

Bibliotheek vol wijsheden



EXPLORING PERSONALISATION

The process of turning older adults' unique daily life pleasures into personal design enhancing their empowerment and social engagement

An fbp research through design project about the application and analysis of the participatory personal design process with older adults

BYVEERLE VAN WIJLEN

Industrial Design department
University of Technology Eindhoven, Noord-Brabant, The Netherlands

Coaches: MSc Marjolein den Haan - Wintermans, Dr. Yuan Lu (project coaches) and Dr. Matthias Rauterberg (teacher coach)

One of the participants loved gathering information to keep up to date which was discovered during a co-design workshop. "Zo luister ik nog lectuur, daar kom ik ook mijn tijd mee door."

The image shows a collection of hand-drawn cards and notes on a wooden surface. The cards are organized into a grid-like structure with hand-drawn borders. The cards contain various icons and text in Dutch, representing different hobbies and activities. A large heart icon is drawn at the top center of the main grid.

- Top Left:** A card with an icon of a paint palette and a paintbrush, labeled "Tekenen/schilderen".
- Top Middle:** A card with an icon of a rake, labeled "Tuintuinen".
- Top Right:** A card with the text "Hobby's die ik graag doe" and "Squash".
- Middle Left:** A card with an icon of a person running, labeled "Lichtsport".
- Middle Middle:** A card with an icon of a museum building, labeled "Museum bezoeken".
- Middle Right:** A card with the text "Hobby's vaker zo" and "Kaarten Ritsen bruiden".
- Bottom Left:** A card with an icon of a chess knight, labeled "Spelletjes".
- Bottom Middle-Left:** A card with an icon of a bicycle, labeled "Fietsen".
- Bottom Middle-Right:** A card with an icon of a musical note, labeled "Muziek luisteren".
- Bottom Right:** A card with an icon of a trash bin, labeled "Spelletjes-Club".
- Bottom Far Left:** A card with an icon of a sneaker, labeled "Wandelen".
- Bottom Far Middle-Left:** A card with an icon of a house, labeled "Dagje uit bijv. city trip".
- Bottom Far Middle-Right:** A card with an icon of a coffee cup, labeled "Afspreken met familie/vrienden".
- Bottom Far Right:** A card with an icon of an open book, labeled "Lezen".

ABSTRACT

The aging population is a still rising problem globally and in the Netherlands. As life expectancy rates increase, chances for valuable activities in the daily life of older adults may decrease due to changing personal circumstances. And so the chance for social engagement and empowerment which are important aspects of healthy aging. In order to address the uniqueness of this diverse target group it is important to focus on their actual needs, daily life pleasures, and bringing their voices to the center of participatory projects. For this study it was explored how the personal design process creates design that reinforces the daily pleasures of older adults. Therefore an iterative process consisting of 7 iterations and 7 participatory moments (workshops and studies) has been used, based upon existing literature. During this case study an explorative, qualitative and inductive approach was used through collaboration with three retired older adults and their surrounding social network, also called participatory design research. Main results of the study showed the importance of social engagement and empowerment of older adults within the reinforcement of daily pleasures. It became clear that the participatory moments enabled to reinforce these

daily pleasures by creating opportunities for empowerment and social engagement, while engaging in the process and through personal designs made. Participants were empowered through creation of value by the design created and through the process of participation, resulting into personal insights, designer-participant bonding and pride. Moreover, participants were socially engaged through the creation of wisdoms and knowledge exchange and their role within the participatory process. Furthermore, those moments enabled the designer to deal with the uniqueness and diversity of the target group by creating empathy with the individual participants. This study was conducted with a small sample size (3 participants), therefore future research needs to look into dealing with high participant loads; the transferability of the personal design to remain personal touch next to value; the recruitment of participants and the role of prototypes and aesthetics into the personal design process.

Participatory design research; Personalisation;
Co-design; Daily life pleasures; Social engagement;
Empowerment

INTRODUCTION

Aging population

The phenomenon of aging population occurs throughout the world (United Nations, 2017). As fertility declines and people's life expectancy rises, the amount of people in the global population above a certain age increases. "Globally, population aged 60 or over is growing faster than all younger age groups." (United Nations, 2017, p. 11). Even the oldest segment in the global population (80 years and older) increases. The number of persons aged 80 or over is projected to triple by 2050, and by 2100 to increase to nearly seven times its value in 2017 (United Nations, 2017).

In the Netherlands the aging population increases as well (PBL, 2013). From 1950 till 2013 the amount of people in the Netherlands aged 65 or over has doubled, from 8 to 16 percent. The demographic projection expects an even bigger rise in aging population for the upcoming years. Namely the amount of elderly over 65 years old in the Netherlands in 2040 is expected to be around 4,6 million (PBL, 2013). This means that a doubling aging population is expected whereby the section of oldest elderly within this aging population grows fast as well (PBL, 2013).

Through this aging population the amount of older adults in the Netherlands that live independently increases as well. This is a troubling fact that concerns the working population, healthcare, caregiving industry and specifically the older adult's own daily quality of life. Therefore research emphasizes on healthy aging amongst older adults.

Empowerment and social engagement

Two of the most important aspects of healthy aging amongst older adults are social engagement and empowerment (Kemperman, van den Berg, Weijs-Perree, & Uitdewilligen, 2019). Empowerment can be best described as the ability to have personal control over your daily life having a proactive approach to life and a critical understanding of the sociopolitical environment (Zimmerman, 1995). Moreover another aspect of empowerment is a sense of self, awareness of own capabilities and the creation of self-esteem. Since the life expectancy rates will keep on increasing in the upcoming years (United Nations, 2017) retired people living independently need to deal with changes in their personal activities due to changing health status or daily contexts. Over their lives daily activities provided value as learning at school; pursuing a career; caring for children; going on vacations; going out with friends; practicing hobbies and more. However the opportunities for carrying out those activities may decline with age because of health issues, changes in living context or changing interests. This states the importance of empowering older adults in finding personal ways to deal with these activity changes during their long lasting lives.

Social engagement can be best described as the ability to actively get along and participate in social activities and have social interaction (social participation) with the other contacts around you (social networks) in daily life (Bath & Deeg, 2005). Social engagement is important in reinforcing existing and non-

existing social relationships and provides a sense of value and identity (Rosso, Taylor, Tabb & Michael, 2013). Reported beneficial effects of social engagement on mental well-being include higher levels of happiness and quality of life and fewer depressive symptoms (Park, 2009). However, opportunities for social engagement may decline with age because of the loss of friends or family members and occurring health issues which for example limit their mobility (Kemperman et al., 2019). Furthermore it can be found that an increasing amount of elderly experiences feelings of loneliness and social isolation (Kemperman et al., 2019). This states the importance of the enhancement of social engagement levels of older adults during their long lasting lives.

Field of research

In previous research it can be seen that “*there is an overemphasis on health in design*” especially when it comes to older adults and healthy aging (Lazar & Nguyen, 2017, p.7042). Solutions focus on perceived deficits rather than looking closely at this population's actual needs, interests and positive aspects of life (Lazar & Nguyen, 2017). Therefore in order to enhance the empowerment and social engagement of older adults more in-depth research is needed into the field of reinforcement of their daily life pleasures, focusing on designing for their personal needs and interests to really deliver value to them and their long lasting lives.

A person's level of social engagement and empowerment is highly dependent on that person's characteristics, daily practices and social context.

In order to enhance the social engagement and empowerment of an older adult it needs to be dealt with their uniqueness in this target group, bringing their voices and histories to the center of the participatory project. Therefore personalisation is a way of involving older adults within the target group into the design process in a respectful way (Branco, Quental & Ribeiro, 2017). It provides a manner for designers to deal with the unique qualities of participants by providing opportunities for meaningful communication and maintain social relationships (Branco, Quental & Ribeiro, 2017). This to create meaningful and adequate designs that reinforce their daily pleasures. That is why the enhancement of social engagement and empowerment calls for the exploration of personalization within participatory design.

The personal design process

Existing literature proposes ways to personalize within participatory design. Part of research done by PhD candidate Marjolein den Haan - Wintermans is her proposal for a personalized co-design process with older adults (Figure 1).

This was focused on how to best involve elderly in the design process to attend to the uniqueness and personhood of people (M.C. den Haan-Wintermans, personal communication, February 6, 2019). The proposed personal design process consists of two phases, firstly creating a personal design in collaboration with two individual older adults and secondly transferring one of the previous personal designs towards a new older adult. Both phases consist of 5 workshops. In the first phase these consist of a kick-off meeting, workshop #1 Hobbies (exploring older adult's hobbies), workshop #2 ideas (evaluating personal design ideas), first prototype test and evaluating the design (in home context). The second phase includes a new kick-off, testing the design workshop (finding out concept preference), evaluate design (in home context), workshop #1 transferring design to (more) personal and a final wrap-up meeting (reflection).

During this design research this proposed personal design process is applied, adjusted and analyzed in order to answer the research question of *How does the personal design process creates design that reinforces the daily pleasures of older adults?*

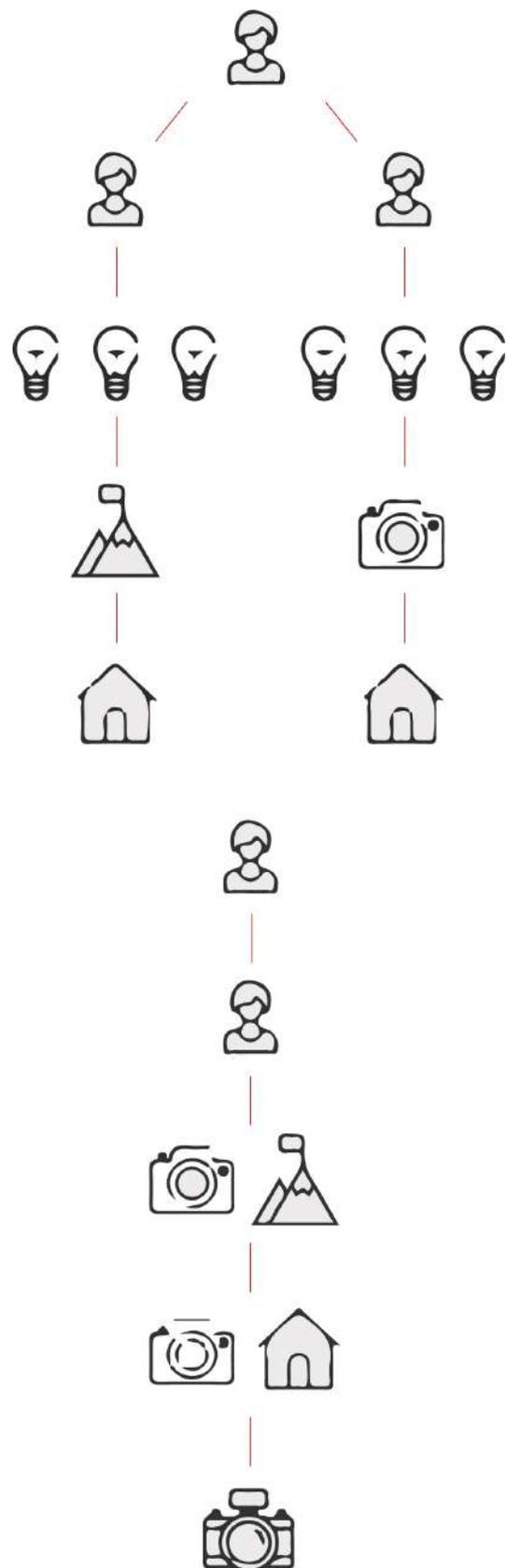


Figure 1: The proposed personal design process.

RELATED WORK

Participatory design research

Examples have been gathered of projects in which personalisation has been used within the participatory design processes through collaboration with older adults.

One of these papers is written by Maldonado, Quental & Ribeiro about personalized participation as an approach to involve older adults with dementia and their families in participatory design projects (Maldonado, Quental & Ribeiro, 2017). This paper informs about "*personalisation is used as a strategy to design in consideration of the uniqueness of participants.*" (Maldonado, Quental & Ribeiro, 2017, p. 128) and the qualities of this personalised participation, relating to ethics, empathy and conviviality. The project was left open in various ways to involve the people with dementia and let them personalize the artefacts or design brief and so the process. Participation and roles of the different stakeholders involved, as the older adults with dementia and family members, were analyzed. The paper found that the several ways in which the project was left open for participants in terms of artefacts, design brief and process made them believe that people with dementia can contribute to defining possible design usage scenarios, personalization before design, and personalizing after design.

Furthermore it is stated that in the approach to empathize with the participants, aesthetics plays a major role "as a means to dignify people through artefacts that are appreciated and appropriate, and to give emphasis to the perception through the senses." (Maldonado, Quental & Ribeiro, 2017, p. 140).

This research bears similarities with the approach of addressing a participant's uniqueness however and the aim of evaluating the quality of personalisation. However differs in the way the project was left open for participants. The design research in this report offers a broader set of participatory moments to involve older adults. Furthermore, target group differs from older adults with dementia to retired older adults still living independently however shows clear qualities of personalisation.

The fact that aesthetics plays a major role in empathizing with the participants, in our case older adults, differs from the initial personal design process proposed by Marjolein den Haan - Wintermans (see Introduction). Since the paper states its importance this will be taken into account within the design research process, explained in the 'Methodology' section.

Designing the personal aesthetics of the final personal design prototype.



DESIGN

The specified objective of this design research is within the area of application and analyzation of the personal design process with older adults. By using research through design the process of turning the older adult's little daily life pleasures (based upon personal characteristics, interests and values) into a personal design will be explored. Hereby it can be researched how the unique personal design created affects the older adult's social engagement and empowerment.

For this research the target group is specified as retired elderly aged between 65 and 85 years old living independently in the Netherlands. The participatory moments with three older adults will be done within the context of their homes or in the community center setting where they often go to meet others, participate in or guide activity groups (Ontmoet & Groet Huys Eindhoven).

Ultimately the research is focused on exploring the role of personalisation, used in participatory design research, within the contribution to the enhancement of social engagement and empowerment of older adults.

This design research made use of personal designs as probes to use as tools to evaluate upon the proposed personalisation process. Those enabled the gathering of personal participant experiences rather than to function just as outcome of the process. For example in the long-term study the personal design prototype was used as cultural probe (Gaver, Boucher, Pennington & Walker, 2004) to gather experiences of multiple people involved in the personal design process. This will be further discussed in the Methodology section.

METHODOLOGY

During this case study an explorative, qualitative and inductive approach was used through collaboration with retired older adults and their surrounding social network, also called participatory design research. During the two phases and corresponding iterations the older adults were involved in different ways, through different ethnographic methods. This to thoroughly understand and empathise with the individual participating elderly. In this way the personal design process could be explored just as how it affects the elderly.

Participatory design research process

In order to achieve the specified objectives within the area of application and analyzation of the personal design process with older adults as mentioned above, it was chosen to separate the design research into two phases. The first phase focused on exploring the process of creating a personal design and evaluating its first-hand participant experiences. The second phase focused on exploring how the personal design process affects the older adults on the longer term and on exploring the transferability of a personal design. Due to the nature of this design research high user involvement took place in both phases including various participatory moments with three older adults, participating individually. These participatory moments were designed and introduced as workshops.

These two phases consisted of several iterations with different focuses. This iterative process was inspired by the proposed personal design process and the Human Centered Design process (HCD) in the paper by Brown and Katz (Brown & Katz, 2011). As described in the paper by Wintermans, Brankaert and Lu, which also inspired their process by Brown and Katz, the HCD process starts examining the people's needs, dreams and behaviors. It then builds further on these to establish a design proposal to address them (Wintermans, Brankaert & Lu, 2017).

The first phase has four iterations (Figure 2):

1. Getting to know the participant by collecting unique personal information about daily life activities, values, interests, histories, hobbies, talents and

life experiences & translating these into a first set of 4-5 personal designs

2. Participant evaluations after re-evaluation of personal information and turning these into new sets of design opportunities and concepts

3. Creating personal design by turning the concept preferences into visualizations and low-fidelity prototypes

4. Intermediate personal design studies in context

The second phase contains three iterations (Figure 2):

5. Generalizability test by transferring one of the two previous personal design concepts into a personal design for a new participant

6. Fine tuning personal design on ambience, emotional, formgiving, material and color perspective

7. Final studies & conclusions by doing an in context long-term study with a prototype of the final personal design

The design research process has been visualized on the next page.

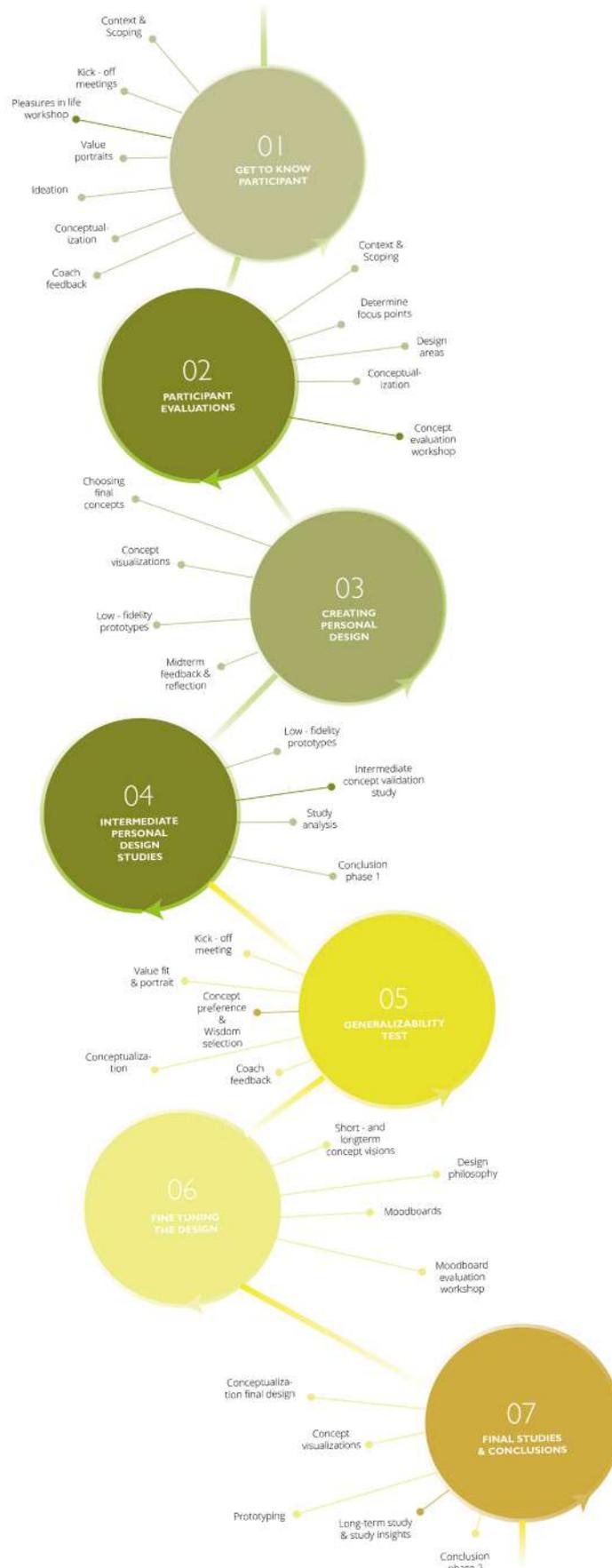


Figure 2: The participatory design research process.

Different phases including different participants

In this section it will be elaborated upon the two phases, corresponding iterations and methods used for participatory moments and studies within these iterations. Participants involved in this process were selected by professional employees at the community center Ontmoet & Groet Huys in Eindhoven (Stichting Vrienden van de Thuiszorg). This foundation checked whether they fitted within the target group, were willing to participate for long-term research and capable of doing so. As a designer I regularly checked whether they remained in good conditions to participate by reflecting upon workshop and process expectations. In the first phase two participants were involved which will be called Saar and Johan.

Saar was an 83-year-old woman, who was characterized by her many insecurities and dependence on her social environment, looking for acknowledgement from others within her social circle and family. Through experiences in the past she has created low self esteem and doubts about her value for others. However, she was also characterized by her social capabilities, caring attitude and heart for voluntary work.

Johan was a 73-year-old man being visually impaired but still very independent. Just as Saar he loved social contact but for him it did not matter with whom, just with whoever wanted to listen to him and his stories. Therefore he was a true storyteller. He differed from Saar by his need to not always be around others, having not much contact with family, only having a couple of good friends as social base. Johan further characterized himself by his love for gathering information and knowledge to keep up to date and use during conversations.

In the second phase the focus shifted to a new participant which will be called Alice. She was chosen with the requirement to have values related to Johan and/or Saar to make a valuable personal design transfer. Since Alice's values and characteristics were closely related to Saar, Saar still kept involved in this phase. In this phase the process with Johan was ended and reflected upon.

Alice was a 67-year-old woman, who characterized herself by her need for independence and love for voluntary work as cleaning and animal care. Moreover, she identified by being socially active and caring by visiting family and ex-husband. Remarkable about her was her sense of humor and ability to put things in perspective because of past experiences.

The biggest similarities with Saar were the caring and social attitude, love for voluntary work and having a lack of self-esteem.

First phase

In the first phase three to four participatory moments took place depending on the capabilities of the two participants. Within these participatory moments different aims were set and a variety of methods was used which will be explained below. Tools used during the participatory moments to involve the older adults were personalized and designed based on the participant's characteristics and capabilities. In this way the uniqueness of the participants was taken into account during the design research process. The first phase consisted of a kick-off meeting, pleasures-in-life workshop, concept evaluation workshop and an intermediate concept validation study. All participatory moments took place individually with the two older adults, one at a time.

Kick - off meeting

The aim of this participatory moment was to make a first step in emphasizing with the older adults focusing on their personal situation, experiences and characteristics. For this it was aimed to get comfortable with each of the two participating elderly; to clear process expectations; evoke personal stories about unique daily life activities, social & family situations, histories and factual information, all during an open conversation.

Creating comfort and trust between participant and designer allow for a pleasurable process experience and long-term participation. Furthermore this creates the base for opening up storytelling. These personal stories create insight into the uniqueness of the participants and inspire the creation of a personal design.

In order to create comfort between designer and the older adults it was chosen for an open-ended conversation. Some topics were set to evoke personal stories and to lead the conversation when going too much off direction. However space was left for improvisation during the conversation and for going in-depth about certain stories told. Specific protocols for the kick-off meetings can be found in Appendix B.

For both participants the kick-off meeting took place within the main meeting center of the Ontmoet & Groet Huys, during the afternoon. This was for both a well-known place where they go for their weekly (games) activity groups. With Saar I met according to her schedule after she had guided her activity group at the center. With Johan on the other hand I met during his weekly activity group. As these two scenarios show, the capabilities of the participants affect the personalized process.

For Johan it was chosen to combine the kick-off meeting with the pleasures-in-life workshop due to limited time frame.

Pleasures in life workshop

The aim of this participatory moment was to further emphasize with both participants to gather in-depth participant insights by stories about unique hobbies and interests in daily life to touch upon their little pleasures and values. These stories and corresponding insights together with the results of the kick-off meeting are used to translate into value maps (portraits) and function as inspiration for the personal designs.

In order to evoke the personal stories a tool called the Leisure Time Canvas by design researcher MSc Marjolein den Haan - Wintermans was used.

This tool consisted of activity cards showing common and uncommon activity amongst elderly retrieved from the Plezierige Activiteiten Lijst (PAL) by Roozen et al. (Roozen et al., 2008). Furthermore consisted of a canvas with three boxes to organize the cards into, choosing from hobbies that do not fit me, hobbies that fit me and hobbies I would like to do more often. In this way communication and personal reasoning was stimulated.

Adjustments were made to the tool (Figure 3) for the workshop to adjust the activities presented to Saar and Johan. For both the activity card with 'voluntary work' was added (similar value) and the uncommon activity 'fighting sports' to elicit surprising personal insights.

For both participants this workshop took place at the Ontmoet & Groet Huys at the same time slots after and during their activity groups to be consistent. Specific protocols can be found in Appendix C.



Figure 3: Adjusted Leisure Activity Canvas.

Concept evaluation workshop

The insights of the kick-off meetings and pleasure-in-life workshops were translated into personal design areas and specific concepts for each of the participants. The aim for this participatory moment was to evaluate the fit of these concepts with the two elderly and to find out their preference for one of the concepts to elaborate upon.

Since Johan was visually impaired and was not able to visually evaluate the concepts it was chosen to confront him with design areas and concept descriptions. In order to prevent bias concept proposals were presented that were rather vague. He was then asked to imagine how the concept would be useful for him, or not, how it would look like and in which (social) context he would use it. Since Saar's vision was not affected and since she needed more clarity during workshops she was confronted with concept visualizations (sketches) within various design areas. Both approaches and protocols can be found in the Appendix D.

For both participants this workshop took place at the Ontmoet & Groet Huys at the same time slots after and during their activity groups to be consistent.

Intermediate concept validation study

The insights of the concept evaluation workshop and the participant's preferences were turned into experiential prototypes. The aim for this intermediate study was to gather first hand experiences with the prototype to gather insights about the intended interactions and the potential effect on their social engagement and empowerment. These intermediate concept validations differed for the two older adults due to personal circumstances and participant load experiences.

The intermediate study with Saar consisted of a low key prototype evaluation session. This session focused on gathering qualitative data about the personalized content of the concept, the experienced potentials for social engagement and empowerment and reflection on the process through a semi-structured interview. The session took place at the Ontmoet & Groet Huys at the same time slots after and during their activity groups to be consistent, stick to recognition and comfort.

The study with Johan entailed a baseline study of his current behavior around gathering information through his DAISY player. Moreover it consisted of a workshop with 3 assignments to experience and evaluate upon the concept's functions and interactions.

During the baseline his current behavior was observed and noted afterwards. Furthermore, in-context photos were made. During the workshop assignments his interactions with the prototype were observed and his experiences gathered through a semi-structured interview (Greaves & Farbus, 2006).

This one took place in an in-home context at his apartment within a residential care home. Specific procedures of both studies can be found in Appendix E. The results and prototypes will be discussed in the next two chapters, 'Phase 1' and 'Phase 2'.

Second phase

In the second phase three participatory moments took place based upon the capabilities of the second participant Alice. Within these participatory moments different aims were set and a variety of methods was used which will be explained below. The second phase consisted of a kick-off meeting, concept preference & wisdom selection workshop, moodboard evaluation workshop and a long-term in context study. The kick-off meeting and concept preference & wisdom selection workshop were combined.

Kick-off meeting

The same holds for this meeting as the kick-off meetings done in phase 1. However, the value fit between Alice and the previous participants was added to the aims of this participatory moment. This was done by evaluating a list of values that linked to Saar and Johan, together with Alice. These values included: having a caring attitude, being socially active, being amongst others, having family contact, story telling, information gathering, self-esteem and being independent. To get insight into her match with Johan or Saar, Alice was asked to choose the 3 values that were mostly related to her.

Concept preference & wisdom selection workshop

The aim for this participatory moment was to make the first steps in transferring one of the previous personal designs to Alice. Focus was on discovering Alice's preference in personal design concept; discovering the why behind the preference; discovering the fit of the concepts with

the her values; discovering changes needed to be made to make it more fit Alice and discovering the potential enhancement of social engagement and empowerment through the chosen personal design. In order to achieve these aims, the sketches of both previous concepts were presented as probes, one by one, to reflect upon together with Alice. To evaluate the sketches, open-ended questions were asked introducing topics as appealability, usability, implementability, social affection, empowerment and context of use. After the one-on-one evaluation it was asked for her preference and deepened into her reasoning. Specific procedure of the kick-off meeting and this workshop can be found in the Appendix F.

Moodboard evaluation workshop

The aim for this participatory moment was to dig deeper into the transferability of the personal design by personalizing aesthetics. Focus was on getting insight into her current interior style (the chosen design is an interior object); insights into what style appeals her in the Ontmoet & Groet Huys (context of chosen design); in her preferred look & feel regarding the chosen concept and her reasoning behind that. Therefore, 4 moodboards were created that matched with the current interior at the Ontmoet & Groet Huys which can be summarized as,

1. licht & rustig (light & calm)
2. vrolijk & levendig (cheerful & dynamic)
3. warm & gezellig (wam & cosy)
4. chaotisch & eigenwijs (chaotic & playful)

See Figure...

To evaluate these moodboards it was first asked to pick the moodboard she liked the least and to explain why. After that the other moodboards were evaluated through the use of open ended questions related to current styles, in-context style and the elements of the moodboards. These included ambience, emotion, formgiving, materials and color scheme. In the end it was asked for her final moodboard preference and reasoning.

Specific procedures and moodboards made can be found in Appendix G (Figure 4).



Figure 4: The 4 moodboards.

Long-term in context study

The aims for this study was to gather personal experiences of Alice, Saar and the other visitors at the Ontmoet & Groet Huys on the design. Hereby its possibilities for empowerment and social engagement could be evaluated. The study consisted out of 4 qualitative parts: interview with Alice on her experiences; interview with Saar on her experiences and feel of personalisation; observations of the prototype and interviews with 10 other visitors and/or volunteers at the Ontmoet & Groet Huys. For the semi-structured interviews a set-up was used from the paper by Greaves and Farbus dealing with topics as social engagement and empowerment (Greaves & Farbus, 2006). More about the prototype used and results can be found in the 'Phase 2' section. Specific procedure can be found in Appendix H.

Analysis of the workshop, intermediate studies and long-term study was based upon the thematic analysis method by Braun & Clarke (Braun & Clarke, 2008). Voice recordings were turned into transcripts in which themes were found and concluding insights and design opportunities drawn.

Ethics of the participants was addressed by using consent forms (Appendix A), continuous reflection upon participatory moments, involving the client as mediator and changing names of participants in reporting. Johan and Alice gave consent for reporting pictures, Saar did not.

PARTICIPATORY DESIGN RESEARCH

PHASE 1

In this first phase the objective was to gather the daily life pleasures of the two different participants, portraying their uniqueness; create a personal design for both of them based on that and to evaluate the first participant experiences.

In this chapter the process of creating personal designs (process insights) and the intermediate study results of the first phase will be described.

CREATING PERSONAL DESIGNS & PROCESS INSIGHTS

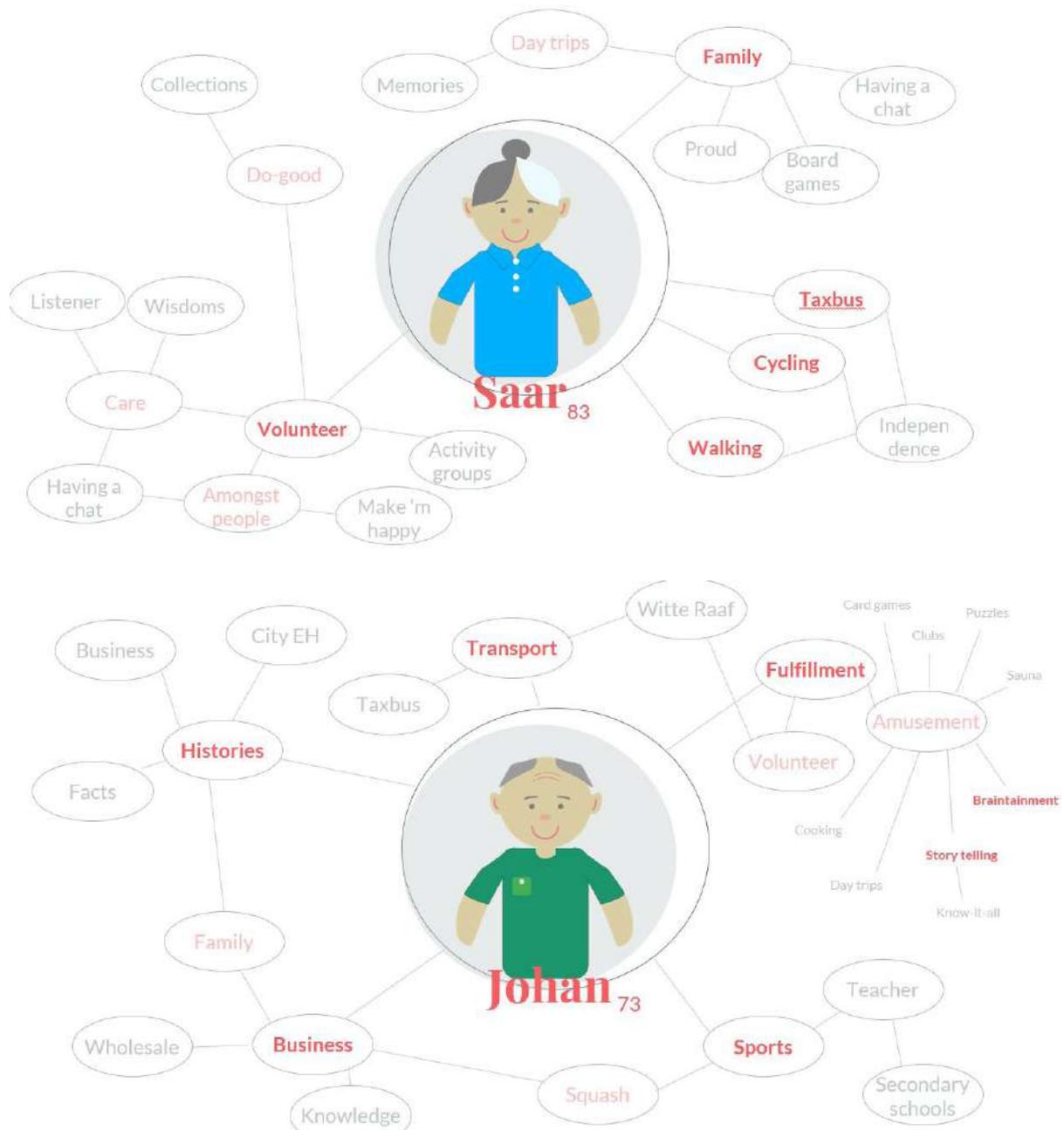


Figure 5: Value portrait Saar (upper) and Johan (lower).

Creation of participant portraits

The insights of the kick-off and pleasures-in-life workshop were translated into portraits. Out of the insights, themes were created that reflected their daily life interests and these were mapped together with their underlying motivations and values. In this way the personal characteristics and values could be linked to the participant's unique daily life pleasures (Figure 5). Transcriptions in Appendix I and J.

Saar (83 years old)

Saar can be characterized by her many insecurities and dependence on her social environment, looking for acknowledgement from others within her social circle and family. Through experiences in the past she has created low self esteem and doubts about her value for others. Her father used to tell her she could do anything but that she would never succeed which has influenced her

during her whole life, “Bij alles wat je wilde gaan doen nou je mag het gerust doen maar het lukt toch niet.” “En dat heb ik eigenlijk altijd een beetje bij me gehouden he.”

The most important daily life pleasures for Saar include voluntary work, walking and visiting family. She volunteers by guiding two activity groups during the week. Voluntary work enabled opportunities for her to be amongst people and express her caring attitude by making the participating older adults happy, “Dat je de mensen zo blij kan maken ermee.”, share advice with them or just have a chat. She loved walking “Oh ja dat zijn wel dingen die ik heel graag doe!” and often goes for a family visit by foot. Family is very important to her, she meets almost every week with her granddaughter to play games, “Ik heb bijvoorbeeld een kleindochter en die belt dan, en dan is het oma dan kom ik naar huis, ook hier in Veldhoven vlakbij ons en dan gaan we lekker uiteten en dan daarna spelletjes doen he.” “Nou dat vind ik altijd hartstikke leuk.” Moreover, she was born in a big family which created a strong bond with her siblings.

Johan (73 years old)

Johan is visually impaired but characterizes by his independence. Because of his visual impairment he has the urgency to look at the things in life he still can do, “Het is nou eenmaal op je pad gekomen en je moet daarnaar gaan leven en dat lukt me wel aardig moet ik zeggen want ik ben een heel vrolijk type haha.”

The most important daily life pleasures for Johan include fulfilment of his time through keeping up to date, storytelling and visiting his good business friends. He can be described as a true storyteller and very socially capable. Moreover, he loves to spend time reading through audio cd’s, “En wat ik ook luister dat is gesproken lectuur en boeken.” and in this way keep up to date, gather information and knowledge to use during conversations.

Creation of personal design concepts

The insights into daily life pleasures from the portraits were used to set design areas and personal design concepts to evaluate with both participants. In this way design concepts could be created as

a start for the reinforcement of their daily pleasures. In order to reinforce the daily life pleasures of Saar and Johan the focus during ideation was on creating ideas that were based upon their daily pleasures and simultaneously enhanced their empowerment and/or social engagement in a positive way.

Saar

According to the most important daily life pleasures for Saar: voluntary work, walking and visiting family, four design areas were created. These included family, story telling, walking and sharing wisdoms. Within these design areas 3 concepts were made and visualized in sketches.

The family concepts were focused on enhancing social engagement and empowerment through creating more family moments. These included 1. family story blocks (Figure 6), 2. wall of fame and 3. board game.

Moreover, the story telling concepts were focused on enhancing her social engagement through creating opportunities keep in touch with loved ones by playful exchange of stories. These included 1. family tree, 2. audio cards and 3. mail system.

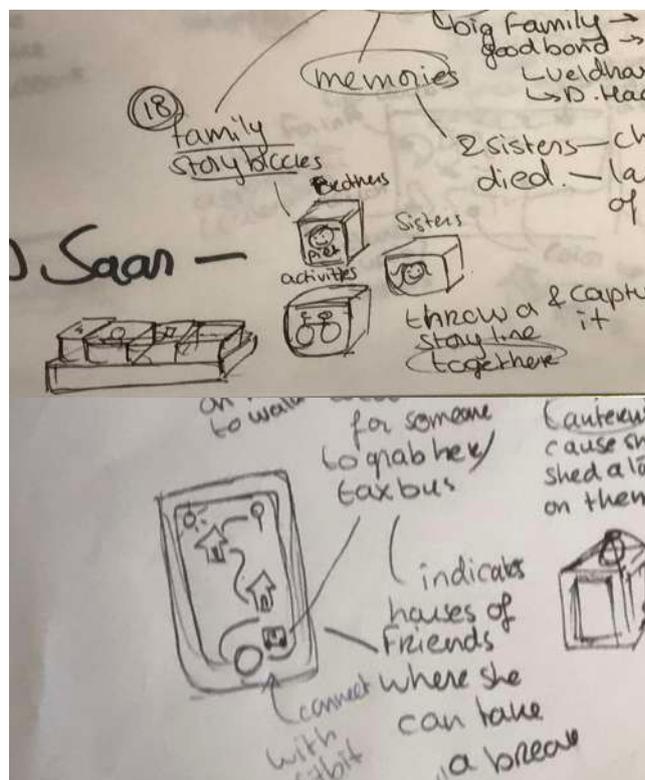


Figure 6: Family story blocks (upper) & walking app (lower) Saar

Furthermore, the walking concepts were focused on empowering her when walking long distances through creation of information and goals systems. These included 1. walking app (Figure 6), 2. walking bracelet and 3. walking - home system.

Lastly, the sharing wisdoms concepts were focused on enhancing her empowerment and social engagement through creating opportunities to share her wisdoms within her social environments. This because the kick-off and first workshop created insights into this, e.g. one of her wisdoms was "Echte vriendinnen zijn alleen met een lantaarntje te vinden." about creating true friendships. These included 1. tiles by Saar, 2. gifting tiles and 3. tiles family sharing platform.

Johan

According to the most important daily life pleasures for Johan: fulfilment of his time through keeping up to date, storytelling and visiting his good business friends, four design areas were created. These included story telling, day trips, business and cooking. Within these design areas 2 to 3 concepts were made and visualized in sketches.

The story telling concepts were focused on enhancing his empowerment through creation of more control over his information gathering to use during story telling. These included 1. story stones, 2. check the news and 3. storyball.

Moreover, the day trips concepts were focused on enhancing his empowerment through creation of possibilities to go on day trips again and capture his experiences to re-enjoy. This because he has always loved to go on day trips, "Ja dat is altijd leuk!" These included 1. day trip box and 2. agenda.

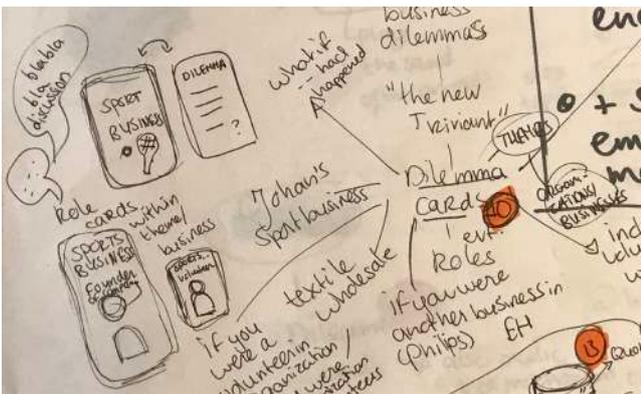


Figure 7: Concept ideation Johan - dilemma cards.

Furthermore, the business concepts were focused on enhancing his social engagement through creation of possibilities to share his business knowledge gained over the years. This because he has had his own squash center and had taken over a family business, "Ik heb ooit van mijn hobby mijn beroep gemaakt en dat uh was een squashcentra, die zijn er ook gekomen." These included 1. dilemma cards (Figure 7) and 2. tactile LinkedIn.

Lastly, the cooking concepts were focused on enhancing his empowerment and social engagement through creating possibilities to replicate his cooking experience or find dinner mates. These included 1. cook&dinner and 2. the buddy system.

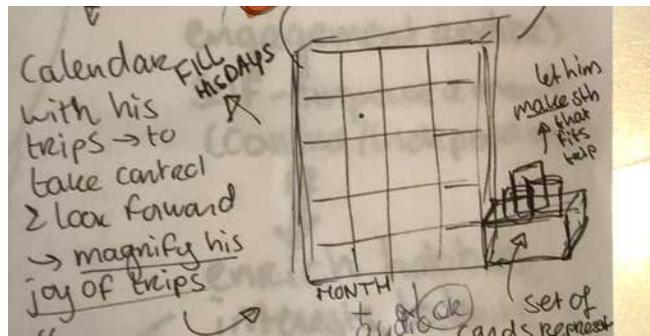


Figure 8: Concept ideation Johan - day trip box.

Creation of final personal design concepts

The design areas were described, just as the concepts (to verbally explain to Johan) and were visualized (to show Saar). In this way the concepts could be evaluated with the older adults to work towards an ultimate fit between the personal design and both participants. The insights could be used to conceptualize the final designs and prototype them to test during intermediate studies.

Saar

For some concepts she did not really feel a connection, they were just fun but not attractive or useful for her. Those were the concepts within the design areas of family (all concepts) and story telling (family tree concept). The concepts that were most interesting for her and for whom she got more enthusiasm were the ones within the areas of walking and sharing wisdoms. Within Walking the most appropriate concept was 'walking bracelet.' Within Sharing Wisdoms she liked all concepts however liked the 'tiles by Saar' best.

The reasons why some concepts were preferred over others by Saar can be concluded as emotionally related and divided into the following three factors:

1. recognizable from experience

For example the walking bracelet appealed to her since she had done another study before for which she had to wear a FitBit. This concept reminded her on the positive experience she had with the FitBit. *“Maar ja zo'n armband dat vind ik wel uh, dat spreekt mij meer aan van uh ja van die dingen.”*

2. affection with underlying theme

She loved all concepts within the area of sharing wisdoms since she had great affection with wisdoms. She has also given wisdom tiles as presents before and has also shared wisdom magnets, *“Nou ik vind uh, ik heb een koelkast die hangt vol met allerlei spreukjes die ik gekregen heb he, die zo gekocht zijn he.”* Through these she has already experienced the power of those wisdoms.

3. implementable in daily life (if she wants to do it / use it)

The reasoning behind the concepts she did not like at all was often that she did not know how to fit it into her existing daily life activities.

Out of her preferred concepts the 'tiles by Saar' concept was chosen because of its originality, opposite to the concept for Johan, addressment of the fact she always puts herself on second place and of great possibilities for taking away her insecurities and low self-esteem. This concept encouraged wisdom exchange in community setting through concepts of liking and inspiring. It was finalized into a sketch (Figure 9).

Johan

The concept opportunities that stood out were within the design areas of story telling and cooking. Moreover, one new concept within day trips evolved. Within story telling these concept opportunities were both 'story stones' and 'control the news'. Within cooking the cook & dinner concept appealed. Within day trips the new concept opportunity was a buddy system cause he is always dependent on others for doing this.

The reason why some concepts were preferred over others by Johan can be concluded as functionally related and divided into the following

three factors:

1. implementable in daily life

For example, the 'control the news' concept was very much implementable in his daily life because he has already fixed moments for gathering audio information.

2. he has a need for it

For example, he has finally accepted he cannot go on with his squash center due to his visual impairment and therefore he does not have the need for the 'dilemma cards' concept within the area of business since he does not want to get reminded of that anymore.

3. if he wants to spend time on it

For example, the concepts within the area of cooking were not applicable because he is not allowed to cook anymore. Furthermore he does not want to spend time on cooking anymore or re-experiencing his rituals cause he has ended that period in his life.

Out of his preferred concepts the 'control the news' concept was chosen because it touched upon all design research focus points and had great implementability. It was a concept that empowered him by controlling his audio information stream and socially engaged by a sharing platform. It was finalized into a sketch (Figure 9).

Transcriptions see Appendix K.

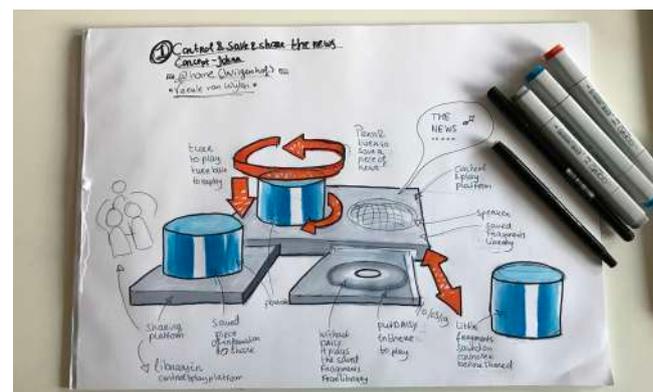
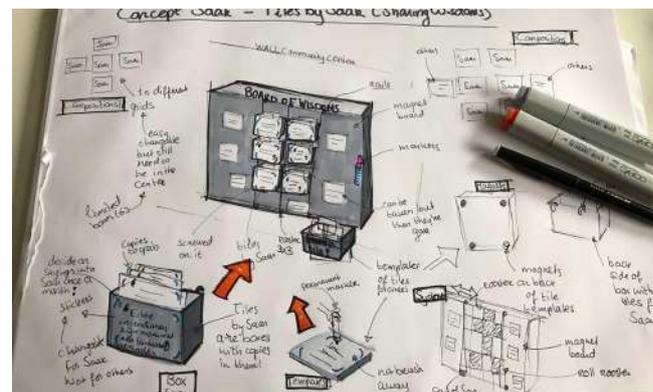


Figure 9: Final personal design sketches Saar (upper) and Johan (lower).

INTERMEDIATE STUDY RESULTS

Both have gone through a personal design process in which their uniqueness has been used to create a personal design for each of them. The difference in their characteristics, behaviors, interests and values and the resulting personal designs causes different effects on their social engagement and empowerment. Since the studies, done with the two participants Saar and Johan, were so different due to their needs and capabilities, the results are separated according to these two studies.

Low key prototype evaluation session - Saar

As explained in the methodology section this intermediate study with Saar consisted of an evaluation session with a low-fidelity prototype (Figure 10) of the personal design. This to gather information about the personalized content of the concept and the experienced potentials for social engagement and empowerment. This prototype aimed for showing the elements of the concept encouraging empowerment and social engagement; being able to show multiple use scenarios in context of Ontmoet & Groet Huys and having tiles and tile boxes were to use as wisdom gather-



Figure 10: Prototype intermediate study Saar.

Saar had brought a list of wisdoms that appealed to her and a heart shaped wisdom tile she had given to her sister when she was ill which means a lot to Saar (Figures).

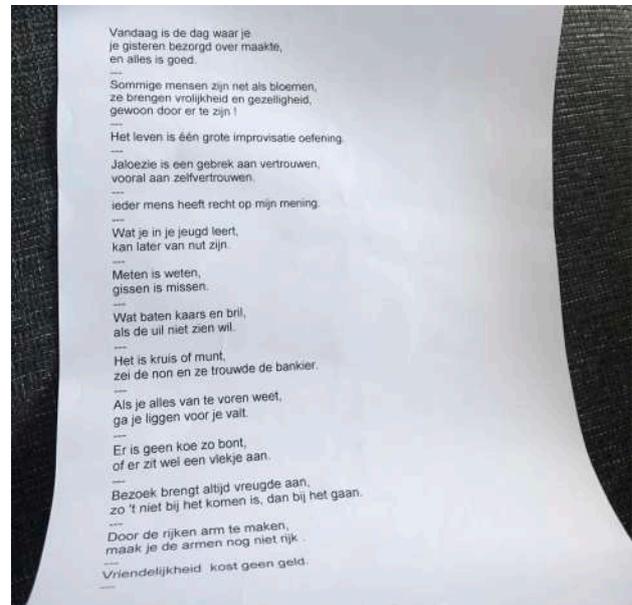


Figure 11: List of favourite wisdoms made by Saar.



Figure 12: Heart with wisdom that is dear to Saar.

From the kick-off meeting and pleasures-in-life workshop it could be concluded that Saar characterizes as a very insecure woman, looking for acknowledgement from others within her social circle and family. In her youth her strict father always told her she could do anything she wanted however she would never succeed, "Bij alles wat je wilde gaan doen nou je mag het gerust doen maar het lukt toch niet."

She got a very low self esteem because of that, doubting if she is valuable for others and still tries to prove herself: *“Ja je hebt dan nichtjes enzo maar die hebben allemaal zelf een bedrijfje en die hebben het ook allemaal druk.” “Je durft bijna niks meer, soms, te vragen he.” “Ik uh ja mijn kleindochter dan die nou met d'r master bezig is die uh heeft ook heel druk en ja ik kan het ook niet van anderen af laten hangen he.”* On the other hand she can be described as a very socially capable, caring and always willing to give others in her social circle, activity groups and family.

Affection of empowerment

Out of the concept validation feedback session insights it can be concluded that the concept enhances her empowerment by giving her insight in who she is and into the fact she is more valuable for others than she thinks she is by selecting the wisdoms she wants to share on her tiles on the board. She wanted the wisdoms on her tiles to illustrate what kind of person she is, to be personal and closely related to her.

Those really show her and others who she is and what her values are. That is also why she did her selection process as much as possible on her own without the help of her husband: *“En toen dacht ie van ik zal haar maar een beetje helpen maar ik dacht nee, hij heeft het wel uitgeprint voor me want dat kan ik niet.”*

Two of the most important quotes that she wanted to be on her tiles are coming from her fridge magnets: firstly *“Vandaag is de dag waar je je gisteren bezorgd over maakte, en alles is goed”* since she has got it from someone who gave her the insight she was always worrying about everything on beforehand and that she needed to stop doing that because it will be alright. She says it's really typical for her; it says something about who she is and that it is okay. Moreover, this quote helps her to put things in perspective, to calm down. Secondly, *“Sommige mensen zijn net als bloemen, ze brengen vrolijkheid en gezelligheid, gewoon door er te zijn!”* is special to her since that is what she really likes about people. That people do not always need to bring something when they visit her but that when they are there for her it's already fine for her; just the fact they come around, think about

her (recognition). It says something about her preference of being around lovely people who do not want something from her; just be there and it is okay.

Through this concept she can find acknowledgement from others by sharing personal wisdoms and by that increase her self-esteem. She says she likes it when others take a copy of one of her wisdoms from the board: *“Nou ik vind het ook wel leuk als ze dingen meenemen he.”*

Furthermore through this personal design she can find recognition out of wisdoms of others (life experience or beliefs) which can make her stronger and help her put her life, situations and worries in perspective.

Affection of social engagement

This personal design enhances her social engagement by indirect exchange of advice, inspiration and wisdoms. Some quotes she has chosen are not so much related to her; to illustrate who she is, but because they could be valuable to others. So she has already taken others and the social aspect of the concept into account when she made her wisdom selection. Important for her to encourage social engagement with her tiles is that those wisdoms relate to personal experiences she has had in life; fit her beliefs which she likes to share with others or have humor in them making her and others laugh. However she does not want to put her name underneath her wisdoms because they have all been already said and made up by others, are not really hers: *“Maar jij had het ook nog over van uh jaa met je naam eronder maar dat moeten we maar niet doen want ze zijn allemaal al verzonnen he door iemand of iets he.” “Dan hadden we ook nog een spreuk staan van Nicolaas Beets en mijn man zei die moest lachen en toen zei hij nou daar moet je niet je naam onder zetten haha.”*

Moreover, she said she liked the exchange aspect, that she would like it when others also make tiles for her: *“Ja, jaaa, tuurlijk zou je dat leuk vinden.”* Important for her to encourage social engagement through the tiles of others is that those wisdoms are not too heavy and not politically or religiously loaded. For the rest they may be anything, about life or love, that does not matter much. She loves it when they are broad-minded or capture humor;

just make her laugh: "Jahoor, nee, nee dat is alle-maal goed."

Furthermore the personal design evokes story-telling using her and other's wisdoms.

In home context concept validation - Johan

As explained in the methodology section this intermediate study with Johan consisted of a baseline study and a workshop including 3 assignments to observe interactions and gather first hand experiences. For the second part a prototype (Figure 13) of his personal design was made. This prototype aimed for illustrating the functionalities of the concept encouraging empowerment and social engagement to get insight in assumptions made;

illustrating the interactions allowing the functionalities through Wizard of Oz to get insight into the chosen interactions, if they allow for social engagement and empowerment; evoking the experience caused by the interactions through Wizard of Oz and by that enabling the participant to give accurate concept feedback based on experience and providing all possible usage scenarios with the functionalities to imagine the implementability of



Figure 13: The experiential prototype for intermediate study Johan.

Johan characterized by his independent attitude, loving social contact with whoever wants to listen, but does not always need to be around others. This also reflected itself in his family bond which is not that tight, he only has a couple of real good friends giving him his social base. Johan can be described as an information gatherer; loving to keep up to date what he uses during conversations with others or just as braintainment. In order to fulfill this need he used his current DAISY player with which he listened to audio cd's containing books, magazines (as the Quest and de Zin), newspaper (Eindhovens Dagblad) and audio plays (familie Doorsnee).

Affection of empowerment

Out of the intermediate at home context study (observational baseline, study through prototype and semi-structured interview) insights it can be concluded that the concept enhances his empowerment mostly by saving audio fragments and the fact he can relisten those audio fragments whenever he wants, at all times: "Hmmm ja het opslaan van die dingen, die fragmenten zal ik maar zeggen en dat je die ten allen tijde terug kan vinden." For him that is the most interesting factor of the personal design and would really enrich his current audio ritual. He gives an example of relistening to a fragment of the Quest: "He als je zegt van uh ik heb eens ooit gehoord op Quest dat en dat en uuh je zegt dan dat zal die van augustus vorig jaar geweest zijn of je weet dat in zekere zin en je zegt dan van ik wil dat fragment dus ja dat is wel handig ja." Moreover this empowers him by gaining insight in information preferences.

Intuitivity of the design

Intuitivity is for him very important when interacting with complex technical products. He said it is an achievement I made him understand my prototype because he is not technical at all, a fool with everything that's mechanical. He has done lots of psychological tests in his life and in the results it was always said that he was not made for the technique. That he was capable for everything but not for technical matters. And then it also said he could not handle innovations very well and we both laugh. He says those are two things that match, "Ja nee maar dat is al heel wat want alles wat mechanisch is dat... ik heb in m'n leven heel

wat psychologische testen gemaakt en daar stond altijd bij niet in de techniek, verder kan tie alles, is ie overall geschikt voor maar niet in de techniek en dan stond er nog bij kan niet zo makkelijk met vernieuwingen omgaan.” “Dus dat zijn 2 dingen die bij mekaar passen, haha.”

This means that for empowering him by controlling his information stream improvement of the intuitivity of the concept's interactions is needed. The interactions for audio play, replay of stored fragments and sharing need to be improved on intuitivity to allow for better use of functionalities and more efficient acquirement of empowerment.

Affection of social engagement

The concept enhances his social engagement by providing exchange of gathered information and knowledge with important people in his life (friends, new ones). At the moment he always listens to alone (Figure 14), therefore enabling him to socially engage with others through this positive daily life aspect is fits him well.



Figure 14: Johan listening to his audio cd's with his DAISY player.

He likes the idea of sharing audio fragments with others: “Ja dat is wel leuk.” He likes the fact he could receive audio fragments from others as well however property rights need to be taken into account: “Nee, ja ja uh je wil zeggen als iemand anders een ding geluisterd heeft en zegt van dit is eigenlijk zo interessant dat moet hij ook weten?” “Ja dat zou wel en dan moet je wel rekening mee houden dat dat beschermd is.”

One problem with the sharing function is property rights that are linked to the content of the cd's, “Alleen staat er op die dingen allemaal die cd'tjes of die daisy cd'tjes daar staat op dat je ze niet door mag sturen, dat je niet mag kopiëren, dat je niet mag verkopen want daar zitten eigendomsrechten op.”

It is not legally allowed to send, copy or sell the cd's which means that sharing parts of the content with others is not allowed as well. This might imply a negotiation with the service party Grenzeloos in order to still be able to provide social engagement through use of this concept.

Furthermore he can now more efficiently use acquired information during conversations and listen to interesting fragments together at his apartment or at others (to which he has send fragments) enhancing his social engagement.

For transcriptions of the intermediate studies and the corresponding protocols, see Appendix L.

PARTICIPATORY DESIGN RESEARCH

PHASE 2

In this second phase the objective was to open up the target group to a third participant to explore how the personal design process affects the older adults on the longer term and on exploring the transferability of a personal design.

In this chapter the creation of a new personal design through value fit (process insights) and the results of the long-term in context study within the second phase will be described.

CREATION OF PERSONAL DESIGN & PROCESS INSIGHTS



Figure 15: The first participants.

Creation of value fit and new participant portrait

The insights of the kick-off and concept preference workshop were translated into a portrait. Out of the insights, themes were created that reflected their daily life interests and these were mapped together with their underlying motivations and values. In this way the personal characteristics and values could be linked to the participant's unique daily life pleasures and compared to those of Saar and Johan (Figure 15). The biggest fit was found with Saar:

Just as Saar, Alice (67 years old) characterized by having a low-self esteem due to past experiences. Alice had to flee from her dominant husband which made her very insecure, "Ja hij was uh heel erg overheersend." "En ik was iemand die overal maar ja of amen op zei, ja." "En op een gegeven moment gaat dat niet meer, dan ga je een muur optrekken."

However from this experience she has developed a huge need for independence. Moreover, she also

has the needs for social contact and expressing her caring attitude through voluntary work and giving advice to others.

The most important daily life pleasures for Alice include voluntary work, animal care, cleaning and visiting her family (son and sisters). Voluntary work is for her a way to be busy, "Uh bezig zijn, ik ben een bezige bij dus ik poets, ik doe 2 keer in de week vrijwilligerswerk bij het Slotje op het Kastelenplein daar." determine her independence and express her caring attitude. Transcriptions in Appendix M.

Concept preference and personalized adjustments

The insights from the concept preference workshop have led to an adjusted personalized design concept. In this way the value fit was turned into a design proposal.

Saar's concept is way more implementable for Alice than the one from Johan because she is almost every week a couple of days in the Ontmoet & Groet Huys, the context of the concept.

Furthermore she can relate to Saar's concept since those wisdom tiles are recognizable from experience. She has always loved tiles with wisdoms on them, also has had lots at home and even remembered some of them she had seen in the busses.

Alice recommended some changes in the concept for a better fit with her. These can be concluded as follows:

1. Hang the tiles on the wall, not on a back board
 2. Make a tile journey so the visitors have not seen all wisdoms at once and need to take the time to read
 3. Use proper material for the tile boxes so it looks appealing to the other visitors
- From this it is remarkable her comments often emphasize the importance of the other visitors in the design for her.

Together with Alice new wisdoms were chosen that were personal to Alice and reflected her instead of Saar. The chosen ones related to her past experiences and expressed a certain advice. However remarkable enough, most wisdoms reflected her sense of humor and were chosen because they made her laugh. The wisdoms can be found in Appendix M.

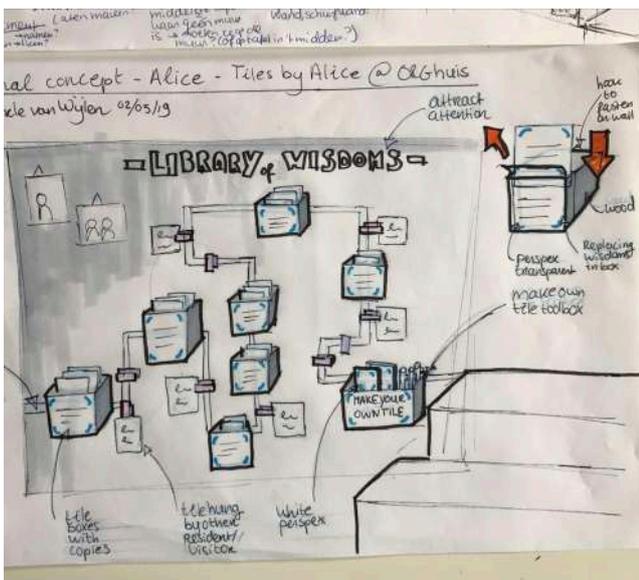


Figure 16: Concept preference sketch with adjustments Alice.

Creation of personal aesthetics

The insights of the moodboard workshop (Appendix N) have led to the creation of an even more personalized design concept, both functionally, interactionally and aesthetically. In this way the personal aesthetics could also be used to contribute to the reinforcement of Alice's daily life pleasures.

The moodboard preferred by Alice can be seen in Figure 17.



Figure 17: Preferred moodboard Alice.

This moodboard immediately appealed to her, "Nou die sprak me eigenlijk meteen al aan toen je ze voor het eerst neerlegde."

Reasons for her preference can be concluded as follows:

1. Her love for frames
"Ja dat lijstje vind ik leuk."
2. Her love for a warm ambience
"Ik hou wel van warm ja, en ook niet te druk."
3. The color scheme appealed best to her
"Ja en die kleuren vind ik mooi! Zo dat geel zo en dan die lichtere kleur erbij."
4. Her affection with woods, specifically dark woods
"Hout vind ik altijd mooi, vooral van dat donkere hout."

These insights were turned into a design philosophy for the short-term concept vision. This philosophy can be described as,

The personalized design needs to breathe the air of the person it is designed for; Alice. It needs to contain elements, functions and interactions that fit with her needs, interests and daily life pleasures which are visualized and tangibilized in a way that personally appeals to her. However the design needs to eliminate unnecessary elements and interactions for simplicity and preventing mental overkill. The personalized design needs to evoke an experience that fits her and blends in with the surrounding environment which is in her case an experience of warmth, friendliness and calmth. Moreover it needs to appeal to her unique valuable underlying emotions which are best described as happiness, cheerfulness and a sense of humor. All look & feel design elements as materials, formgiving and color use need to focus on empathizing with Alice and her preferred experience. Therefore the use of colors needs to be various tints of the same color; yellow-greenish. In order to create an experience of warmth she loves the use of materials as wood, especially dark woods, concrete, especially in a warm color, cork and leather. Her love for frames gives a clear direction within the formgiving, using edged or slightly rounded shapes to fit an orderly feeling and an experience of calmth.

Creation of final personal design

The results of the concept preference workshop and moodboard workshop led to the final personal design (Figure 18).

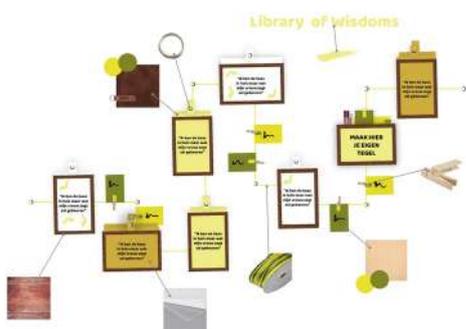


Figure 18: The final personal design proposal Alice.



Figure 19: The final personal design proposal Alice in context.

- The final personal design works as follows,
- the frames with personalized wisdoms (by Alice) contain copies which can be taken home by the other visitors of the Ontmoet & Groet Huys. These copies stick out of the frames by means of a label in which a hole is made to enable it to hang at homes
 - the washing line functions as place for the other visitors to capture the wisdoms they want to share within the community
 - the wisdom templates (cards) can be used by the other visitors to write down inspirational wisdoms. Those are placed into the 'template container' (another frame encouraging to make wisdoms for Alice and other visitors)
 - clips can be used to hang the wisdoms on the washing line

This design was worked out into a prototype to evaluate the participant's experiences with over a period of 1 week.

For transcriptions of the workshops and corresponding protocols, see Appendix...

LONG-TERM STUDY RESULTS

The personal design Library of Wisdoms has been adapted to Alice on both functional aspects, interactional aspects and aesthetics. General explanation of the study. In this long-term in context study in-depth information was gathered during a period of 1 week about the personal experiences of Alice, Saar and the other visitors at the Ontmoet & Groet Huys on the design. Hereby its possibilities for empowerment and social engagement could be evaluated. This to see how the design out of the personal design process reinforces the daily pleasures of multiple people involved.

The final personal design prototype

The context of this study was the wall in a community context setting at the Ontmoet & Groet Huys since it is a community design. The prototype (Figure 20) was placed on a wall near the entrance which could not be avoided walking from the entrance to the main socializing table in the center. Therefore the aims of the prototype were to be replaceable, sturdy, to enable all functions and interactions of the design and to engage visitors.



Figure 20: The final prototype in context.

The prototype consisted out of multiple parts. These were 1. title board, 2. personalized wisdoms graphics, 3. personalized wisdom frames, 4. personalized wisdom copies, 5. connecting wire, 6. fasten-on-wall material (hooks), 7. wisdom templates, 8. template tools (markers etc.), 9. template frame and 10. template clips.

Frames were made out of lasercutted wood and covered with easily removable vivac sheets to show its adjustability. The formgiving (rectangular shapes, frames, a familiar shape); materials (woods) and color scheme (green/yellow/brown) used in the prototype was based upon the results of the moodboard workshop. Moreover, the graphics of the personal wisdoms were chosen upon the resulting style out of the moodboard workshop as well, however it was experimented with different backgrounds (Figure 21) to see if this affected the participant personalisation feels..



Figure 21: Personalized wisdom graphics.

Prototype observations

During the one-week long-term study some of the behaviour around the prototype was observed. Out of those observations a the following conclusions can be drawn.

After four days of observations, 7 wisdoms had been added and after seven days 8 wisdoms had been placed in total on the prototype.

After the study period, 5 copies have been taken from the wisdom: "Blijf niet hangen in het verleden, droom niet van de toekomst, maar concentreer je geest op het huidige moment."

None have been taken from the wisdom: "Ik ben de baas in huis maar wat mijn vrouw zegt zal gebeuren." A reason for this could be that those copies had disappeared in the frame during the week. Moreover, none have been taken from the third wisdom: "Een appel per dag houdt de dokters weg, vooral als je goed mikt." This could have been due to lack of attractability.

From the wisdom templates 2 out of 10 yellow cards are left and 5 out of 10 green cards, meaning 13 were taken. What was surprising to note was that during the week 8 out of the 13 wisdoms have been added, only written on yellow cards (Figure 22). This means some green cards have disappeared over the week.

Some cards were hung horizontally, however most of them vertically (7 out of 8) just as meant to be, through the clip indicator.

The wisdoms written down by the other visitors showed lots of variety. As well as in content, writing style, marker choice and illustrations.

New wisdoms that were hung on the line:

1. Vluggen vrouwen maakt luie mannen
2. Beter laat dan nooit!
3. Slecht ter been en vlug ter hand. Pist men nooit meer over de band
4. Actieve ouderen zitten achter de geraniums!
Die beginnen een kwekerij
5. Toen ik jong was en wispelturig, was ik altijd even vurig, nu ben ik wat ouder en stijf, en zit er wat minder fut in mijn lijf!
6. Wie niet als vriend hier binnen huppeld wordt er een twee drie weer uitgeknuppeld
7. Een vriendelijk gezicht geeft overal licht (Saar)

8. Dans met je hart en voeten zullen volgen <3

By choosing to write with marker or just a pen; the way they choose to write down their wisdoms e.g. poetically written, use of kaligraphy and use of punctuation marks (style) and whether they add illustrations led to the personalisation of their wisdoms. In this way they could put emphasis on what is important for them to convey. The content of the wisdoms varied from personal beliefs to related quotes about life experiences to humorous sayings. Behind some of them the urgency of the advice in it can be noticed clearly, e.g. "Actieve ouderen zitten achter de geraniums! Die beginnen een kwekerij." (Figure 23) Meaning elderly need to stay active. In this sense their chosen content together with their personalisation created important life messages recognizable and valuable for the other visitors of the Ontmoet & Groet Huys.



Figure 22: Result after 1 week observations.



Figure 23: Urgent advice written into wisdom.

Affection of empowerment

Out of the participant interviews with Alice, Saar and the other visitors some insights were gained about the affection of their empowerment through the prototype.

Wisdoms create personal affection and value
Wisdoms are loved by the older adults. The wisdoms they choose to share often reflect past experiences capturing humor and advice. This causes the older adults to relate to each other's wisdoms which creates personal affection and value, "Sommige spreuken kan ik inderdaad wel misschien wat mee net als achter de geraniums zitten dan ken de beter naar een kwekerij gaan (she laughs) dan voel ik me wel aangesproken van ik ga niet achter de geraniums de bedoeling is inderdaad van eruit, daar is ook die spreuk dan eigenlijk meer voor, in de kwekerij." (Alice)

Empowered by doing something for the greater good
It is very important for Alice that other visitors are drawn towards the design, that they actively engage with it and read what's written on the cards by others, "Misschien hedde hier toch wel menige die ge blij maakt met die spreuken waar ze zich in herkennen of iets van vroeger terug halen ofzo." Saar also gets value out of the use by others. She was very happy to see so much new wisdoms had been written "Jaha ga maar eens kijken wat er allemaal aanhangt." The volunteers also loved to see the visitors engage with the prototype, "het is in ieders geval geen flop geworden." (volunteer)

Personalized participation process creates personal insights and bonding
Being participant gave personal insights to the older adults. For example the need for accepting help in their daily life activities, "En kijk dan zie je het ook weer zitten he, als je dan bijvoorbeeld iets moet doen dan hoeft je niet te denken je moet het huis nog poetsen ofzo, ja zij is heel fijn." (Saar) Or insight into the preference for humoristic wisdoms as Alice had, "Als ik zo terug kijk heb ik er alleen maar uitgekozen waar ik om moest lachen." Furthermore the high involvement of older adults created a strong designer - participant bond. E.g. Saar was happy to meet again, although she had tendencies for withdrawal due to high participant load. This personalized approach empowered her by exchanging personal experiences and advice,

"Wel oppassen dat je het ook niet van een ander verwacht he." Giving advice about being careful not always expecting love back from others.

Personalisation brings real contact into the game and creates pride

The older adults liked the personalized approach. It opened them up, allowed them to share personal experiences or advice and by this enabled real contact, "Dan vind ik dat toch prettiger, ja dan heb je ECHT contact met iemand." (Saar). The older adults were proud to have participated and co-created. It gave them a sense of being important and being part of something created. "Ik ben er trots op, ja ik ben er trots op!" "Nou dat voel ik als iets van mezelf wat ik met jou samen gedaan heb." (Alice - telling she is very proud and that the design feels as something from her that she has made in collaboration with me).

Affection of social engagement

Exchanging wisdoms gives sense of belonging
It is important to get older adults out of their small daily environments and to actively involve them in social activities. Through this design elderly feel involved and belonged again by coming up with wisdoms to share, "Ik denk door dit voelen ze zich toch weer erbij betrokken." (Alice).

Exchanging wisdoms creates share of memories
Social interaction is evoked by recognition and share of memories. Same holds for a sense of communication, "Ja ik denk dat dat hier ook wel mensen zijn die denken jaha maar die spreuk was toen ik nog 20 was en dan gaan ze dingen terughalen van toen." "Ja en dan krijg de toch gesprekken hier onderling denk ik." (Alice)

Shared responsibility, inspiration and group activity
The prototype caused a shared feeling of responsibility amongst the visitors and volunteers. When it fell on the ground the visitors immediately tried to make it, when that did not succeed volunteers took over and hung it back on the wall. Furthermore volunteers had used the wisdom templates during a "huiskamer" (social) session as group activity. The elderly inspired each other to write wisdoms down for each other, "Oh ja ik wil ook, doe mij er ook 1 enzo." (volunteer). The complete analysis and protocol of this long-term study can be found in Appendix O.

DISCUSSION

The research question for this design research was as follows: *How does the personal design process creates design that reinforces the daily pleasures of older adults?* With this it was aimed to contribute to body of work on how to deal with the uniqueness of this diverse target group, focusing on their actual needs, daily life pleasures, and bringing their voices to the center of participatory projects through evaluation of co-design workshops creating personal designs.

In this report seven participatory moments (5 co-design workshops and 2 studies) are presented in which the older adults were involved into the personal design process. These were 1. kick-off meeting, 2. pleasures-in-life workshop, 3. concept evaluation workshop, 4. intermediate concept validation study, 5. kick-off meeting (new participant) combined with concept preference & wisdom selection workshop, 6. moodboard evaluation workshop and 7. a long-term in context study. Thereby it will be evaluated upon the role of these participatory moments in creating design to reinforce the daily life pleasures of older adults. Additionally in the limitations section the generalizability of the personal design process, transferability factor in the personal design process, participant load, recruitment of participants and sample size will be discussed.

The participatory moments enabled to reinforce daily pleasures by creating opportunities for empowerment. Participants were empowered through creation of value by the design created and through the process of participation, resulting into personal insights, designer-participant bonding and pride.

Moreover the same holds for creating opportunities for social engagement. Participants were socially engaged through the creation of wisdoms and knowledge exchange and their role within the

participatory process.

Furthermore, those moments enabled the designer to deal with the uniqueness and diversity of the target group. The aim was to empathize with the older adults and their personal situations. Kicking off with an open ended conversation about daily activities, setting expectations and getting to know each other created comfort. This opened up the exchange of experiences between participant and designer which allowed for gathering in-depth characteristic insights.

Concerning the in-context intermediate studies, it was found that the low fidelity prototypes were able to elicit valuable information about first hand participant experiences. They allowed for experiencing and imagining the workings of the personal designs which was useful to reflect upon possibilities for social engagement and empowerment of the participants.

Reflecting on the role of the personal design prototypes used in studies, the long-term study in phase 2 showed there is a need for encouraging engagement to gather optimal results. During this study the designer actively engaged the other visitors and Alice with the prototype by instructions and being present. However this creates more biased results. Therefore in future research emphasis needs to be put on the creation of engaging personal design prototypes for the study of participant experiences to prevent bias by interruption of designer. A suggestion for this is involving volunteers during studies that are already well known by the participants to create comfort and trust to engage. It is important to not only focus on how to go from participant characteristics to a design proposal.

Additionally, further research needs to be done to

the role of personalizing aesthetics in the personal design process. The moodboard workshop showed the importance of formgiving, material use and color schemes in creating a comfortable and personal ambience through the personal design. However, the long-term study did not result into clear statements about the contribution of the aesthetics to the older adult's empowerment nor social engagement.

Limitations

One of the main limitations of this study is that personalisation can ask for high participant load which hinders the personal design process. This can be illustrated by the fact Saar wanted to withdraw from participation due to her insecurities of about whether she could contribute with their knowledge, technical capabilities and because of the limited implementability of participatory moments next to her other daily activities. This can lead to participant overload. Therefore it is very important to fit the participant load to the older adult's capabilities and needs.

This limitation is an implication for the generalizability of the personal design process. Meaning this process is not applicable for all older adults. Therefore more research needs to be done into how enable all older adults to participate and match participant loads. An opportunity could be to study multiple design cases to compare or to involve more older adults by opening up the target group. Namely, the sample size in the study of this design case was limited to 3 older adults due to high user involvement.

Another limitation found was the transferability of the personal design to one or more older adults due to lack of personal touch. After adapting the personal design of Saar to a new participant

(Alice) the values remained however the feel of personalisation decreased. This touches upon the dilemma between personalisation and generalization on which more research needs to be done.

Furthermore, it needs to be looked at the recruitment of participants. In the beginning of the process, when meeting at the kick-off for the first time it was noticed expectations about participation requirements can highly differ between designer and participant. For example, Saar thought it would be a one time meeting and after telling her it would be about 5 workshops she started doubting her participation which could hinder the process. It also created irritation at the participant and recruiters side.

Lastly, in order to measure social engagement and empowerment more accurately the long-term study had to last longer.

CONCLUSION

In this design research it was explored how the personal design process creates design that reinforces the daily pleasures of older adults. For this an iterative process consisting of 7 iterations and 7 participatory moments has been used, based upon existing literature. During this case study an explorative, qualitative and inductive approach was used through collaboration with retired older adults and their surrounding social network, also called participatory design research. It became clear that the participatory moments enabled to reinforce daily pleasures by creating opportunities for empowerment and social engagement. Participants were empowered through creation of value by the design created and through the process of participation, resulting into personal insights, designer-participant bonding and pride. Moreover, participants were socially engaged through the creation of wisdoms and knowledge exchange and their role within the participatory process. Furthermore, those moments enabled the designer to deal with the uniqueness and diversity of the target group by creating empathy with the individual participants. This study was conducted with a small sample size (3 participants), therefore more research is needed into dealing with high participant loads; the transferability of the personal design to remain personal touch next to value; the recruitment of participants and the role of prototypes and aesthetics into the personal design process.

ACKNOWLEDGE- MENTS

I would like to thank Marjolein de Haan – Wintermans MSc. for introducing the personal design process to me. I had never implemented co-design in my previous projects and really loved the high involvement with the older adults and to learn the values of such a process. Special thanks for the proper coaching in phase 1 of the design research, guiding me in my design research processes and providing me with helpful co-designing tools as the Leisure Activity Canvas method used in phase 1 during workshop 1.

Moreover, I would like to give special thanks to all three participated older adults: Saar, Johan and Alice for their enthusiasm during the process, feeling comfortable to share experiences, their unique contribution and hospitality for visiting them at home.

Furthermore, I would like to thank Dr. Rens Brankaert for some side coaching in phase 2 of the design research from which I learned to deal with complex user studies.

Next to this, my thanks go to Dr. Yuan Lu for providing me so much useful insights into the design research processes, defining research questions and structure.

Lastly, special thanks to Yvonne Huntink and Hubert Cornelis from the Ontmoet & Groet Huys for facilitating the participants, being a mediator between participant and designer and allowing me to do an in-context study with the final prototype at the center.



The process of turning older adults' unique daily life pleasures into personal design enhancing their empowerment and social engagement

REFERENCES

- Bath, A.P. & Deeg, D. (2005). Social engagement and health outcomes among older people: introduction to a special section *European Journal of Ageing*, 2(1), 24-30.
- Brown, T., & Katz, B. (2011). Change by design. *Journal of Product Innovation Management*, 28(3), 381-383.
- Gaver, W., Boucher, A., Pennington, S., & Walker, B. (2004). Cultural probes and the value of uncertainty. *Interactions - Funology*, 11(5) (September to October), 53-56.
- Greaves, C.J. & Farbus, L. (2006). Effects of creative and social activity on the health and well-being of socially isolated older people: Outcomes from a multi-method observational study. *Journal of The Royal Society for the Promotion of Health*, 126(3), 135-136.
- Kemperman, A., van den Berg, P., Weijts-Perrée, M., Uitdewilligen, K. (2019). Loneliness of Older Adults: Social Network and the Living Environment. *Int. J. Environ. Res. Public Health* 2019, 1-2. doi:10.3390/ijerph16030406
- Lazar, A. & Nguyen, D.H. (2017) Successful Leisure in Independent Living Communities: Understanding Older Adults' Motivations to Engage in Leisure Activities. *Technology Use Challenges for Older Adults CHI 2017*, May 6–11, 2017, Denver, CO, USA.
- PALVI.3 Roozen HG, Wiersema H, Strietman M, Feij JA, Lewinsohn PM, Meyers RJ, Koks M, Vingerhoets JJ. Development and psychometric evaluation of the pleasant activities list. *Am J Addict*. 2008;17(5):422-35.
- Park, N.S. (2009). The Relationship of Social Engagement to Psychological Well-Being of Older Adults in Assisted Living Facilities. *Journal of Applied Gerontology*, 28 (4), 461-481.
- Rita Maldonado Branco, Joana Quental & Óscar Ribeiro (2017) Personalised participation: an approach to involve people with dementia and their families in a participatory design project, *CoDesign*, 13:2, 127-143, DOI: 10.1080/15710882.2017.1310903
- Ritsema van Eck, J. et. al. (2013), *Demografische ontwikkelingen 2010-2040. Ruimtelijke effecten en regionale diversiteit*, Den Haag: Planbureau voor de Leefomgeving.
- Rosso, A.L., Taylor, J.A., Tabb, L.P. & Michael, Y.L. (2013). *Journal of Aging Health*, 25(4), 617-637.
- Virginia Braun & Victoria Clarke (2006) Using thematic analysis in psychology, *Qualitative Research in Psychology*, 3:2, 77-101
- United Nations, Department of Economic and Social Affairs, Population Division (2017). *World Population Prospects: The 2017 Revision, Key Findings and Advance Tables*. Working Paper No. ESA/P/WP/248.
- Wintermans, M.C., Brankaert, R.G.A. and Lu, Y. (2017). Together we do not forget: Co-designing with people living with dementia towards a design for social inclusion. *Design Management Academy Conference*. Doi: 93
- Zimmerman, M.A. (1995) Psychological Empowerment: Issues and Illustrations. *American Journal of Community Psychology*, 23 (5), 581-599.

Dans
met je hart
en voeten zullen
Volgen



in ik jong was
es ik altijd er
u Ben ik wat
ouder en stijf,
dit er wat
minder fut in

APPENDICES

In the appendices more information can be found on consent forms, protocols, transcriptions, ideation and so on. The consent forms are included without participant signatures do to privacy and ethical issues. However in the 'Methodology' section it is stated what all participants permitted for. Moreover, the protocols and transcriptions are the rough versions.