blank' about the target group, more information is provided about elderly to see if there is a large difference in the way the personas are picked up. In total, the workshop took about two hours. The program for the workshop can be found in Appendix M.

The organisation is done slightly different than the other workshops. As mentioned in the evaluation of the previous workshop, this workshop takes place in the experience lab to test how this environment influences the workshop. The invitation is send out by Gavin, to see if this makes a difference in the amount of people signing up for the workshop. The duration of this workshop is two hours, this is enough to test the exercises.

Results

The final workshop was key to detail the product up to the point that it can be called a final design. Although the workshop showed that it is difficult to converge the product to one specific design, the workshop did lead to some good specific designs. Because the target group is quite large and slightly undefined and the personas are all in a different place in the spectrum, the designs made for the personas are very divers. Instead of trying to combine the ideas that were generated, the last (and most developed) idea is seen as the outcome of the workshop and pose as the base for the final product as this idea is based on the other versions and the most specific and adapted to the target group. Though this might be the final idea, the others are definitely worth mentioning. The final design is presented in the next chapter.

Evolution of product during workshop
During about seven different scenes that were played out, discussed and altered a bit, that were situated in different parts of the home-experience lab, different functionalities were detailed. Quickly, it was concluded that using music is a nice way to catch the attention and give a good atmosphere. Unpleasant music can be played when the snack is not consumed but put back. Spotlights can be very useful to get the attention and make the snack look prettier. Both the music and the light can be adapted to the snack that is presented, to make it a customised experience to receive a snack. Sensors can be used to track the activity of the user and adapt the snack-presenting to this. That the snack-box shouldn't be too loud was proved in a scene where Jan (the persona) was woken up by the product and couldn't sleep anymore, a good idea was that the product could also offer medicines. In the next scene, the product was very smart and offered Jan to boil an egg for him for breakfast, the audience concluded that the product shouldn't be too smart and shouldn't interact by speech. Harry had to do an exercise before he got the snack in the third scene, shaking of lifting the box made him earn a smoothie. In a reprise of the scene, Harry got irritated and just took a snack from another place, the exercise might not always be a good idea. In the fifth scene, Harry was warned in the living room that the product offered a snack and he could choose between two beautifully revealed snacks. In the reprise of the scene, if he didn't want to take the snack, he would get a message to encourage him to take the snack. This leaded to the idea of having a connection with relatives or professionals to encourage taking the snack, as this might be a bit too much, a recorded voice message to encourage would be a good option (this would also fight loneliness, a large problem among elderly). The product can also adapt the snacks that it presents to the preference of the user (thought this might be a bit too complicated for a simple product). The next scene revealed the snack in the most beautiful way by using an installation where the apple rolled over before landing in a spotlight where some drops of water made the apple look even more attractive. The song got better when the apple was taken, another option was that the radio or TV pauses until the snack is taken. The music could also sound dull at first and clear when the snack is taken. The last scene with a product for Nel was played out three or four times, this developed the product to suitable design for an elderly with dementia or Alzheimer. Simple, recognisable sound effects and soothing music are used to avoid scaring Nel and make her feel comfortable. A voice message of the children could be used, but could confuse her, this option can therefore be personalised. The product should be recognisable/ familiar (to make it less confusing) so it might have an appearance that looks like a product from the old days. In the scene, it looks like a cuckoo-clock and makes that cuckoo-sound when a snack is presented, this sound changes to a nice music when the snack is taken. The product is equipped with a (digital) photo frame, the picture behind the snack can only be seen if the presented snack is taken. The product also offers glasses of water because Nell tends to forget to drink enough water. The forum theatre goes over in movement theatre. This gave information about attractive ways to offer the snack. Keeping the snack in the light, dripping water on in, giving the impression to be enjoying eating the snack, moving the snack around (rotating works better than shaking) and an open, happy, friendly and slightly humble pose helps to make the snack more attractive. The form study can be found in Appendix N, a fragment is shown in Figure 5.2.
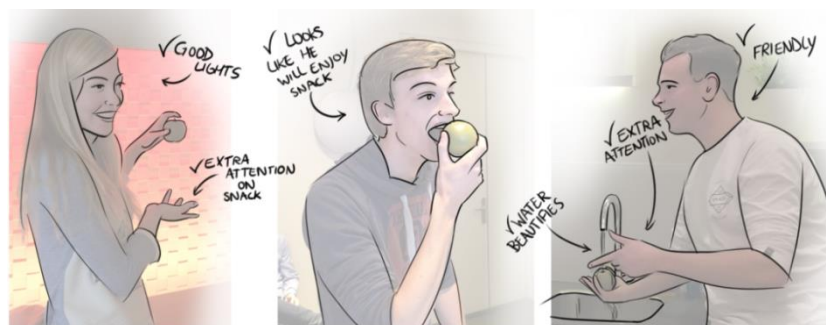

Figure 5.2. A fragment from the form and pose study of movement theatre.

Evaluation

Own evaluation
The group of attendants was much larger than during the previous workshop, half of them are interns and half are designers from Philips. The group even seemed to be a bit large for the space of the workshop, about 10 people had to walk around in a living room of about 3 by 4 meter. This setting is therefore recommended for groups of 8 or less people. It really felt like inviting people to a home to do the workshop, sitting in the living room for the presentation and offering attendants a piece of cake added up to the comfortable atmosphere of the workshop. The environment was well-used during the workshop: walls, the table, kitchen, living room, lights available in the house and other object laying around were used as tools to depict the ideas better and get more ideas. Beside the help of the environment during the exercises itself, the comfortable and private setting made it easier to open up than in a transparent workshop-space where anybody could peek inside.

The information was provided quickly as most were already aware of the project and method. Some information about elderly was provided very quickly, quite broad and general, to show all the different aspects that come to play a role when getting older. It is difficult to say if this information helped the attendants, this becomes clear in the evaluation of the attendants.
The first billy billy bob helped very well with the group of about ten people. The energy became high, people were laughing and making up their own bits of the exercise. This energy helped very well for the cohesion of the group and the motivation but made the lived-in theatre part more difficult. People were still laughing during the emotions and talk-of-a-chair exercises. It might have been better to do a quick concentration exercise (like counting to 20) right after the billy billy bob to keep the motivation but constrain the energy a little bit. A short reflection after the emotions exercise helped the attendants to realise the differences in posture when expressing an emotion as themselves or as an elderly. Talking each other of the chair was done in pairs, this made it less 'scary' and made the exercise look more like the 'stepping-closer' variation. It helped a bit to get back in the concentration, but it was quite hard for the attendants to get into really lived in acting.

The personas were presented shortly and everybody got the assignment to pick a persona and start living into the persona. Asking questions like described in the manual helped to form the personas. The interaction between the characters was not always done very lived-in and not all the attendants got to know each other. Still when they had to categorise themselves to groups of the same character, this went quite well. It was a good thing that there were about ten people to make sure all the personas were chosen, still, one of personas was only played by one person. Playing out the personas would have to be done in a different way with a smaller group, by dividing the personas in the group or by secretly dividing the personas among the attendants and still giving the assignment to discover the personas. During the discussion about the personas (where the participation could have been more enthusiastic) it became evident that there is much more to a person than is described in a persona, everybody took their own characteristics from the descriptions and developed it into a complete person by playing out the person.

The forum theatre followed, two of the participants had to leave so a group of eight people was left. After a description of the product, the group moved to the toolstation to pick appropriate props to play out the product later on. Two attendants started playing out the scene in the living room, it seemed to be difficult to make a scene start in a way that the user of the product was not anticipating or waiting on the product to do something. The scenes had some valuable output but it did not really exceed the product description. This shows that for this exercise, it might be good to start with playing out some functions that already exist, before expanding or detailing the product-concept. Moving to the kitchen and really using the environment helped a lot during the scenes. 'What happens if the user is in the living-room and the product in the kitchen?', 'Would Nel not be confused when she sees this thing here in her kitchen?' are just some examples of good questions that led to interesting scenes. In these scenes, the users kept the characteristics of the personas, maybe because of the short evaluation after living into the personas. The environment and props were used very well, small, middle size and large abstract (and some figurative) props in combination with available objects in the environment (lights, fruit-bowl, mobile phone, water, tap) formed the basis for innovative and personalised ways to present the snack to the user. The input of the other attendants was better when the environment was dynamic, instead of having a fixed 'performance place' and 'audience place' like when it was played out in the living room. The recommendation to do forum theatre in a dynamic environment or simple replica of the context of use (maybe using some tables, chairs and walls) is put in the manual. The idea that forum theatre would help to build on a design together did not turn out to be completely true. By using such different

personas, the concepts developed for these personas are very different. By changing the setting/scenario for every scene, the product got different forms as well. If it is required to work towards just one detailed design, it might be a better idea to choose one persona as the target group and just make slight changes to the setting/scenario. Another interesting insight was that the scene is not constant and keeps evaluating, people will not just clap and jump into the scene. It was changed to playing very short scenes and having a short discussion of what happened after, this worked very well to develop ideas and get everybody involved, then a different scene is played out with other people.

The forum theatre evaluated into the movement theatre already, props and body expressions were used to offer a snack in the most attractive way for the user. In the last five to ten minutes, all the props were taken away and each time, two attendants were asked to offer a snack (at first an apple and a bottle of juice and later both had an apple to make the decision more equal) to one person. The person could then choose the way that was more attractive. At first, movement and speech could be used, later, these abilities were taken away and just one pose could be used (using one pose worked very well). It was interesting to see that this exercise became a very high-energy, quick way to find ways to offer a snack. No extra physical warming up was required and no energiser was necessary to have a nice ending of the workshop. The application of the exercise (to find a way to present a snack) suits the movement theatre well, it might work less when another form needs to be found. A short discussion after the workshop showed that the participants had a very nice and insightful workshop and the host expressed that the workshop was very valuable for the method.

The workshop gave some changes to the manual. Beside the changes that are named above, the lengths of many exercises can be altered. Living into the personas was done much quicker and also the other exercises, like movement theatre and forum theatre can be done much quicker than the time that was originally set. Both the manual and the exercise cards will have to be adapted to these new times. The specific changes are that the movement theatre time is set to 10 to 20 minutes, and getting into personas can be done in 15 minutes. Projecting the more up-tempo way of working on the other exercises would make it possible to do all the core exercises in 30 minutes, making it more approachable and quick, finding context and activities can be done in 20 minutes, creating personas and the two forms of object theatre are set to about 30 minutes (these times are so specific for the exercise cards, in the manual, a broader time-range is shown).

Without a prototype of a product, it is difficult to get into much detail with the design of the product. For this reason the product is not very detailed with regards to size, interface, buttons, etcetera. If there would be more time, a prototype could be made of the current product-idea to develop it further in another theatre-workshop.

Evaluation of attendants
The fact that more information about the daily struggles and chronic conditions of elderly was provided before the workshop can be seen in the reactions. Three out of four state that they had enough information, this helped with living into the persona according to one participant. A hand-out with the information would have been even better. As mentioned before, the information provision should be determined per project. Living into the personas was experienced as hard for two participants and insightful/useful for the other two, less positive then the previous time, probably because of the slight lack of concentration. Still the exercise gave information, two discovered the troubles that come with getting older, the others referred to the difference of posture and expressing emotions. The billy billy bob and the emotions 0-10 were appreciated exercises (three votes) other popular exercises are: visiting the neighbour (two votes), talking the other off the chair (two votes), forum theatre (two votes), getting in persona (two votes). The movement theatre was the only exercise that was not mentioned (although the participants seemed to have a good time). It is a good thing that all the other exercises were appreciated, this means no radical changes need to be made. Two people stated that the forum theatre was challenging, one explained that the way to carry out the exercise was quite unclear and the attendants sometimes had trouble staying serious. Still, the forum theatre was also seen as useful (twice) and fun. The reactions on the movement theatre were the following: one did not see the specific added value and one did not really see much difference with the forum theatre. Another thought it was a nice exercise and the last stated that it helped to get into character. The props that were taken from the Toolstation were used well, other objects in the experience lab were described as more enticing by one attendant. Two suggested that more tools/props should be available to have more freedom with regards to shapes and forms. All were enthusiastic about the use of props in the workshop, it helped them to get insight in ways of presenting and helped to express thoughts. All would use this type of method in projects, especially when insight in the target

group or other stakeholders is relevant and when living into them is relatively easy to do. The method could be improved by making it more clear what the purposes is of the exercises, this should be indicated by the workshop host. Another suggestion was to focus more on real users and their needs, they could be involved in the workshop. This is another way of applying theatre in design and can be given as a recommendation. Another suggestion was to create scenarios for the forum theatre beforehand, this would give better guidance. This tip is integrated in the manual. The last suggestion was also to make the forum theatre part more regulated. It was a good experiment to see what the forum theatre would bring when it doesn't have much guidance, however, it seems to be a better option to define clear scenarios/guidance to get the scenes going with inexperienced actors. Some final thoughts the attendants gave: ´ It was great fun! Definitely a good way to give a little bit more playfulness to the workshop. I like it.' 'It was nice!', 'Nice idea, I think if worked out further, theatre techniques could definitely be of value in the design process.'.

The changes that followed from the evaluation of the attendants and the own evaluation are integrated in the manual and workshop-kit. These changes are the final adaptions, the end result is presented in the next chapter, chapter 6. Some of the suggestions or possible changes are too large to integrate in this project and are included in the recommendations.

6 FINAL DESIGN

6.1 INTRODUCTION

This chapter shows the end result of both the method of using theatre in the design for behaviour change and the case study of the product for elderly. This chapter therefor gives the final design-answer to the research questions about the case study and the research question about the theatre-method. The manual and workshop-kit are also an answer to the research question about the suitability for Philips, as they make the method of using theatre accessible, attractive and comprehensive for the people at Philips.

6.2 DEVELOPING THE METHOD

Manual

After the last workshop, the manual is completed with all the insights gathered in the workshops, feedback session and extra researches that were done throughout the project. The final result is a comprehensible manual of about 40 pages, giving an introduction and general information, describing the exercises, providing guidance to plan a workshop and explaining the workshop-kit. The manual is bonded professionally with a high quality cover and ring binder to get a nice looking and compact product that can be laid down open on any page (which is very convenient during a workshop). The manual can be seen in Figures 6.1 and 6.2.

Figure 6.1. The manual for the method 'theatre in design for behaviour change'.

Workshop-kit

The workshop-kit is a compact, high quality, supportive tool to enable anybody to plan a theatre workshop in an easy and fun way. The materials and way of making it is tailored to long-term quite intensive use, it can be an addition for Philips for years to come. The workshop-kit as it is right now is not a mass-production product, when the kit would be made on a larger scale, making the board and exercise cards will be outsourced to one of many businesses specialised in making board-games. This version is made of thin cardboard, held together with high-quality bookbinders tape and plastered with printed, thick, glossy paper. The closed box can be seen in Figure 6.3. The box stays closed, whilst still being easy to open, thanks to small strips of velcro tape (can be seen in Figure 6.4). The manual should be taken first, this can be seen in Figure 6.5. The cards are made of printed, thick, glossy paper covered with 1,5 mm extruded Perspex to give then a luxurious and firm feel to the cards, the use of the cards can be seen in Figure 6.2. The top material makes it possible to add temporary comments or changes to the cards with a whiteboard marker, this can be seen in Figure 6.6. More pictures of the workshop-kit can be seen in Appendix O.
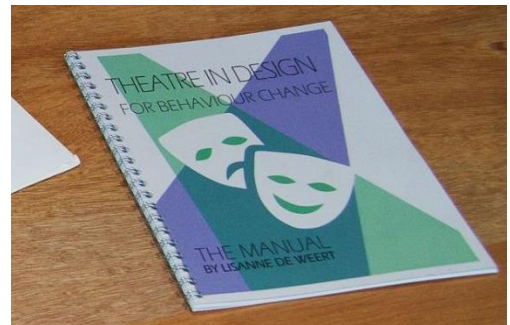

Figure 6.2. The use of the manual while planning a workshop.

Figure 6.3. The workshop-kit for theatre for behaviour change.

Figure 6.4. Close up of the Velcro tape on flap of kit.

Figure 6.5. After opening the first two flaps, the manual should be taken.

Figure 6.6. Remarks can be written on cards with whiteboard marker.

6.3 DESIGNING THE PRODUCT

For the final design of the product, the last concept that was developed in the final workshop is finalised. In total, this product will encourage elderly (who are slightly forgetful) to take enough snacks and drinks throughout the day. Medicines can also be given through the product. The main functionalities are described in the scenario that was played out during the workshop.

Nel lives in an elderly house, where she gets assistance with eating and main activities, however, like more days, she forgot to drink a glass of water after breakfast. Het care-taker anticipated on this situation and filled up the snack-box yesterday, some of Nel's favourite snacks are in here, together with her medicines and small bottles of water. At 11 o'clock, the snack-box (positioned on the wall), starts to make the typical Cuckoo-sound that Nel recognises from her youth. When walking towards the source of the sound, she sees that the object (which looks like a modern version of a cuckoo-clock) is presenting a small bottle of water to her. Although Nel was not thirsty at first, by seeing this attractively presented liquid, she tends to take the bottle. She notices that the bottle is hiding a picture of her grand-children, just a small part can be seen. Nel takes the bottle out of the snack-box to look at the picture and one of her favourite songs starts to play. A voice message recorded by one of her grandchildren tells her to take the snack because it is healthy for her. Nel is convinced and opens the bottle, when she starts to drink she realises that she was quite thirsty and is glad that the snack-box was so friendly as to offer her the drink.

The snack-box focusses on persuading the user to take a healthy snack or medicine. This is not done by forcing the user, as this will only encourage them to find a way to trick the product or work around it. By creating a setting that is familiar, attractive and encouraging, the elderly will be in the right mood to trust the product and take the snack. Especially by personalising the product by adding pictures and voice messages, the product creates a supportive environment to take what they know is good for them (but might not be what they want). The snack-box shows a clock and the times when the daily snacks are presented with other pointers, this way, the planning of the snacks is visible to the user. The product takes into account the information gathered about behaviour change and tries to offer the most suitable solution to encourage specific behaviour while respecting the ethical consideration of chapter 2.2. The way that the product changes behaviour is described using the framework that is also discussed in chapter 2.2.

	Background	Story	Key Scene
Rider			- Taking the snack is very easy
Elephant	- (Picture and voice messages of relatives encourage)	- User looks forward to nice moment of getting a snack	- Beautiful music - Attractive lights
Environment	- Picture and voice messages of relatives encourage	- Works with a pre-set schedule	- Clock goes off as reminder - Use is easy/intuitive

Table 6.1. The designed product evaluated with the framework of behaviour change.

Different cells are filled up with functionalities, looking at the outcome of the benchmark of chapter 2.2, this gives hope that the product will be effective to get the user to eat the snacks (and medicines). The rider is not integrated too much as it works better to have a doctor, relative or care-giver to inform them about healthy behaviour than make the product educative (and therefor more complicated and sometimes annoying).

The appearance of the product is determined based on the outcomes of the forum theatre (see paragraph 5.6), the movement theatre (see Appendix N for the study about this) and on the style of Philips (researched in paragraph 3.4). The casing of the product is made of plastic with a high-quality, silk-like finish in the colours ivory, salmon and grey/brown. The red pointers can be set to the times the snacks will be presented, when the time is there, the clock will open and present the snack. The picture that is seen behind the snack can be placed here physically (it is not a display), this makes the product flexible yet simple. The snackbox can be filled from the side, six places are available where snacks can be placed (two a day for three days), the order in which they are placed determines the order in which they will be presented.
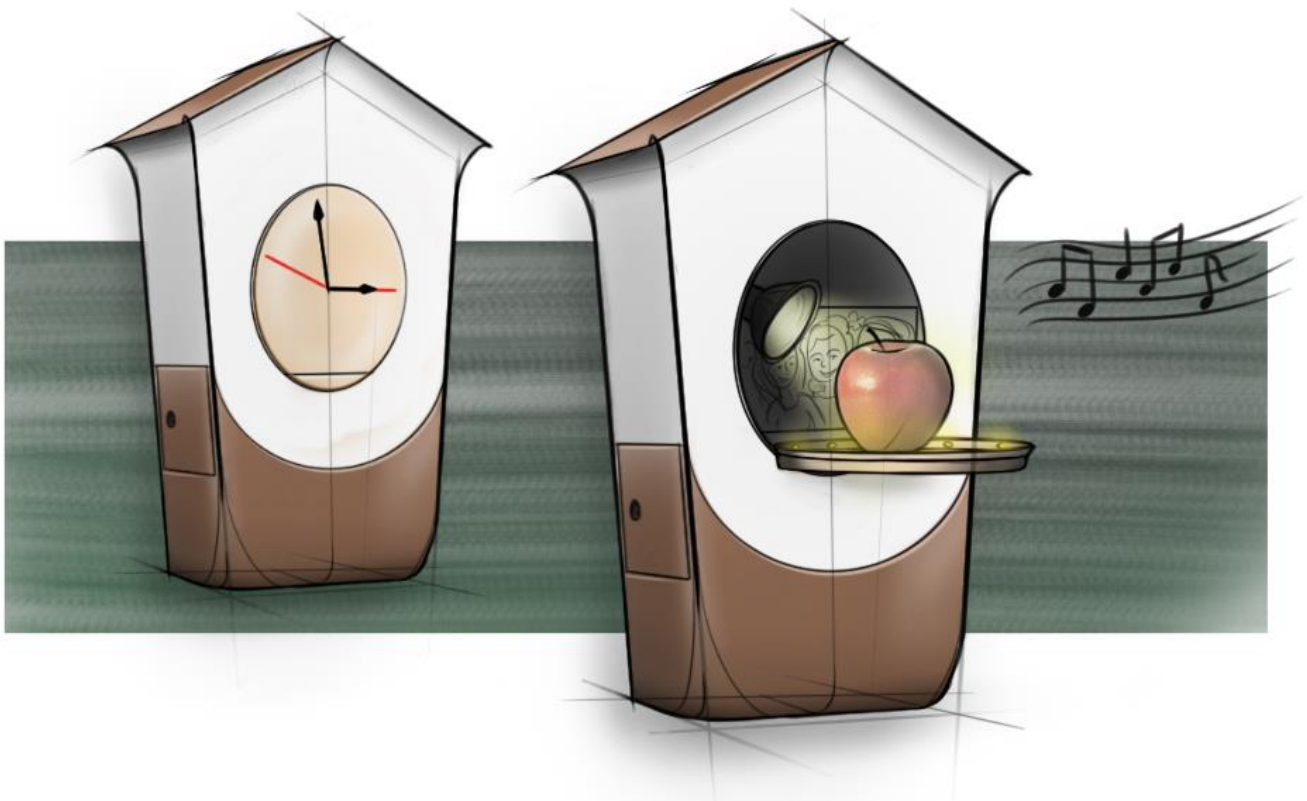

Figure 6.7. The final design for the snack-box.

7 DISCUSSION AND CONCLUSIONS

The research questions that were asked in the introductions have been answered and the outcome of all the answers on the questions about the use of theatre in design, behaviour change, the case study and the suitability for Philips are shown in the report, appendix, design of the product, manual and workshop-kit. The main research question: 'How can theatre be used at Philips throughout the design process of products that focus on behaviour change to get a better final design?' can be answered with: A theatre-method that is described in the form of a comprehensible, accessible and attractive manual and workshop-kit will give valuable insight in the user, context of use and activities that are key to change behaviour effectively in a product and therefor lead to a better final design.

A more critical point of view on the project results in a discussion of the way of working and end-result.

Much time was invested in the research to behaviour change. This is an important part of the project, but with time the focus shifted from behaviour change to theatre. The research that was done in this field was modest initially, whereas the information about behaviour change is not really used so much. In a later stage, more articles about theatre were assessed, this helped for the project but should have been done in the beginning. Thanks to several years of amateur theatre-experience, the author already had quite some knowledge about theatre. Decisions that have been made during the project are inevitably (also) based on this knowledge but are not always described elaborately in the report. For this reason, the amount of information about behaviour change that was used for the project is comparable to the amount of information about theatre that used for the project, thought the documentation of the latter might be a bit poorer in the first chapter.

Another point of critique is the way of creating the cards, timeline and package. This was done without many iterations and lacked convergent idea generation. This worked good for the project because of the available amount of time for this part but the end result might have been more attractive if more time was invested in the design of the package. Testing and making many samples and prototypes really helped to define the final workshop-kit and get some handiness in making it.

The product that serves as the figurehead of the project became a creative solution to use the positive aspects (and leave out the pushy aspects) of behaviour change to encourage eating and drinking enough (and taking medicines). Theatre definitely helped with defining a product that really suits in the life of elderly, it is made as intuitive and simple as possible, takes forgetfulness into account and can be personalised. It is not really a realistic design that could be put in production though, it is much too specific to become a commercial product. It is also not worked out until a point that it could go into production, this is not inappropriate for this project, as the design for the product is just an application of the method. It is difficult to say what the product would have been like without the theatre workshops but it seems like it was a very creative and original way to mainly use theatre and outsiders of the project to get from nothing to a quite detailed design.

The way of working with the people from Philips became more and more clear. It is very difficult to get a large group of people together who can spend three hours on a workshop, because everybody is very busy. However, some short, personal conversations can be planned easily and this was therefore done quite a lot. Speaking with about five or six interested designers from Philips helped for the project but mainly showed how well networking can work and how useful it can be to have a group of 'inside' people who are interested in the project. The interest that was expressed about the project really helped to see the target group for the method and encouraged to make a high-quality deliverable that could be used by all the people who expressed that they would be interested in using the method (if some guidance would be available). Throughout the project, thanks to much contact with other designers and projects, it became even more evident that Philips really focusses on human-centred design and understanding the user. This makes the method very suitable for this company in comparison to other design-companies.

A little flaw in the project is the fact that the idea sketches were not all based on the first workshop. In that time, because quite some research was done about the problem and the target group, it was inevitable to also integrate some more ideas that popped up separately from the workshop. This gave a larger bulk of ideas to choose from but also made the whole idea of creating a product mainly based on theatre-workshops a bit less strong. After clustering to six idea-directions, assessing how well they match with the outcomes of the

workshop helped to find out that the eventual concepts were not so different from the ideas generated in the workshop after all.

The workshop kit that is created is a good representation of the method. The finish could have been more perfect, like the seal of the flaps. Especially the exercise cards look very attractive and are easy to handle, being able to scribble on the cards make them even more useful. The manual became an easy to handle booklet that is easy to spread digitally and attractive to use in physical form. Enough research and ideas are made to ensure that this kit will be used in Philips, however, this is not a guarantee that people will stay enthusiastic about the method when the creator is no longer present at Philips. It will be very helpful that a next student will pick up the project and continue to implement it at the organisation.

Taking a critical point of view when looking at the method as a whole, it could be concluded that using theatre in the design process does take a lot of time. The personas that were made, ideas that were generated and developed to a detailed design are of good quality and very valuable in the process of making the project, however, the question is whether the outcome would have been of lower quality when no theatre was used and traditional (less time-consuming) methods were applied. The idea arose in the beginning of the project to walk through the design process in two ways parallel to each other, one (only) using theatre and the other in the traditional way (investing an equal amount of time in both projects), the difference between the end-results would indicate the value of the use of theatre. Due to the limited time available for the project (just three months), this idea was not feasible and the design process is just walked through with the use of theatre.

A good recommendation to use the method is to pick some exercises to do on a specific moment in the design process that doesn't go smoothly yet or could use an extra boost. This way, the new insights that are gathered trough theatre can be used in the rest of the project without having to host more theatre-workshop. The fact that it is a unique workshop in a collection of different ways of working will benefit the originality and insightfulness of the workshop. It became clear in the project that the use of theatre, and therefore the use of the body as opposed to the use of the mind, gives creative and out-of-the box ideas and improvements that are brought into being from a standpoint of the user instead of the designer. The physical activity is not just good for the end-result that is directly relevant to the project, it is also good for the group-cohesion and self-expression. These additional benefits make this method a very good option for different projects.

Assessing the end result while taking the invested time-period into account (only three months), the outcome is very valuable. The research that was done was elaborate enough to base a good method on that stands strong and is ready to be further developed in a next project. Though the manual with toolkit that are developed might not be the final form yet (if the next project picks up this part and improves it), it is definitely a representable, usable, creative deliverable that can directly be used within Philips.

8 RECOMMENDATIONS

Some good recommendations are very important for a good follow-up of the project. Now that the first steps are made in the research and development of the method and important actions have been taken to find ways to connect the method with Philips, it is time to take the project to a next level. Many possibilities lie in making the method more attractive for people of Philips to use. This can be done in changing the method or by integrating the methods better in existing methods or toolkits that exist in Philips. Some specific possibilities and focus-points are listed below.

- How can the effects of a theatre workshop be guaranteed with a shorter workshop?
    - How could the warming up be done more efficient?
    - How can the core exercises be done quicker, with comparable results?
    - Can a build-up help? Going from short exercises to a complete workshop?
- How can the theatre-method be improved in general?
    - Besides behaviour change, what would be good suitable projects/subjects to apply the method to?
    - What other exercises can be a good addition to the current database of exercises?
- How can the theatre-method be made more attractive to use?
    - An interactive manual with the exercises, video's, easy way to combine to make a workshop?
    - When the workshop plan is made, a program could give some feedback during the exercises and support the workshop host through the workshop: giving tips, suggesting extra exercises then problems are reported?
    - Map theatre exercises with existing exercises and highlight benefits and similarities?
- How can the method be made more accessible for the interested but inexperienced (with regards to theatre) people at Philips?
    - Would a video-instruction collection be a good solution to divide the required information to organise and host a workshop into accessible chunks?
- How can the theatre-method be better integrated in existing methods/toolboxes/the existing environment of Philips?
    - Could it also be an interesting method for Research, Healthcare or Lighting?
    - How can the method be made flexible so it can be a part of existing toolboxes/methods like the service innovation toolbox or the Toolstation of Philips Design?
- How can this type of evoking empathy, that is very much focused on the 'body' be compared or combined with methods that mainly use the 'mind' to live into the user and context of use?
    - Looking at the method of Sleeswijk-Visser (also described in the analysing phase of the theatre articles), this is typically something that is done with the mind.
    - Could this type of method (using the 'mind' instead of the 'body' to evoke empathy) be a follow up for the physical method?
    - This type is usually done individually, what different insights does this give compared to a guided session with a group?
- How could other (more realistic) input be valuable in theatre-workshops of this method?
    - What would be the effect of professional actors playing some parts?
    - How could actual users or people from the target group be involved in the workshop?
    - How could the actual environment of the user be replicated or used in the workshop?
- How does this way of using theatre connect to different cultures?
    - The Dutch are generally outgoing and expressive, how do, for example, people from Asian countries react on acting (where the culture is completely different)?
    - How can exercises be made more approachable or divided to how challenging they are?
- How can ready-made chunks be designed for different workshops?
    - What different types of workshops exist and how can theatre be used in different ways for these workshops?
- Can money and effort be saved by using this method as opposed to inviting the target group and doing field research.?
    - What parts of real-life contact can theatre replace, how could it be an addition and what is always still required?
- Would the developed theatre-method also be applicable for services?

- The method should be suitable for services as well, can a case-study prove this assumption?
- What adaptions or completion would have to be made to the method to make it more suitable for the design of services?

-

When the focus of the follow-up project is chosen, it would be important to read through the complete report with appendix. This way, the new student is aware of the research that has already been done and double work will be prevented. It would also be good to have at least one face-to-face meeting with the next student to discuss important stakeholders that can be helpful during the project, so involve the next student in the network of interested people from Philips that was created during this project. This meeting should also discuss important pitfalls and opportunities that were encountered during this project, as described in the conclusions of chapter 7. Offering the possibility to stay in contact during the project will help the new student to discuss the project with a 'peer' who went through the same process and therefor might understand the problems better then outsiders of the project. It would also be recommended that the new student is supported by at least one of the same tutors as this project. This will help with a quick and easy knowledge transfer and preventing double work. A good thing to realise for all the stakeholders in the project is that the follow-up project is a project on its own. It should not be compared constantly to this project and the new student should be able to use his/her own creativity and insight (without being bounded to stay in the line of this project) to make the project to a success. The possible research fields as described above are an indication for possible researches, the most important is that the next student can use his/her own expertise to create a project that matches with this project but has its own valuable characteristics. As it will probably also be a bachelor assignment, the process of learning and finding your own way is more important than creating an exact, seamless follow-up to this project.

9 CONCLUSION

The main research question: 'How can theatre be used at Philips throughout the design process of products that focus on behaviour change to get a better final design?' can be answered with: A theatre-method that is described in the form of a comprehensible, accessible and attractive manual and workshop-kit that is usable in any project at many different moments in the design process is a very valuable, effective and flexible solution. Theatre gives valuable insight in the user, context of use, activities, needs and wishes by living into the user physically and discovering all these factors yourself, ideas that follow from this are therefore extremely user-centred and make it possible to stand in the shoes of the user while keeping the knowledge of a designer. These insights are key to change behaviour effectively in a product, as all the factors that play a role in behaviour change can only be changed effectively when they are understood. This understanding, that is a result of the user-centred theatre method, therefore leads to a better final design.

In a follow-up research, many different aspects can be further investigated, examples are improving the exercises, making a better integration in Philips and investigating the difference between using theatre with the body or with the mind. The most important thing is that a next researcher can use his/her own expertise to give this project an interesting continuation.

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