End-user requirements

Release History

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Relaxed Care Consortium

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Executive Summary

This deliverable presents the first inquiry of the end-user research process for the project RelaxedCare. The overall goal of the end-user research process is to guarantee the addressing of the true end-users during the whole course of the project. The end-user groups for this research study are split in two groups: elderly people living alone with first constraints regarding their health situation and their corresponding caregivers. The research process for the first end user requirements engineering phase is designed as a not standardized qualitative research study. The study design developed by NDU was a comparative study of seven methods of qualitative social research and design research methods. In the period between June and September 2013, the following methods were conducted with participants from Switzerland and Austria: assumption personas/personas, questionnaire, show and tell, focus group discussions, cultural probes, design workshop and contextual inquiry interviews. Each method involved 10 – 15 pairs of users (caregiver plus elderly person) for Austria and Switzerland. User-pairs were recruited by 50plus for Austria and by SRK for Switzerland.

Starting with an overall description of this deliverable (chapter 1) this document is structured in the sections research methodology (chapter 2), description of applied methods (chapter 3), execution of qualitative research methods (chapter 4), data analysis (chapter 5), discussion of results and conclusions (chapter 6) and interpretation of results (chapter 7).

Chapter 2 describes the research methodology of the study and offers an overview of the research methods utilized as well as the different phases and purposes of their appliance. Furthermore it presents information concerning the execution of the chosen methods, the data analysis and the interpretation procedure.

Chapter 3 comprises a detailed description of all seven methods applied in the first research engineering phase. Each method is first outlined on the basis of referenced literature and, in a second step, explains its specific appliance in the research study.

Chapter 4 specifies the execution of all seven research methods for the RelaxedCare first end-user research study. It presents detailed information concerning time, location and the responsible executing partner, as well as demographic data of the addressed target groups for each method and the documented single results listed for each executed method.

Chapter 5 provides an overview of the data analysis procedure of the research methods applied in the first study. Firstly it presents the results of the data preparation phase and secondly it shows the results of the evaluation procedure of all methods. In addition the chapter illustrates the meaning units originating from a coding process concerning emerging phenomena and significant statements for each user group via a phenomenological approach.

Chapter 6 discusses the results of the study and presents a list of positive and negative product criteria for the RelaxedCare system which are based on the findings of the analysis procedure from chapter 5. With regards to the findings of the study the conclusion for a combination of stationary (at home) and mobile (in use while outdoors) components for the Relaxed Care system are drawn.

Chapter 7 introduces the procedure and the output of a 4-days interpretation workshop at the NDU in October 2013 with seven students of the master programme for Innovation and Design Strategies. The workshop aimed at translating the findings of the study to possible RelaxedCare system concepts. Two concepts which emerged from this workshop finalise the description of this chapter.

The applied research methods determine to uncover relevant factors for assessing the user needs in an early stage of the project. The findings of the study shall inform technical workpackages and through this build a basis for the design and the implementation of the RelaxedCare system components later on.

1 About this Document

1.1 Role of the deliverable

This deliverable will present the end-user research process, its execution and its data analysis. The applied research methods determine the factors relevant for assessing the user needs in the early stages of the project.

User requirements gathered through the qualitative value centered approach will reveal technology acceptance factors as well as emotional, haptic and aesthetic influences that are the basis for the design and the implementation of product modules.

The results of this deliverable will feed directly into all work packages to ensure the strong user centered focus of the project.

1.1.1 Description WP2

„The objective of this work package is to investigate user's demand on aesthetics in product appearance and interaction preferences, which is a key factor for creating an emotional experience with a product or service, and to design use cases and scenarios to ensure that the system's services and products address user needs and fit into user's daily routines." (DoW RelaxedCare, p. 20)

1.1.2 Description Task 2.2

„A mix of design methods and ethnographic research methods like audio-/visual documents and materials, camera surveys with contextual interviews, perspective sorting studies, user workshops, cultural probes studies and personas will be used to identify user needs and expectations for the RelaxedCare project. Findings are used to generate scenarios (to identify the desired services, aesthetical hardware preferences, as well as what is not desirable). Beside the general system requirements, special sessions will be organized on the needs and developments for the pervasive user interfaces." (DoW RelaxedCare, p. 21-22)

1.2 Relationship to other Relaxed Care deliverables

In general the results of task 2.2 will feed into all work packages to ensure the strong user centered focus of the project.

The deliverable D2.2 is related directly to the following RelaxedCare deliverables:

Deliv:	Relation
D2.5 Use Cases and Scenarios	Based on the elaborated personas during the first research phase of the project, a certain number of specified use cases and scenarios are going to be defined for further development, esp. technological aspects.
D5.2 Concepts and Design	Those concepts which had been elaborated in the course of the interpretation workshop and additionally those concepts which emerged during the research period are discussed in this task. They provide an informative basis for further development, esp. haptic and aesthetical components.

2 Research Methodology

2.1 Introduction to this chapter

This chapter offers an overview of the research methodology applied during the first user requirements engineering phase of the project.

2.2 Research Process

In general the whole study has been created as a qualitative research study. The research process for the end user requirements engineering is designed as a not standardized qualitative research study (see Flick, 2009, p. 76). The study design was a comparative study of seven methods of qualitative social research and design research methods. In the period between June and September 2013, the following methods were conducted with participants from Switzerland and Austria: Assumption Personas, Questionnaires, Show and Tell, Focus group interviews, Cultural Probes, Design workshop and Contextual inquiry interviews.

2.3 Study Design

During the first research period in the very beginning of the project, the following set of methods have been chosen for addressing different purposes. In order to arrange the chosen methods in a consequential process the methods of the study design have been split up in five phases.

2.3.1 Study process phases and chosen methods

Phase 1: Assumption Personas - Personas

This method has been chosen to get a common understanding of both target groups (caregiver and elderly) among the team of project members of RelaxedCare. The aim therefore was to discover and scrutinize mental role patterns, models and attitudes in order to create a basis for further discussions. After the conduction of all methods during the research study the Assumption Personas were modified to create 'real' Personas referring to 'real' findings of the study.

Phase 2: Questionnaire and Show and Tell Method

These methods had been chosen to get structured impressions and insights into the everyday life of people of both target groups and their preferences in product criteria.

Phase 3: Focus group discussion and Cultural Probes

These methods had been chosen on the one hand side, to be able to discuss the findings from phase 2 directly with participants of both user groups and on the other hand to prepare a Cultural Probes package to gain insights and vital pieces of information relating to the project scope.

Phase 4: Design Workshop

The Design Workshop has been created in order to gain product criteria which are not only functional, but follow an emotional and haptic approach. Using the creative potential of the participants, this workshop had the aim to start a conversation about possibilities of product criteria.

Phase 5: Contextual inquiry interview

Contextual inquiry interviews had been used to get structured and tightly focussed information on technological items in use of everyday life, addressing especially the technological devices and motivations of its usage in everyday routine of both user groups, as well as to get information about possible usage of technological devices for care situations.

2.3.2 Execution

All methods applied during the first research period have been executed in Austria and Switzerland, except "Show and Tell Method", "Questionnaire" and "Design Workshop", which took place in Austria only.

The entire study was designed by NDU, who executed furthermore "Assumption Personas", "Show and Tell Method" and "Design Workshop".

Austrian user-partner 50plus Centre executed the methods "Questionnaire", "Focus group discussion", "Cultural Probes" and "Contextual inquiry interview".

Swiss partners SOUL and SRK executed "Focus group discussion", "Cultural Probes" and "Contextual inquiry interview".

This first research period lasted from June to September 2013. A total of 207 test persons of both user groups, composed of 155 females and 52 males, participated in the study.

2.4 Data preparation, analysis procedure and evaluation

This chapter is due to offer an overview of the data analysis procedure of the qualitative research methods applied in WP 2. For the analysis of the vast material collected during the qualitative study with seven methods first the evaluation methods AEIOU (A = Activities, E = Environments, I = Interactions, O = Objects, U = Users), Affinity Diagramming, Word Clouds and Cross Cultural Comparison had been applied. All evaluation methods have been operated by IHL in Switzerland.

After the material was thus prepared a phenomenological approach was chosen for the evaluation of all results originating from the methods applied by NDU. The analysis process started with a coding process, meaning the organization of the collected material to segmenting sentences and categories which means to analyse the material concerning phenomena and significant statements for each user group (caregiver and elderly) in order to create meaning units. (see Creswell, 2009, p. 186)

The coding process was conducted using the following questions (see Flick, p. 167-172):
- What? What is it about? Which phenomenon is addressed?
- Who? Which persons or users are involved? In which way do they interact?
- How? Which aspects of the phenomenon is addressed or not addressed?
- When? How long? Where? Time, course and location.
- Why? Which reasons are mentioned or offer the possibility to be opened up?
- What for? For what purpose or intention?
- With what? Means, tactics and strategies to reach the goal.

After the coding process into meaning units a matrix was created for each method to offer an overview of the overall results.

2.5 Interpretation Procedure

The interpretation of findings was effectuated during a specific interpretation workshop with a group of students from the NDU master course for Innovation and Design Strategies in October 2013. Based on the created matrix of all seven methods applied, the students were working in groups to develop a set of scenarios which led them subsequently to the finalization of two product concepts.

2.6 Summary of the chapter

The aim of chapter 2 is to describe the research methodology applied for the first user requirements engineering phase in WP2. Starting with an introduction to the research methods utilized and the different phases and purposes of their appliance the chapter introduces then the participating partners, offers information for the study periods and the locations of the research execution. It explains the data analysis procedure consisting of four evaluation methods whose results led to a coding process which resulted in a matrix for each method presenting meaning units gained through a phenomenological approach. Finally Chapter 2 points out the conclusive interpretation phase.

3   Description of applied methods

3.1   Introduction to this chapter

This chapter will describe each of the seven methods which had been applied during the first research period from June to September 2013.

3.2   Assumption Personas - Personas

Personas are archetypal users and should help the members of a product development team to focus on *real* people (i.e. real users from the target group) during a (product) development process. Personas are used to identify goals and needs of users in a specific product and use context. (see Cooper, 1999)

Personas give *faceless* data material from quantitative and qualitative studies, data from market studies, field studies and focus groups an *archetypal* face. The use of data from market surveys and statistics often result in a personally structured priority list in the minds of each member of the development team. The aim of the Personas method is to prevent this by facilitating and reinforcing the focus on the project and the communication among the members of the development team on the generated personas.

Since the conventional personas method is very time consuming in its application and may last for several years to be completed (see Pruitt & Adlin, 2006), the orientation on the approaches of 'Assumption Personas' (see Adlin, 2011) and 'ad-hoc personas' (see Norman, 2011) leads to faster results. In general data collected from semi-structured interviews can additionally be used as a basis for the development of 'mash-up' characteristics of the personas which are going to be developed.

3.2.1   Assumption Personas - Personas – Application

In order to evaluate the understanding and definition of the target groups (caregiver and elderly) among all partners involved in the project the occasion of the first consortiums meeting in June 2013 was used to hold an assumption personas workshop to identify different mental models. NDU as moderator of the workshop invited all partners to first write down their ideas and attitudes as well as information concerning the target groups in terms of age, technological affinity and preferred activities on sticky notes. These notes were used afterwards to uncover different points of view, to start a discussion and to finally define personas (female and male) of both target groups which should be addressed in the project. After the conduction of all methods during the research study the Assumption Personas were modified to create 'real' Personas referring to 'real' findings of the study.

3.3   Questionnaire

A questionnaire consists of several questions to which test persons have to answer individually and independently in a written way. It is a research method which requires a highly structured content and renounces any influence by an interviewer. (see Bortz & Döring, 2006, p.252)

3.3.1 Questionnaire – Application

The questionnaire was created based on the idea to collect information on preferred free time activities, preferred objects and preferred places at the homes of the target group of the elderly. The aim of the survey was, to get in an early stage of the research phase a first impression and ideas about fun-causing activities, favourite objects and the places at home where the persons of our target group prefer to stay.

The questionnaire was distributed on June, 17th, during the summer-event of 50plus in Grossgmain near Salzburg.

The following questions have been asked:

Question 1: What do you enjoy the most?
Question 2: What is your favourite object at home?
Question 3: Where do you prefer to linger at home?

The goal of this research method was to identify objects of everyday life which people carry with them when leaving home and their motivation to do so. Those findings may serve as an input for designers to create new solutions or enhance existing objects in use with the overall goal to create meaningful products for the RelaxedCare system.

3.4 Show and Tell Method

Based on Curedale (2012), who applies 'Show and Tell' as an Ice Breaker during design workshops, in case of the RelaxedCare research, this method is defined as an oral down-to-earth interview technique which can be executed in any location. Persons belonging to the target group are asked to present objects they carry with them in their bags. Only those objects are presented that people like to show voluntarily. Each object which is shown is described and marked by the interviewer. Background-stories and motivation for carrying certain objects are able to be discovered by asking more detailed questions.

The goal of this research method is to identify objects of everyday life which people carry with them when leaving home and their motivation to do so. Those findings may serve as an input for designers to create new solutions or enhance existing objects in use with the overall goal to create meaningful products for the RelaxedCare system.

3.4.1 Show and Tell – Application

The Show and Tell Method was executed on June, 17th, during the summer-event of 50plus in Grossgmain near Salzburg. People were asked to present voluntarily the content of their bags, revealing the objects they carried with them. The participants were requested to put all objects they wanted to present on the table and to explain what and why they carry those objects with them.

3.5 Focus group Discussion

Focus group discussions are a qualitative method to gauge the opinions, feelings and attitudes from a group of carefully recruited participants. Focus group discussions, guided by a skilled moderator, can create a group dynamic that provide insight into themes, patterns and trends. In a

peer setting participants are more likely to share experiences, stories, memories, perceptions, wants and needs. (see Lamnek,2010, p. 372-420)

3.5.1 Focus Group Discussion – Application

The goal of the focus group discussion was to provide more insight regarding the following design-related inquiries:

- Find out what is not desirable about the current state
- Find out needs and desires about care situations
- Uncover the underlying emotions of participants
- Understanding constructs and mental models of group members
- Understanding interaction and communication with family members and friends
- Understanding care and health situations

Participants of the target group **"assisted persons"** (=elderly) discussed the following topics:

Issue 1: Communication in general

Question 1: How do you communicate with your family members/friends? Which kind of tools of communication do you use?

Issue 2: Communication of health problems

Question 2: How did you deal with a health issue in the past? Did you inform your family members/friends? How much information about your state of health do you want to provide to your family members/friends?

Issue 3: Past and present experiences during care

Question 3: Who takes care of you if you need help? Which kind of help is mainly used (visit, phone call, arrange appointments)?

Issue 4: Ideas and wishes, how care could be improved

Question 4: How should your family/friends deal with your health problems? What would give you a feeling of security in case of health problems? Do you have any idea in which way the situation could be relieved?

Participants of the target group **"caregiver"** discussed the following topics:

Issue 1: Communication in general

Question 1: How do you communicate with your family members/friends you take care of? Which kind of communication tools do you use currently?

Issue 2: Communication of health problems

Question 2: How did you react to a health issue of a family member/friend in the past? In this context which information was/is important to you? How did you wish to receive this information?

Issue 3: Past and present experiences during care

> **Question 3:** How do you take care of family members/friends, when they need help (selective care or long-term care)? Which kind of help is it (visit, phone call, arrange appointments)? How does it change your everyday life experience, when family members/friends need help or support from you? Have you ever been in such a situation? If it happened again, would you act the same way? Or would you change anything? Where there any learning effects from this situation?

Issue 4: Ideas and wishes, how care could be improved

> **Question 4:** How would you like to handle a health problem of family members/friends? What would improve your feeling of security, if your family members/friends have health problems?

3.6 Cultural Probes

Cultural Probes are provocative packages given to participants to get insights in their daily live, environments, thoughts and interactions by putting diverse questions and by asking the participants to perform certain tasks within a defined period.

Cultural Probes consist of any materials designed to inspire people to thoughtfully consider personal context and circumstances, and respond to the research team in unique ways facilitated by the provocations. Several artefacts such as disposable cameras, maps and daily journals build the components of the package for the participants, characterized by its casual and informal appearance and are created to inspire delight and respect, response and return.

Defined as an exploratory research method, cultural probes are intended to serve as an inspiration to identify key patterns and themes that might emerge from the group of participants and may be used as elements to inspire proposals for future product possibilities and design solutions. (see Martin & Hannington, 2012, p. 54-55)

3.6.1 Cultural Probes – Application

The Cultural Probes package consisted of the following tasks:

1. Diary during a period of seven days: Notes of each day, such as activities, pleasures and burdens of daily living, ways, meetings, way of communication, preferences in communication, use of products, reasons for using products, functionality of products, thoughts and ideas.
   Pictures: daily picture of things which accompany test persons when leaving home and a description of the reasons why those things are being taken along.
2. Living space: Drawing of the floor plan of their flat or house
3. Favourite place at home: Picture and description of the aspects that make a place to a favourite one.
4. Favourite thing at home: Picture and description of the aspects that make a thing to a beloved one.
5. Hated thing at home: Picture and description of the aspects that make a thing to a hated one.

6. Talisman: Picture and description of the personal bond to a talisman (if owned) and the place where it is located.
7. Notes

3.7 Design Workshop

Design Workshops are characterized by their participatory approach. Projecting techniques such as collages, mapping or diagramming help to understand the world of users and to figure out implications for possible design solutions. (see Martin & Hannington, 2012, p.62-63)

3.7.1 Design Workshop – Application

The purpose of the Design Workshop was to crystallize emotions, feelings, bonds and haptic preferences related to objects. Therefore the Design Workshop consisted of three sessions addressing:

• Subject – Object Relationship
• Picture-Word Cards/Collage
• Love/Hate Thing

Subject – Object Relationship

This method examines the individual relation between persons and certain objects. By the use of the method *Brainstorming* participants were asked to list product criteria according to the following five categories: Love-Tell-Use-Stage-Hate.

Love: Which criteria do you love about daily objects?

Tell: Which objects in your personal environment are precious for you because they tell a story (about you)?

Use: Which objects in your personal environment do you use in a special manner? Are there any objects you use in a different way as initially planned by the designer/producer?

Stage: Are there any objects you stage, not because of their function but because of their aesthetical appearance? Are aesthetics of an object important to you?

Hate: Which objects in your personal environment do you hate and why do you hate them?

For each aspect the participants had to note three terms upon coloured cards, each aspect had a different colour and so had the cards, corresponding to the respective aspect. After having found three terms for each aspect, the participants put their output on the correspondent sheet and explained their findings. The result was a five-part and five-coloured collection of product criteria answering the five questions/aspects.

Picture-Word Cards/Collage

Based on the method Picture Cards described by Martin & Hannington (2012), this task is constituted in building a collage from a provided collection of words and images and to argue the individual choice. Collages potentially illustrate peoples´ understanding and perception of issues and help them verbalize complex or unimagined themes.

Participants received 20 different words related to the term „Joy" and 20 different words concerning the term „Relax". They furthermore received 20 different pictures concerning the term „Joy" and 20 different pictures concerning the term „Relax". For each case (e.g. „Joy" and „Relax") the participants had to choose 5 words and 5 pictures which expressed their personal affinity to „Joy" and „Relax" the most. Out of the chosen words and pictures each participant had to create two collages, one for "Joy" and one for "Relax".

Love/Hate Thing

Based on the method Love-Letter and Break-up Letter described by Martin & Hannington (2012), the third session consisted of the presentation of a beloved thing and a hated one. In the preparation for the Design Workshop the participants were requested to bring along a personal object from home which they like the most/like to use it/to which there is a particular relationship.

It was requested furthermore that the participants bring along an object from home which they dislike or do not like to use at all, for what reason ever. In case they were too big to be transported, participants could also bring along a picture to the workshop.

We took two pictures from each participant, one with his/her beloved thing and one with his/her hated thing and noted the background for those attitudes.

3.8 Contextual Inquiry Interview

The contextual inquiry interview is a method within the realm of open, semi-structured interviews. The interview concentrates on defined formulation of questions or problems which have to be analysed in a first step. Following the elaboration of certain aspects, several guideline questions are created, which are applied during the interview situation. This guideline should encourage test persons to comment on the defined questions and problems without constraints nor predefined alternative answers. (see Mayring, 2002, p. 67-109)

3.8.1 Contextual Inquiry Interview – Application

The application of the contextual inquiry interview should result in tightly focussed information on technological items in use of everyday life, addressing especially technological devices in terms of functionality, usability and motivations of its usage in everyday routine of both user groups. Another aspect was to get information about possible usage of technological devices for care situations.

After the execution of the first two interviews in Austria, the emerging need to add further questions appeared, therefore questions 9 – 19, which address the different user-groups in different ways, were subjoined to the guideline. Those questions have been drawn up by NDU in cooperation with SOUL and 50plus.

Table 1: Focus group questions for both user groups

Number	Questions	Participants
1	Which kind of technological devices do you own ?	Elderly, Caregiver
2	Where are the mentioned devices positioned in your home ?	Elderly, Caregiver
3	For what kind of reason do you use these devices?	Elderly, Caregiver

3a	What exactly works well and why?	Elderly, Caregiver
3b	What exactly does not work well and why?	Elderly, Caregiver
4	What do you like best concerning these devices ? Why ?	Elderly, Caregiver
5	What do you not like at all concerning these devices ? Why ?	Elderly, Caregiver
6	Does somebody else in your household/ surrounding uses these devices as well?	Elderly, Caregiver
7	With whom do you communicate via the devices you mentioned ?	Elderly, Caregiver
8	Are there any additional devices you would like to have or take with you, when you are leaving home? For which purpose would you like to use them and why?	Elderly, Caregiver
9	Please imagine you are leaving home. Can you imagine carrying devices with you which are sending and receiving messages/information ? What kind of message/information could that be? How could they be sent/received (acoustically/visually/haptic)?	Elderly, Caregiver

Table 2: Focus group questions elderly only		
Number	Questions	Participants
10	Is there any item in your home which supports you in everyday life? E.g. canes, walker/rollator	Elderly
11	In which cases or situations do you need help?	Elderly
11a	Would you like to talk to your relatives in such cases?	Elderly
12	How important is it for you that your caregiver is informed of your state of health constantly without passing by? For what reason would you like/dislike this? Why?	Elderly
13	Have you ever been in situations where you had severe health problems and you couldn´t react anymore? If yes, who or what helped you? What else could have helped?	Elderly
14	What makes you feel secure in everyday life? Are there any devices, signs or particular kinds of communication that you arranged with your relatives in case of emergency?	Elderly
15 CH only	Do you already use technical aids e.g. emergency call from Swiss Red Cross (wristband, necklace, mobile phone or NEMO/GPS capable emergency call)? Is its function sufficient? What is missing?	Elderly
15 AT only	Do you already use technical aids e.g. emergency call from Red Cross or Samariterbund (wristband, necklace, mobile phone or NEMO/GPS capable emergency call)? Is its function sufficient? What is missing?	Elderly

Table 3: Focus group questions caregiver only		
Number	Question	Participant
16	How do you currently get notice if the person you take care of is not well?	Caregiver
17	Do you currently use a kind of report/alarm system to create your care situation more secure? (e.g. if curtains are not raised, a neighbour will alert you; a defined objective is moved regularly for neighbours realize that everything is alright)	Caregiver

| 18 | How do you feel about your current care situation? | Caregiver |
| 19 | What could relieve your personal care situation ? | Caregiver |

3.9 Summary of the chapter

Chapter 3 contains a detailed description of all seven methods applied in the first research engineering phase. Each method is first outlined on the basis of referenced literature and, in a second step, explains its specific appliance in the research study.

4 Execution of qualitative research methods

4.1 Introduction to this chapter

Chapter 4 describes the execution of all seven research methods for the RelaxedCare study. It presents detailed information concerning time, location and the responsible executing partner, as well as demographic data of the addressed target group for each method.

4.2 Assumption Personas - Personas

The method of Assumption Personas was conducted in order to reach a common understanding of both target groups (caregiver and elderly) among the team of project partners. On the occasion of the first consortium meeting from 3rd to 4th June 2013 all attendant project team members were invited to take part in the Assumption Personas workshop with the aim to create for each target group a male and a female Persona. The goal was to initiate an intensive discussion and to conjunctly create material for reflection during the entire development process. After the conduction of all methods during the research study the Assumption Personas were modified to create 'real' Personas referring to 'real' findings of the study and are presented in chapter 5.3.1.

4.2.1 Assumption Personas - Participants

Only attending project team members took part in the creation and discussion of Assumption Personas.

4.2.2 Assumption Personas - Procedure

At the very beginning of the Assumption Personas Workshop, all project team members agreed on developing two pairs of end-users, each pair consisting of a female and a male Persona.

In the first step the conjunctly development of Assumption Personas consisted in the collection of terms answering a range of different coloured questions. For each end-user pair (i.e. one pair of elderly 70+ and one pair of caregiver) participants had to write down one key word for each topic on an appropriate coloured sticky note corresponding the following classification:

- PERSONAL BACKGROUND
    - Age
    - Gender
    - Family status
    - Living area (urban / rural)
- OBJECTS THEY INTERACT WITH
    - With which technological objects of everyday life do they like to interact with?
    - Why?
- SOCIAL CONTACTS
    - How large is their social network?
    - How do they get in contact with their family and friends (socializing patterns)?
- HEALTH STATUS
    - Do they need any daily medication?
    - Do they have any limitations?

Afterwards the material for each topic was sorted and in the course of a discussion keywords for the personas were selected commonly. Personas were given names as well.

Figure 1: Assumption Personas: Male and female outline of the target group "Elderly 70+"
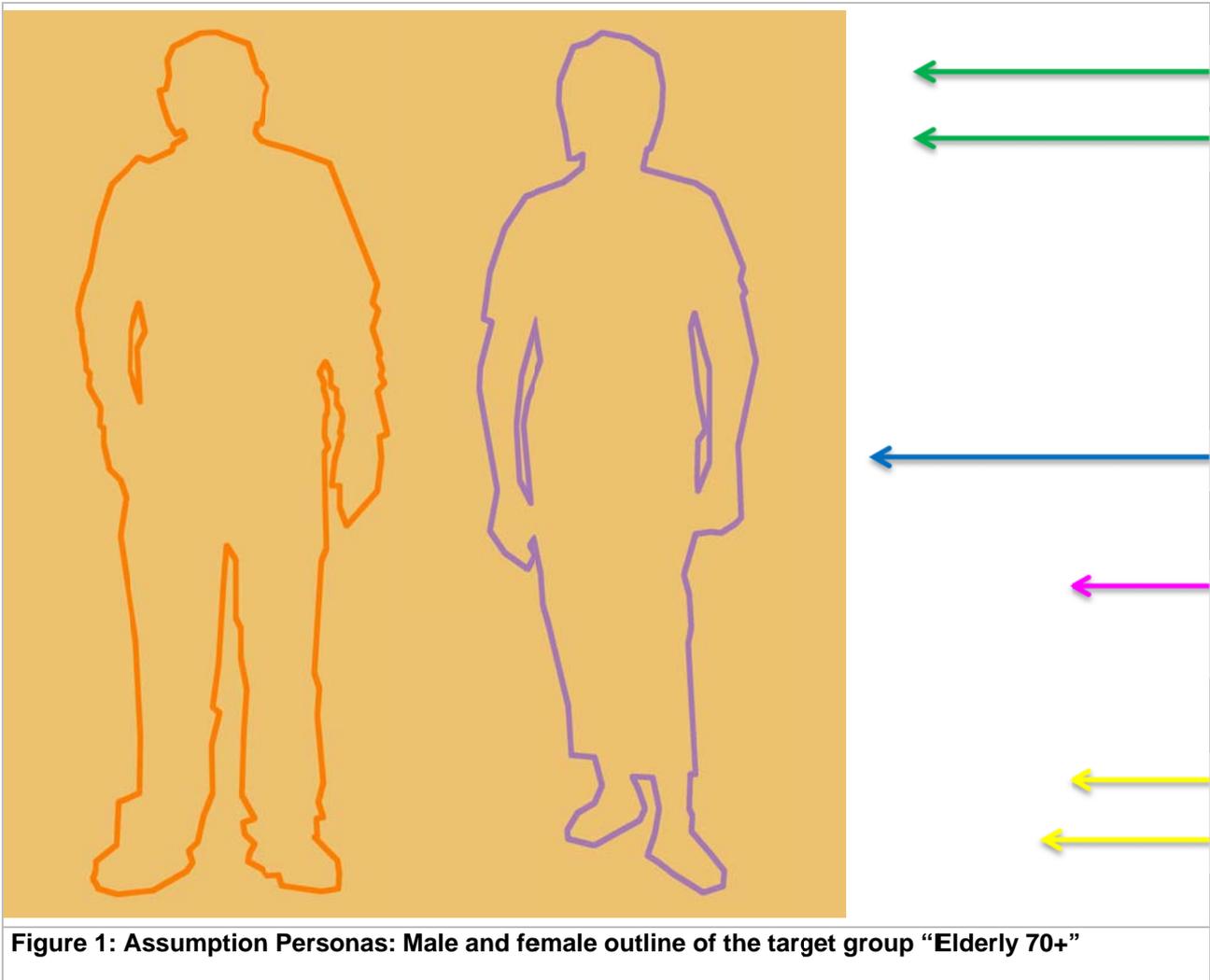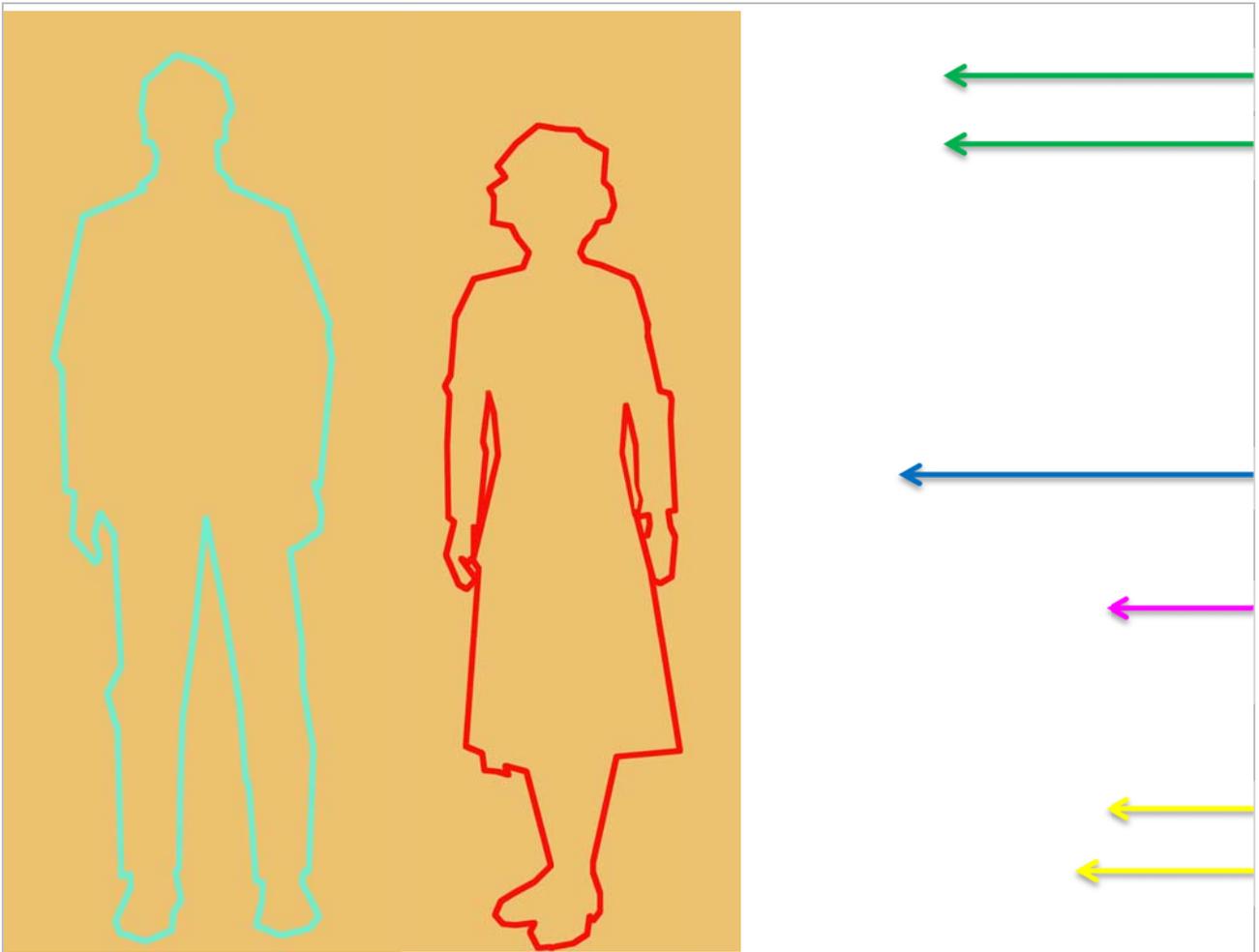
Figure 2: Assumption Personas: Male and female outline of the target group "Caregiver"

Figure 3: Assumption Personas: Collection and sorting of terms

4.2.3 Assumption Personas - Results

The former anonymous target group of which the project was talking about initially, after having passed a common creation process, as a result showed specific demographic data, had names and defined social interactions and the project team knew about their state of health, their use of technology and preferred objects.

4.2.3.1 TARGET GROUP – ELDERLY 70+

Franz

Franz is 75 years old, married, lives with his wife and one cat in the countryside and has one son living abroad.

As Franz used ICT in business life, he has a certain ICT affinity and uses a tablet PC and a Smartphone.

He uses Skype and is in contact with his small family and his many friends.

Concerning his state of health, he is still fit and doesn´t need any medication.

Hildegard

Hildegard is an 85 years old widow, she lives alone in a house in the city, has 2 kids and 5 grand childs and no pets.

She has no high-tech affinity, she just uses her landline phone. There is personal contact with her large family, her friends are passing away one after another.

Several times a day she needs her drugs.
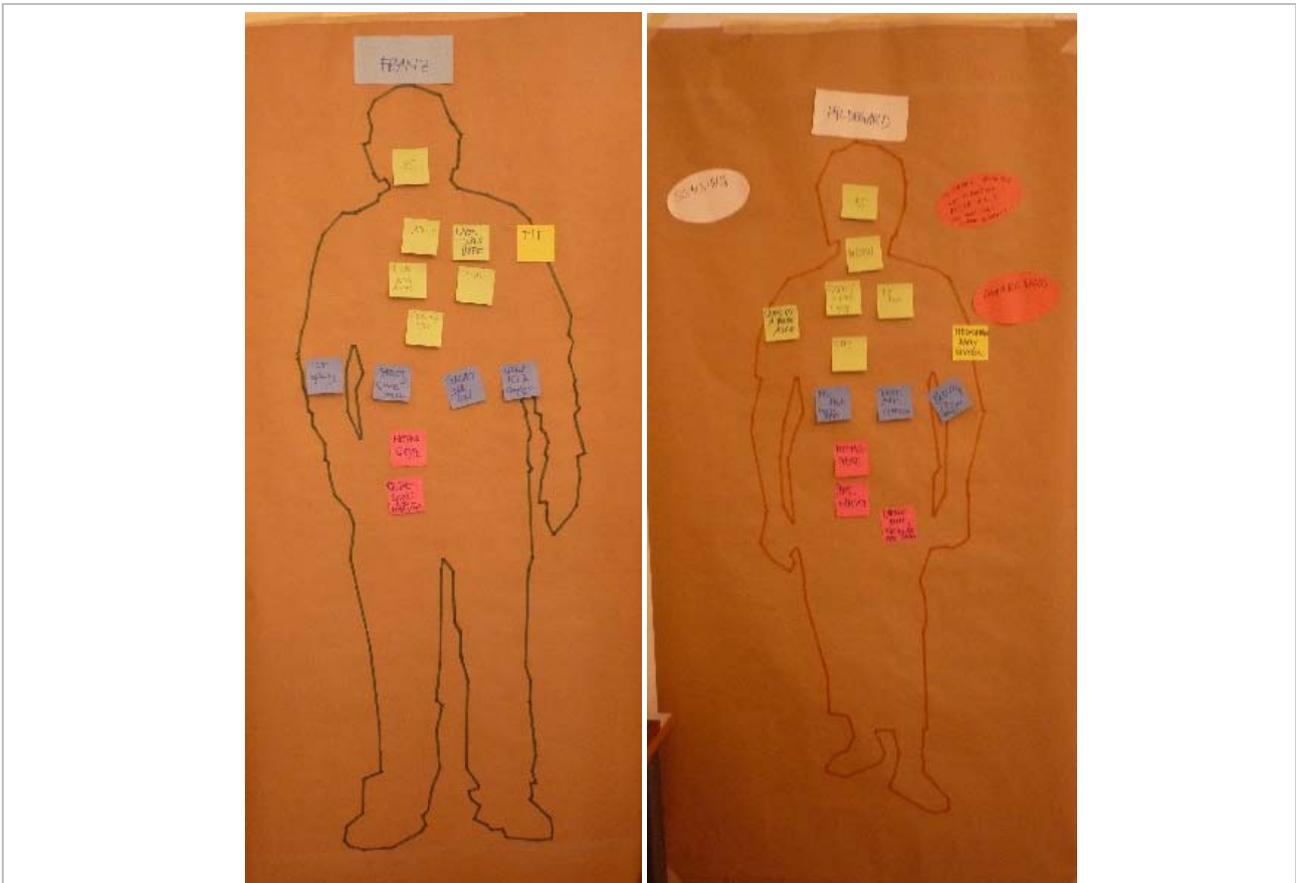
Figure 4: Assumption Personas Elderly 70+: Franz and Hildegard

4.2.3.2 TARGET GROUP – CAREGIVER

Juan

Juan is a 30 years old single with 1 kid, he lives in a flat in the city. He is the grandson of Hildegard.

As a very high-tech type he is also well connected.

Juan is smoking.

Elisabeth

Elisabeth is a 50 year's old married woman who lives with her husband and her two kids in a house in the city. She is the daughter in law of Franz.

Elisabeth is a high-tech type and is well connected.

She has problems with her eyes.
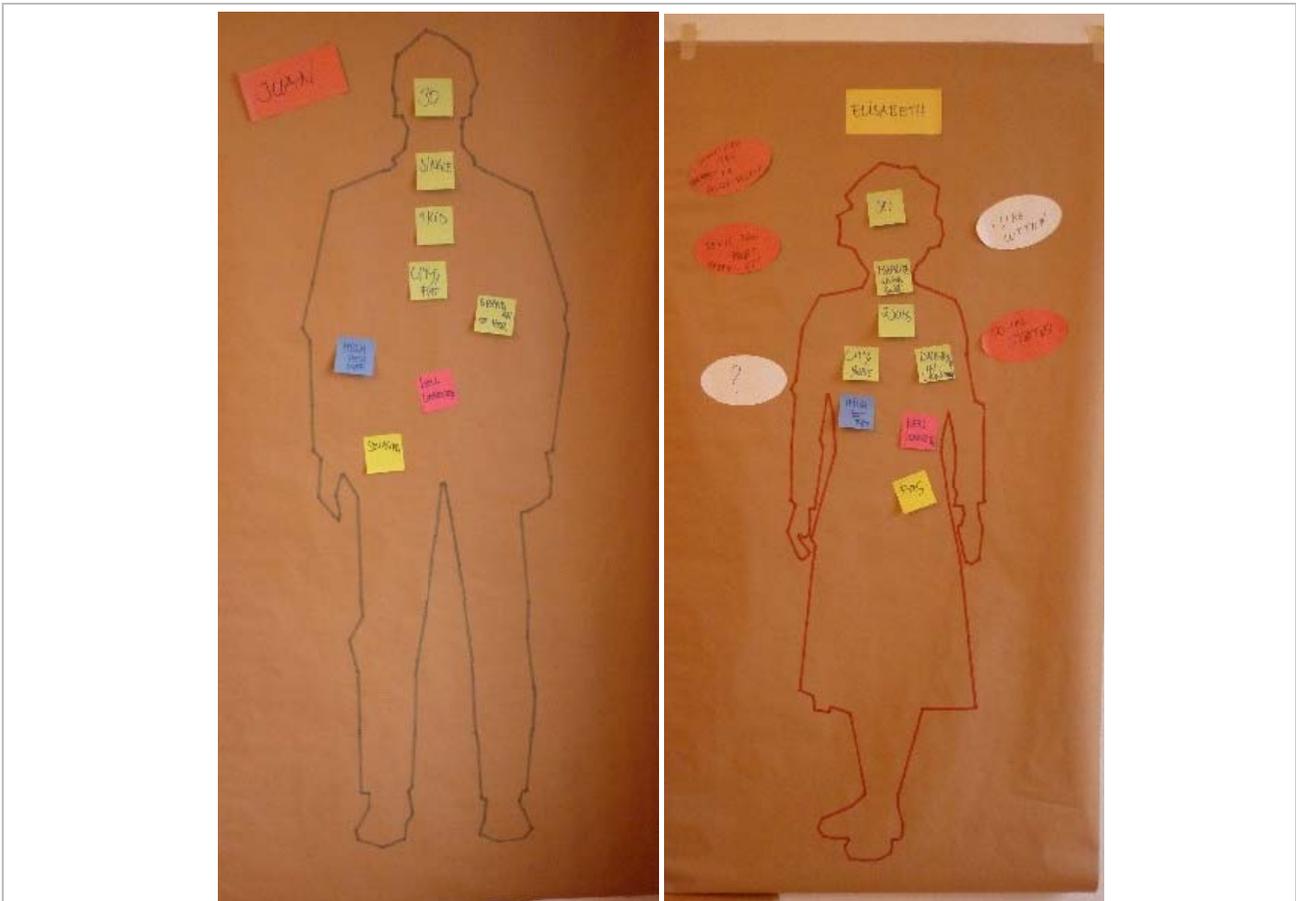
Figure 5: Assumption Personas Caregiver: Juan and Elisabeth

Assumption Personas served as a fundamental basis for further discussions during the first consortiums-meeting in June.

Figure 6: Discussion on possible options of the project

4.3 Questionnaire

The method Questionnaires was executed on the occasion of the summer-event of 50plus and other associations in Großgmain near Salzburg on the 17th of June, 2013. The creation of the questionnaire was done by NDU in cooperation with 50plus, who distributed the questionnaire during the summer-event.

4.3.1 Questionnaire - Participants/Demographic Data

134 participants from Austria, 96 females and 38 males, answered the questionnaire. The majority of the participants belonged to the target-group elderly as mainly elderly, already retired persons had been invited to this summer-event.

4.3.2 Questionnaire - Procedure

When arriving at the summer-event, the guests were asked to participate in the research study for RelaxedCare and received a questionnaire. The short and simple questionnaire could be answered immediately at the information stand of 50plus in only a couple of minutes. The participants who filled in the questionnaire took automatically part in a tombola which offered them the chance to win some nice prizes.

Figure 7: Participants filling in the questionnaire

4.3.3 Questionnaire - Results
The three questions the participants had to answer showed the following results:

Question 1: What do you enjoy the most?
In general, most of the participants answered broadly similar, only a few persons replied in a different way. There was an evidence of two favourite activities, namely travelling and hiking, which were chosen by 16 out of 134 people. The other hobbies or leisure activities are divided into reading, working in the garden, driving by train or activities with the family especially with grandchildren. In conclusion it is clearly indicated that the majority enjoy outdoor activities.

Question 2: What is your favourite object?
Two main directions can be verified concerning this question, the kitchen, which was chosen by 16% of the participants, and the garden, which was chosen by 15% of the participants. Further answers ranged from flowers, beds and couches to books.

Question 3: Where do you prefer to linger at home?
Only 41 % of the participants prefer the garden, including also balcony, terrace or sun places on the balcony. 28 % of the persons state that the living room is the preferred place to stay at home. About 16% prefer to be in the kitchen, other favourite places at home are mentioned just once, such as the beer-cellar or the sewing machine.

4.4 Show and Tell

The Show and Tell method was executed on the occasion of the summer-event of 50plus and other associations in Großgmain near Salzburg on the 17th of June, 2013, by NDU.

4.4.1 Show and Tell - Participants/Demographic Data
All in all 7 persons from Austria took part in this research method, 5 female and 2 male. The majority aged 70+, 1 female and 1 male aged 60+, and one female participant was 30+ years old.

4.4.2 Show and Tell - Procedure
The interviewer asked persons who were guests at the summer-event to present things they carried with them in their bags. Volunteers were indicated to present only those things they liked to show.

Each single piece was put on a table, described upon a sticky note and afterwards test persons explained background reasons and stories.

As this research method was held during a summer-event, the atmosphere was extremely relaxed, the setting comfortable and people in a good mood. When being interrogated, people were always in company, which fostered other people of the respective group to present the content of their bag as well.

4.4.3 Show and Tell - Results

The following pictures show the outcome of the Show and Tell method with seven participants.

Figure 8: Test Person 1, female, left; Test Person 2, male, right

Figure 9: Test Person 3, female, left; Test Person 4, female, right

Figure 10: Test Person 5, female, left; Test Person 6, female, right

Figure 11: Test Person 7, male

Each and every test person carried a wallet which is indicated to be a „must" when leaving home. Handkerchiefs, keys and mobile phones were each frequently mentioned. In three of four cases, the keys were attached on a key ring together with the car key. In one case the test person carried one key only, this one again belonged to a key ring.

Glasses including their respective case were taken along by three probands. Two probands carried a pen and a note pad for taking notes with them and as well sweeties and a cosmetic bag were presented twice.

There were single countings for a deodorant, a comb, a patch, a spot pen and a mirror, all of these items could present the content of a cosmetic bag as well. Furthermore driving license, talisman, scarf and a shopping bag were mentioned once.

The following table presents an overview of the detailed results.

Table 4: Listing of objects test persons carried in their bags

Object	Counts	Comments
Wallet	7	
Handkerchiefs	4	
(Car)Keys	4	Once with a special pendant which tells a personal story and evokes specific connotation
Mobile Phone	4	One person doesn´t present her mobile phone but tells the interviewer to have one with her
Glasses	3	
Pen	2	For inspiring thoughts and for memorizing
Note pad	2	
Sweeties	2	
Cosmetics and drugs in a cosmetic bag	2	
Deodorant	1	
Comb	1	
Patches	1	
Spot Pen	1	
Photo Camera	1	
Mirror	1	
Driving License	1	
Talisman	1	
Scarf	1	
Shopping bag	1	

Although mentioned only once, there has to be accentuated an important detail which was remarkable when talking about the talisman with a proband. Interviewers noticed a special emotional bond between the relevant test person and the talisman which initially was a present from the test person´s aunt in former days. The test person in her now 70ies has been carrying along this present since she was a teenager and still never leaves home without it.

Another personal story was told by the test person who carried a specific key pendant attached to his car key. The picture on the pendant shows a specific train from his hometown and as he often went by train in former days, certain occurrences arouse in his mind when he is looking at it.

Figure 12: Talisman and Key pendant

4.5 Focus group discussion

Three focus group discussions have been executed. The first one was conducted by 50plus GmbH on the 11th of July, 2013 from 14.00 - 15.30 (1.5 hours) in the 50plus Centre in Salzburg (AT). The other two focus groups took place on the 18th of July, 2013 from 09.45 - 11.15 (1.5 hours) in Lucerne (CH) and were executed by Soultank AG with support of the Swiss Red Cross (Lucerne).

Altogether 10 elderlies and 11 caregivers were interviewed. The average age of the elderlies participating in the sessions was 77 years, the average age of the interviewed caregivers was 66 years. The average age of caregivers does not include three participants from Switzerland because of the lack of available data concerning age.

Due to the fact that during the summer period no participants for the focus group discussions with the elderlies could be recruited in Austria only the discussion with caregivers took place.

4.5.1 Focus group discussion - Participants/Demographic Data

Table 5: Demographic Data of Focus Group 1 and 2/Caregiver from Austria and Switzerland

Participant	Age	Gender	Family Status	Occupation	Care of	Care Situation	Country
A-C-1	61	female	married	retired	Mother	Mother lives a few miles away, contact only via telephone possible. Mother refuses any help.	AT
A-C-2	72	female	married	retired	Husband	Husband suffering from Parkinson's disease, lives in the same household. Has fallen during a routine examination at the hospital, there he stays currently after a short coma period, output unclear	AT
A-C-3	62	female	married	retired	Mother	Took care of her mother	AT

A-C-4	62	female	divorced	retired	Mother	Took care of her mother for several years	AT
A-C-5	67	female	divorced	Part time job	Mother	Took care of her mother for several years	AT
A-C-6	75	male	married	retired	Wife	Takes care of wife suffering from Parkinson´s disease. Fell down the stairs in spring, since then (after long time in hospital) 24hours care at home.	AT
A-C-7	67	female	divorced	retired	Mother	Took care of her mother and her mother in law	AT
A-C-8	63	female	married	retired	Mother	Took care of her mother	AT
CH-C-1		male	-	-	Neighbour	-	CH
CH-C-2		female	-	-	Partner	-	CH
CH-C-3		female	-	-	Departed mother	-	CH

Table 6: Demographic Data of Focus Group 3/Elderly from Switzerland					
Participant	Age	Gender	Health Problems	Care Situation	Country
CH-E-1	76	female	-	Lives on her own in an apartment for elderly with emergency function	CH
CH-E-2	62	male	Had two acute emergencies, now health situation is stable	Lives with his wife	CH
CH-E-3	80	female	-	Lives on her own in her own apartment in a 7-flat building	CH
CH-E-4	85	female	-	Lives on her own	CH
CH-E-5	83	male	-	Lives 8 months per year with daughter in house and 4 months per year on his own in an apartment in CH	CH
CH-E-6	77	female	Was four months in hospital, now back home, lives without everyday help	Lives on her own in her own apartment in a 7-flat building, once a week a caregiver from Visiting Service Central Switzerland ("Besuchsdienst Innerschweiz") visits	CH
CH-E-7	65	female	Had apoplectic stroke, now partly disabled, uses walking frame	Lives on her own in an apartment, has household help	CH
CH-E-8	67	male	Cancer of throat, tracheotomy, now electronic speech aid	Lives with life partner	CH
CH-E-9	93	female	Debility of sight (makula), light striation	Lives on her own in a house, daily care from family	CH
CH-E-10	77	female	-	Lives on her own in her own apartment in a 6-flat building	CH

4.5.2 Focus group discussion - Procedure

The goal of the focus group discussion was to provide more insight regarding the following design-related inquiries:

- Find out what is not desirable about the current state
- Find out needs and desires about care situations
- Uncover the underlying emotions of participants
- Understanding constructs and mental models of group members
- Understanding interaction and communication with family members and friends
- Understanding care and health situations

Therefore each focus group had the task to discuss questions concerning the following realms (for detailed questions see chapter 3.4.1):

Issue 1: Communication in general

Issue 2: Communication of health problems

Issue 3: Past and present experiences during care

Issue 4: Ideas and wishes, how care could be improved

Due to certain circumstances (time, high number of participants, age) unfortunately the focus groups didn't answer all questions entirely.

Figure 13: Focus group discussion: Caregiver, Austria

Figure 14: Focus group discussion: Caregiver, Switzerland

Figure 15: Focus group discussion: Elderly, Switzerland

4.5.3 Focus group discussion - Results

The results of the focus group discussion of the group of the caregiver show a combination of the results from Switzerland and Austria except for explicit indications. The results of the group of the elderly refer to the focus group discussion in Switzerland. To capture the overall theme a visual overview based on the results of all focus group discussions of both user groups has been created in form of a mind map. Some resulting major issues shall be described in the following.
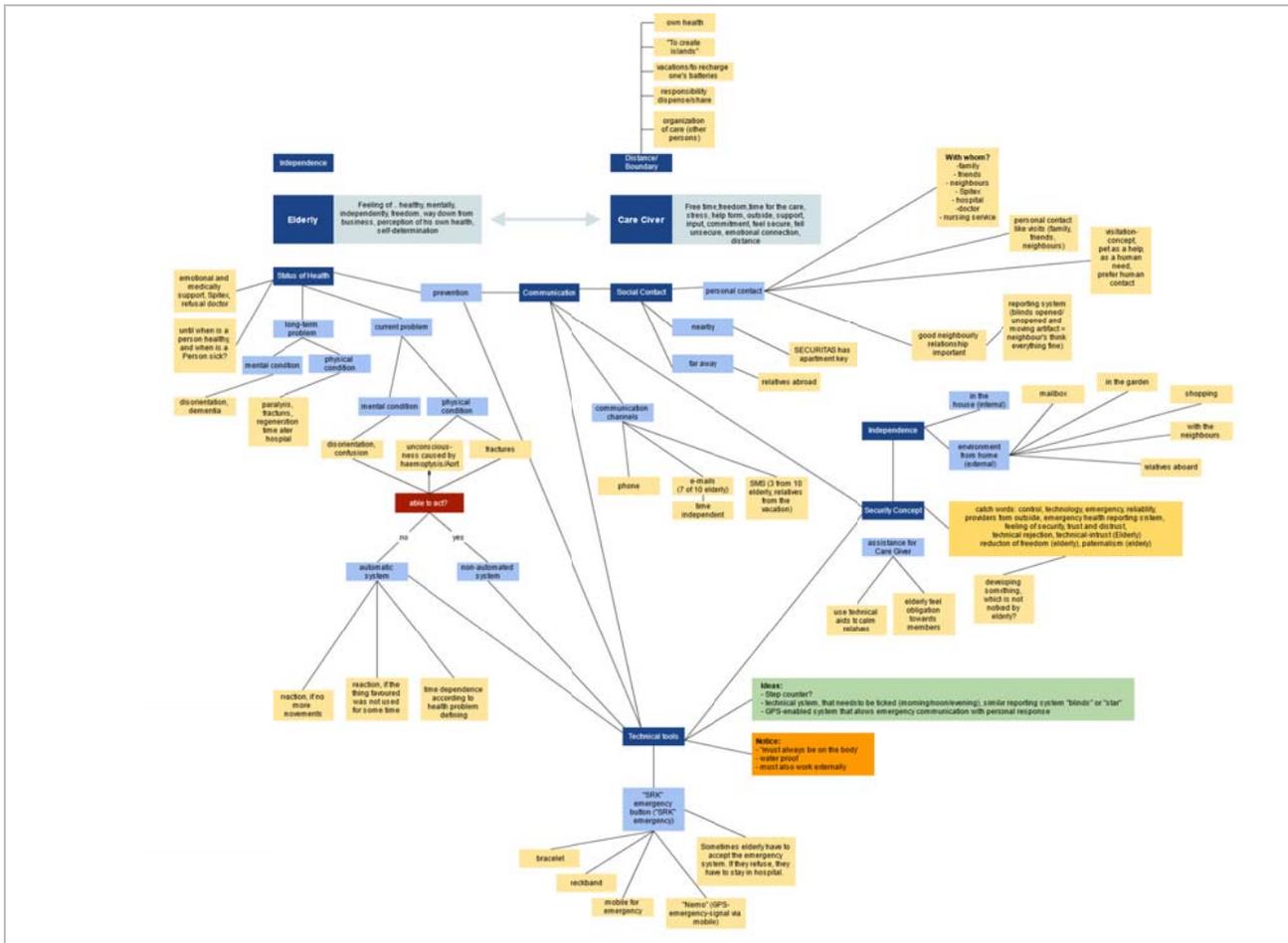
Figure 16: Focus group discussion: Mind map of Findings

4.5.3.1 Results Communication channels

The following sub-chapter presents summaries of the focus group discussions for the group of the elderly and the group of the caregiver.

ELDERLY

In addition to personal contact (face to face) with family, friends, neighbours, Spitex and nursing service, which occupy the major part of their communication, the landline phone is the most common way for communicating. Receiving visits is very important for all elderly test persons. 7 out of 10 elderly actively write e-mails to friends and family members, the time independence doing so is greatly appreciated. Elderly do not want to disturb their relatives in everyday life. SMS functions are rather used from family members to inform the elderly, for example, that they arrived well on vacation. However, 3 of 10 elderly use actively SMS.

In case of health problems the elderly, who are fit enough, go to the doctor by themselves. However, they normally inform their family and friends about the appointment. Elderly participants in the focus group described three cases, in which it was not possible to inform other people about their state of health. Due to an apoplectic stroke and fainting based on haemoptysis, they weren't capable of acting and explaining anyone their bad health condition. The individuals were found at home one respectively three days after having had this incident. This is a very important point that should be considered.

CAREGIVER

Similar to elderly, face to face is the most common type of communication in Switzerland. Apart from that, caregiver communicate mostly by phone or mobile-phone in case of emergencies or when questioning the current state of health. Caregiver get a feeling of security if they know everything is ok. The focus group didn't talk about written communication (as e-mail or SMS.

All participants commented, that they want to be informed about health problems immediately, for which they prefer the use of the landline phone or mobile phone.

An interviewee explained that she had asked her life partner to move to her house to be able to take care of him day and night.

In Austria all participants reported the phone as a main option of communication, unless they live in the same household with the elderly.

One caregiver would find a video with the equivalent system a good solution, if the elderlies would participate. The elderlies, however, are often against new technologies or fail to recognize the implications of their situation (underestimate the severity of the situation, overestimate their ability to act).

One participant remarked that her mother was deaf. The following solution was found: Caregiver typed text into the mobile phone, mother first read and then called back for confirmation by voice. Written communication (e-mail) or via Skype is no option for the test persons.

In case of small health problems participants in Austria can cope with the problem e.g. with the medicine chest. Otherwise, they would call the ambulance. Most stated that an incident goes hand in hand with a shock situation, the first one has a paralyzing effect. Later the caregiver knows the signs already and can react faster, e.g. the way and the speed a person talks can indicate a stroke. The elderly themselves do not notice those things.

Often the elderlies do not want that their disease is made public. Also, accidents or other diseases are handled secretive; it is a sign of weakness (especially for men). Some do not recognize that their condition is getting weak.

In Austria networking is most important: Phone calls with relatives, neighbours, nursery etc.

One caregiver mentioned the runaway of her mother, she suffered from dementia. It was a stressful situation and friends recommended a chip implant with GPS radiolocation as already practiced in the United States. To take care 100% is not possible for the relatives. Some share the care with siblings, others get 2-3 times per week up to 24 hours help of professionals. The elderlies do not call if something happens. The mobile phone does not help in case of an emergency, the elderly cannot call, if something happens. For caregiver it is important to be reassured (via a signal) that everything is fine, especially when they are not at home. Humaneness is important.

4.5.3.2 Results Social Contact (and Care)

The following sub-chapter presents summaries of the focus group discussions for the group of the elderly and the group of the caregiver.

ELDERLY

The social contact is divided into two areas:

1. Contact with people in the area (e.g. neighbours)
2. Contact with people from a distance (e.g. children abroad)

This shows different types of contact needed and with this the selection of caregivers, which are involved in the care situation.

Personal contact must be emphasized again. All participants talked about the importance of a good neighbourhood relationship in old age. They feel more secure thereby. In one case a participant was saved twice by alerting the police through the vigilance of neighbours. The caregiver of another participant, who accompanied the elderly to the focus group discussion, told that the neighbours pay attention to whether the blinds are operated in the morning and in the evening. If this is not done, they contact the daughter by phone.

Most participants, who live independently, are visited currently from family, friends and care services. The frequency depends on the state of health.

Participants, who do not have many social contacts in their environment, receive visits from nursing services or home help. One person has passed his apartment key to the Securitas, who save him in emergencies.

CAREGIVER

In Austria participants take care of family members/friends rotationally with siblings, 24 hours care and home nurse. Also the neighbourhood is an issue. This is more about security than control for caregiver, control and observation they say is not possible. In all cases humaneness is the most important part for the caregiver.

Long-term care:

In Switzerland two interviewees care for their relatives by their own, day and night (high care intensity). That's why one person meant they live together. Spitex helps with the housework (one of the interviewed) and the doctor or specialist for medical questions. Another interviewee doesn't share the apartment with the assisted person, so she has to move between the two apartments. Their life has changed a lot since caring for another person. They have less time for themselves. They need a lot of time for caring (cooking, shopping, entertainment).

Selective care:

In Switzerland the third interviewee takes care for a neighbour just from time to time (by appointment) together with other neighbours. He doesn't care day and night. He reports that they arranged a reporting system using a star at the door. In the morning usually the neighbour he cares of hangs up a star and in the evening, she takes it away. So if no star is hanging during the day, the suspicion raises that something has happened and therefore someone has to go in and look after her.

The focus group didn't answer the question about the learnings and what they would change.

4.5.3.3 Results Distance

The following sub-chapter presents summaries of the focus group discussions for the group of the caregiver.

 ELDERLY

This issue was not part of the conversation in focus group with elderlies.

 CAREGIVER

Long-term care:

Two of the interviewed had little distance to the assisted persons. But one of them sometimes takes a time-out (vacation) to recover and get some distance from caring. For all of the interviewed distance is very important.

Selective care:

One interviewee has enough distance as the care situation is shared among several persons.

4.5.3.4 Results Independence

The following sub-chapter presents summaries of the focus group discussions for the group of the elderly.

 ELDERLY

Older people, who live independently at home, of course also leave their homes for special purposes. This means, that the care situation extends to the house environment (e.g. letter box, garden, shopping, neighbourhood, leisure activities).

The fact that 9 of 10 participants in Switzerland use the "SRK" emergency (bracelet etc.) led to a discussion on this issue. Its functions are not sufficient to cover all needs of the elderly, as it "only" works completely inside their homes. There was a strong interest in GPS-enabled systems with emergency functions and communication ability (keyword: system "Nemo").

An interesting point was the fact, that during the discussion none of the participants argued to feel controlled by the discussed technical devices.

 CAREGIVER

This issue was not part of the discussion in the focus groups in Austria and Switzerland.

4.5.3.5 Results Security Concept

The following sub-chapter presents summaries of the focus group discussions for the group of the elderly and the group of the caregiver.

ELDERLY

In Switzerland the participants deemed technical aids (e.g. "SRK" Emergency) as a preventive measure. They perceive it as a "guardian angel" and feel protected. The nervousness is reduced. Two people admitted that they use technical aids only to reassure their beloved ones. They perceive this as a kind of obligation to their families.

CAREGIVER

In Switzerland only if a human instead of a technical system takes the responsibility and the control about care, the interviewees get a secure feeling. They don't trust technical help. If a technical system monitors the health situation of cared people, they want to be assured that a human takes the final responsibility. It would be a release if they shared the responsibility for care, but only with a human. For interviewees, the care is a duty and causes stress as well. As the interviewees explained, the only relief is sharing responsibility with other people.

4.5.3.6 Results Status of health

The following sub-chapter presents summaries of the focus group discussions for the group of the elderly and the group of the caregiver.

ELDERLY

The status of health of older people can be divided into different categories:

Table 7: Different health situations of older people

Category	Health status	Mental aspect	Physical aspect
1	Prevention of a problem		
2	Longer-lasting problem	Mental state (disorientation, Alzheimer, dementia)	Physical state (paralysis, fractures, regeneration)
3	Acute problem/emergency	Mental state (disorientation, confusion)	Physical state (fractures, fainting due to hemorrhage)

For the development of a technical system, categories 2 and 3 have a special importance. If a person is capable of acting, a non-automated system would be sufficient. If not, only an automated system of assistance is conceivable. For example the system has to react if there is no movement of the assisted person. Another possibility is if a person does not utilize a predefined object in a defined time period.

Depending on category, different requirements result for a support within the care situation and possible assistance systems.

CAREGIVER

In Switzerland the intensity of care differs according to the state of health of the assisted person. It is important to look after one's own health (physically and mentally). The interviewees explained, the whole caring situation shouldn't make them sick (distance). Often, the assisted person doesn't want to accept help (self-determination).

In Austria all participants do not prefer to handle health problems, but they have to deal with it. They wish time for themselves to recover from the caring task and get help from professionals. However, this is difficult to reconcile with the elderly, if they do not want to be helped or not realize that their health condition is not good. Friendship and family are important to get support.

4.5.3.7 Results Technical Device
The following sub-chapter presents summaries of the focus group discussions for the group of the elderly.

ELDERLY

As 9 of 10 participants in Switzerland use different items of the "SRK" emergency system this was heavily discussed, e.g. the different types and how it can be used: Bracelet, necklace, emergency phone and "Nemo".

The participants are satisfied with the „SRK-Notruf". Nevertheless, the conversation pointed out that the functions are not sufficient. The external use of the system outside home is a very important factor (e.g. laundry, in nature). Furthermore interviewees mentioned the need of some kind of automated system which can save elderly if they are no longer able to react or communicate (e.g. apoplectic stroke, fainting due to haemorrhage). In addition, the system must be waterproof, because many accidents occur in showers.

Two people told, that they had the possibility to leave the hospital only under the condition to assign to the „SRK" Emergency service.

 CAREGIVER
This issue was not part of the conversation in focus groups with caregiver.

4.7 Cultural Probes

In Switzerland the cultural probes method took place from 11.07.2013 to 05.09.2013. 10 participants (5 elderly, 5 caregivers) participated in this method. In Austria 9 caregiver participated in the cultural probes in the period from 08.07.2013 to 25.07.2013.

All in all 5 elderly and 14 caregivers participated in the cultural probes study. The average age of elderly taking part in the cultural probes was 72 years, the average age of interviewed caregivers was 66 years.

4.7.1 Cultural Probes - Participants/Demographic Data

Due to the fact that during the summer period no elderly participants for the cultural probes study could be recruited, in Austria only caregivers participated in the survey.

In Switzerland, due to the same fact, there lacked the possibility to recruit exclusively family members, friends or neighbours. For that reason four professional caregivers of the relief service of the Swiss Red Cross (Lucerne) were requested to participate in the study. One participant was a relative.

Table 8: Cultural Probes Participants/Elderly

Participants	Age	Gender	Civil status	Occupation	Country
CH-E-1	76	Female	Married	Retired	CH
CH-E-2	73	Female	Married	Retired	CH
CH-E-3	73	Female	Widowed	Retired	CH
CH-E-4	68	Female	Single	Retired	CH
CH-E-5	72	Male	Widowed	Retired	CH

Table 9: Cultural Probes Participants/Caregiver

Participants	Age	Gender	Civil status	Occupation	Country
CH-C-1	60	Female	Married	Employed	CH
CH-C-2	68	Female	Divorced	Retired	CH
CH-C-3	38	Female	Married	Employed	CH
CH-C-4	59	Female	Divorced	Employed	CH
CH-C-5	49	Female	Divorced	Employed	CH
A-C-1	70	Female	Divorced	Retired	AT
A-C-2	67	Female	Single	Employed	AT
A-C-3	64	Male	Married	Retired	AT
A-C-4	84	Female	Married	Retired	AT
A-C-5	72	Female	Married	Retired	AT
A-C-6	67	Female	Married	Retired	AT
A-C-7	77	Female	Married	Retired	AT
A-C-8	75	Female	Married	Retired	AT
A-C-9	73	Female	Married	Retired	AT

4.7.2 Cultural Probes - Procedure

Each participant received a diary in form of a composed booklet, together with either a disposable camera or a memory card for the use of a digital camera. The content of the diaries was divided into pre-defined themes (daily routine, habits, favourite place, favourite item, disliked item, talisman). The probands were instructed by project partners 50plus and Soul to take defined theme related pictures and edit their diaries during one week in an individual manner, following the required items described in the booklet. The diaries were elaborated by NDU. The probes package is included in the appendix of this document.

After one week 50plus in Austria and Soul in Switzerland recollected the completed booklets and developed the pictures made during the days of the study by participants.

Figure 17: Cultural Probes Package - Cover

4.7.3 Cultural Probes – Results

The entire data material which had been collected in the cultural probes diaries was sorted and clustered into the following aspects: activities of daily living (including routine activities, leisure time activities, work and organisational behaviour. The results refer to a combination of the groups of the caregiver from Switzerland and Austria and the group of elderly from Switzerland.

4.7.3.1 Results activities and issues of daily living

ELDERLY

Routine Activities

The most common routine activities are eating (30 %), doing the household (20 %) and sleeping (12 %).

Leisure time activities

During their leisure time the interviewees are mainly engaged in watching TV (23 %), working with the PC (22 %) or going on an excursion (19 %).

Work and organisational activities

Work and organisational activities are not an issue for all participants. Just one elderly still was occupied with a lot of professional work. Other activities which match this category are the preparation of journeys or excursions, the visit of authorities or other administrative tasks.

Social Integration

Visits from family members or visiting family members themselves present the most important kind of direct communication (67 %), also telephone calls to family members are reported frequently (9 %). Visiting friends and neighbours or receiving visits from these persons goes head to head with telephone calls.

Health

Sports activities (e.g. Qi Gong, swimming) are integrated by the major part of the elderly test persons in their daily life (51 %). Prevention (37 %) is an issue for them, while medical care (12 %) represents a minor factor.

CAREGIVER

Activities related to care situations

The top 3 activities related to the care of older people consist of the assistance in various situations (33%), support in the household (23%) and do the shopping (10%).
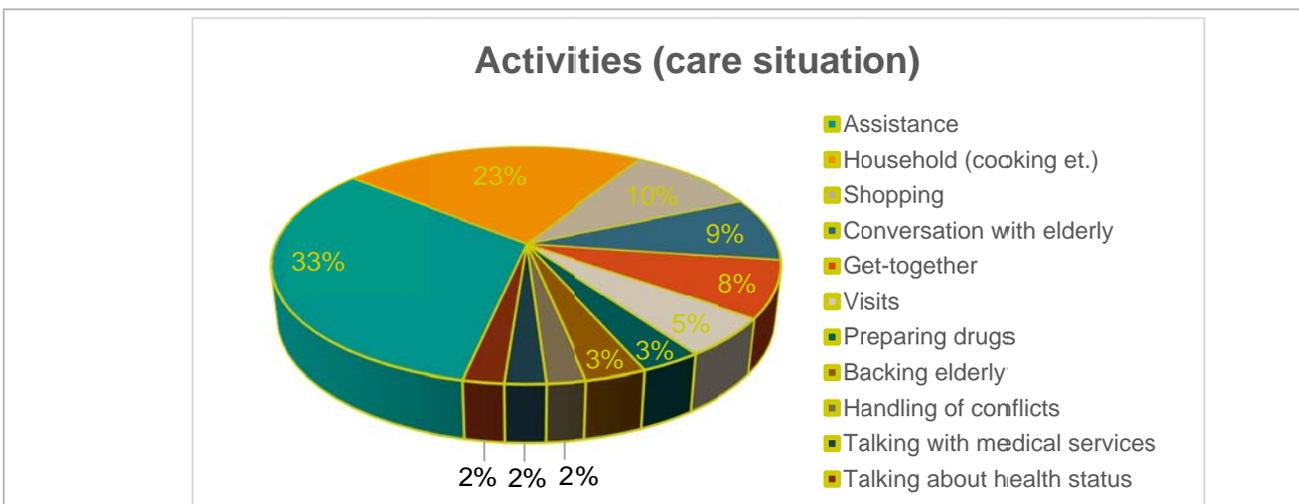
Figure 18: Activities of caregivers related to care situations
(N: 14 interviewees, 100% = 92 mentions)

Routine activities

The top 3 routine activities of caregivers are consuming comestible goods (31%), doing their household (16%) and cooking (13%).

Free time
Caregivers spend 24% of their leisure time on mobility, watching TV (20%), going on an excursion (19%), relaxation (13%) and reading books or newspapers (12%).

Work and organisational activities
Main themes in this category are professional activities (38%), administrational issues (28%) and organisational issues related to the own family (21%).

Social Integration
The interviewed caregivers are socially integrated by a colourful mix of different types of communication. Visits from family members (35%) and from friends (26%) are the most important ways in respect of social integration. Phone calls to friends (12%) and talking with family members (11%) play an important part as well.

Health
In the health area sports and fitness (83%) are clearly in the foreground. In addition to medical care (13%), the factor stress was mentioned by 4 % of the interviewees.

4.7.3.2 Results Living environment

- **Living at home**

ELDERLY

In the following the floor plans of the homes of the elderly test persons are illustrated exemplarily.

Figure 19: Floor plan 1 and 2 of living situation of elderly test persons

Figure 20: Floor plan 3 and 4 of living situation of elderly test persons
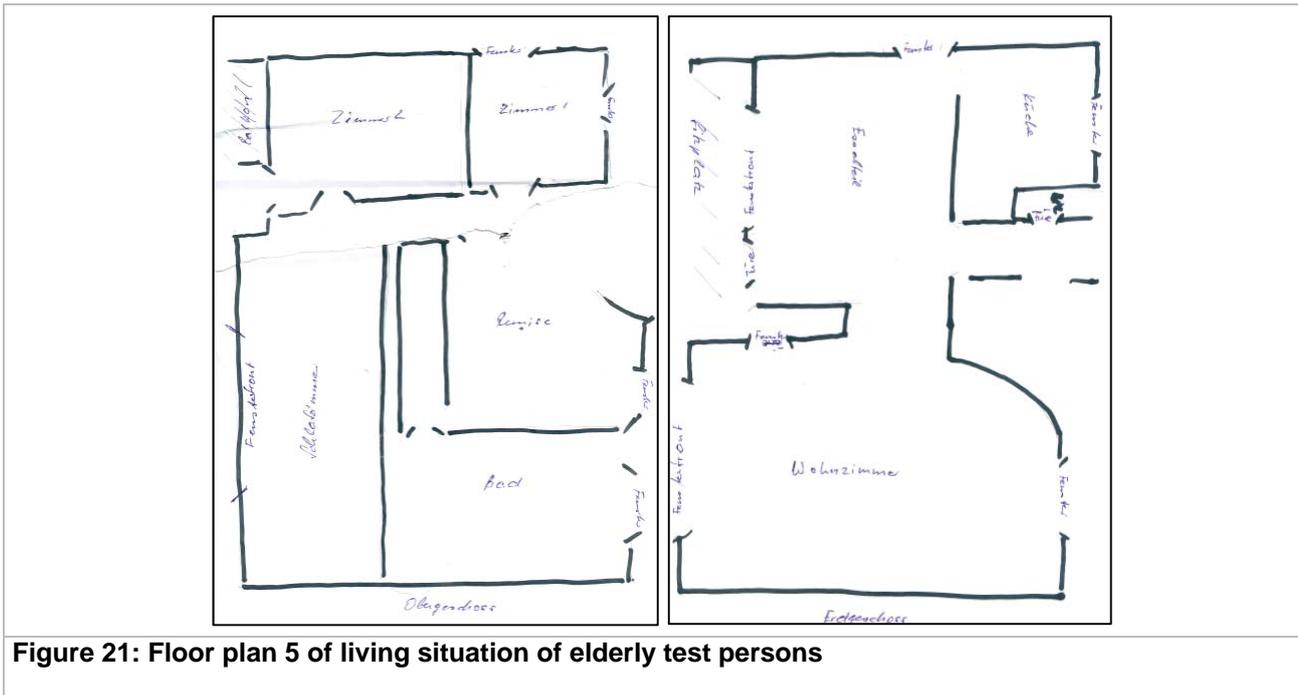
Figure 21: Floor plan 5 of living situation of elderly test persons

CAREGIVER

The following results refer exclusively to participants from Switzerland.
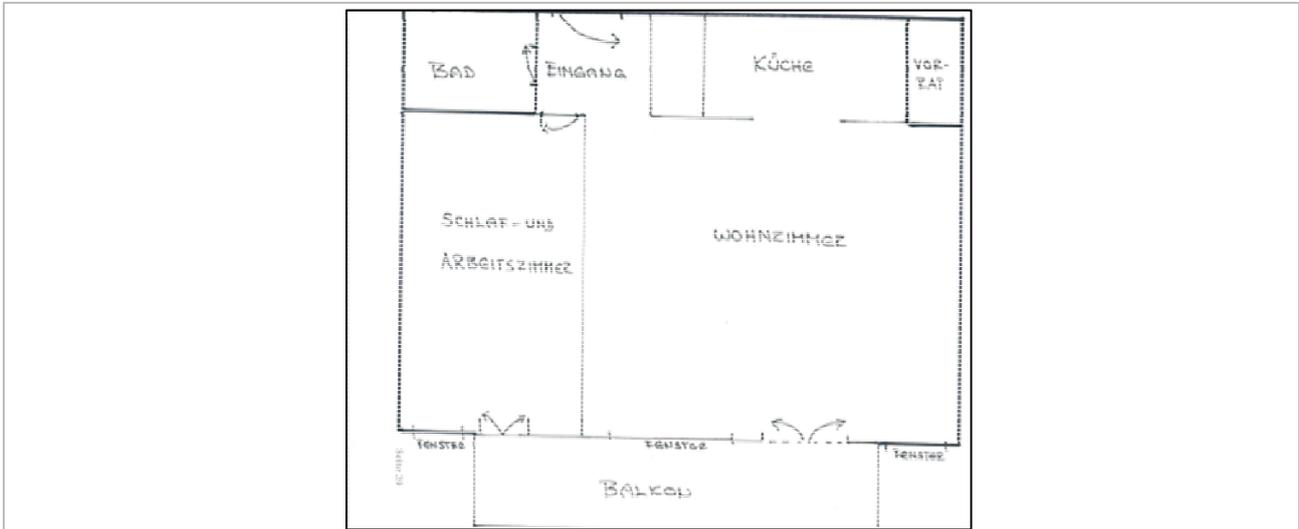
Figure 22: Floor plan 1 of living situation of caregiver

Figure 23: Floor plan 2 of living situation of caregiver
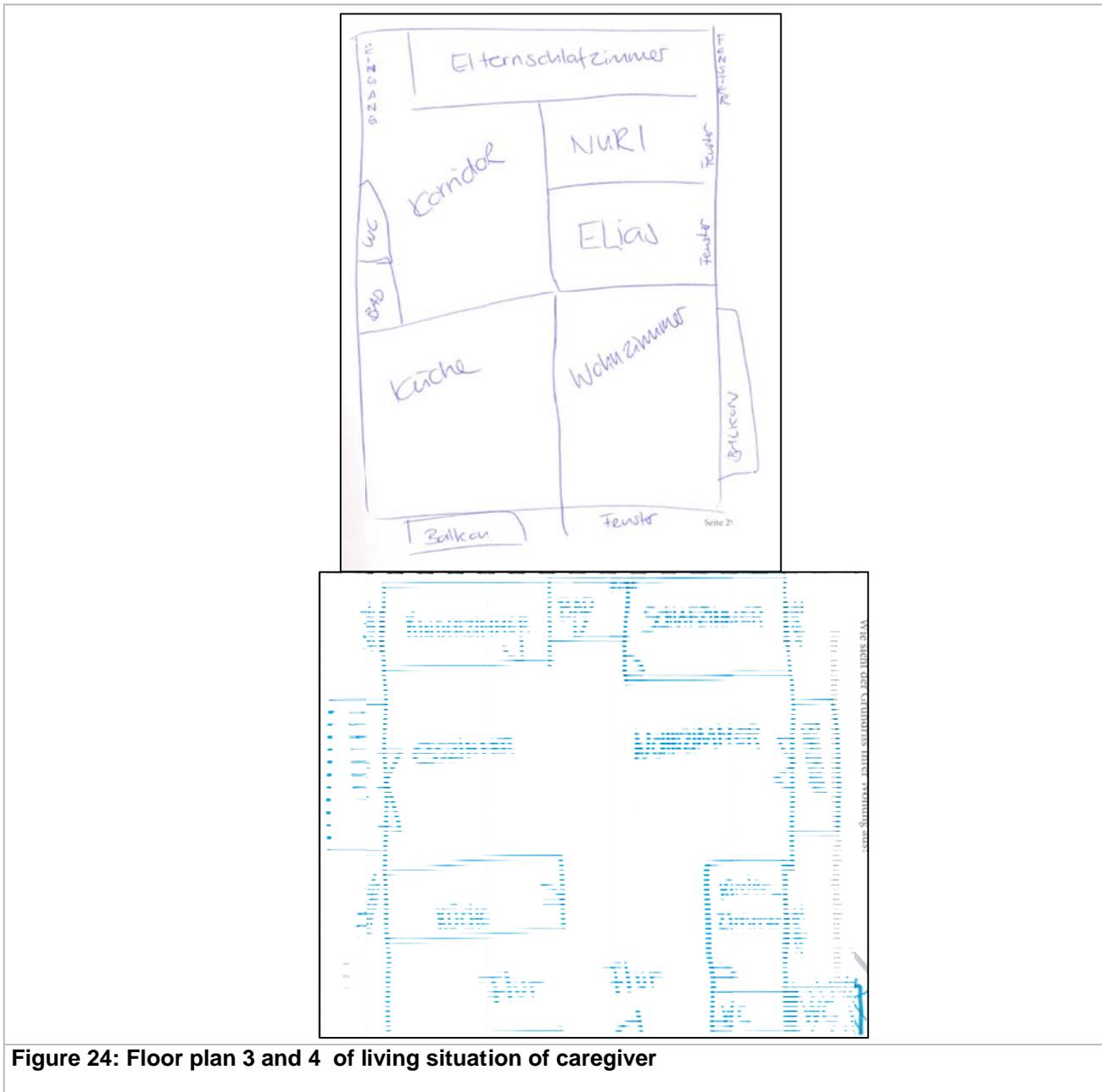
Figure 24: Floor plan 3 and 4 of living situation of caregiver

- **Favourite place**

ELDERLY

The top 3 of favourite places are the living room (34 %), the home office/office (22 %) and the garden (22 %). Multiple responses per participant (N: 5) were allowed.

Table 10: Favourite place of elderly test persons

Place	Frequency	Reason and Usage
Living room	3/5	Enjoy the peace and quietness to read a book (1/5), to relax (1/5)

Garden	2/5	Enjoy the peace and quietness to read a book (1/5), enjoy the view of nature (1/5)
Home office/ office	2/5	Most of the time in home office, feels good while doing personal stuff, make phone calls, listening to the radio, relaxing etc. (1/5)
Chair (garden/terrace)	1/5	Quietness to read a book, to meditate, to look into the green, to talk with friends, listening to birds and watch clouds (1/5).
Balcony	1/5	-

CAREGIVER

The most favourite places stated by the caregivers are the living room (47 %) and the garden (35 %). Multiple responses per participant (N: 14) were allowed.

Table 11: Favourite place of caregiver

Place	Frequency	Reason and Usage
Living room	9/14	Favourite place in winter and summer (1/14), is like a „kingdom", usually it´s a feeling like being on holidays because of beautiful views on the lake, marina and mountains (1/5), much peace and light to read, meditate, watching TV, cats and the cat tree (1/14)
Garden	6/14	If there is good weather (1/14)
Balcony	1/14	Favourite place in summer
Office	1/14	-
Next to stove	1/14	-
None	1/14	Participant does not have a favourite place, the complete flat is comfortable

4.7.3.3 Items

- **Items, which are carried along**

These are items, which are taken along when leaving the apartment, flat or house. Those things were packed in the handbag or bag, before the test persons left home during the documentation period.

ELDERLY

The top 3 of the items, which were mostly taken with are mobile phone, wallet and key/bunch of keys respectively shopping bag. There was a wide range of other objects specified, each named but once or twice by participants, which are completely listed in the table below.

Table 12: Items carried along by elderlies when leaving home

Place	Frequency	Reason and Usage
Mobile phone	5/5	Connection (1/5), number of taxi service („Tixi") (1/5), call to automobile roadway repair service (1/5), contacts (1/5), emergency (1/5)

Wallet	4/5	Shopping (1/5)
Key, bunch of keys	3/5	Latchkey (2/5), car key (2/5), key to another apartment for feeding the cats
Shopping bag	3/5	Shopping (1/5)
Pen	2/5	On the go (1/5)
Note pad	2/5	Aid to memory (1/5)
Umbrella	2/5	In bad weather conditions (1/5)
Handkerchiefs	2/5	On the go, as necessary (2/5)
Lipstick	2/5	On the go, as necessary (1/5)
Sun glasses	2/5	Nordic walking (1/5), for excursions in the village (1/5)
Handbag	2/5	Dinner (1/5), if driving by car (1/5)
Address book	1/5	Addresses, contacts (1/5)
Calendar	1/5	Appointments (1/5)
Sweets	1/5	If driving by car (1/5)
Identify card	1/5	Identification (1/5)
Shopping list	1/5	Shopping (1/5)
Diving licence	1/5	If driving by car (1/5)
Camera	1/5	To take pictures on a hike (1/5)
Garage opener	1/5	To open the garage (1/5)
Beauty bag	1/5	-
Credit card	1/5	Shopping (1/5)
Cold box	1/5	For food (1/5)
Emergency kid	1/5	On the go, as necessary (1/5)
Sun protection	1/5	Hiking (1/5)
Documents	1/5	Telephone provider Sunrise (1/5)
Swimming utensil	1/5	Swimming in lake (1/5)
Case	1/5	Stoma pouch replacement in emergency (1/5)

Figure 25: Example of the content of an elderly test persons bag

CAREGIVER

The results of the caregivers bear a resemblance to those of the elderly. Mobile phone, wallet and key/bunch of keys are mostly taken along by the test persons. There was a wide range of other objects specified, each named but once or twice by participants, which are completely listed in the table below.

Table 13: Items carried along by caregiver when leaving home

Place	Frequency	Reason and Usage
House key, key, bunch of keys	12/14	Car key (2/14), latchkey (2/14), latchkey of apartment of elderly (1/14), key for school (1/14)
Wallet, purse	11/14	Shopping (3/14), without money you can't buy anything (1/14)
Mobile phone	9/14	Availability (2/14), emergency (1/14), information for relatives (1/14)
Sun glasses	8/14	Against solar irradiation (1/14)
Bag	5/14	-
Pencil	4/14	-
Shopping list	4/14	-
Food	3/14	Water bottle (2/14), refreshment in the night (1/14), fresh berry and salad for patient (1/14), smoothie (1/14), coke zero (1/14), bag of vegetables (1/14), almonds/pineapple-pieces/mango pieces (1/14), bottle for feeding a baby (1/14), bio vegetable for patient (1/14), home-made food (1/14), apple (1/14)
Lighter	3/14	-
Flower	2/14	To delight patient (1/14), gift for brothers' birthday (1/14)
Writing utensils	2/14	To notice important things (1/14)
Sudoku	2/14	Before sleeping (1/14), to exercise memory (1/14)

Handkerchiefs	2/14	For nose and hands (1/14)
Note pad	2/14	Memory support (1/14)
Medicine	2/14	-
Candle for cemetery	2/14	-
Car papers and car key	2/14	-
Sweets	2/14	-
Calendar	1/14	appointments
Books	1/14	Books about opera and diverse other books for patient
Terry towel	1/14	As rest for sleeping (participant sleeps in apartment of patient (night work)
Gift coupon	1/14	Birthday of brother
Hand lotion	1/14	Stand by time in traffic
Slippers	1/14	Care assistance for patient
Coat	1/14	If it is cold in the night (night work)
Catalogue	1/14	Ordering a trampoline
Chewing gum	1/14	Flavour of „Orbit"
Reading glasses	1/14	Reading (far-sightedness)
Lipstick	1/14	Value of your look
Books	1/14	Reading material for patient
Nightwear	1/14	Night work
Neck pillow	1/14	For night work/patient (patient suffering from Parkinson's' disease)
Emergency kid	1/14	Arnica globuli, plaster, drugs for headache and back pains
Soother	1/14	-
Shoes	1/14	Silent slipper / night work, shoes for gardening
Sun hat	1/14	For children
Toys	1/14	For own children, for children in school (1/14)
Hair brush	1/14	-

Figure 26: Example of the content of a caregivers bag

- **Favourite items**

ELDERLY

The favourite items the test persons love the most, differ from person to person. Multiple responses per participant (N: 5) were allowed.

Table 14: Favourite things of elderly

Item	Frequency	Reasons/thoughts
Books	1/5	Library of non-fiction books and other good literature for reading
Car	1/5	For mobility, transport, individual travels
keyboard / accordion	1/5	"Making music with both instruments is my favourite pastime. When I sit down and play, I forget all the worries and fears that constantly accompany me with advancing age".
Oil painting	1/5	„Image transports peace and beauty"
Brush / colouring	1/5	Painting room with all colours, brush, material
Porcelain items	1/5	For keeping, as a memory of the mother

Figure 27: Favourite thing of an elderly: Oil painting

CAREGIVER

The own family, the radio and books were mentioned each by two interviewees. Other favourite things differ from person to person. Multiple responses per participant (N: 14) were allowed.

Table 15: Favourite things of caregiver

Item/matter	Fre-quency	Reasons/thoughts
Family	2/14	„My family all the world to me" (1/14)
Radio	2/14	„I nearly always hear the broadcast transmitter „Musikwelle". The beautiful inspiring music is broadcasted there and I can sing and dance to it" (1/14)
Books	2/14	-
Bottle of wine	1/14	„We often enjoy one bottle of wine"
iPad	1/14	„I like to use my iPad so I can see what is going on and dream of the day"
Coffee machine	1/14	-
Laptop	1/14	„I like to use my laptop so I can see what is going on and dream of the day"
Turtles	1/14	„we can offer them a good home"
Couch	1/14	„I use it for watching TV, reading, meditation and relaxing"
TV	1/14	-
Apartment	1/14	„It's important for me to have it nice, well-tended and properly"
PC	1/14	-
Kitchen	1/14	-
Paintings	1/14	-
Pictures from journeys	1/14	-

Special doll collection with traditional costumes	1/14	-
Bike	1/14	-
Mobile home	1/14	-
Secretary	1/14	-
Stove	1/14	-
Special duster from Swiffer	1/14	-
Photo collection	1/14	-
Home Trainer	1/14	-

Figure 28: Favourite thing of a caregiver: Radio

- **Disliked Items**

ELDERLY

Objects or things which test persons do not like differ from person to person. (N: 5)

Table 16: Disliked things of elderly

Item/matter	Frequency	Reasons/thoughts
Pack of bills	1/5	Debit the budget
Dust wiper	1/5	Wipe dust (due to health reasons)
Respiratory protective device	1/5	„Because of sleep apnoea and other breathing problems since 2 years I need a respirator for about 6 hours at night and I'm still not accustomed with it. While using it, it impacts my oxygen saturation and during the day it becomes much better. But wearing the mask is disturbing and it partly disturbs my sleep. I am always happy when I can turn it off after 6 hours"
Household	1/5	"I find it hard to occupy myself with the household. I can cook very poorly and I do it reluctantly. To do the daily shopping is an abomination."

Figure 29: Disliked thing of an elderly: Dust wiper

CAREGIVER

In Switzerland there is large agreement among participants about housework. 5 of 5 participants in Switzerland dislike housework. In Austria 3 of 9 participants dislike especially the vacuum cleaner. (N: 14)

Table 17: Disliked things of caregiver

Item/matter	Frequency	Reasons/thoughts
Housework	5/14	Cleaning windows, to do the hovering (it's loud, health reasons) (2/14), ironing (2/14), daily washing up, clearance (1/14)
Vacuum cleaner	3/14	-
Ironer	1/14	-
Duster	1/14	-
Cooking	1/14	-
Lawn mower	1/14	-
Cellar	1/14	-

Figure 30: Disliked thing of a caregiver: Housework

- **Talisman**

ELDERLY

Talismans differ from person to person. (N: 5)

Table 18: Talisman of elderly

Items/matter	Frequency	Reasons/thoughts
Soft toy	1/5	„Gift from youngest daughter, should protect against accidents"
Buddha	1/5	„Symbol for positive charisma"
Chinese turtle	1/5	„Symbol for persistence"

Figure 31: Talisman of elderly - examples

CAREGIVER

Talismans differ from person to person. (N: 14)

Table 19: Talisman of caregiver

Items/matter	Frequency	Reasons/thoughts
Letters of grandchildren	1/14	„I collect the first letters and love letters from my grandchildren"
Angels	1/14	„My angels are inside and outside the home. Every day I meditate with them"
Stone clinger	1/14	„Protection against negative external influences"
Coin of Richness	1/14	„Always in my wallet, got it from a friend. The belief, that you will always have money, corresponds to this coin"
„Madonna" wooden figure	1/14	-
Picture of husband	1/14	-
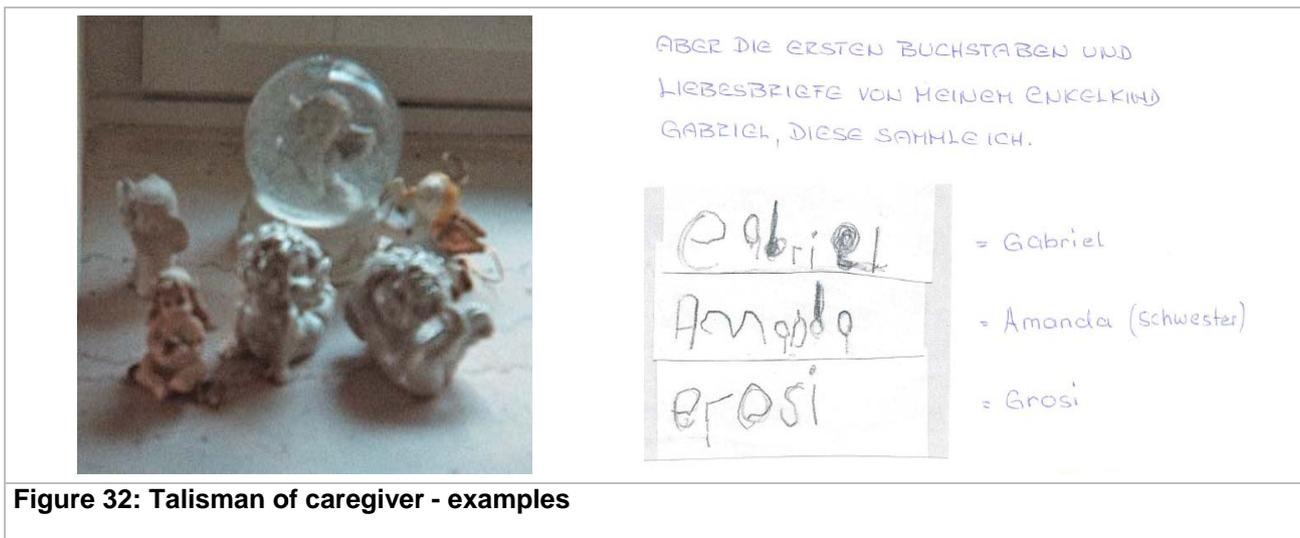
Figure 32: Talisman of caregiver - examples

4.7.3.4 Thoughts and feelings

Only one caregiver replied to the requested aspect to note thoughts and feelings referring to care situations. This participant, whose husband was in hospital during the documentation period, noted grief, sorrow, tears of joy, tears of grief and deep thoughts about this painful situation.

4.8 Design Workshop

The Design Workshop took place on the 25th of July, from 9.00 until 11.30am at the 50+Center in Salzburg and was designed and executed by NDU.

Due to the fact that during the summer period no elderly participants could be recruited only caregivers attended the design workshop.

This method was executed in Austria only.

4.8.1 Design Workshop - Participants/Demographic Data

Table 20: Participants Design Workshop

ID	Date of Birth	Gender	Family Status	Occupation
A-C-1	25.06.1941	female	married	retired
A-C-2	03.10.1939	female	married	retired
A-C-3	26.06.1938	male	married	retired
A-C-4	06.06.1943	female	divorced	retired
A-C-5	21.04.1949	female	divorced	retired
A-C-6	02.10.1939	male	married	retired
A-C-7	26.06.1951	female	divorced	retired
A-C-8	11.04.1942	female	divorced	retired
A-C-9	19.09.1942	female		retired

4.8.2 Design Workshop - Procedure

The Design Workshop consisted of three sessions addressing:
- Subject – Object Relationship
- Picture-Word Cards/Collage
- Love/Hate Thing

Subject – Object Relationship

In the first step the participants were invited to think about objects situated in their own home or personal environment and to brainstorm with reference to the following questions in order to obtain product criteria emerged from individual Subject-Object Relationships.

Love: Which criteria do you love about daily objects?

Tell: Which objects in your personal environment are precious for you because they tell a story (about you)

Use: Which objects in your personal environment do you use in a special manner? Are there any objects you use in a different way as initially planned by the designer/producer?

Stage: Are there any objects you stage, not because of their function but because of their aesthetical appearance? Which meaning has this aesthetic for you?

Hate: Which objects in your personal environment do you hate and why do you hate them?

Each aspect was outlined in a specified colour and corresponding to the defined colours the participants had three cards of each colour at their disposal. After having explained each aspect and after a short individual brainstorming the test persons noted at least three terms upon the respective coloured cards. Repeating this procedure five times, the participants put their output on the correspondent sheet and explained their findings. The result was a five-part and five-coloured collection of product criteria referring to the five discussed aspects.

Figure 33: Explanation of the first task

Figure 34: Noting arguments for each aspect

Picture-Word Cards/Collage

The participants received 20 different words and 20 different pictures concerning the term „Joy", as well as 20 different words and 20 different pictures concerning the term „Relax". For each term (i.g. „Joy" and „Relax") attendees had to choose 5 words and 5 pictures out of the given offer of pictures and words, namely those which achieved their personal affinity or their idea of „Joy" and „Relax" the most.

With his or her personal choice of pictures and words, each participant had to create subsequently two collages (one for „Joy" and one for „Relax").

Figure 35: Choice of 5 terms for each "Relax" and "Joy"

Figure 36: Choice of appropriate pictures

Figure 37: Creating of Collages

Love/Hate Thing

The third session consisted of the presentation of a beloved thing and a hated one. In the run-up to the Design Workshop the participants were requested to bring along a personal object from home which they like the most/like to use it/to which there is a particular relationship. Furthermore participants were requested to bring along an object from home which they dislike or do not like to use at all, for what reason ever. Instead of bringing real objects with them which might have been too bulky or too heavy to be transported, attendees had the possibility to present photos from their chosen objects.

4.8.3 Design Workshop - Results

The results of the three sessions of the design workshop are indicated each as an extra point. Finally there is a summary of all results of the Austrian participants.

4.8.3.1 **Results Subject – Object Relationship**

The results of the subject-object relationship of each participant are depicted below. The visual result of the entire arguments is a five-part and five-coloured collection of product criteria referring to the five questions/aspects.

Table 21: Subject-Object Relationship Participant 1

Category	Valuation
Love	Digital camera – Transistor radio – Pillow (cats lie upon it and the design invites her to daydreams)
Tell	Window; Hiking boots – could tell a lot of stories; Hiking rucksack – she collects things on the way
Use	Coffee pot for keeping kitchen equipment; Pen as a ruler; Sewing – she sewed a skirt made of curtain drapery
Stage	Stones for energizing water are decorative elements now; Babuschka is used as deco element in the sleeping room on the cupboard where some photos are placed; Dish towel is used as a doily now
Hate	Clothes which don´t fit well, those are taken to the public utility collection; Bottle opener is not useful and is used as deco element now; Veggie knife is too sharp and will be discarded.

Table 22: Subject-Object Relationship Participant 2

Category	Valuation
Love	Drawings because she loves art and draws by herself; a comfortable armchair; Coffee Service for spending a nice time; TV is very important
Tell	Farmhouse room tells stories as she was involved in its development; Luster made of Murano glass reminds her of her stays in Italy
Use	Old truck as deco element; Slabs are used as mats or places to put other things on it; Baskets are used as cachepots; Kitchen machine: the participant uses just one single function
Stage	Ceramic Tableware is staged in the Farmhouse Room; Bottles as deco elements; Chair as a rack for Flowers; Flour mill as deco element in the kitchen
Hate	Used Plastic-Tupperware and things made of plastic, because it´s getting shabby; Shoes and clothes which are too tight; old-fashioned vases; she puts everything she dislikes in an extra room and her husband litters it secretly

Table 23: Subject-Object Relationship Participant 3

Category	Valuation
Love	Loves to do housework; Dairies from countries where she was living; Excavation finds she recovered at the risk of her life; Pictures from journeys; Plants
Tell	Zither from her mother, which she got at the age of 14, now she is 70; Grave goods from Mexico

Category	Valuation
Use	She painted a drawing with a blue bench, which she sold afterwards
Stage	Is very important, she stages kitchen equipment as deco elements
Hate	„Life is so beautiful, there is no need to hate anything";

Table 24: Subject-Object Relationship Participant 4	
Category	Valuation
Love	Her bed because of excellent mattress, offers recovery and good view, is the centre where she likes to reflect; Wooden spoon from Crete because of its good handling; Bookcase because books are telling the story of her life; Terrace to enjoy fresh air
Tell	Dining table, which her husband built during his study, it accompanied them from flat to flat; Drawing of Christo with a strong connection to her profession as an architect; Books, they tell stories of life; Programme of Salzburger Festspiele because she likes to be informed about it
Use	Brush used in the kitchen normally was used for colouring hair and then for drawing; Cake slide made of steel for gardening; Pot from China is a penholder on the desk now
Stage	Glass collection decorated on a table; Broom from China as a deco element
Hate	Hand gloves for cleaning because of sweating; Jalousie-cleaner because of its bad functionality; Bio vacuum cleaner bag because it smells awful; too small stowage

Table 25: Subject-Object Relationship Participant 5	
Category	Valuation
Love	Tableware; Armchair, which is very comfortable; Notebook – good handling, enables contacts, daily use of 2 hours
Tell	Biedermeier desk from grand aunt tells stories of her family; Tapestry inspires dreaming and is like listening to fairy tales; House and its development
Use	Cake box for screws; Outer packing from Whisky-bottle is used for spaghettis
Stage	Kenwood; Chimney made of clay as a contrast to the commode; Garden-highbed
Hate	Cable of the lawn-mower; Vases as presents; Clothes made of synthetic fibre

Table 26: Subject-Object Relationship Participant 6	
Category	Valuation
Love	Memories of his time as a development aid worker
Tell	Engagement journey to Paris: Ring and picture of Notre Dame tell this positive story; Picture of his parents as he grew up as an orphan; Pictures and stones from Peru; Wooden horse from Sweden
Use	Writing table is a drawing table now; Universal pliers is used as a bottle-opener; Cellar is a museum for old handcrafts; Pocket knife for cutting bread is always in his car
Stage	Pictures and stones from Peru in the living room and in the cellar; Pictures from his family as this is very important for him; Oldtimer-models because he was the first in his school class to get one
Hate	Backsaw doesn´t function; Lawn-mower doesn´t function well; Lights in the cupboard; Love-Hate Relationship to Books

Table 27: Subject-Object Relationship Participant 7

Category	Valuation
Love	Filter coffee maker for a good start in the day; Eating table because eating is Joy; Working table to do his things
Tell	„Blätterstock" from his mother tells about his childhood; Violin, an heirloom from his uncle, which tells stories about his childhood when he started to play the fiddle; furniture from the time he spent at the Ringstrasse
Use	Knife as letter-opener; Chair as a ladder; Wall with flower-pots
Stage	Starck lemon squeezer; Glass commode from the „Nice Room" from his families' farm, today the Augarten porcelain from his wife is stored there; Bulb-object, a sculpture made of glass
Hate	Bike lock whose number he forgot and therefore had to cut it; Wettex (sponge) because it smells awful; old shirt whose collar is too tight

Table 28: Subject-Object Relationship Participant 8

Category	Valuation
Love	Dishwasher; new writing desk; Pictures from sons when they were young and their picture as adults side by side
Tell	Dartboard never shot before reminds her of the day she got it; Souvenir from Barcelona; Picture from her Mother-in-law with her son who fled alone during the war; Birdhouse, a present from her daughter-in-law
Use	Dust brush to eliminate spider webs; Knife as screwdriver; Globe as lamp
Stage	Blue vases; pots in the kitchen hanging there as deco elements
Hate	Wine- and beer glasses which are too big for the dishwasher; Potato masher; Fly Flap – she hates this activity

Table 29: Subject-Object Relationship Participant 9

Category	Valuation
Love	PC, she books houses, works on photos and uses dictionaries online (has hardcover dictionaries only in her car); old weight; Music-collection of Bach, because Bach grounds her; huge oriental tapestry of 3x5 metres, she is doing gymnastics upon it
Tell	Scallop, reminds her of the Road to Santiago; Picture from the promotion of her Son; Ring from her mother, which her mother was wearing her whole life
Use	Soup bowls for the germination of seeds; Toilet- cleaner as cleaner for pipes; Jam jars for putting buttons inside
Stage	Tin as decoration; Murano Glass Bowl as deco; Tablecloth made of silk used as tapestry
Hate	Coffee maker is too loud; TV doesn´t function; digital waste (discarded items of technology) from her sons which she has to store; Ironing board for Sleeves

Figure 38: 5 aspects – 5 colours

4.8.3.2 Results Picture-Word Cards/Collage

For the terms „Joy" and „Relax" the participants chose 5 words and 5 pictures which express their personal affinity to „Joy" and „Relax" the most.

"Joy" – Words

7 Participants chose the Word "eating", followed by "to receive a smile" (6) and "to be in pleasant society" (5). 4 participants have joy when "executing my hobbies" and "meet friends" was chosen three times.

"Joy" – Pictures

Baby stroller, artist´s studio, theatre, special food shop and wine have been chosen 4 to 3 times by the participants.

"Relax" – Words

The following terms were chosen six times each: "to have time", "listen to music", and "experience nature". Five times the term "take a walk in the forest" was chosen, as well as "drawing". "Read a book" had four nominations, followed by "to be able to fall asleep" with three.

"Relax" – Pictures

Bed of roses, nature and wine yards, nature with wide view, music, theatre, village in the countryside and jogging shoes have been chosen 4 to 3 times.

Finalizing this session there were created collages with the chosen words and pictures, completed with additional written explanations and motives explaining the personal meaning behind the chosen pictures.
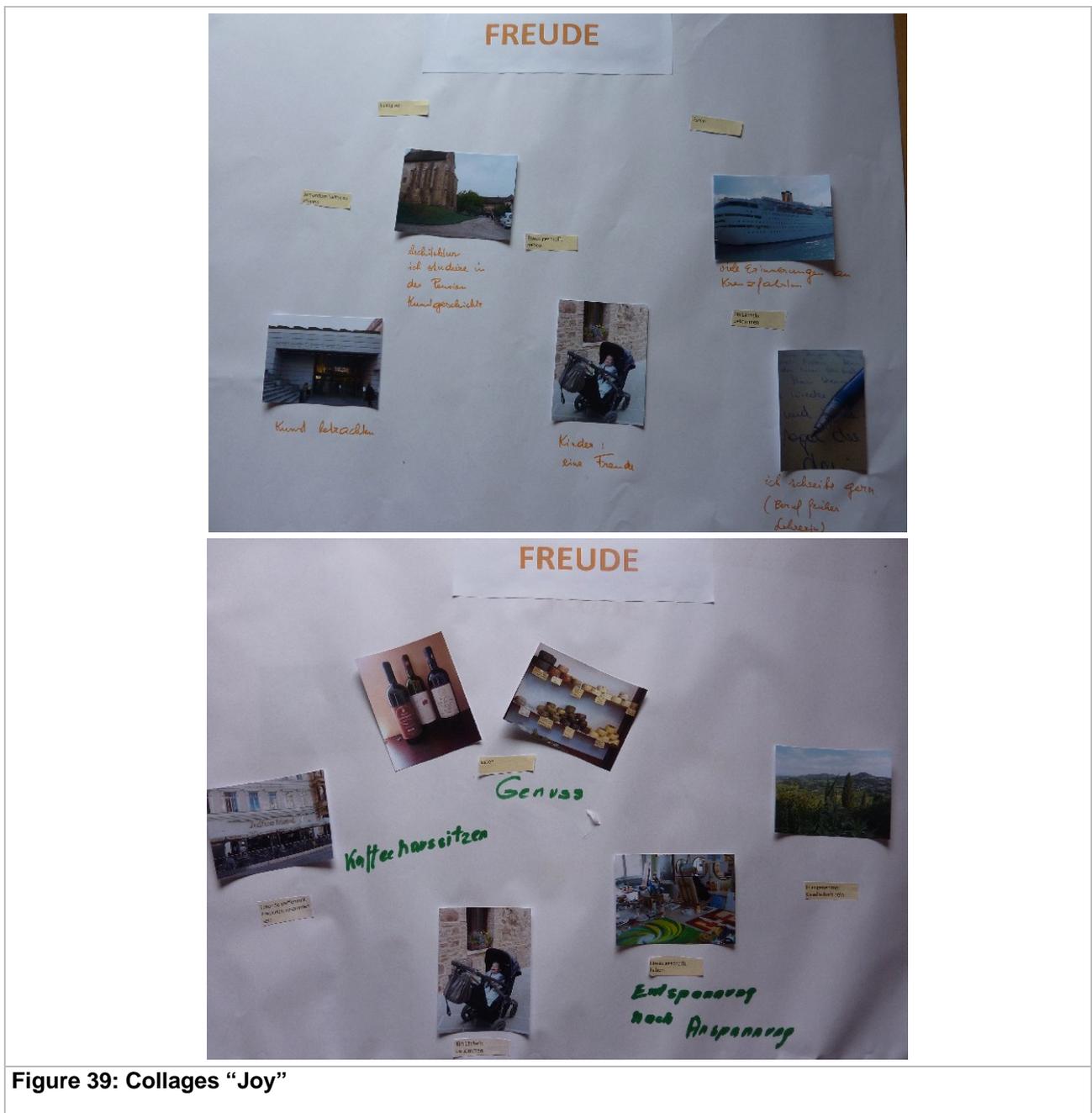
Figure 39: Collages "Joy"

Figure 40: Collages "Relax"

4.8.3.3 **Results Love/Hate Thing**

We took two pictures from each participant, one with his/her beloved thing and one with his/her hated thing and noted the background for it.

Figure 41: Love/Hate Thing Participant 1

Figure 42: Love/Hate Thing Participant 2

Figure 43: Love/Hate Thing Participant 3

Figure 44: Love/Hate Thing Participant 4

Figure 45: Love/Hate Thing Participant 5

Figure 46: Love/Hate Thing Participant 6
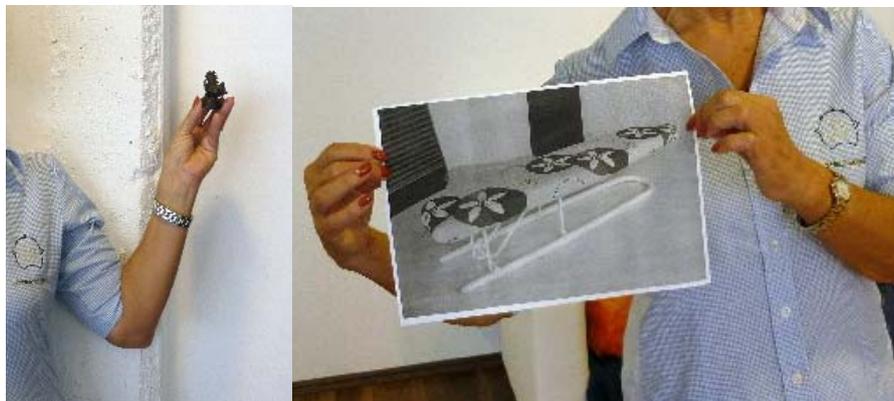
Figure 47: Love/Hate Thing Participant 7

Figure 48: Love/Hate Thing Participant 8

Participant 8 presented just her personal beloved thing and excluded any hated thing, as she argued not to hate anything.

Participant 9 did not prepare any beloved or hated thing for the workshop.

Table 30: Loved and hated things

Participant	Gender	Loved Thing	Notes	Hated Thing	Notes
A-C-1	m	Thermometer from Peru	Souvenir from stay in Peru	Remote control	
A-C-2	w	Music CD		Cleaning-gloves	
A-C-3	w	White chocolate	Preferred sweet	Tooth brush	Toothache
A-C-4	w	Embroidered pillow	Is like travelling, sinks into the landscape	Knife for cutting tomatoes	Cut herself already
A-C-5	w	Self-drawn picture		Vase	ugly
A-C-6	w	Coffee mug	Ceramics and coulour	Alarm clock	
A-C-7	w	Weight from Burma in form of an animal	Personally smuggled souvenir	Ironing desk for sleeves	Bulky, unneccesary
A-C-8	w	Drawing book with signs of the Maya-culture	Souvenir from stay in Peru	none	Doesn´t hate anything

4.8.3.4 Design Workshop - Summary Results

Participants love things which are connected to their personal life and thus these objects build a strong relationship. Those things are related to certain periods of their life, journeys or experiences. Mostly the mentioned things accompany the participants during a lifetime. Often things are intentionally staged, either their history or their aesthetical appearance are the main motives for doing this.

Souvenirs, Talisman, Heirlooms

Souvenirs are often equivalent to talisman and therefore taken along as personal companion. Souvenirs have special personal meanings, because they are always related to experiences the participants had when travelling.

Further things that often accompany persons are heirlooms. Those heirlooms tell a personal story and often serve as a memory anchor.

Nature, Music, Children, Food and Wine, Time, Creativity, Companionship

What strengthens joy and relaxation?

The pictures chosen by the participants point out indications to topics with a strong meaning for them. Those topics, meaning joy and relaxation for the participants, are nature, music, children, enjoying food and wine, having time, performing creativity and being together with other people.

Staging of Things

Participants attach importance to the aesthetical appearance of things and like to stage objects as decorative elements.

Functionality, Smell, Cognitive Performance

What participants do not like at all are things which do not function well and things that smell awful. Products are remarked positively if they are easy to use and their usage does not request any fastidious cognitive performance.

4.9 Contextual Inquiry Interview

In Switzerland 5 interviews took place from 31.07.2013 to 4.9.2013 (1.0 to 1.5 hours), each interview was executed with a pair of one elderly and the correspondent caregiver (e.g. E1 with C1) in the private household of the older person. The interviews were conducted by Soultank AG.

In Austria 50plus GmbH conducted interviews with 7 elderlies on 31.07.2013 at SeneCura Social-Center. During 29.07.2013 and 02.08.2013 interviews with 5 caregivers at the 50plus Centre, Salzburg (AT) were performed.

4.9.1 Contextual Inquiry Interview - Participants/Demographic Data

All in all 12 elderlies and 10 caregivers were interviewed. The average age of the elderlies is 85 years, the age of the interviewed caregiver 62 years.

Table 31: Participants Contextual inquiry interviews/Elderly

Participant	Age	Gender	Civil Status	Occupation	Country
CH-E-1	96	Female	Widowed	Retired	CH
CH-E-2	89	Female	Widowed	Retired	CH
CH-E-3	75	Female	Married	Retired	CH
CH-E-4	83	Male	Widowed	Retired	CH
CH-E-5	76	Female	Divorced	Retired	CH
A-E-1	83	Female	Widowed	Retired	AT
A-E-2	90	Female	Widowed	Retired	AT
A-E-3	87	Female	Widowed	Retired	AT
A-E-4	90	Female	Married	Retired	AT
A-E-5	91	Female	Widowed	Retired	AT
A-E-6	91	Female	Divorced	Retired	AT
A-E-7	74	Female	Widowed	Retired	AT

Table 32: Participants Contextual inquiry interviews/Caregiver

Participant	Age	Gender	Civil Status	Occupation	Country
CH-C-1	69	Female	Widowed	Retired	CH
CH-C-2	65	Female	Married	Retired	CH
CH-C-3	68	Male	Married	Retired	CH
CH-C-4	52	Female	Married	Employed	CH
CH-C-5	45	Female	Divorced	Employed	CH
A-C-1	59	Female	Married	Retired	AT
A-C-2	63	Female	Married	Retired	AT
A-C-3	70	Female	Divorced	Retired	AT
A-C-4	55	Female	Single	Employed	AT
A-C-5	71	Male	Divorced	Retired	AT

4.9.2 Contextual Inquiry Interview - Procedure

The interviews in general followed specified questions presented in chapter 3.8.1. The main themes of the interview focussed on the use of technological devices and the individual care situation.

In Switzerland the participating user-pairs were visited in the home of the elderly. On this occasion Soultank took pictures from the discussed technological devices.

In Austria the elderly participants and the interviewed caregiver had no relation to each other.

The elderly test persons were visited in their home, which in this case was a social centre, while the caregivers were interviewed in the 50plus centre.

4.9.3 Contextual Inquiry Interview - Results

4.9.3.1 Dealing with technological devices

Topics such as functionality, usability, use, motives in regard to acquirements and desires take centre stage in the first part of the interview.

ELDERLY

Table 33: Types of devices and its usage by elderly

Device	Fre-quency	Use	Location	Pros	Cons
Mobile phone for elderly/ brand : Emporia	3/12	▪ To make phone calls (1/12) ▪ To save important numbers. In case of an emergency (e.g.	▪ Living room (1/12) ▪ If outside always	▪ Opportunity to save important contacts and phone numbers (in case of	▪ No expertise due to rarely use(2/12) ▪ Handling is complicated (2/12) ▪ Device is heavy

		family, doctor) (2/12) ▪ Not in use (1/12)	with me (1/12)	emergency) ▪ Simple to use, big buttons (1/12) ▪ Simple to read SMS (1/12)	(1/12) ▪ Writing SMS is complicated (1/12)
Mobile phone/ brand: Nokia (1/12)	4/12	▪ Write and receive messages ▪ Phone ▪ Save important numbers, in case of emergency (e.g. family, doctor)	▪ Kitchen ▪ Handbag	▪ accessible	▪ Handling is complicated ▪ Comprehensibility of functions
Landline telephone (cable)	10/12	▪ To make phone calls (3/12) ▪ To phone as an agreed sign system (1/12)	▪ Living room (8/12) ▪ Bedroom (8/12) ▪ Corridor (1/12)	▪ Saved phone numbers (1/12) ▪ Communication ▪ Contact with others ▪ Accessible	▪ To phone in combination with hearing aid device is challenging due to acoustic feedback (1/12)
Landline telephone (mobile device)	3/12	▪ To make phone calls (3/12) ▪ To phone as an agreed sign system (1/12)	▪ Corridor (1/12) ▪ Living room (3/12)	▪ Saved phone no. (2/12) ▪ Hands-free telephone (1/12)	▪ Writing SMS difficult due to tiny push-buttons (1/12)
Landline telephone (fixed base station with mobile part)	2/12	▪ To make phone calls (2/12)	▪ Office and bedroom (1/12) ▪ Office (1/12)	▪ Saved phone no. (2/12) ▪ Hands-free speaking system (1/12) ▪ Conversation quality is better than with the mobile part (1/12)	▪ Writing SMS difficult due to tiny push buttons (1/12) ▪ Red blinking on the answering machine (1/12)
Answering machine	1/12	▪ To listen to calls	▪ Corridor		
PC (fixed)	2/12	▪ Print out documents (1/12) ▪ Write and read e-mails (1/12)	▪ Office (2/12)		▪ Handling complicated (1/12) ▪ Comprehensibility of functions (1/12) ▪ Handling with technical problems (1/12)
iPad / brand: Apple	1/12	▪ Read e-mails ▪ Write e-mails ▪ Play games ▪ Read news	▪ Living room ▪ Terrace	▪ Simple to use ▪ Usefulness ▪ Size	▪ Sometimes wi-fi problems
Multi-functional device (printer, copier, scanner)	2/12	▪ Copy (2/12) ▪ Print (1/12)	▪ Office and bedroom	▪ Simple to use (1/12)	

			▪ (1/12) ▪ Office (1/12)		
TV / brand: Panasonic, Sony, Loewe	12/12	▪ Watching TV (12/12) ▪ All the time (5/12) ▪ In the evening (7/12)	▪ Living room (4/12) ▪ Living- and sleeping room (1/12)	▪ Simple to use (1/12) ▪ Subtitle useful, because of quickly speaking on TV (1/12) ▪ Big screen (1/12) ▪ Watching news (7/12) ▪ Information (7/12) ▪ Daily soaps (7/12)	▪ Sometimes very fast speaking on TV (1/12) ▪ Technical problems with the programmes (1/12)
Headset for TV / brand: Sennheiser	2/12	▪ Watching TV and using headsets for a better acoustic quality (2/12)	▪ Living room (2/12)	▪ Simple to use (1/12) ▪ No technical problems (2/12) ▪ Very good acoustic quality (1/12) ▪ Works without cables (1/12) ▪ Easy to adapt sound volume (1/12)	
Digital-receiver	1/12	▪ To receive TV programmes	▪ Living room	▪ Simple to use	
DVD player	1/12	▪ Watch travel-DVDs 4 times a year	▪ Living room		
Digital recorder	1/12	▪ For selective recording	▪ Living room		
DVD-/CD player with record / brand: Samsung	1/12	▪ Record TV programmes	▪ Living room		
Radio	11/12	▪ Listening to music (3/12) ▪ Listening radio, all day (6/12) ▪ Listening to information programmes (3/12) ▪ Listening to news (2/12)	▪ Kitchen (2/12) ▪ Living room 3/12 ▪ Take it from room to room (1/12)	▪ Easy to turn on and off (1/12) ▪ Utilisation with sufficient buttons is simple (1/12) ▪ News (6/12) ▪ Information (6/12) ▪ Music (6/12)	▪ rarely use due to ear problems(1/12)

			Living-and sleeping room		
CD-player	3/12	▪ Listening to music (3/12)	▪ Living room (3/12)		▪ rarely use due to ear problems (1/12)
Hearing aid device	1/12	▪ To hear better	▪ Corridor ▪ Kitchen		
Remote control for hearing aid device	1/12	▪ To adapt volume in the church	▪ Corridor ▪ Kitchen ▪ Office		
SRK-emergency-device incl. bracelet	3/12	▪ Emergency function whenever health problems (3/12) ▪ To execute a test alarm (3/12)	▪ Corridor (1/12) ▪ Wrist (2/12) ▪ Living room (2/12)	▪ Simple to use, just press the button (2/12) ▪ Impeccable function (1/12) ▪ Tranquilisation and a feeling of security in everyday life (1/12)	▪ Not appropriate for external use (radius from base 20 metres) (1/12) ▪ Feeling of control (1/12) ▪ Alarm failure (1/12)
Digital photograph frame	1/12	▪ Watch family pictures with visitors	▪ Living room		▪ No computer knowledge, needs son's help
Digital wireless alarm clock	4/12	▪ Visible time (4/12) ▪ To use it as a lamp (1/12) ▪ Alarm clock function (1/12)	▪ Bedroom (1/12) ▪ Corridor (1/12) ▪ Office and bedroom (1/12)		▪ Fear to alter something (1/12)
Radio alarm clock	2/12	▪ Reading time ▪ Alarm clock function	▪ Bedroom		
Electrical toothbrush	3/12	▪ Daily hygiene(3 /12)	▪ Bathroom (3/12)		
Remote control for venetian blind	1/12	▪ Open and close venetian blind automatically	▪ Living room		

Other technological devices were responded by the participants but not focussed during the further procedure as those devices are of little importance to the RelaxedCare project.

Typical household devices such as a mixer, vegetable chopper, timer, water boiler, coffee machine and microwave were mentioned once or several times. Furthermore other devices such as a refrigerator, cooking stove, oven, dishwasher and grill are represented. Participants use as well a washing machine, laundry dryer, electric iron, sewing machine and hoover. In bedrooms electrical beds are occurring and in offices calculators, electrical typewriters and paper shredders.

Figure 49: Most commonly used devices by elderlies: Landline phone, radio, TV, mobile phone

CAREGIVER

Table 34: Types of devices and its usage by caregiver

Device	Fre-quency	Use	Location	Pros	Cons
Smartphone / brand: Apple (4/10) Samsung (4/10)	8/10	▪ To make phone calls (3/10) ▪ Weather forecast (1/10) ▪ Search telephone numbers (1/10) ▪ To photograph (1/10)	▪ 90% with me (1/10) ▪ If husband has device with him, I don´t need mine (1/10)	▪ Favourite device (1/10) ▪ Voice box (1/10) ▪ Easy to use (1/10) ▪ Self-explaining (1/10) ▪ Touch-screen/	▪ Many calls, disturbance (1/10) ▪ Forget to continue writing e-mails (1/10)

		▪ SMS (2/10) ▪ E-mails (2/10) ▪ To read books (1/10) ▪ Internet (1/10) ▪ Apps (eg. WhatsApp) (1/10)	▪ Always with me (1/10) ▪ Kitchen (1/10) ▪ Hand bag (1/10)	keypad works correctly (1/10) ▪ Big display (1/10) ▪ Integrated digital camera (1/10)	
Mobile phone / brand: Nokia, other	4/10	▪ Write and receive SMS (3/10) ▪ Phone during holidays (1/10) ▪ To phone (1/10) ▪ Receive calls (1/10) ▪ Take pictures (2/10)	▪ Flat, not always with me (1/10) ▪ Flat, always with me (1/10) ▪ Body/Clothes (male) (1/10) ▪ Handbag (1/10)	▪ Easy to receive information (1/10) ▪ Get in contact on the way (1/10) ▪ Possibility of fast reaction (1/10) ▪ Accessibility (1/10) ▪ Independence (1/10)	▪ SMS, handling is complicated (1/10) ▪ Costs (1/10)
Landline telephone	2/10	▪ To make phone calls (1/10)	▪ Living room (2/10)		
PC (fixed) / brand: Acer, Apple	4/10	▪ Every 2nd day (1/10) ▪ Kids learn to use MS Word (1/10) ▪ Burn CD's (1/10) ▪ Internet (Google, e-mail, online banking) (3/10)	▪ Office (extern) (1/10) ▪ Office (1/10) ▪ Living room (1/10)		▪ Dust collector (1/10) ▪ Needs a lot of space (1/10)
Laptop / brand: Access, Apple, Samsung, other	4/10	▪ Internet (4/10) ▪ Edit e-mails (5/10) ▪ E-banking (1/10) ▪ Download photos (1/10) ▪ Skype (1/10) ▪ Correspondence (1/10) ▪ Synchronization with other devices (1/10)	▪ Office (1/10) ▪ Flat (2/10) ▪ Own room (1/10) ▪ Mobile use in flat (1/10) ▪ Depends (2/10)	▪ Capacity and therefore safe using (1/10) ▪ Flexibility, as device is mobile (2/10)	▪ Manual (1/10)
Tablet / brand: Samsung	1/10	▪ Play games (1/10) ▪ Write e-mails (1/10) ▪ Skype (1/10)	▪ Everywhere in flat (1/10)	▪ Useful while travelling (1/10) ▪ Light (1/10) ▪ Flexibility, as device is mobile (1/10)	
E-Book / brand: Kindle Paperwhite	1/10	▪ To read books (home and while travelling)	▪ Bedroom	▪ Standby-mode (light turns off automatically) ▪ Everything	
Multi-functional device (printer, copier, scanner) or one of these devices	4/10	▪ Print (3/10) ▪ Scan (2/10) ▪ Copy (2/10)	▪ Office (2/10) ▪ External office (1/10)	▪ Easy to use (1/10) ▪ Good size (1/10)	▪ Expensive toner (1/10) ▪ Constant calibrating

			• Own room of husband (1/10)		(1/10)
Digital camera	6/10	• To photograph (holiday, spare time) (1/10) • Only on vacation and family events (1/10)	• Office (1/10) • Flat (1/10) • Living room (1/10) • Own room of husband (1/10) • Depends (1/10)	• No wiggly pictures (1/10) • Possible to watch photos on TV later (1/10) • Great pictures (1/10) • Applicability (1/10) • Vacation memories (1/10)	• Manual (1/10)
Video camera	4/10	• To record videos (1/10) • To record family events (1/10)	• Office (1/10)		
TV (analogue and digital)	9/10	• Watch TV(9/10) • Watch news (2/10) • Watch BBC (1/10) • Watch movies (1/10) • Watch documentation (1/10)	• Living room (6/10)	• Digital picture quality (1/10) • Access to internet (to watch programmes) (1/10) • Always be informed and entertained (1/10)	• Comments to „old" analogue TV (1/10) • Manual (1/10)
DVD-player	3/10	• Watch DVDs (1/10) • Not often (1/10)	• Living room (3/10)		
Digital recorder	2/10	• To record programmes (1/10)	• Living room (2/10)		
Radio	8/10	• Listen radio (1/10) • News(1/10) • Music (1/10)	• Kitchen (2/10) • Living room (2/10) • Bathroom (1/10)	• Very good sound quality (1/10) • List of senders (1/10) • Design (1/10) • Entertainment (1/10)	
CD-player	4/10	• Listen to CDs (music, stories) (1/10) • Not often (1/10)	• Living room (3/10) • Room for kids (1/10)	• Consistency (1/10) • Remote control (1/10)	
MP3-player	1/10	• Listen MP3	• Kids-Room		
Cross-linked sound system / Bang & Olufsen (all devices connected with Wi-Fi)	2/10	• Listen radio (2/10) • CD (2/10) • MP3 (2/10) • Alarm clock function (1/10)	• Base device in husbands own room, loudspeaker in whole flat (1/10) • Living room	• Very flexible because music, radio, TV are combined in one system and can be regulated as one device (1/10) • Product can be	

			(1/10)	extended and therefore is very long-lasting (1/10) ▪ Remote control for all functions (1/10)	
Digital picture frame	1/10	▪ To watch pictures (once a year)	▪ Living room		
Digital alarm clock	2/10	▪ Alarm clock function (2/10)	▪ Bedroom (2/10)		
Radio (as alarm clock)	1/10	▪ Alarm clock function	▪ Bedroom		
Electrical toothbrush	1/10	▪ Daily hygiene	▪ Bathroom		

In Austria some devices like video player are not in use for cognitive reasons (manual is too difficult to understand). In some cases the digital camera is not used by the caregiver if another family member knows how to use it, e.g. the daughter is uploading the photographs on the PC. Almost all interviewed caregivers indicated that they use the device as long as the functionality is guaranteed. If this is not the case anymore, the device will be replaced. The female participants stated that a male family member installed the devices.

Other technological devices were responded by the participants but not focussed during the further procedure as those devices are of little importance to the RelaxedCare project.

Typical household devices such as a mixer, vegetable chopper, timer, water boiler, coffee machine and microwave were mentioned once or several times. Furthermore other devices such as refrigerator, cooking stove, oven, dishwasher and grill are represented in the inventory of the caregivers' household. Participants use washing machines, laundry dryer, electric iron, sewing-machine and vacuum-cleaner, in bathrooms often hair blowers can be found. For exercising their daily fitness caregiver use mechanical devices such as home trainers. In bedrooms electrical beds are occurring, in office paper shredder. In flats venetian blind s are used as well.

Figure 50: Most commonly used devices by caregiver: TV, radio, smartphone, digital camera

Communication partners

ELDERLY

In Switzerland the most important communication partners are family members, friends and partially external services like doctors, hospitals and nursing services.

Particularly elderly persons who have family members abroad (e.g. daughter, son), use increasingly e-mail as a medium for communication.

If another person lives in the household together with the elderly the available technological devices are used by both persons (e.g. husband, who takes care of his wife).

In Austria the communication partners are friends (4/7), children (4/7), grandchildren (2/7), other relatives (3/7) and the husband (1/7).

CAREGIVER

For caregivers in Switzerland the most important communication partners are as well family members and friends. External services such as doctors, hospitals and nursing services were not mentioned explicitly.

Additionally to e-mail caregivers use other communication media like facebook, skype and what's app to get in touch and stay in contact with family members abroad (e.g. daughter, son, sister, brother).

If another person lives in the same household the available technological devices will be used by all of them (e.g. husband, children). The field interviewer observed that family members often have their own computer, laptop or tablet and increasingly a smartphone.

For Austrian caregivers as communication partners relatives come first (except one without family), than friends, neighbours and offices. If other family members live together in the same household, they use the devices as well.

Wish for additional devices

ELDERLY

The elderly people mentioned just a few technological devices, which they wish in addition to their existing devices, namely:

- Speaking wrist watch (useful if you have a debility of sight)
- Hearing aid devices, which match with individual ear channel
- Smartphones, which allow to photograph
- A kind of tong, which helps to move objects (useful in case of hip and leg problems)
- PC (one participant would like to use it, but is not used to it)

CAREGIVER

Caregiver mentioned just a few technological devices, which they wish in addition to their existing devices, namely:

- Smartphone for extensive communication when being on the way
- Navigation system when being on the way
- Notebook (none of the respondents required a tablet, this device was mostly unknown in Austria)
- State-of-the-art devices for household affairs

Special devices for transmission of messages

ELDERLY

Elderly in Switzerland were not asked question 9 (...can you imagine carrying devices which are sending and receiving messages with you when leaving home...) due to the high level of required mental abstraction.

In Austria 2 of 5 participants thought about a mobile phone and SMS, the other participants negated this question.

CAREGIVER

In Switzerland one interviewee had the idea to use a smartphone (e.g. iPhone) for phone conferences with other family members. The basic concept behind this statement was the creation of a „family-network".

In Austria only 3 of 5 participants were asked question 9, as after having executed the first two interviews, the questions had been modified and adapted. The three respondents can imagine having a special device for sending/receiving messages. All participants thought about the mobile phone SMS function which is able to transmit messages both acoustically and visually.

4.9.3.2 Care Situation

ELDERLY

Devices for a feeling of security and support

Participants were asked for items at home which provide a feeling of security in everyday life.

Table 35: Devices providing a feeling of security

Device	Reason
Landline telephone (bedroom, living room for „delicate" work)	To ask for help whenever health problems occur.
Mobile phone for elderly people	To safe emergency numbers and important telephone numbers. In urgent cases to impart information and to ask for help.
Walking frame	To avoid difficulties while walking (use of walking sticks just in situations when interviewee is picked up or brought back home). 5 of 7 participants in Austria.
Grab handle	Support in case of symptoms of old age.
SRK emergency call	To ask for help in an emergency. Securitas has a key to the apartment to be able to enter in case of an emergency.
Chains (front door)	3 of 12 participants feel protected.
Wheel chair	2 of 12 participants feel more secure.

Table 36: Help in certain situations	
Situation	**Details**
Normal health status	Taking comestible to 3rd floor (visit from daughter 3 times a week)
	Cleaning of laundry (assisted by daughter)
	Online-banking and booking new taxi-bonus (assisted by son)
	Cleaning apartment and sorting medicaments once a week by a household assistant
	Daily help in the bathroom, help if something is out of reach
Health problems	Long term: assisted by nursing service to treat wounds
	During chemotherapy: assisted by husband (daily)
	After accident: assisted by daughter (2 times a day)
	After accident: assisted by pedestrian after a fall at the bus station

Information and communication with caregiver

The interviewees have different opinions, of how and to what extent their caregivers should be informed about their individual health status. 5 of 12 interviewees emphasize that self-dependence is very important for them and that they are happy, if caregivers don't know everything about their life. This occurs for different reasons. On the one hand they appreciate their independence and their self-determined way of life and don´t like the idea to cease it. On the other hand they don't want to burden their caregivers.

6 of 12 interviewees state that it is important for them to inform their caregivers about their current situation. One interviewee indicates that he feels lucky when he notices that the caregiver wants to help and participate in his life.

It is interesting that all interviewees want to contact their caregivers as soon as a health problem comes up. To inform caregivers they prefer to phone them.

Summing up the main arguments, elderly:

- feel connected, affiliated and contented, if caregiver shows solicitousness,
- contact caregiver by telephone when a (health) problem comes up, and
- don't want to become a burden for their caregivers , autonomous living and self-determination are important for them.

Capacity to act

Elderly participants were asked if they ever had been in a situation when they couldn´t act anymore and from whom they got help at last.

Table 37: Capacity to act

Situation	Details
Chemotherapy	Decline of health status. Assisted and supported by husband in daily life.
Fall (on the back) in the kitchen	There was no possibility to get up by herself. The person contacted daughter via mobile phone. Her daughter contacted the police who passed by to help the elderly person.
After a hip operation	Support by a nursing service and enlargement of bath tub in bath room.
Fall at the bus station (broken nose)	Help from a pedestrian who called a doctor. In the hospital they looked after the fracture. The elderly person went home by taxi, the caregiver was not informed. For the elderly person the hospital did not react correctly in this situation.
Falling/disease history	6 of 12 participants have a long falling/disease history.

Safety in everyday life

Devices, relationships or defined actions which transmit a feeling of security in everyday life are:

- daily calls from caregiver,
- leaving home only with an attendance,
- living in a house with five parties,
- good working neighbourhood network,
- integration of elderly person in family life (visits, walks, lunch, work),
- 24 hours care and
- Wheel chair.

Use of technological additives

5 of 12 interviewees use the Red Cross emergency device (Austria, Switzerland) as an aid, which makes them feel secure.

4 of 12 elderly use the base-station inclusive bracelet. One attendee disposes of a base-station inclusive bracelet and NEMO („mobile with GPS-emergency").

One interviewee mentioned that the external use of emergency calls is very important (e.g. moving in house, going upstairs/downstairs).

2 of the elderly use a mobile phone as technological additives.

Figure 51: Red Cross base station with bracelet

Feelings in care situations

4 of 5 interviewees feel comfortable concerning their care situation. Only one interviewee mentioned that she feels not taken seriously by her family.

CAREGIVER

Information and communication with elderly

This aspect examines the way caregiver receive information about health problems of the elderly person.

Table 38: Information and communication with elderly

Who informs	Medium of communication
Mother (elderly) or family member (siblings)	Landline phone
Wife (elderly)	Observation by husband in common apartment
Mother (elderly)	Contact by phone with agreed signs: ringing more than 3 times in case of health problems, ringing 3 times if everything is all right)
Mother (elderly)	Personal visits by caregiver (several times/week), when in vacation replaced by sister and contact by phone
Sister	Contact by phone, when mother doesn't pick up the phone, she informs her sister who passes by the elderly person
Nobody	Normally the daughter doesn't know anything about the health situation (more by chance, if they speak together by phone or visits)
Father (elderly)	Contact by phone (if nobody picks up the phone, daughter passes by)
Father (elderly)	Personal visits by caregiver (once/week)
Grandchildren/husband	Daily call (2/3 in Austria)
Daughter	Phone call (1/3 in Austria)

Use of Sign systems

Caregivers were interrogated if they use a kind of report or alarm system in order to get security in the care situation.

Table 39: Sign Systems	
Sign system	Detail
Daily call	In the morning at 8 o'clock daughter gets a call. Arranged sign: ▪ Ringing 3 times: everything is all right ▪ More than 3 times: a health problem came up
Phone call	Caregiver contacts regularly his/her mother by phone
Visits (personal)	Regularly visits 3 times a week
Strong embedding in family life	Regular meetings with family members, participation in work (daily back-work in office), common lunch
Help/support in the neighbourhood	▪ Elderly reads the newspaper and puts it to the neighbour's front door (if this doesn't happen, neighbour asks if everything is ok) ▪ Elderly loves to bake/cook and distributes cookies in the neighbourhood
Emergency call from SRK (Swiss Red Cross)	System acquired explicitly as a sign system

Feelings in care situation

Caregivers were asked about their feelings concerning the current care situation.

Table 40: Feelings in care situations	
Feelings	Responses
Contentment	▪ Perfect. Mother thinks sometimes that she is a burden, but that's not true. ▪ Currently OK, but mother often falls down (4-5 times a year) ▪ No problems in current situation. Extended help is not necessary yet.
Solicitudes	▪ Caregiver worries about the entrance to the apartment. What if something happens and nobody has the key to the apartment? ▪ Entrance door is open during the day. Caregiver feels worried about thieves.
Exhausting	▪ Caregivers situation is exhausting
Sad	▪ Caregiver is sad about situation, but the situation isn't stressful
Comfortable	▪ Caregiver feels good in the situation

Ideas for reliefs in care situations

In consideration of relieving the care situation, caregivers were requested to brainstorm for wishes and ideas to improve their everyday life experience.

Table 41: Ideas for relieving care situations

Relief	Reason
Cleaner	Cleaning once a week (2 hrs) Ideas for the future, as elderly has faith in his cleaner: ▪ Person can be responsible for the shopping ▪ Caregiver has initiated the participation in a SRK-course in order that she can handle health problems
Pro Senectute	Entertainment program (by volunteers).
Services	Intense use of taxi for seniors.
Services	Intense use of buses for seniors (stopping at the front door)
Spitex	During chemotherapy: regularly support by nursing service.
Service „eat on wheels"	Delivery of senior-fair food (e.g. retirement home)
Emergency-call SRK	Caregiver is relaxed, if professionals can help the elderly person (e.g. Securitas) in an urgent situation
Common room	Not used at the moment. Could be used for „play-afternoons" and regularly meetings
Neighbourhood	A good neighbourhood relation is essential and a strong relief (e.g. sharing tasks and responsibility for certain themes like cleaning). There is as well the possibility to contact each other in urgent cases.
Mobile phone	Developing of a kind of mobile phone that includes everything: telephone, SMS, camera, emergency button.
More time	More time would help to create a more comfortable situation for caregiver and elderly
Professional help	Professional help eases the situation for caregiver and elderly

4.10 Summary of the chapter

Chapter 4 specifies the execution of all seven research methods for the RelaxedCare study. It presents detailed information concerning the demographic data of the participants of each user group, time and location of the execution of the method, the procedure of the execution and the results for each method applied.

5   Data Analysis

This chapter is due to offer an overview of the data analysis procedure of the qualitative research methods applied in WP 2. For the analysis of the vast material collected during the qualitative study with seven methods first the data was filtered via the Word Clouds method and grouped into topics via the Affinity Diagramming method by IHL (the results are presented in the appendix of the document).

5.1   Cross Cultural Comparison

The initially intended and in the DOW described appliance of the method Cross Cultural Comparison turned out as unbefitting choice due to the mostly similar study results in Austria and Switzerland. An explicit and single data analysis and its comparison for each country therefore seemed to be unreasonable within the project as no gain in information could be expected.

5.2   Data preparation process

For the analysis of the vast material collected during the qualitative study with seven methods first the data was filtered via the Word Clouds method and grouped into topics via the Affinity Diagramming method (the results are presented in the appendix of the document).

5.3   Data analysis procedure

The analysis process by NDU started with a coding process of the results of the methods presented in the previous chapters, meaning the organization of the collected material to segmenting sentences and categories which means to analyse the material concerning phenomena and significant statements for each user group (caregiver and elderly) in order to create meaning units. (see Creswell, 2009, p. 186)

The coding process was conducted using the following questions (see Flick, 2009, p. 167-172):

- What? What is it about? Which phenomenon is addressed?
- Who? Which persons or players are involved? In which way do they interact?
- How? Which aspects of the phenomena are addressed or not addressed?
- When? How long? Where? Time, course and location.
- Why? Which reasons are mentioned or are to be opened up?
- What for? For what purpose or intention?
- With what? Means, tactics and strategies to reach the goal.

After the coding process into meaning units a matrix was created for each method to offer an overview of the results.

Figure 52: Matrix

5.4 Data evaluation summary

5.4.1 Personas

The aim of the Personas method is to keep the focus of the project on real end users. As described under point 2.2.1, 3.2 and 3.2.1 the method of Assumption Personas was conducted in order to reach a common understanding of both target groups (caregiver and elderly) among the team of project partners. On the occasion of the first consortium meeting in June 2013 all project team members were invited to take part in an Assumption Personas workshop with the aim to create for each target group a male and a female Persona. The goal was to initiate an intensive discussion and to create material for reflection during the entire development process. Under point 4.2 we described the results of the Assumption Personas workshop.

After the conduction of all methods during the research study the created Assumption Personas from the first consortium meeting in June 2013 were compared with the findings for each user group and several severe changes had to be made. One of the major findings revealed by the methods was that the average of age for the target group of the caregiver had to be changed to an average age of 50+. The average age for the group of the elderly had to change to 80+. Concerning activities of daily living and preferred objects of everyday life various similarities among the group of the caregiver and the group of the elderly could be identified. With regard to these findings the Assumption Personas created during the workshop in June were modified to Personas based on the findings of the study. The process of capturing the different points of view concerning the target groups of the project among the team of project partners by means of the Assumption Personas method and finally the presentation of facts originating from the findings of the study supported the goal of questioning individual mental models of the team members, enabling fruitful discussions and focusing on real end users of the project.

Isolde Habermann, 85 ♥ E

Optimistic city person

Cognitive:
Memory:
Diseases:
Symptoms:
Limitations:

Social contacts: medium to high

Low — Independence — High

"I feel comfortable in my age. I can do many things independently and don't need lot of help."

Isolde is a lively elderly woman, who looks at her next years with confidence. She realises, of course, that she is not as healthy as before, but she remains optimistic. She loves her beautiful garden, her grandchild Tim and her dog Tristan, who stimulate her taking longer walks several times a week. She has good relationships with her neighbours and is happy, that her son Josef doesn't live far away with his family. Sometimes she is sad, because unfortunately many friends have passed away already. Recently she worries that something might happen to her and there won't be anybody available helping her. Josef always tells her to carry the mobile phone for elderly with her, but she forgets it all the time.

Situation

Family
- Widowed
- One son, Josef Habermann
- Grandmother and great-grandmother (has an ill grandchild)

Living Situation
- Community housing, lives alone
- Friendly relationship with neighbours
- Loves her garden
- Adores her dog

Health
- Don't need drugs
- A little oblivious
- Is afraid to fall down

Behaviours

Social & Activities
- Reading
- Going on excursion and walks in nature, with dog Tristan
- Likes time with grandchild and driving by tram with him

Communication
- Likes face-to-face contact
- Sometimes telephone calls
- 2 times a week visit from son

Technology Usage
- Technophob
- Has landline phone
- Has mobile phone for elderly, but doesn't use it

Care Situation
- Is afraid to impose on son
- Neighbours take a look of her
- Realises more and more, that everything is exhausting

Wishes
- Wants to live independently for a long time
- Hopes, that eyes will be healthy for long
- Drinks everyday a glass of liqueur and wants to live as long like Queen Mum

Experience Goals
- Wants to inform son, if something happens with her – at home or outside
- Needs face-to-face contact with family and friends

Figure 53: Persona Elderly – Isolde Habermann

Josef Habermann, 60 ♥ C

Divorced, unhappy family man

Cognitive:
Memory:
Diseases:
Symptoms:
Limitations:

Social contacts: Low

Low — Independence — High

"It should not be seen as monitoring, it should be an aid; the natural course can't be controlled."

Josef is a unhappy divorced father of two children. He likes his job because of its distraction, but looks forward being retired. The relationship to his wife is very bad since their divorcement. He loves his children, especially his first grandchild. The relation-ship to his mother is a bit difficult due to many unspoken problems from the past. Anyway he wants to know that his mother is healthy and that nothing happened to her, because she lives alone. On the other hand he doesn't want to call her every day, because the phone calls often end up in a fight about meaning-less things. He wants professional help for his mother and would like to receive information if something happens.

Situation

Family
- Lives in divorce
- 2 children
- Already grandfather
- Son from Isolde Habermann

Living Situation
- Lives in a company flat in a city
- Doesn't know his neighbours
- Daily routine is enough work for him

Health
- Blood pressure
- If his daughter visits him, they often go for a walk
- He don't like work out, it is very exhausting for him

Behaviours

Social & Activities
- Working as a tram driver
- He is very unhappy since his marriage is divorced after 25 years
- Sometimes he meets an old, good friend

Communication
- Uses only land line phone
- If he has to communicate, he prefers face to face contact
- As his son lives abroad, they stay in contact via e-mail

Technology Usage
- Technophob
- Has an old computer for e-mail usage

Care Situation
- Two times a week he visits his mother
- He wants professional help for his mother

Wishes
- Wants to know everything is well with his mother
- He doesn't want to be in charge because the relation to his mother is not that easy
- Rarely he is scared about his own situation getting older

Experience Goals
- Wants professional support for his mother
- Needs something for reassurance and wants to know if something is wrong
- Still doesn't want to be in charge

Figure 54: Persona Caregiver – Josef Habermann

Franz Eisenherz, 83

Optimistic and cheerful person

Cognitive:
Memory:
Diseases:
Symptoms:
Limitations:

Social contacts: high

Low — Independence — High

Franz is a very active older man. Though he is in a bad shape, he tries not to give up. He loves his life – especially he loves to go out to meet friends and for gatherings with other elderly persons. He lives in his daughter in laws` family house in the first floor and tries not to be a burden. He likes the daily lifestyle in the house and is happy to see his grand-children very often. He really appreciates help from Gundula, his daughter in law, but never-theless tries to stay independently. When he leaves home on his own, he seeks telling someone of his family where he will go, which is sometimes difficult due to occasional memory-problems. Despite his age he is very open minded but has no affinity to technology.

"Living independently - not to be a burden for my family – and live the life as long as possible."

Situation

Family

- Widowed
- 2 children and 2 grandchildren
- Is the father in law of Gundula

Living Situation

- Lives in his own flat in the family house of his daughter in law and grandchildren in the first floor
- Has a good relationship with his family and the neighbours

Health

- After a stroke his left side is limited
- Beginning of dementia

Behaviours

Social & Activities

- Very active
- Lots of social contacts with other elderlies
- Playing cards with his friends twice a week

Communication

- Using the land line phone
- Having a lot of visitors
- Writing postcards

Technology Usage

- No affinity to technology
- A few times a week he listens to the noon talk in the radio
- Likes to watch TV

Care Situation

- His daughter in law (Gundula) looks after him quite often the day
- Husband of Gundula and grandchildren visit him for a talk few times a week
- Eating with the whole family once a day

Wishes

- His biggest wish is not to be a burden for his family
- Sometimes he scares about invidious situations, but he doesn't want an emergency-system

Experience Goals

- Stay as long as possible independently
- Would like security in invidious situations

Figure 55: Persona Elderly – Franz Eisenherz

Johanna Heierle, 82

Nosy, lonely old woman

Cognitive:
Memory:
Diseases:
Symptoms:
Limitations:

Social contacts: medium

Low — Independence — High

Johanna is Gundula's aunt and lives in a nursing home. She suffers about her situation because she never wanted to live in such an institution. Anyway she knows and accepts the fact that she needs help. Her social contacts are not so many, but this is due to her. Johanna knows that her niece tries to visit her as often as she can, but Johanna feels alone. Her daily hobby is to observe the neighbours and chat with them, but she doesn´t have friends anymore, because they either passed away or moved to other nursing homes. She tries to stay independent and is also open to try new technological things. She already has an emergency system, but she still uses the landline-phone for phone calls.

"Unfortunately, getting old means to be more and more alone. That's not that good. But that's life!"

Situation

Family

- Widowed
- No children
- Being supported by niece Gundula

Living Situation

- Lives in the suburbs in a apartment for elderly people
- Half an hour away from her niece

Health

- Not fit
- First serious problems
- Feeling dizzy
- Has diabetes
- Recent hip-surgery

Behaviours

Social & Activities

- Feels often alone
- Prefers staying at home
- Short journeys, accompanied
- Likes to read books, but it's sometimes exhausting
- Likes to watch TV (afternoon)

Communication

- Loves visits from Gundula
- Likes observing her neighbours
- Chatting with neighbours few times a day

Technology Usage

- Landline-phone
- Emergency-system

Care Situation

- Never wanted to live in a nursing home
- 2 times a week visits from professional care person
- Gets daily lunch

Wishes

- Hopes that hip heals in a good way
- Staying independent
- Much more contact to niece Gundula and her family, but they are too far away for her
- Wants a more fulfilling life as in previous times

Experience Goals

- Needs support in daily life
- Overcome her loneliness

Figure 56: Persona Elderly – Johanna Heierle

Gundula Eisenherz, 58

Stressed and burned out mother

Cognitive:
Memory:
Diseases:
Symptoms:
Limitations:

Social contacts:
very high

Low   Independence   High

Gundula is a stressed and burned out mother who takes care of two persons she really cares about. At the moment her emotional and physical condition is very bad, which is reflected in her health condition. Gundula has less time for her husband and children, her friends and for her activities, a fact that makes her suffer a lot. She misses skype calls with her best friend in London. She struggles with herself because she knows that her father in law and her aunt needs her. Gundula knows that she needs professional support, otherwise she won't be able to handle her situation. Technologically she is very well skilled and likes to try new technological developments, but has currently no money for that.

"I always feel like the rabbit from «Alice in Wonderland»: No time, no time."

Situation

Family

- Married to Christian since 20 years
- 2 children and 1 grandchild
- Franz Eisenherz's daughter in law
- Niece from Johanna Heierle (82)

Living Situation

- Lives in a house in the suburbs of a city
- Her father lives in the first floor of the same house
- Have lunch with the whole family and her father

Health

- Overtaxed, stressed in terms of health, psychological state and time management

Behaviours

Social & Activities

- Loves having coffee with friends
- Likes walking next to the river
- Needs relaxation in spa
- Gardening

Communication

- Anytime reached by smart phone
- SMS and chat with her children
- Skype with best friend in London

Technology Usage

- Technologically very well skilled
- If there is a problem, her husband helps, he works in an IT company
- Usage of smart phone and iPad
- Financial trouble to afford the newest gadgets

Care Situation

- Cares for her aunt, she feels alone
- Lives in the same house with her father in law and supports him several times a day

Wishes

- Needs support, because her husband strongly involved in his job
- Appreciation
- Distance from her problems
- Time for herself

Experience Goals

- Needs support for taking care of her father and aunt
- Wants to be informed permanently about the status of her father and her aunt and it should be easy to handle

Figure 57: Persona Caregiver – Gundula Eisenherz

Hugo Igel, 78

Stubborn married man

Cognitive:
Memory:
Diseases:
Symptoms:
Limitations:

Social contacts:
low

Low   Independence   High

Hugo is a very stubborn man and is trying to ignore his disease. He is living with his wife Ida on the countryside. Hugo enjoys his garden. His son often visits them, if he is around and they regularly talk to each other on the phone. Hugo is in a very bad health condition because of his disease. This situation is very hard for him, because he doesn't accept his Parkinson. Therefore his wife is not allowed to tell anyone about it, which is a very bad situation for both of them. He is not willing to learn new things, because he thinks, he won't understand them and takes his disease as an excuse. To avoid that other people align to him, he would never admit that he often feels dizzy.

"Everything is fine, I cannot understand why everybody is making such a hype."

Situation

Family

- Married to Ida
- Has a son, who lives 1 hour away

Living Situation

- Lives together with Ida in a house with garden in the countryside
- His son lives in another city

Health

- Parkinson
- Falling history
- Often feels dizzy
- Gainsay his Parkinson and don't accept it as his disease

Behaviours

Social & Activities

- Meets sometimes friends
- Doesn't want his friends to know about his health situation
- Was a very active and social man, but retired because of his diseases

Communication

- Communication with family and friends with mobile phone

Technology Usage

- Technophob
- Not willing to learn new technological things

Care Situation

- He is afraid to fall down because of his falling history
- Often very dizzy, but he would never admit it
- He doesn't want and accept any help from outside, even though this would support his wife
- His wife helps him a lot, he feels sick with this situation

Wishes

- Nobody should know about his disease
- Wants to be healthy again

Experience Goals

- Helping a person who refuses help

Figure 58: Persona Elderly – Hugo Igel

Figure 59: Persona Caregiver – Ida Igel

5.4.2 Questionnaire

The results of the questionnaire study with the group of the elderly show a collection of preferred activities, places and people. The group of the elderly like travelling, hiking, gardening, reading, their kitchen, sun places, their living room and their grandchildren.

Figure 60: Questionnaire – overview results

5.4.3 Show and Tell Method

The Show and Tell Method was conducted with participants of both user groups. The following matrix shows the summary of objects caregiver and elderly have in their pockets or bags when they leave their homes. Both user groups carry a wallet, a handkerchief, their keys, a mobile phone, cosmetics (for female users), pens, a talisman and (if needed) glasses with them.

Figure 61: Show and Tell Method – overview results
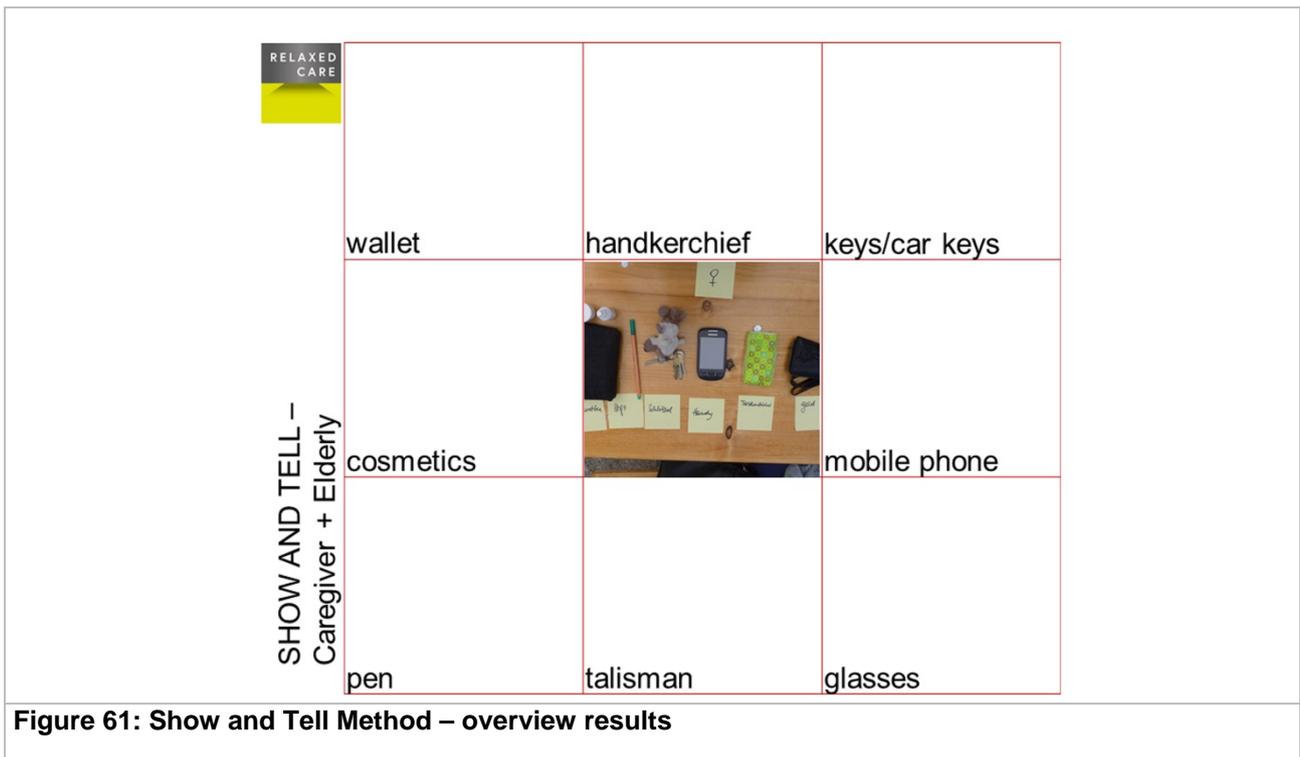
5.4.4 Focus Group Discussion

The next matrix shows a summary of different points of view how the user group of the caregiver see the group of the elderly and vice versa. Caregivers say about elderly that they dislike new technology, that they underestimate their health status and that they don't call them when something happens. The elderly say on the other side that they don't want to disturb their caregiver. They think that technical devices are possibly helpful and they say that they wouldn't feel controlled by them. This group enjoys already the independence offered by communication tools.

Figure 62: Focus Group – overview results attitudes

The next matrix shows a summary of things the group of the caregiver wishes for. This group wishes: for time for themselves, for help from professionals, to know that everything is ok, to have networks available as a kind of emotional back up to exchange information and experiences, to be informed immediately about critical health situations, to get a distance from their caring routine, to share the burden of caring with others and they wish for a bit of light-heartedness in their lives.

Figure 63: Focus Group – overview results wishes of caregiver

5.4.5 Cultural Probes

The following matrix shows the findings of the cultural probes study. The analysis of the material collected revealed an interesting output. The findings of both user groups concerning objects used in everyday life routine were again similar. Both groups like their landline phone, to watch TV, photos, a fire place, their home office, a talisman and in general products which generate a positive user experience. The vacuum cleaner displayed in the matrix stands for objects they dislike as well as the activity of cleaning itself.

Figure 64: Cultural Probes – overview results

5.4.6 Design Workshop

The matrix of the results of the Design Workshop conducted with the group of the caregiver offers an overview of preferred objects like a talisman, souvenirs and heirlooms. Preferred activities among the group of caregiver are the luxury of having time, receiving a smile, eating in company, being outdoors and playing/listening to music.
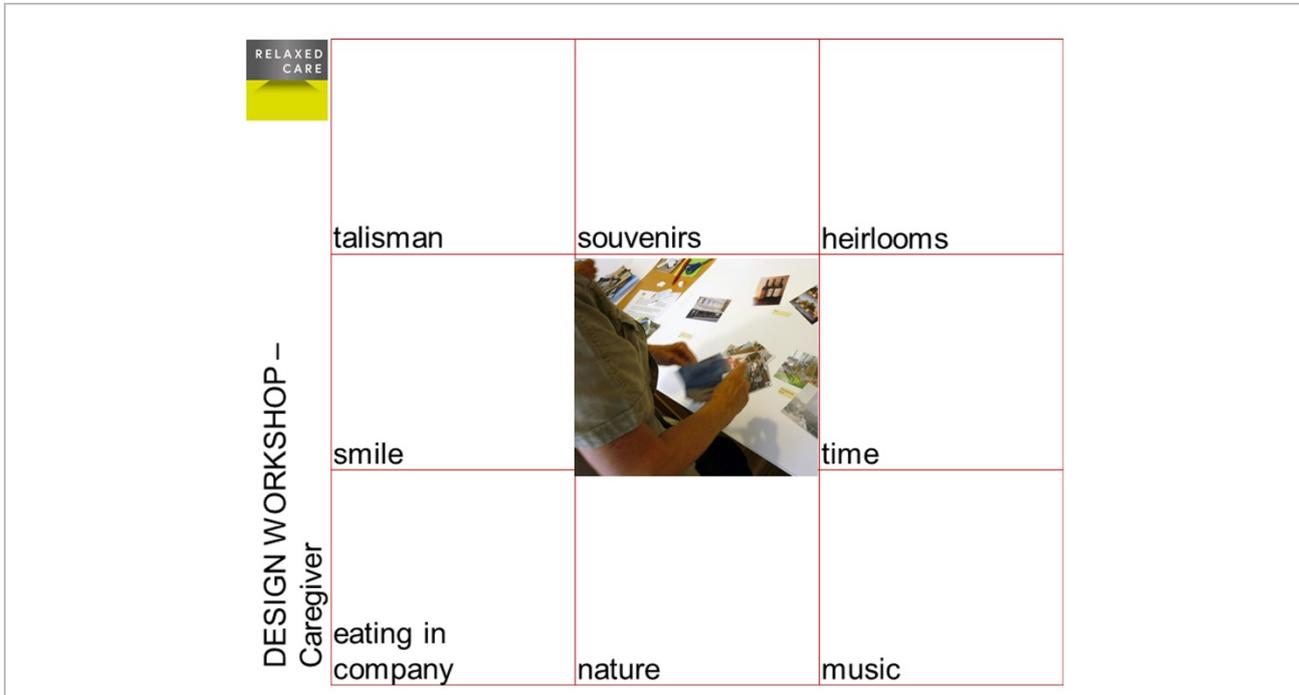
Figure 65: Design Workshop – overview results

5.4.7 Contextual Inquiry

User Group: CAREGIVER

The user group of the caregiver expects the RelaxedCare system to offer optimal functionality. They would like to receive acoustic notifications for actions generated by the elderly (leaving the flat/house, coming home, etc.). Furthermore the RelaxedCare system should in any case provide a secure connection to different family members as well as to health service centres. This user group imagines the RelaxedCare system to consist of a mobile and a stationary component.

User Group: ELDERLY

The user group of the elderly is not very thrilled by the idea to manage new technical devices. A conclusion to this fact could be to enrich an already known device with new functionalities. The elderly also imagine that the RelaxedCare system would best consist of an easy to operate mobile and stationary device and also wish for a secure connection to their family and a health service centre. With respect to information gathered during the interviews in general the conclusion could be drawn that the RelaxedCare system should include entertainment functions to establish a positive emotional bondage with the system.

	CAREGIVER	CAREGIVER	CAREGIVER
CONTEXTUAL INQUIRY	optimal functionality	acustic notifications	secure connection to health service center and family
	CAREGIVER combination of mobile and stationary system		ELDERLY no new technical device – a known device could be enriched with new functionality
	ELDERLY mobile and stationary device – easy to operate	ELDERLY secure connection to family and health service center	ELDERLY should include entertainment functions

Figure 66: Contextual Inquiry – overview results

5.5 Summary of the Chapter

Chapter 5 provides an overview of the data analysis procedure of the qualitative research methods applied in WP 2 during the first end-user research engineering phase. The analysis procedure started with the application of methods Word Clouds and Affinity Diagramming. The preparation of the material was followed by the evaluation of all results originating from the methods applied. For this a phenomenological approach was chosen by segmenting sentences into categories in order to create meaning units concerning phenomena and significant statements for each user group (caregiver and elderly).

6 Discussion of results and conclusions

This chapter shows a list of product criteria for the RelaxedCare system. Based on the analysis of the methods conclusions concerning positive and negative product criteria could be drawn. With regards to the findings of the study a combination of stationary (at home) and mobile (in use while outdoors) components for the Relaxed Care system is mentioned.

Positive product criteria:
- The system should be aesthetically attractive and appealing,
- should include positive user experience elements (raise curiosity, offer positive user experience through a good and understandable logical structure of the system in terms of good functionality and operability),
- should be in general easy to clean (good material quality and design quality) and should be easy in terms of maintenance,
- with regards to the personalization of the RelaxedCare system components the design in general should address positive personal memories and create positive new ones with either the caregiver or the elderly person,
- should feature waterproofness for elements of the system which are designed as wearable products, and
- should offer time and location independence while using it.

Negative product criteria:
- The system should avoid to require any kind of memory performance,
- as well as it should avoid to create a negative reception of the system components due to bad smell (e.g. like an intensive smell of plastic), and
- erase situations where an information transfer is not possible.

The next passage is dedicated to present a collection of ideas, key words, design approaches and conclusions for the development of the RelaxedCare system based on the findings of the study. For the group of the caregiver the system is expected to fit into everyday life routine like a kind of a guardian angel. Most of all they highlight the fact that the ethics of the system, which was described as offering not forcing the use of objects of technology as a possible support in the lives of the elderly, has to be guaranteed. They emphasize the aspect of care sharing in all the discussions that took place. Caregiver don't want to fall to bits under the burden of caring. They want to have some time off to be themselves as well as they realize that they need this time to keep themselves physically and mentally healthy. The idea of receiving a possibility of keeping up an emotional bond between caregiver and elderly is highly appreciated. For the group of the elderly their independence and autonomy is very important. They don't want to get the feeling that they finally end up being a burden to their sons and daughters or friends. During the discussions with participants of the group of the elderly the fact that the usage of items of technology could offer them a feeling of safety and protection was revealed. They recount that staying fit and healthy feels like a kind of obligation to their beloved ones in order not to become a burden. The idea that through the RelaxedCare system the keeping up of an emotional bond without the pressure that every call means trouble would be possible as well as the possibility to get directly in contact with their caregivers in case of emergency was well received. Another interesting finding of the discussions with the group of the elderly was that the *big brother* phenomenon in terms of being monitored throughout the day is no real issue any longer. The elderly mention that they support the idea of technology assisting them as long as such a system includes a kind of social contact as well. Both user groups imagined the mobile phone to be an important part of the Relaxed Care

system. During focus group discussion ideas like chip implants with a GPS tracking system already used in the US, a technical system which works in combination with a fitness training item in the homes of the elderly which tracks usage as well as health data, an item of technology which enables communication as well as emergency calls and the monitoring of acts of everyday life routines like opening the blinds in front of the windows as status information that everything is normal, were discussed.

7 Interpretation of results

During a 4-days workshop at the NDU form the 1st to the 4th of October 2013 with seven students of the master programme for Innovation and Design Strategies the interpretation of the results of the research study took place. The aim of this workshop was to translate the findings of the study to possible RelaxedCare system concepts. The key question this workshop started with was: Connecting People – Which kind of products (analogue) and/or interactions (virtual) are able to create a feeling of connectedness between people who are not living in the same place? The workshop days followed the process steps of the "user-inspired innovation process" *decode*, *assemble*, *experiment* and *merge*. The methods used during the workshop were: 3-12-3 brainstorming method, heart-hand-mind idea evaluation method, keyword clustering, AEIOU method, ad-hoc personas, scenarios, design concept development methods, physical modelling and use case development. Due to the fact that this workshop took place after the data analysis process of the project and the workshop was designed as a part of the students' practical seminar several methods presented in this chapter were used only for the training of the application of design research methods.

In the beginning of the workshop all the results generated through the methods applied in the study were presented to the students. Afterwards they were invited to a 3-12-3 brainstorming session where they had to write down as much as possible key words to the question of the workshop mentioned earlier in the paragraph. After the key words brainstorming they split up in two groups and each group had to pick three cards out of the stack of cards created in the brainstorming session. Each group had to create a concept with the three key words relating to the main question of the workshop in twelve minutes. Finally each group had three minutes to present the created concepts to the other group. One group developed a virtual network concept and the other group created a concept of a watch which enabled the getting in contact and sharing an emotional status through music between the caregiver and the elderly. Both concepts were evaluated with the help of the heart-hand-mind method. Heart stands for the emotional component of an idea, hand relates to a haptic user experience the concept enables and mind for the logical structure and confirmability of the concept.

Figure 67: Heart-Hand-Mind Evaluation Method

This was followed by a keyword clustering session. All key words produced during the brainstorming method were used to cluster these words to meaning units. After the clustering phase five meaning units could be identified: communication, emotion, social surroundings, activities and objects.
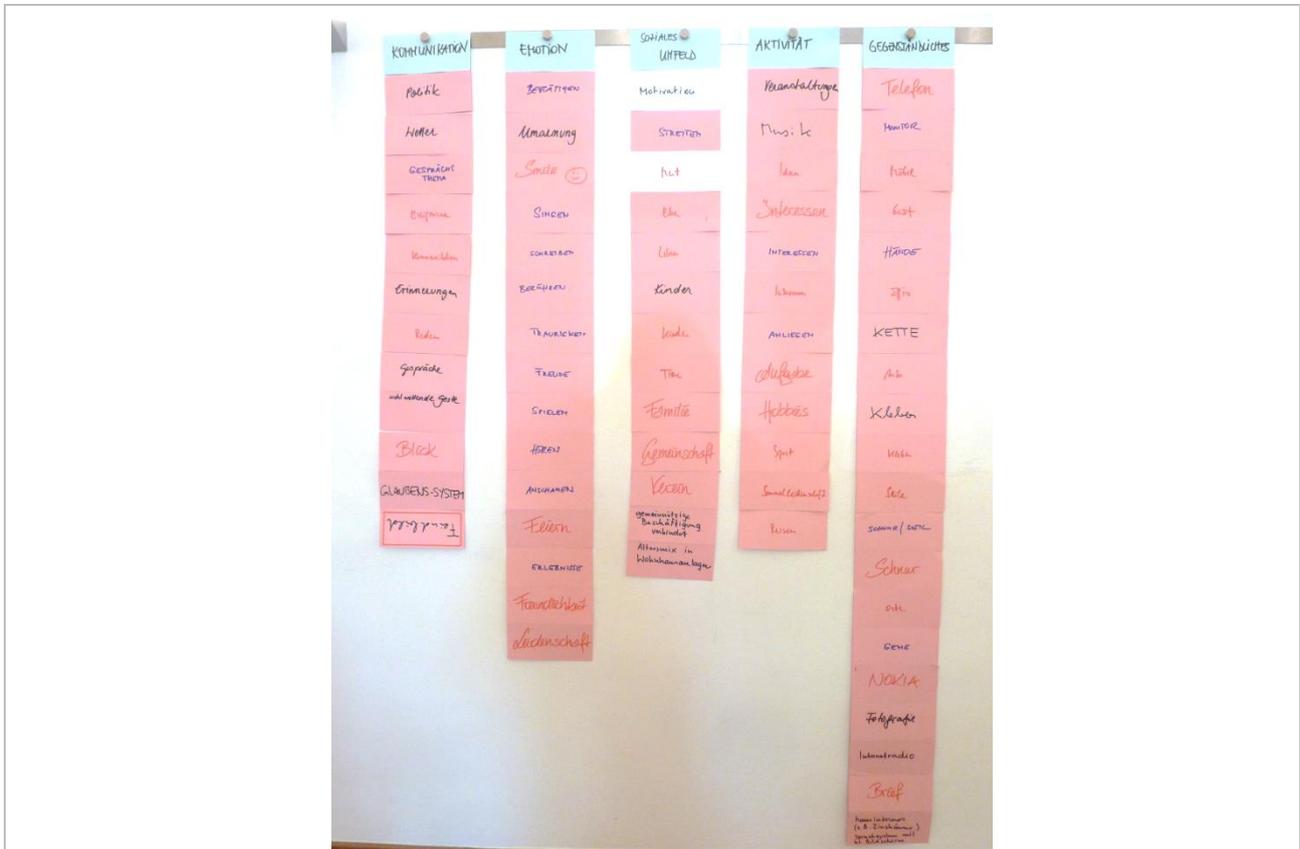
Figure 68: Keyword Clustering Session - Results

The next method conducted was the AEIOU data sorting method. Students received print outs of the results matrixes discussed in chapter 5 and had to sort the key word and phrases according to A = Activities, E = Environments, I = Interactions, O = Objects, U = Users.

Figure 69: AEIOU Data Sorting Method

The following two figures show the results of the data sorting method.
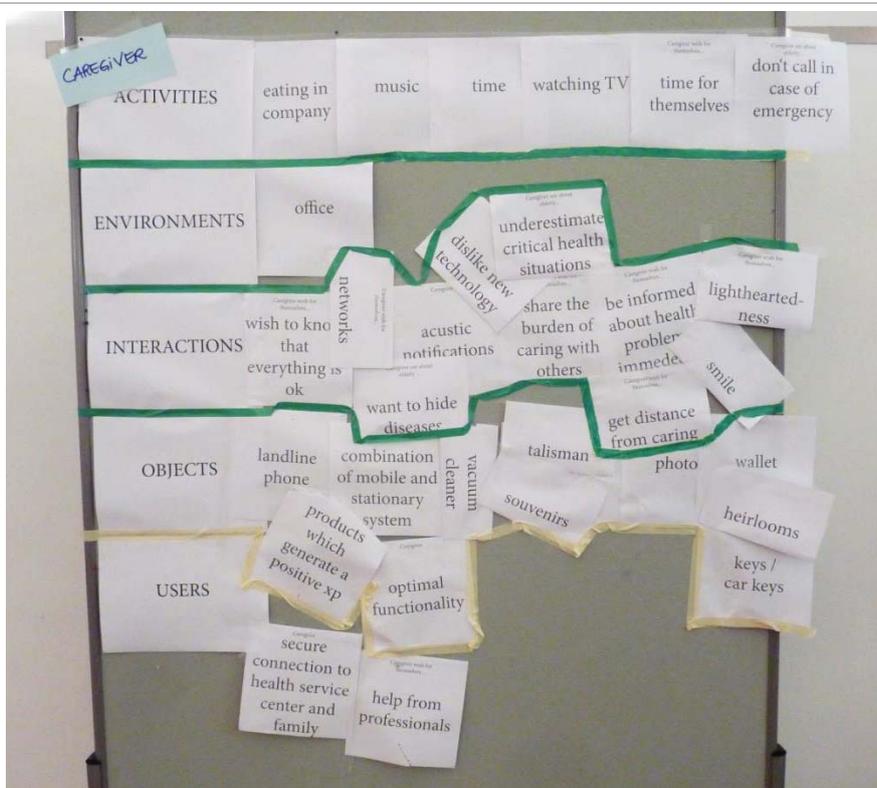
Figure 70: AEIOU Data Sorting Method – Results Caregiver
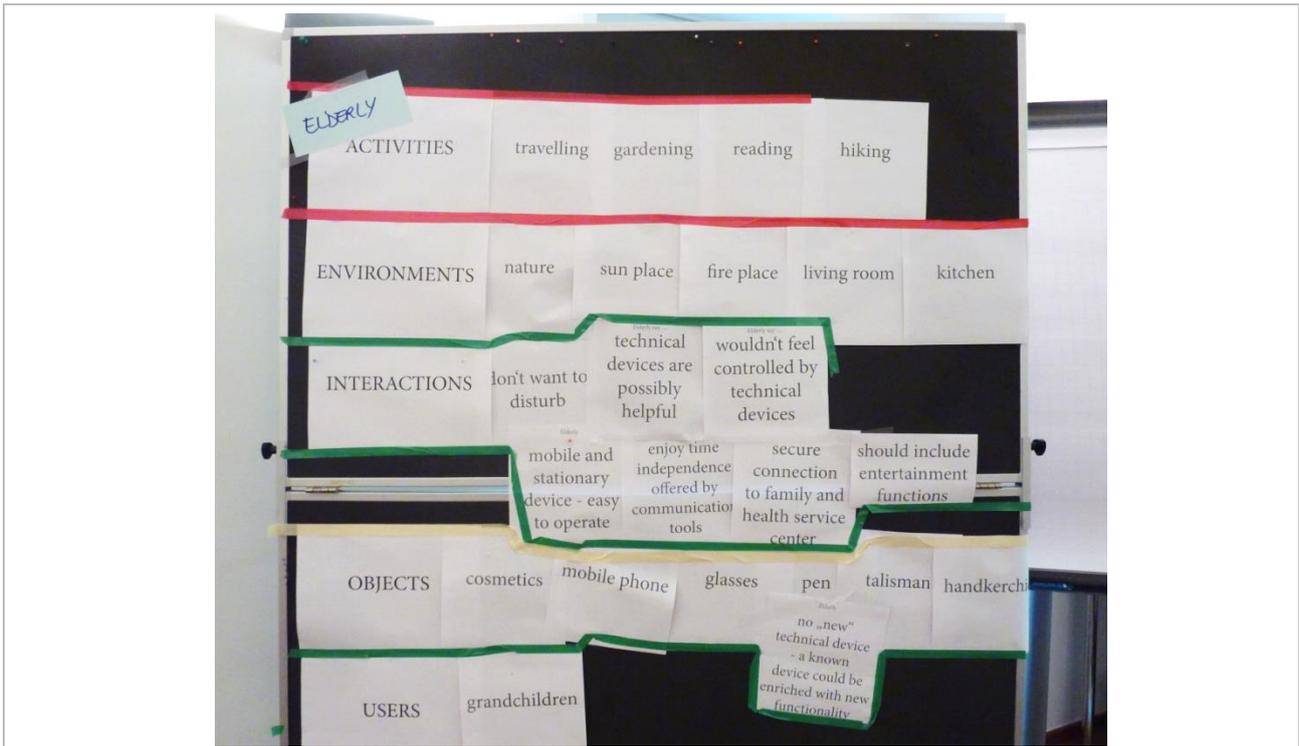
Figure 71: AEIOU Data Sorting Method – Results Elderly

After the group of students had filtered the data corresponding to the AEIOU method they started to create Ad-Hoc Personas. Two groups of students developed one user pair, a caregiver persona and an elderly persona. For each persona pair they developed afterwards real life scenarios of the everyday living of these persons.
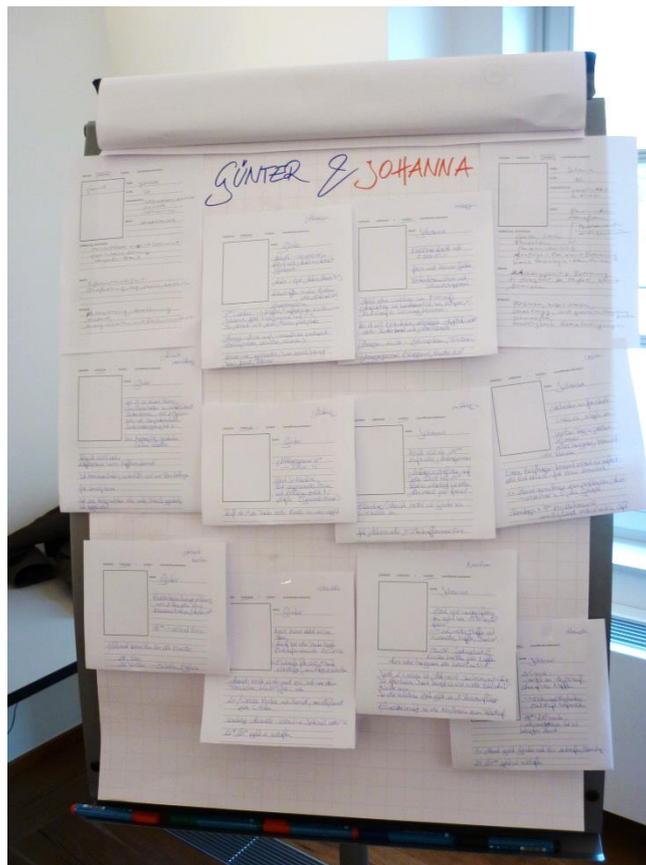
Figure 72: Personas and scenarios development

The second day of the workshop focused on the process step *assemble* of the user-inspired innovation process. Again two groups of students worked on ideas how to create the feeling of connectedness through analogue and virtual objects/services for the persona pair they developed the day before. They created ideas like a connector which is in between of objects of everyday life like a coffee machine and sends acoustic notifications to the mobile phone of the caregiver when the machine gets powered on. Another idea they created refers to the product criteria 'evoke positive memories'. The idea enhanced a common radio about new functionalities like the possibility to receive and send messages. They developed a system hub for both ideas. This hub connects stationary and mobile elements of the RelaxedCare system according to personal preferences and/or health status. After each ideation session their ideas were evaluated via the heart-hand-mind method. Picking-up the idea of the stationary and mobile system components option, they began to develop various design ideas for the components.

Figure 73: Ideation Process

The third day of the workshop was dedicated to the process step *experiment*. Students worked that day on the creation of physical paper prototypes of the ideas they developed the day before. One group worked on the 'radio' idea and one group continued their work on the 'modular cubes' system.
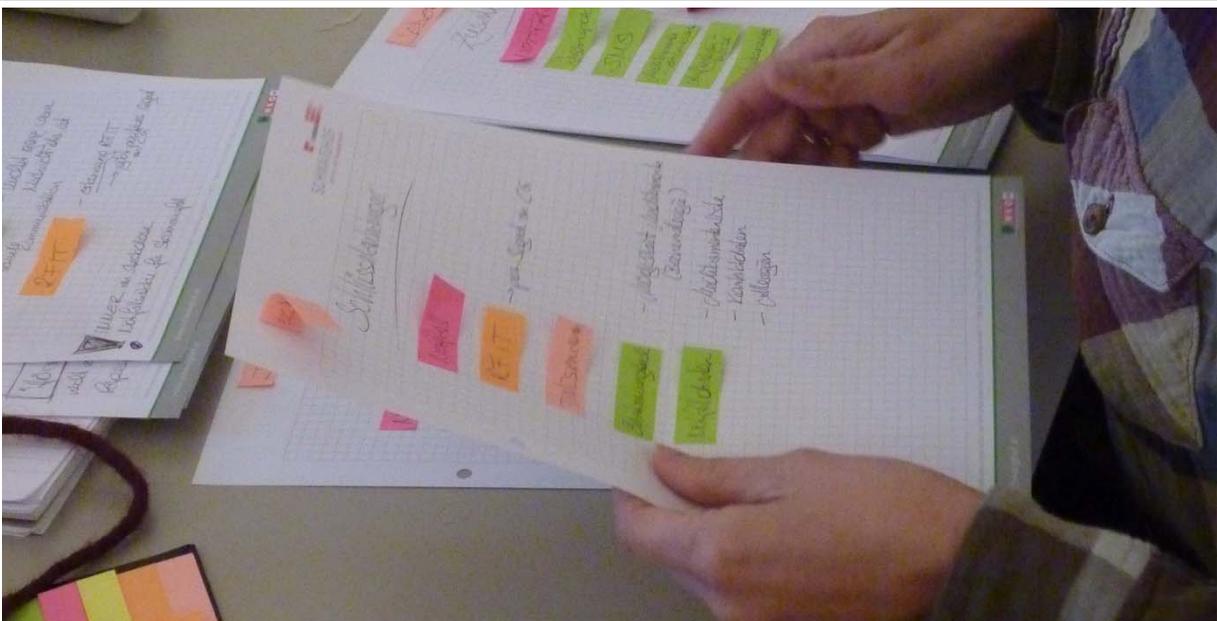
Figure 74: Paper Prototyping

Figure 75: Paper Prototyping

Figure 76: Paper Prototyping
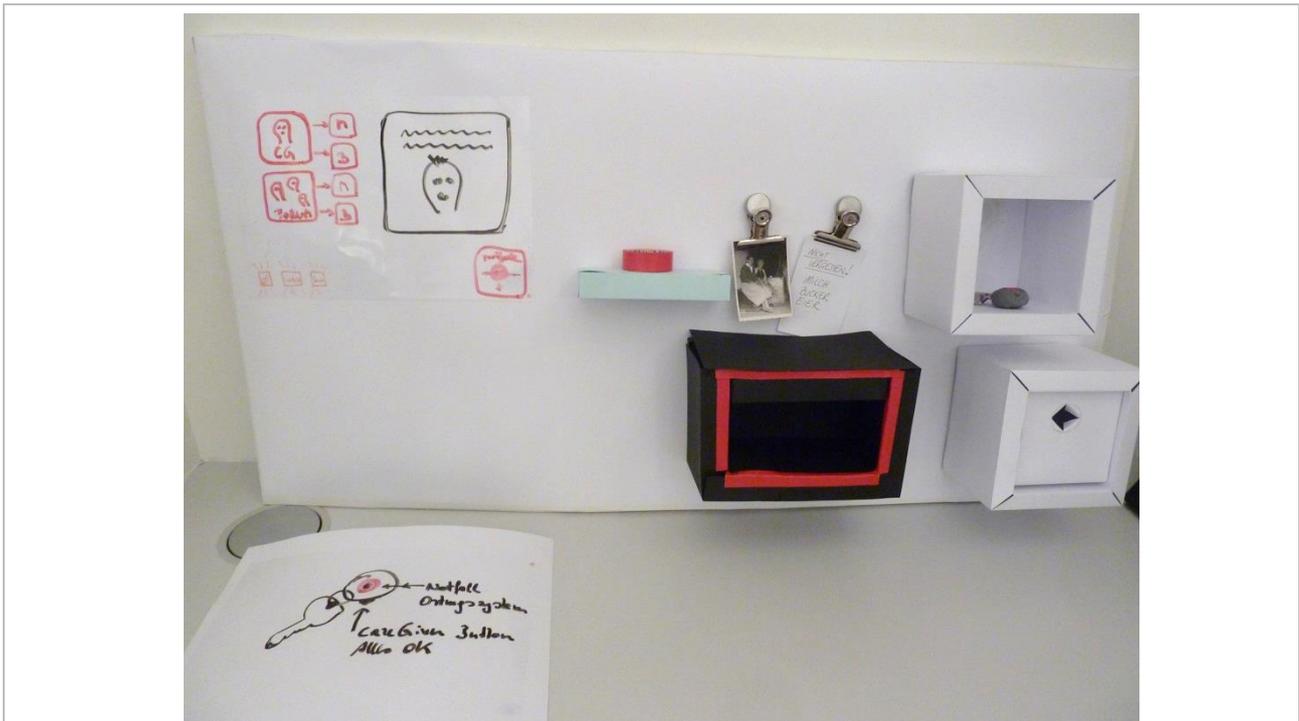
Figure 77: Paper Prototyping

The fourth and last day of the workshop was referring to the user-inspired innovation process used for the process step *merge*. The two groups of students took photos of their paper prototypes in order to create a booklet to present their ideas.

Figure 78: Booklet Development
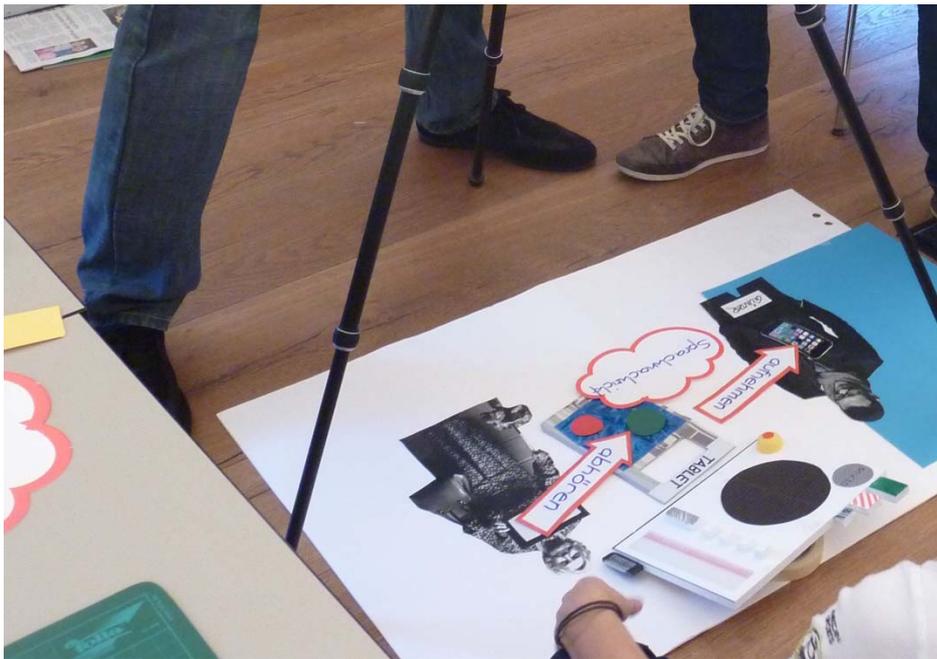
Figure 79: Booklet Development
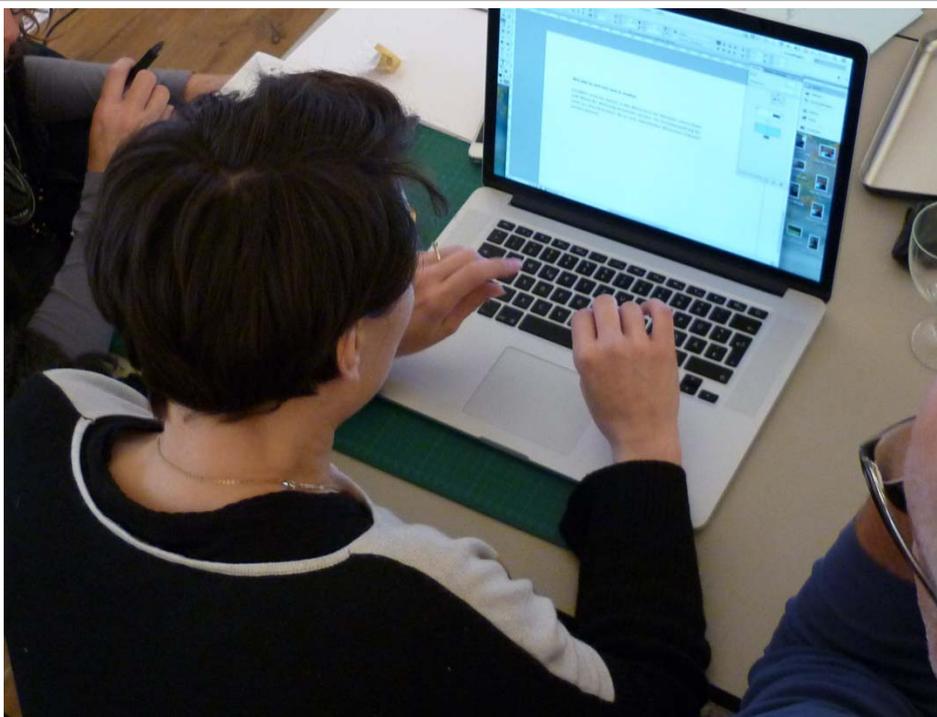
Figure 80: Booklet Development

Figure 81: Booklet – Concept "careConnect"

The system concept "careConnect" aims at connecting people. "careConnect" is a modular communication system. Core aim of the concept is to enable an easy entry point of using this new approach to establish a new and individually configurable care situation. Like any of us elderly people need from time to time support in their everyday lives or rather the feeling of backing and being not alone. But nevertheless elderly people will benefit from the easy operability and the security the system will provide. It is compatible to diverse objects already owned by the elderly and technology available on the market as well as it includes some new system components. The system includes an adapter to an already owned radio. The adapter can be connected to the radio and enables the sending and receiving of voice mails from the caregiver to the elderly and vice versa. It also includes an emergency button which will send an emergency notification to the caregiver as well as to an ambulance. The second system component depicts a RelaxedCare radio. It includes all functions of the adapter connected to the old radio. The third component describes a key-chain. When the elderly person is leaving her home this key-chain includes also an emergency button. Fourth component of the system is a tablet PC for elderly who are capable of and interested in operating such an item of technology. It includes game functions, displays a reminder for taking the daily medication and has an emergency button included. The connection to social networks and the Internet in general is also part of the user interface.
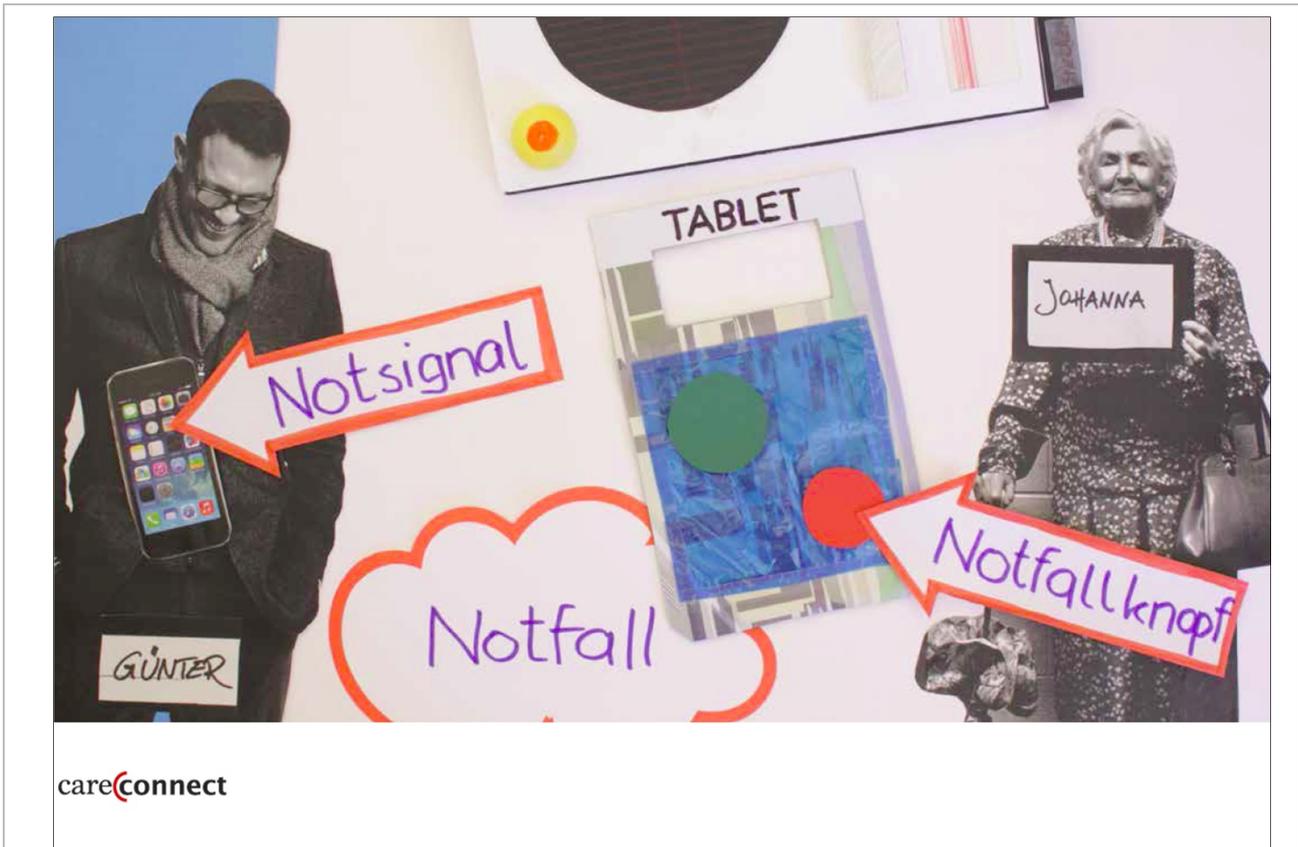
Figure 82: careConnect - Concept

Figure 83: Booklet – Concept "Care-in-motion"

The system Care-in-motion consists of a board which feeds all other system components with energy. This board is designed to get mounted to a wall in the hallway of a flat. Several cubes belong to this system. There is a cube for powering a key-chain which is also a component of the system when the elderlies are leaving their homes. A cube for powering and defining a fix place in

the flat for the mobile phone is the second component. Diverse storage cubes can be added relating to personal preferences. Like the known object of a pin board both user groups, the caregiver as well as the elderly, can use the Care-in-motion board as a notice board where for instance a shopping list can be positioned. A tablet PC also belongs to this system. It can be magnetically sited on the board to enable a fix storing place in the flat for it. The tablet shows on the start screen pictures of family members and friends. When the elderly person wants to get in contact with one of them she only has to touch one of the pictures. Then she is able to choose either to write a hand-written message to this person or to capture a video message. The messages can be received on the smart phone. Naturally the tablet PC can also be used to connect to different social networks. The different system components of the Care-in-motion concept should enable both user groups to choose items they are interested in. Thereby the care situation should offer options for individualization and get in general alleviated.

Figure 84: Care-in-motion - Concept

The two booklets are presented in the appendix of the document.

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Appendix A   Results Data Analysis Word Clouds

Results Focusgroups

 CH Caregiver

#
CH Elderly

AT Caregivers

AT Elderly
No data available.

Focus groups in AT and CH combined (caregivers & Elderly combined)

Focus groups in AT and CH combined (caregivers)

Austrian Questionnaire

Question 1: What do you enjoy the most?

#   #

#

Question 2: What is your favorite subject?

#   #

#

Question 3: Where you prefer to linger at home?

#   #

#

Contextual Interview

AT Interview Caregiver

AT Interview Elderly

#

AT Interview Elderly Question 1:

| 1 | Welche technologischen Geräte besitzen Sie? | Which technical devices are in your posession? |

#

AT Interview Elderly Question 2:
Less than 50 words in raw data. No Cloud generated.

#

AT Interview Elderly Question 3

3	Wofür verwenden Sie die von Ihnen erwähnten Geräte, die sich in Ihrem Haushalt befinden?	What are the devices (question 1) for?

#

AT Interview Elderly Question 3a

3a	Was genau funktioniert an diesen Geräten gut? Warum funktionieren die erwähnten Aspekte gut?	What works well with these devices? Why do the aspects you mentioned work well?

#

AT Interview Elderly Question 3b – 8:
Less than 50 words in raw data. No Cloud generated.

AT Interview Elderly Question 9

9	Wenn Sie nun daran denken, dass Sie Ihr Haus/Ihre Wohnung verlassen und unterwegs sind. Können Sie sich vorstellen, dass Gegenstände, die Sie mit sich führen, bestimmte Arten von Nachrichten/Informationen übermitteln und auch empfangen können? Welche Nachrichten/Informationen könnten das sein? Wie könnten diese übermittelt bzw. empfangen werden? (Akustisch/Visuell/Haptisch?)	Imagine you leave your apartment or house and you are on the road. Can you imagine, that the devices you carry with you, are able to transmit and receive certain messages/information? Which messages/information could it be? How could one send or receive the messages/information? (Acoustically, visually, haptic?)

AT Interview Elderly Question 10

10	Gibt es einen Gegenstand in Ihrem Haushalt, der Ihnen im Alltag Sicherheit gibt? z.B. Gehstöcke, Rollator	In your houshold, is there a device, which provides safety in your daily life? (E.g. cane, rollator?)

AT Interview Elderly Question 11

11	In welchen Fällen bzw. Situationen benötigen Sie Hilfe? Möchten Sie in den erwähnten Fällen gerne mit ihren Angehörigen sprechen?	In which cases or situations do you need help? Do you like to talk about these cases with relatives?

AT Interview Elderly Question 12

12	Wie wichtig wäre es für Sie, wenn Ihr(e) BetreuerIn immer Bescheid wüsste über Ihr momentanes Befinden, ohne bei Ihnen persönlich vorbei schauen zu müssen? Was genau würde Ihnen daran gefallen/was weniger? Warum?	How important is it for you, that the caring person is always informed about your health/well-being without dropping by? What would you like about that, and what not? Why?

AT Interview Elderly Question 13

13	Gab es schon Situationen, in denen Sie nicht mehr selbst handeln konnten? Wenn ja, welche? Wer oder Was hat Ihnen geholfen? Was hätte sonst noch helfen können?	Have there been situations in which you were unable to act? If yes: which? Who or what has helped you? What could have helped?

\#

AT Interview Elderly Question 14

14	Wodurch fühlen Sie sich sicherer im Alltag? Gibt es Geräte, Zeichen oder eine bestimmte Art der Kommunikation, die Sie mit Ihren Angehörigen für den Notfall vereinbart haben?	What makes you feel safer in daily life? Are there devices, signals or a special way of communication which you use with your relatives in case of emergency?

#

AT Interview Elderly Question 15:
Less than 50 words in raw data. No cloud generated.

AT Interview Caregiver Question 1

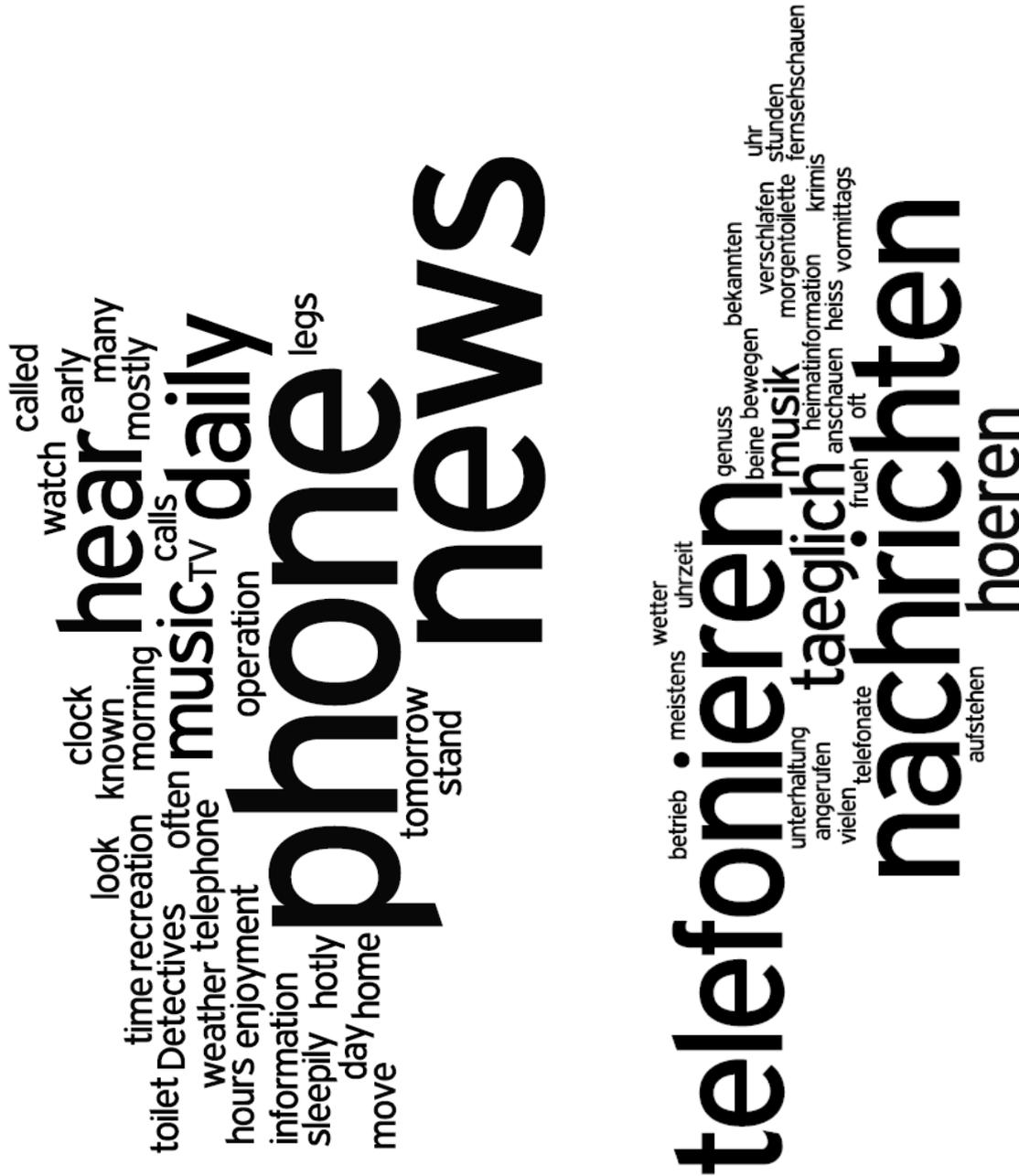| 1	Welche technologischen Geräte besitzen Sie?	Which technical devices are in your posession?

AT Interview Caregiver Question 2

2	Wo befinden sich die von Ihnen erwähnten Geräte, die in Ihrem Haushalt zu finden sind, wo haben Sie diese jeweils positioniert?	Where are the devices (question 1) located in your apartment, or where did you place them?

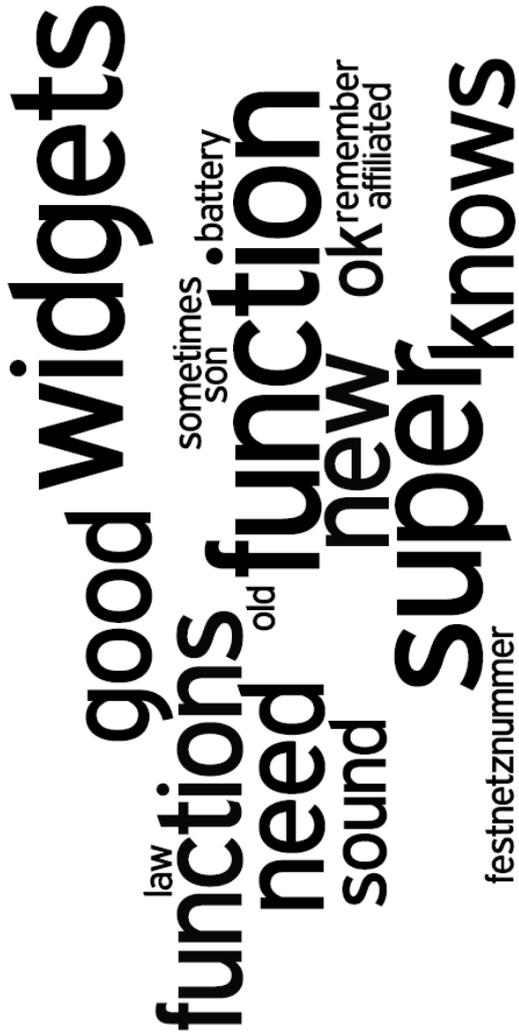**AT Interview Caregiver Question 3**

3	Wofür verwenden Sie die von Ihnen erwähnten Geräte, die sich in Ihrem Haushalt befinden?	What are the devices (question 1) for?

AT Interview Caregiver Question 4

4	Was genau mögen Sie an den von Ihnen verwendeten Geräten besonders gerne? Warum?	What do you like especially with these devices. Why?

AT Interview Caregiver Question 5

5	Und was genau mögen Sie an den von Ihnen verwendeten Geräten überhaupt nicht? Warum?	Especially what do you not like with these devices. Why?

AT Interview Caregiver Question 6

6	Gibt es jemanden in Ihrem Haushalt/Umfeld, der die von Ihnen angeführten Geräte ebenfalls nutzt?	In your household, is there someone who also uses the devices you mentioned?

husband

oven

mommy lebensgefaehrte

law mother

new nobody

partially

man

visitors

son daughter

family visit niece

ehemann

mann

besucher

schwiegersohn ausser

eigenes neu

besuch

lebensgefaehrte tochter

schwiegermama

mutter

teilweise

nein familie

nichte

niemand

ofen

AT Interview Caregiver Question 7 (n.a.)
Question:

7	Mit wem kommunizieren Sie mittels der von Ihnen angeführten Geräte?	With whom do you communicate by the devices you mentioned?

Less than 50 words in raw data. No cloud generated.

AT Interview Caregiver Question 8

8	Gibt es zusätzliche Geräte, die Sie sich für Ihren Haushalt bzw. wenn Sie unterwegs sind, wünschen? Wofür würden Sie diese verwenden und warum würden Sie sie dafür verwenden?	Are there further devices you yearn for using in your household or when you are on the road? What would you use them for and why?

AT Interview Caregiver Question 9 – 15:
Less than 50 words in raw data. No cloud generated.

AT Interview Caregiver Question 16

16	Wie erfahren Sie aktuell davon, wenn es der von Ihnen betreuten Person nicht gut geht?	How do you get informed when the person you care for is sick?

AT Interview Caregiver Question 17 – 19: Less than 50 words in raw data. No cloud generated.

CH Interview Elderly Question 1

1	Welche technologischen Geräte besitzen Sie?	Which technical devices are in your possession?

CH Interview Elderly Question 2

2	Wo befinden sich die von Ihnen erwähnten Geräte, die in Ihrem Haushalt zu finden sind, wo haben Sie diese jeweils positioniert?	Where are the devices (question 1) located in your apartment, or where did you place them?

CH Interview Elderly Question 3

3	Wofür verwenden Sie die von Ihnen erwähnten Geräte, die sich in Ihrem Haushalt befinden?	What are the devices (question 1) for?

CH Interview Elderly Question 3a

3a	Was genau funktioniert an diesen Geräten gut? Warum funktionieren die erwähnten Aspekte gut?	What works well with these devices? Why do the aspects you mentioned work well?

CH Interview Elderly Question 3b

3b	Was genau funktioniert an diesen Geräten weniger gut? Warum funktionieren die erwähnten Aspekte weniger gut?	What does not work so well with these devices? Why do the aspects you mentioned do not work so well?

CH Interview Elderly Question 4

4	Was genau mögen Sie an den von Ihnen verwendeten Geräten besonders gerne? Warum?	What do you like especially with these devices. Why?
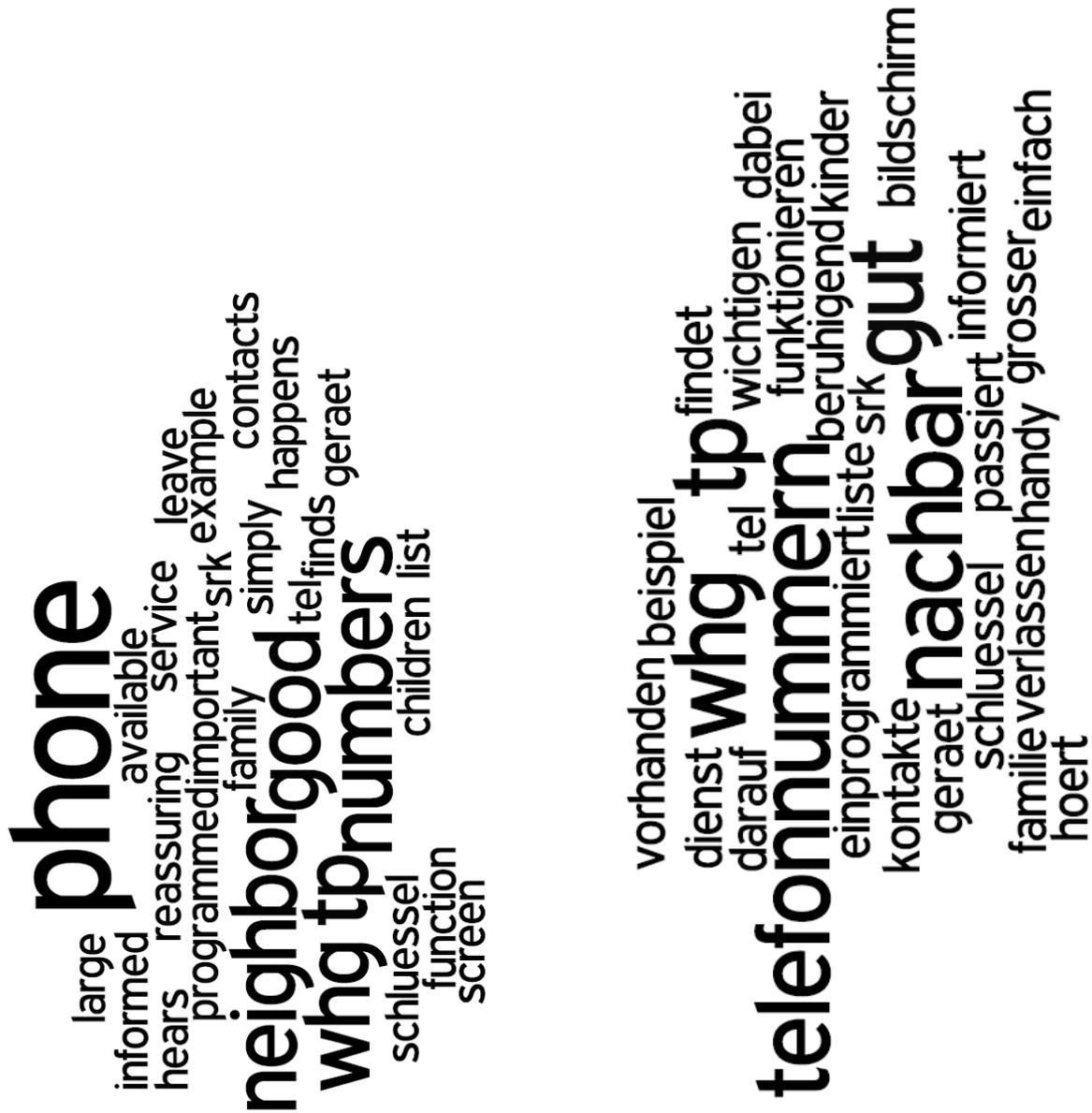
CH Interview Elderly Question 5

5	Und was genau mögen Sie an den von Ihnen verwendeten Geräten überhaupt nicht? Warum?	Especially what do you not like with these devices. Why?

CH Interview Elderly Question 6
English version: disposal of common words was switched off in order to get the "no"

6	Gibt es jemanden in Ihrem Haushalt/Umfeld, der die von Ihnen angeführten Geräte ebenfalls nutzt?	In your household, is there someone who also uses the devices you mentioned?

CH Interview Elderly Question 7 – 9:
Less than 50 words in raw data. No cloud generated.

CH Interview Elderly Question 10

10	Gibt es einen Gegenstand in Ihrem Haushalt, der Ihnen im Alltag Sicherheit gibt? z.B. Gehstöcke, Rollator	In your houshold, is there a device, which provides safety in your daily life? (E.g. cane, rollator?)

CH Interview Elderly Question 11

11	In welchen Fällen bzw. Situationen benötigen Sie Hilfe? Möchten Sie in den erwähnten Fällen gerne mit ihren Angehörigen sprechen?	In which cases or situations do you need help? Do you like to talk about these cases with relatives?

CH Interview Elderly Question 11a:
Less than 50 words in raw data. No cloud generated.

CH Interview Elderly Question 12

12	Wie wichtig wäre es für Sie, wenn Ihr(e) BetreuerIn immer Bescheid wüsste über Ihr momentanes Befinden, ohne bei Ihnen persönlich vorbei schauen zu müssen? Was genau würde Ihnen daran gefallen/was weniger? Warum?	How important is it for you, that the caring person is always informed about your health/well-being without dropping by? What would you like about that, and what not? Why?

CH Interview Elderly Question 13

13	Gab es schon Situationen, in denen Sie nicht mehr selbst handeln konnten? Wenn ja, welche? Wer oder Was hat Ihnen geholfen? Was hätte sonst noch helfen können?	Have there been situations in which you were unable to act? If yes: which? Who or what has helped you? What could have helped?

CH Interview Elderly Question 14

14	Wodurch fühlen Sie sich sicherer im Alltag? Gibt es Geräte, Zeichen oder eine bestimmte Art der Kommunikation, die Sie mit Ihren Angehörigen für den Notfall vereinbart haben?	What makes you feel safer in daily life? Are there devices, signals or a special way of communication which you use with your relatives in case of emergency?

CH Interview Elderly Question 15 – 18:
Less than 50 words in raw data. No cloud generated.

CH Interview Elderly Question 19

19	Was könnte Sie im Hinblick auf die Betreuungssituation persönlich entlasten?	What could relief you (partially) in regard to your care situation?

CH Interview Caregiver Question 1

1	Welche technologischen Geräte besitzen Sie?	Which technical devices are in your possession?

CH Interview Caregiver Question 2

2	Wo befinden sich die von Ihnen erwähnten Geräte, die in Ihrem Haushalt zu finden sind, wo haben Sie diese jeweils positioniert?	Where are the devices (question 1) located in your apartment, or where did you place them?

CH Interview Caregiver Question 3

3	Wofür verwenden Sie die von Ihnen erwähnten Geräte, die sich in Ihrem Haushalt befinden?	What are the devices (question 1) for?

CH Interview Caregiver Question 3a

3a	Was genau funktioniert an diesen Geräten gut? Warum funktionieren die erwähnten Aspekte gut?	What works well with these devices? Why do the aspects you mentioned work well?

CH Interview Caregiver Question 3b:
**Less than 50 words in raw data. No cloud generated.**

CH Interview Caregiver Question 4

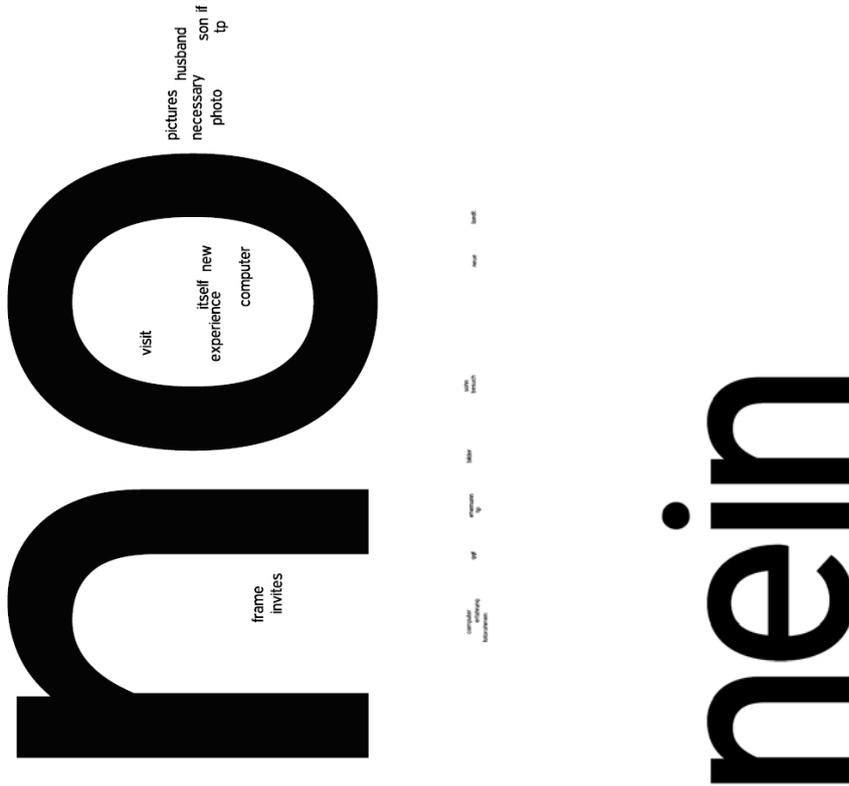| 4	Was genau mögen Sie an den von Ihnen verwendeten Geräten besonders gerne? Warum?	What do you like especially with these devices. Why?

CH Interview Caregiver Question 5:
Less than 50 words in raw data. No cloud generated.

CH Interview Caregiver Question 6

6	Gibt es jemanden in Ihrem Haushalt/Umfeld, der die von Ihnen angeführten Geräte ebenfalls nutzt?	In your household, is there someone who also uses the devices you mentioned?

CH Interview Caregiver Question 7 – 15:
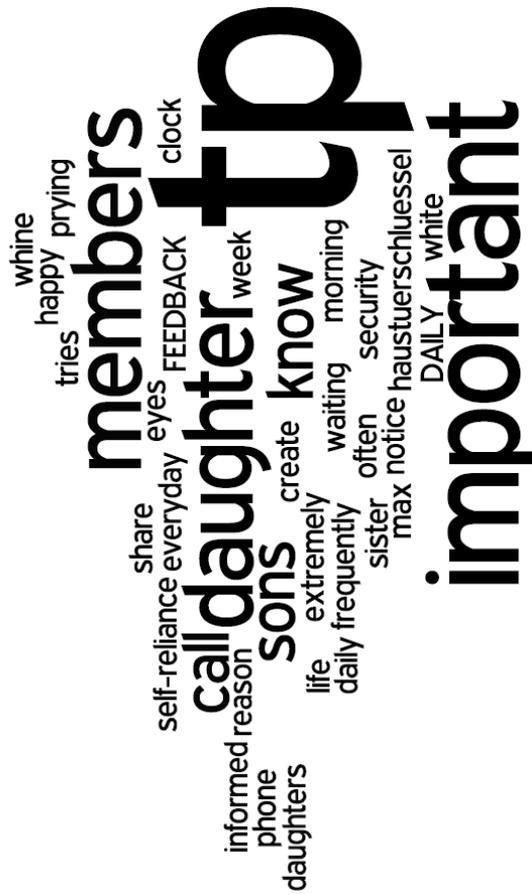**Less than 50 words in raw data. No cloud generated.**

CH Interview Caregiver Question 16

16	Wie erfahren Sie aktuell davon, wenn es der von Ihnen betreuten Person nicht gut geht?	How do you get informed when the person you care for is sick?

CH Interview Caregiver Question 17

17	Verwenden Sie aktuell eine Art Meldesystem, um mehr Sicherheit in Ihre Betreuungssituation zu bringen?	Do you use a certain type of reporting system to improve the reliability in your care situation?
	(z.B. Wenn Stores nicht hochgelassen werden, informiert Nachbar die Tochter; ein Gegenstand, der regelmäßig bewegt wird, damit Nachbarn merken, dass alles in Ordnung ist, usw.)	(E.g. if blinds are not opened in the morning, the neighbor informs the daughter; or an object that is moved regularly, so the neighbors realize that everything is fine.)

CH Interview Caregiver Question 18

18	Wie empfinden Sie Ihre aktuelle Betreuungssituation?	How do you feel in your current care situation?

CH Interview Caregiver Question 19

19	Was könnte Sie im Hinblick auf die Betreuungssituation persönlich entlasten?	What could relief you (partially) in regard to your care situation?

AT&CH Interview Caregiver

AT&CH Interview Elderly

AT&CH Interview Caregiver Question 1

1	Welche technologischen Geräte besitzen Sie?	Which technical devices are in your possession?

AT Interview Elderly Question 1

1	Welche technologischen Geräte besitzen Sie?	Which technical devices are in your possession?

AT&CH Interview Caregiver Question 2

2	Wo befinden sich die von Ihnen erwähnten Geräte, die in Ihrem Haushalt zu finden sind, wo haben Sie diese jeweils positioniert?	Where are the devices (question 1) located in your apartment, or where did you place them?

AT&CH Interview Elderly Question 2

2	Wo befinden sich die von Ihnen erwähnten Geräte, die in Ihrem Haushalt zu finden sind, wo haben Sie diese jeweils positioniert?	Where are the devices (question 1) located in your apartment, or where did you place them?

AT&CH Interview Caregiver Question 3

3	Wofür verwenden Sie die von Ihnen erwähnten Geräte, die sich in Ihrem Haushalt befinden?	What are the devices (question 1) for?

AT&CH Interview Elderly Question 3

3	Wofür verwenden Sie die von Ihnen erwähnten Geräte, die sich in Ihrem Haushalt befinden?	What are the devices (question 1) for?

AT&CH Interview Caregiver Question 3a

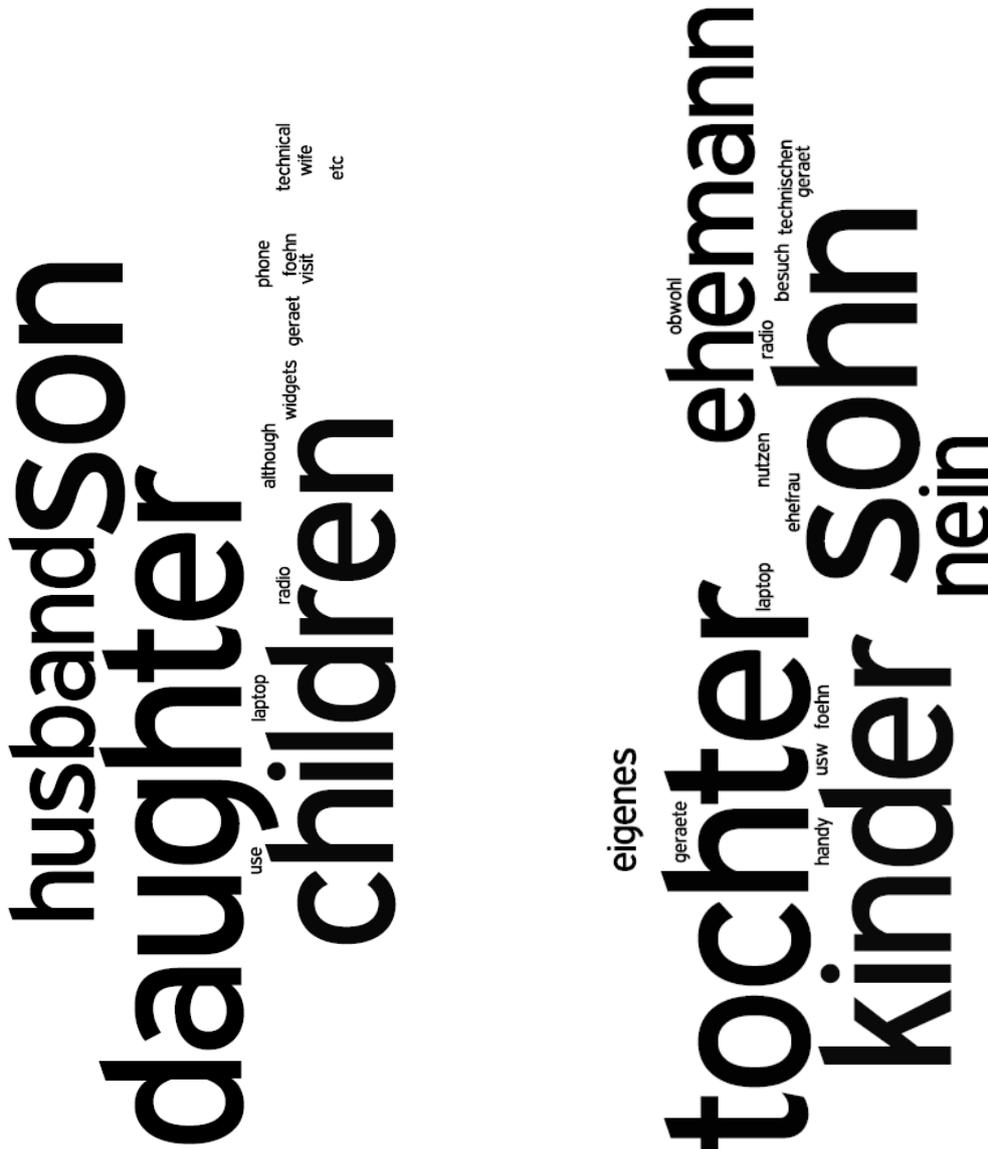| 3a	Was genau funktioniert an diesen Geräten gut? Warum funktionieren die erwähnten Aspekte gut?	What works well with these devices? Why do the aspects you mentioned work well?

AT&CH Interview Elderly Question 3a

3a	Was genau funktioniert an diesen Geräten gut? Warum funktionieren die erwähnten Aspekte gut?	What works well with these devices? Why do the aspects you mentioned work well?

AT&CH Interview Caregiver Question 3b:
Data from at least one country missing. No combined wordcloud possible

AT&CH Interview Caregiver Question 4

4	Was genau mögen Sie an den von Ihnen verwendeten Geräten besonders gerne? Warum?	What do you like especially with these devices. Why?

AT&CH Interview Elderly and Caregiver Question 4 – 10:
Data from at least one country missing. No combined wordcloud possible

AT&CH Interview Caregiver Question 11
Data from at least one country missing. No combined wordcloud possible

AT&CH Interview Elderly Question 11

11	In welchen Fällen bzw. Situationen benötigen Sie Hilfe? Möchten Sie in den erwähnten Fällen gerne mit ihren Angehörigen sprechen?	In which cases or situations do you need help? Do you like to talk about these cases with relatives?

AT&CH Interview Caregiver Question 12
Data from at least one country missing. No combined wordcloud possible

AT&CH Interview Elderly Question 12

12	Wie wichtig wäre es für Sie, wenn Ihr(e) BetreuerIn immer Bescheid wüsste über Ihr momentanes Befinden, ohne bei Ihnen persönlich vorbei schauen zu müssen? Was genau würde Ihnen daran gefallen/was weniger? Warum?	How important is it for you, that the caring person is always informed about your health/well-being without dropping by? What would you like about that, and what not? Why?

AT&CH Interview Caregiver Question 13
Data from at least one country missing. No combined wordcloud possible

AT&CH Interview Elderly Question 13

13	Gab es schon Situationen, in denen Sie nicht mehr selbst handeln konnten? Wenn ja, welche? Wer oder Was hat Ihnen geholfen? Was hätte sonst noch helfen können?	Have there been situations in which you were unable to act? If yes: which? Who or what has helped you? What could have helped?

AT&CH Interview Caregiver Question 14
Data from at least one country missing. No combined wordcloud possible

AT&CH Interview Elderly Question 14

14	Wodurch fühlen Sie sich sicherer im Alltag? Gibt es Geräte, Zeichen oder eine bestimmte Art der Kommunikation, die Sie mit Ihren Angehörigen für den Notfall vereinbart haben?	What makes you feel safer in daily life? Are there devices, signals or a special way of communication which you use with your relatives in case of emergency?

AT&CH Interview Caregiver & Elderly Question 15
Data from at least one country missing. No combined wordcloud possible

AT&CH Interview Caregiver Question 16

16	Wie erfahren Sie aktuell davon, wenn es der von Ihnen betreuten Person nicht gut geht?	How do you get informed when the person you care for is sick?

AT&CH Interview Elderly Question 16
AT&CH Interview Caregiver & Elderly Question 17
AT&CH Interview Caregiver & Elderly Question 18
AT&CH Interview Caregiver & Elderly Question 19
Data from at least one country missing. No combined wordcloud possible

Cultural Probes

AT Cultural Probes daily journal Caregiver
Based on "Kopie von Cultural_Probs_AT_Caregivers_german.xlsx"

AT Cultural Probes Caregivers: favorite Objects (n.a.)
Source „Kopie von Cultural_Probs_AT_Caregivers_german.xlsx"
Too few words. No cloud generated.

CH Cultural Probes daily journal Caregiver
Based on file "Kopie von 2013-09-10-Ausw-CulturalProb-C-CH.xlsx"

CH Cultural Probes daily journal Elderly
Based on „Kopie von 2013-09-10-Ausw-CulturalProb-E-CH.xlsx"

CH Cultural Probes objects used by Elderly
Based on „Kopie von 2013-09-10-Ausw-CulturalProb-E-CH.xlsx"

CH Cultural Probes objects used by Caregiver
Based on „Kopie von 2013-09-10-Ausw-CulturalProb-E-CH.xlsx"

AT&CH Cultural Probes favorite objects used by Caregiver

AT&CH Cultural Probes favorite objects used by Elderly
Data from at least one country missing. No combined wordcloud possible

AT&CH Cultural Probes disliked objects used by Caregiver

AT&CH Cultural Probes disliked objects used by Elderly
Data from at least one country missing. No combined wordcloud possible

AT&CH Cultural Probes objects used by Caregiver

AT&CH Cultural Probes disliked objects used by Elderly
Data from at least one country missing. No combined wordcloud possible

AT&CH Cultural Probes, Caregiver daily life

AT&CH Cultural Probes, Elderly daily life
Data from at least one country missing. No combined wordcloud possible

AT&CH Cultural Probes, favourite place Caregiver

AT&CH Cultural Probes, favourite place Elderly
Data from at least one country missing. No combined wordcloud possible

Discussion/Limitations of method

The word clouds presented here suffer from limitations. Some of the shortcomings are described in the following.

When words are separated, like in the word "living room", the result is not depicted as one combination of words, instead the two word can be in separate location within the word cloud. If the word "living" appeared also often in the text, and the same is true for "living room", then it could become more difficult to perceive, that the dominance (big font size) of the word "living" and the relatively small word "room" are linked. This information is lost in word clouds as employed, here.

Errors in spelling decrease also the quality of the result. One approach to improve the quality in the future can be, to use spellchecking on the text source. This would also be advantageous in regard to written text in different dialects. E.g. in Germany and Austria you would write "grillen" (to barbeque) in Switzerland it is common to say "grillieren" instead. In the word clouds employed here, those would be two different words.

Since the raw source of the text was not written by one person but by several different persons who conducted the interviews, workgroups or transcribed information, it can not be excluded that varying abbreviations were used. Although they appear to be efficient during the time while writing the text, they also compromise the quality of the result in case that not all persons use consequently identical abbreviations.

A systematic error was introduced by substituting German umlauts, which obviously could not be handled by the translator tool. The google translator left such words as they were in the translation. There were even instances in which the translation was plainly wrong, e.g. "bad" (bath) was translated to "abd."

However the definition of the threshold of 50 words was considered appropriate for text consisting of complete sentences, there were cases in which this number seemed too big. Especially when the text consisted mainly of one worded answers to specific questions, you could get 30 valid answers from 30 different persons resulting in a text body of 30 words. Excluding such a text body from further processing would not be a waste of information. Therefore the person performing the analysis decided in each of these special cases whether or not to generate a cloud. The Austrian questionnaire (based on file "Evaluation_Tombola_Probands-1.xlsx") is an example of one word long answers.

When using the pictures of clouds for comparisons, a vital information is missing: How many words were in the text body the cloud was generated from? The result of a qualitative comparison of cloud A and cloud B is biased when A is based on 1000 words, but B is only based on 50 words. By comparing A and B visually, the impression could arise that the emphasized keywords in B are of the same importance of the ones of A, when in fact the word cloud resulting of a text body comprising the text sources of A and B, would lead to a new word cloud in which the formerly emphasized words are submerged in the noise of unimportant words in A.

A remarkable difference in number of words of a text body can arise by several factors. One of which is the number of test subjects answering the questions. If the number of test subjects differ from one country to the other, than it is highly likely that also the size of the text body differs. However, even within one country it is possible to obtain a skewed word cloud. E.g. are the answers of a single test subject in general 10 times longer than the answers of others, the opinion of this person is overrepresented in a text cloud.

Appendix B   Results Data Analysis Affinity Diagramming

Affinity Diagramming

Based on Files:

2013-07-18-Auswertung Fokusgruppen Diskussion Schweiz (german)_neu.xlsx

Cultural_Probs_AT_Caregivers_german.xlsx

Kopie von Evaluation Tombola Probands-1.xlsx

Auswertung_Fokusgruppen_Diskussion_Oesterreich(11.07).xlsx

Kopie von 2013-08-06-Auswertung-Cultural Probes-CH-2.xlsx

There are two different ways presented of determining affinity diagrams. First, the examiner has worked through the raw data files mentioned above, and single bits (word or sentences) were extracted. Afterwards the bits were screened and bits of common topics were grouped. Then the groups were titled. The original result in German is given in the following section. A version translated into English is given after the following section.

For reasons of comparison, two persons were given the bits and they were asked to form groups of familiar bits and name the groups. The original results in German are given in section "Affinity Diagramming from person who had not read the raw data files (German original)." The translation into English is given in section "Affinity Diagramming from person who had not read the raw data files (English)"

Affinity Diagramming from person who had read the raw data files (German original)
Alarmauslösung

> *Automatisch, wenn man nicht mehr in der Lage ist den Knopf zu drücken*
> *Email/ wenn computeraffin*
> *Handy hilft der Person in Not nur selten*
> *Knopf drücken*
> *Mehrere Tage in der Wohnung liegen bis man vermisst wird*
> *Nicht in der Lage sein sich selber zu melden*
> *Notruf selber auslösen zum Test*
> *Telefon ist ganz wichtig*
> *Telefonieren*
> *Vertrauen zu professionellem Serviceanbieter (rotes Kreuz)*

Auszeit für Betreuer

> *Als betreuende Person sich ab und zu Hilfe holen können zur Entlastung*
> *Ältere Personen warten bis sich jemand meldet*
> *Der Weg von zu Hause in eine Pflegeeinrichtung ist schwer - Unterstützung?*
> *Etwas für sich tun aber sicher sein, dass alles ok*
> *Etwas für sich tun in Ruhe erledigen*
> *Hilfe annehmen*
> *Keine Hilfe/Information zur Diagnose*

Emotion

> *Die Krankheit selber nicht wahrhaben wollen*
> *Es gibt etwas wie Schicksal man kann nicht alles absichern*
> *Es gibt Themen über die man nicht spricht*
> *Keine Bezugsperson in der Nähe*

Menschlichkeit
Menschlichkeit ist wichtig
Pflegender hat immer ein schlechtes Gewissen da kann man nicht machen.
Selbstbestimmtheit Hilfe anzunehmen/wollen
Sich verpflichtet fühlen
Überfordert in Akutsituation

Grenzen

Angehörige sind nicht immer erreichbar/haben gerade keine Zeit
In der Schocksituation zittert und kann nicht mehr wählen
Störung der Netzverbindung
Technische Probleme vermeiden
Ungeeignete Alterswohnung
Versagt die Technik in einer Notsituation entsteht Panik

Informationsaustausch

Auf der Strasse hilft immer jemand
Die Krankheit nicht nach aussen kommunizieren
Die strickende Oma ist Klischee
Einmal in der Woche Information
Im Nachhinein informieren der Betreuer
Kontakt regelmässig ohne feste Zeiten
Mehrmals täglich informieren
Nicht zu viele Statusinformationen von der betreuten Person, da man sonst nicht abschalten kann (in den Ferien)
Persönlicher Besuch ist sehr wichtig
Schweigen/Nichts sagen
Selber eine Lösung finden
SMS ist schnell und günstig
Solange persönlicher Kontakt vorhanden ist, ist Überwachung ok
Technische Lösungen erforderlich
Unterwegs informiert sein, dass alles ok ist

Messsystem

Babyphone auf Distanz
Beim Einkaufen merkt man ob jemand nicht mehr kommt
GPS-Ortung wie Kinderhandys
In- und Outdoor mit einem Gerät
Kleine Veränderungen z.B. in der Sprache sind Hinweise, dass etwas nicht stimmt
Nachbar fällt auf, dass gewohntes nicht passiert
Stellung der Storen
Wenn Briefkasten nicht geleert dann stimmt was nicht

Organisation

Alterswohnung
Beide Partien nur selten im gleichen Haus
Für Betreuende ist ein Handy muss
Securitas hat einen Schlüssel
Technische Geräte müssen einfach bedienbar sein
Verwandtschaft/Kinder in der Nähe
Wohnungsschlüssel im Haus zugänglich machen

Situation

Der betreuenden Person zu liebe ein Notrufsystem verwenden
Die Schwere der Situation entscheidet welche Aktion erforderlich ist
Man wächst mit den Situationen
Partner hilft oder sorgt dass Hilfe kommt
Spitalentlassung nur wenn Notrufsystem vorhanden
Spitex hilft mit
Überfordert bei Pflegeproblemen
Vorwürfe wenn etwas passiert ist, was hätte man zur Vermeidung machen können
Wer kann alles aus der Familie helfen

Affinity Diagramming from person who had read the raw data files (English)

Corrected Google Translator result.

Alarming
Automatically when no longer in a position to press the button
Email / when affinity to computers
Mobile phone helps the person in need rarely
press the button
Several days in the apartment until one misses
Not be able to report himself
Emergency alarm to the test itself
Phone is very important
phone
Confidence to professional service providers (red cross)

Break for carers
As caregivers can get help from time to time to relieve
Older people wait for calls / visits
The path from home to a nursing facility is difficult - support ?
Do something for yourself , but be sure that everything is ok
Do something for yourself alone and without time pressure
accept help
No help / information for diagnosis

emotion
Not want to accept the disease itself
There is something like destiny you can not be protect completely
There are issues about which one does not speak
No reference person in the vicinity
humanity
Humanity is important
The carer has always a bad conscience
To accept self-determination if help wanted
Feel obliged
Overwhelmed in acute situation

limits
Family members are not always available / just do not have time
In the shock situation trembles and can not dial
Disruption of the network connection
Avoid technical problems
Unsuitable apartment for elderly
In case of failing technique in an emergency situation leads to panic

information exchange
On the road someone always helps
Not communicate the disease to the outside
The Knitting Grandma is cliché
Once a week information
Informing cargiver afterwards
Contact regularly without fixed times
Inform Several times a day
Not too many status information of the supervised person , because otherwise you cannot relax (during the holidays)

Personal visit is very important
Not Mentioning / say nothing
Find yourself a solution
SMS is fast and cheap
As long as personal contact is present, monitoring is ok
Technical solutions required
Be informed that everything is ok while travelling

measurement system
Baby monitor on distance
When shopping, you realize that someone is not coming anymore
GPS tracking cell phones as for children
Indoor and outdoor tracking unit as a single device
Small changes for example in the language are indications that something is wrong
Neighbor noticed that familiar things (behavioral) does not happen
Position of the blinds
If mailbox is not empty then something is wrong

organization
apartment for elderly
Elderly and Carers only rarely in the same house
For carers in a mobile phone is a must
Securitas has a key
Technical equipment must be easy to operate
Family / children in vicinity
Make accessible apartment keys in the house

situation
To do the caregiver a favor of love: use an emergency call system
The severity of the situation, decides what action is required
you grow with the situations
Partner helps or makes sure that help comes
Hospital discharge only when emergency call system available
Professional home care helps
Overwhelmed with care problems
Blame myself if something happened, what could have been done to avoid
Who can help from the family

Affinity Diagramming from person who had not read the raw data files (German original)
Einstellung der Gepflegten

>Auf der Strasse hilft immer jemand
>Der betreuenden Person zu liebe ein Notrufsystem verwenden
>Die Krankheit nicht nach aussen kommunizieren
>Die Krankheit selber nicht wahrhaben wollen
>Es gibt etwas wie Schicksal man kann nicht alles absichern
>Es gibt Themen über die man nicht spricht
>Hilfe annehmen
>Man wächst mit den Situationen
>Schweigen/Nichts sagen
>Selber eine Lösung finden
>Selbstbestimmtheit Hilfe zunehmen/wollen

In der Nähe

  Alterswohnung
  Menschlichkeit ist wichtig
  Partner hilft oder sorgt dass Hilfe kommt
  Securitas hat einen Schlüssel
  Spitex hilft mit
  Verwandtschaft/Kinder in der Nähe
  Wer kann alles aus der Familie helfen
  Wohnungsschlüssel im Haus zugänglich machen

Indikatoren ohne System

  Beim Einkaufen merkt man ob jemand nicht mehr kommt
  Kleine Veränderungen z.B. in der Sprache sind Hinweise, dass etwas nicht stimmt
  Mehrere Tage in der Wohnung liegen bis man vermisst wird
  Nachbar fällt auf, dass gewohntes nicht passiert
  Wenn Briefkasten nicht geleert dann stimmt was nicht

Kontakt zum Betreuer

  Etwas für sich tun aber sicher sein, dass alles ok
  Etwas für sich tun in Ruhe erledigen
  Nicht zu viele Statusinformationen von der betreuten Person, da man sonst nicht abschalten kann (in den Ferien)
  Pflegender hat immer ein schlechtes Gewissen da kann man nicht machen.
  Unterwegs informiert sein, dass alles ok ist

Pro System

  Als betreuende Person sich ab und zu Hilfe holen können zur Entlastung
  Ältere Personen warten bis sich jemand meldet
  Angehörige sind nicht immer erreichbar/haben gerade keine Zeit
  Beide Partien nur selten im gleichen Haus
  Der Weg von zu Hause in eine Pflegeeinrichtung ist schwer - Unterstützung?
  Einmal in der Woche Information
  Handy hilft der Person in Not nur selten
  In der Schocksituation zittert
  und kann nicht mehr wählen
  Keine Bezugsperson in der Nähe
  Keine Hilfe/Information zur Diagnose
  Sich verpflichtet fühlen
  Überfordert bei Pflegeproblemen
  Überfordert in Akutsituation
  Ungeeignete Alterswohnung
  Vorwürfe wenn etwas passiert ist, was hätte man zur Vermeidung machen können

Technik

  Babyphone auf Distanz
  Email/ wenn computeraffin
  Für Betreuende ist ein Handy muss
  GPS-Ortung wie Kinderhandys
  In- und Outdoor mit einem Gerät
  Knopf drücken
  SMS ist schnell und günstig
  Stellung der Storen

Technische Geräte müssen einfach bedienbar sein
Technische Lösungen erforderlich

Technische Störungen

Störung der Netzverbindung
Technische Probleme vermeiden
Versagt die Technik in einer Notsituation entsteht Panik

wichtiger Kontakt zum Gepflegten

Automatisch, wenn man nicht mehr in der Lage ist den Knopf zu drücken
Die strickende Oma ist Klischee
Kontakt regelmässig ohne
feste Zeiten
Mehrmals täglich informieren
Nicht in der Lage sein sich selber zu melden
Notruf selber auslösen zum Test

Zusammenarbeit Betreuung

Die Schwere der Situation entscheidet welche Aktion erforderlich ist
Im Nachhinein informieren der Betreuer
Menschlichkeit
Persönlicher Besuch ist sehr wichtig
Solange persönlicher Kontakt vorhanden ist, ist Überwachung ok
Spitalentlassung nur wenn Notrufsystem vorhanden
Telefon ist ganz wichtig
Telefonieren
Vertrauen zu professionellem Serviceanbieter (rotes Kreuz)

Affinity Diagramming from person who had not read the raw data files (English)

Corrected Google Translator result.

Attitude of those in care

On the road you always find someone for help

To do the caregiver a favor of love, use an emergency call system
Diseases are not communicated to the outside
Not want to accept the disease itself
There is something like destiny; there is no absolute safety
There are issues about which one does not speak
accept help
You grow with the situations
Not mentioning / say nothing
Find yourself a solution
Self-determination: Choice whether help is wanted or not

Close

Apartment for elderly

Humanity is important
Partners helps or calls for help
Securitas has a key
Home care (Spitex) helps with
Family / children in vicinity
Who can help from the family?
Make apartment keys accessible in the house

Indicators without system

When shopping, you realize that someone does not come
Small changes, for example in the language, are indications that something is wrong
Laying several days in the apartment until one is missed
Neighbor noticed that familiar things (behavioral) do not happen
If mailbox is not empty then something is wrong

Contact the Carers

Do something for yourself , but be sure that everything is ok
Do something for yourself without time pressure
*Not too much status information of the supervised person , because otherwise you can not relax (
during the holidays)*
Caring makes always a guilty conscience. You can not change that.
Be informed during travelling that everything is ok.

Pro system

Caregiver: To be able to get help from time to time
Older people wait until someone reports
Family members are not always available / just do not have time
Carer and elderly are only rarely in the same house
The path from home to a nursing facility is difficult - support ?
Once a week information
Mobile phone helps the person in need rarely
Trembles in the shock situation and can no longer dial
No helping person in the vicinity
No help / information for diagnosis
Feel obliged
Overwhelmed with caring problems

Overwhelmed in acute situations
Unsuitable apartment for elderly
Blaming yourself when something has happened, constantly thinking "what could have been done to avoid it"

technology
Baby monitor on distance
When affinity for computers: Email

For carers, a mobile phone is must
GPS tracking as for children
Indoor and outdoor tracking in a single device

press the button
SMS is fast and cheap
Position of the blinds
Technical equipment must be easy to operate
Technical solutions required

Technical problems
Disruption of the network connection
Avoid technical problems
When technique fails in an emergency situation panic arises

Important contact for the elderly
Automatically, when no longer in a position to press the button
The knitting Grandma is cliché
Contact us regularly without fixed times
Inform several times a day
Not be able to report myself
Emergency alarm to the test the system itself

Cooperation support
The severity of the situation, decides what action is required
the carer is informed after something has happened
humanity
Personal visit is very important
As long as personal contact is present, monitoring is ok
Hospital discharge only when emergency call system available
Phone is very important
phone
Confidence in professional service providers (red cross)

Appendix C   Results Data Analysis AEIOU Method

AEIOU Method

AEIOU, as adapted by Wasson (Wasson, 2000), stands for 5 elements to be coded: Activity, Environment, Interaction, Object, and User.

- **Activities** are goal-directed sets of actions—paths towards things people want to accomplish. What are the modes people work in, and the specific activities and processes they go through?
- **Environments** include the entire arena where activities take place. What is the character and function of the space overall, of each individual's spaces, and of shared spaces?
- **Interactions** are between a person and someone or something else; they are the building blocks of activities. What is the nature of routine and special interactions between people, between people and objects in their environment, and across distances?
- **Objects** are building blocks of the environment, key elements sometimes put to complex or unintended uses (thus changing their function, meaning and context). What are the objects and devices people have in their environments and how do they relate to their activities?
- **Users** are the people whose behaviors, preferences, and needs are being observed. Who is there? What are their roles and relationships? What are their values and prejudices?

Source: http://help.ethnohub.com/guide/aeiou-framework

The AEIOU method has it strengths in the field. It can serve as lens through which the assessing person can perceive the interrelations in a more structured way, and sort the observations into the 5 defined groups. It has also been applied with assessing human-machine interaction (Lee, et al., 2012).
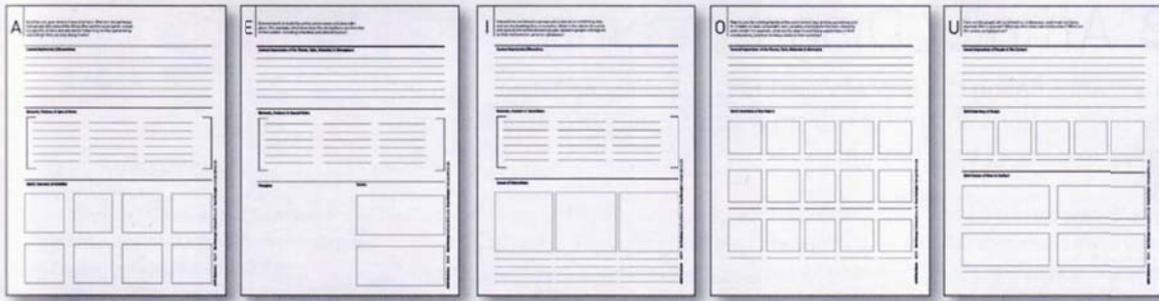
The AEIOU framework was used in a design thinking workshop to guide field observations and visualization techniques. Individual worksheets (above) for Activities, Environments, Interactions, Objects, and Users, were used to document research, and then converged onto a large team worksheet (left and below) for synthesis and design ideation.
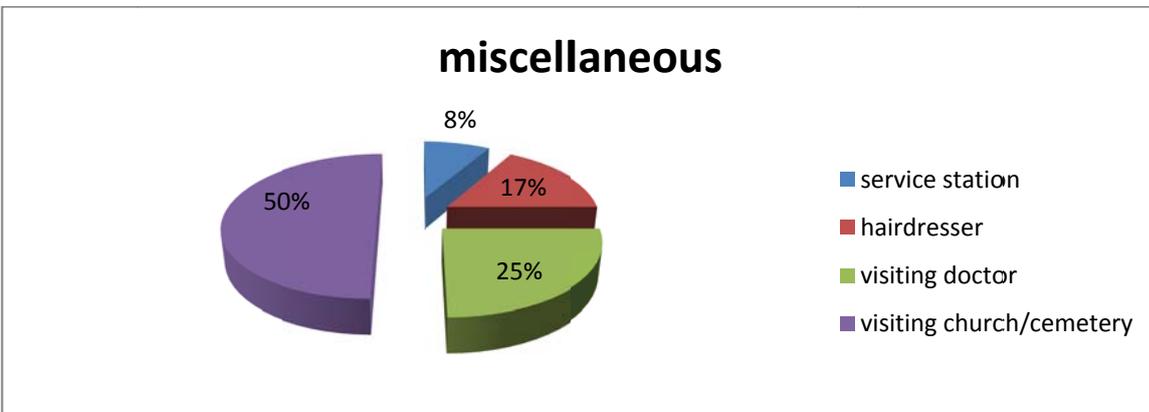
Picture from the book (Hanington, 2012)

AT Caregiver Cultural Probes

<u>Activities</u>

Compare also to word cloud in section "AT Cultural Probes daily journal Caregiver"

work activities

- work — 5%
- work in garden — 21%
- cooking — 19%
- clothes washing, sewing, ironing — 13%
- do homework — 19%
- shopping — 23%

Source: file "summary_cultural probes_AT.doc"

free time

- sports — 7%
- swimming (see/pool) — 12%
- playing games — 2%
- walking, hiking, biking — 19%
- theater/concert — 6%
- watching TV — 22%
- reading (news, book) — 11%
- shopping — 21%

Source: file "summary_cultural probes_AT.doc"

social events

Source: file "summary_cultural probes_AT.doc"

miscellaneous

Source: file "summary_cultural probes_AT.doc"

Environments

Figure 85: Environments Caregiver AT

Interactions

Communication via land lane phone, mobile home, PC mailing

Objects

books (2), PC, kitchen, paintings, pictures from journey, special doll collection (Trachtenpuppensammlung), bike, mobile home, secretary, stove, special duster from Swiffer, photo collection, home trainer [at1]

Talismans: madonna wooden figure, picture from husband

Figure 86: Objects Caregiver AT

Users

Mostly female, 72 years, married, in pension, caring for husband or relative

AT Elderly Cultural Probes (n.a.)

No data from cultural probes available.

CH Caregiver Cultural Probes

<u>Activities</u>

Coping with the bad mood of elderly (professional carers)

Word cloud from section "CH Cultural Probes daily journal Caregiver"
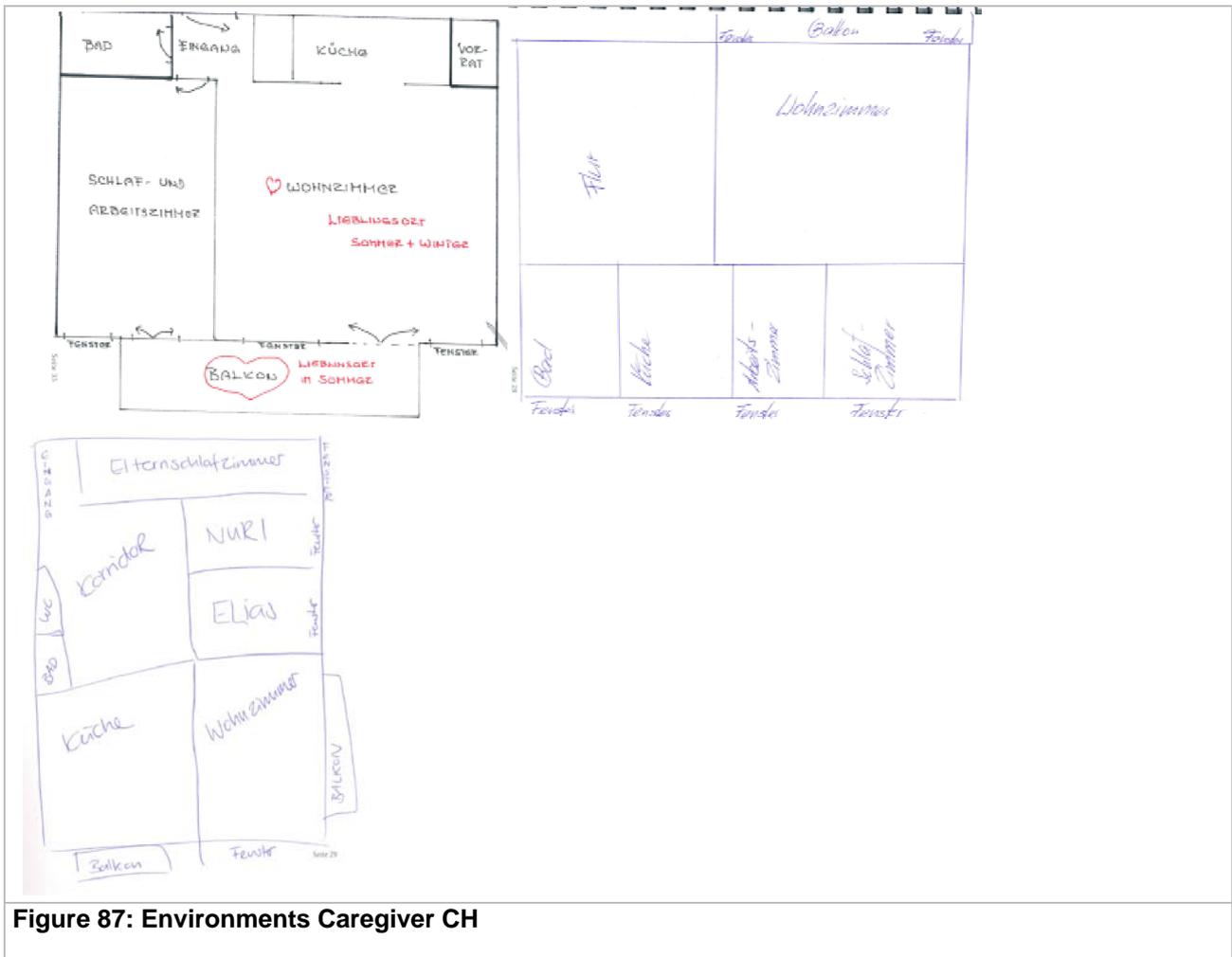
Environments:

Figure 87: Environments Caregiver CH

Interactions

Immediate (voice, presence, direct help) care for others (professional carers)

Drinking coffee / wine

Playing board/card games with friends/neighbors

visits

Care of children by playing with them and support them with homework.

Phone calls

Difficult to receive bad messages in front of other people

Carer and elderly Shopping together

Hearing impairment

Carer reads out to elderly

Cat/pet feeding

Figure 88: Interactions Caregiver CH

Objects

Couch, laptop, radio

Compare word cloud with section "CH Cultural Probes objects used by Caregiver"
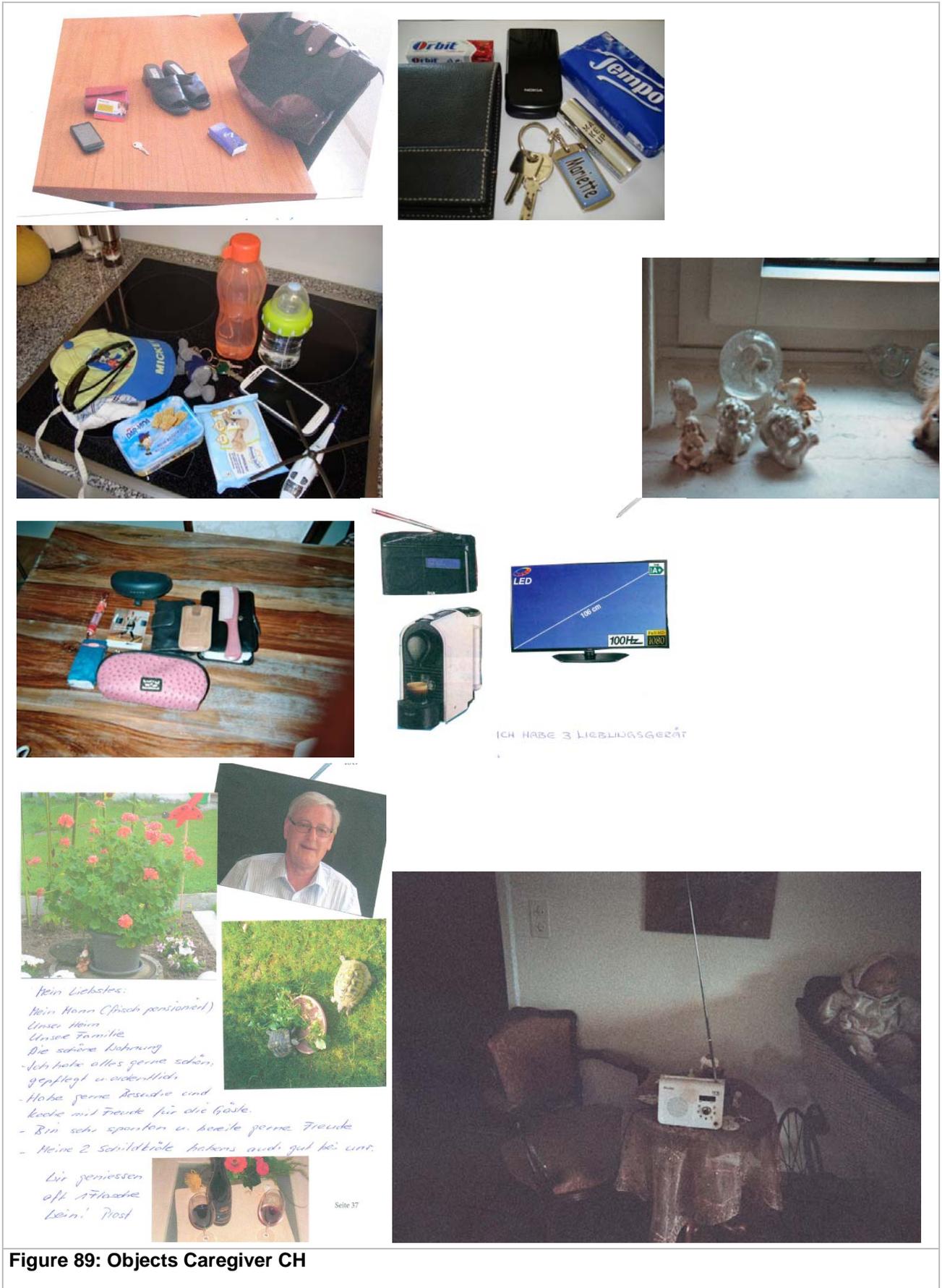
Figure 89: Objects Caregiver CH

Users
Female
Working
55 years
Professional carers
Has cat

CH Elderly Cultural Probes

Activities

Resting

Compare to word cloud in section "CH Cultural Probes daily journal Elderly"

Environments

Figure 90: Environments Elderly CH

Interactions

Playing with grandchildren

Email/PC

Lunch/dinner with others

Phone calls

At church

In Restaurant

Cooking for others

In choir/ With music instruments

Objects
China
Car

Figure 91: Objects Elderly CH

Compare to section "CH Cultural Probes objects used by Elderly"

Users
72 years
in pension
well paid former jobs
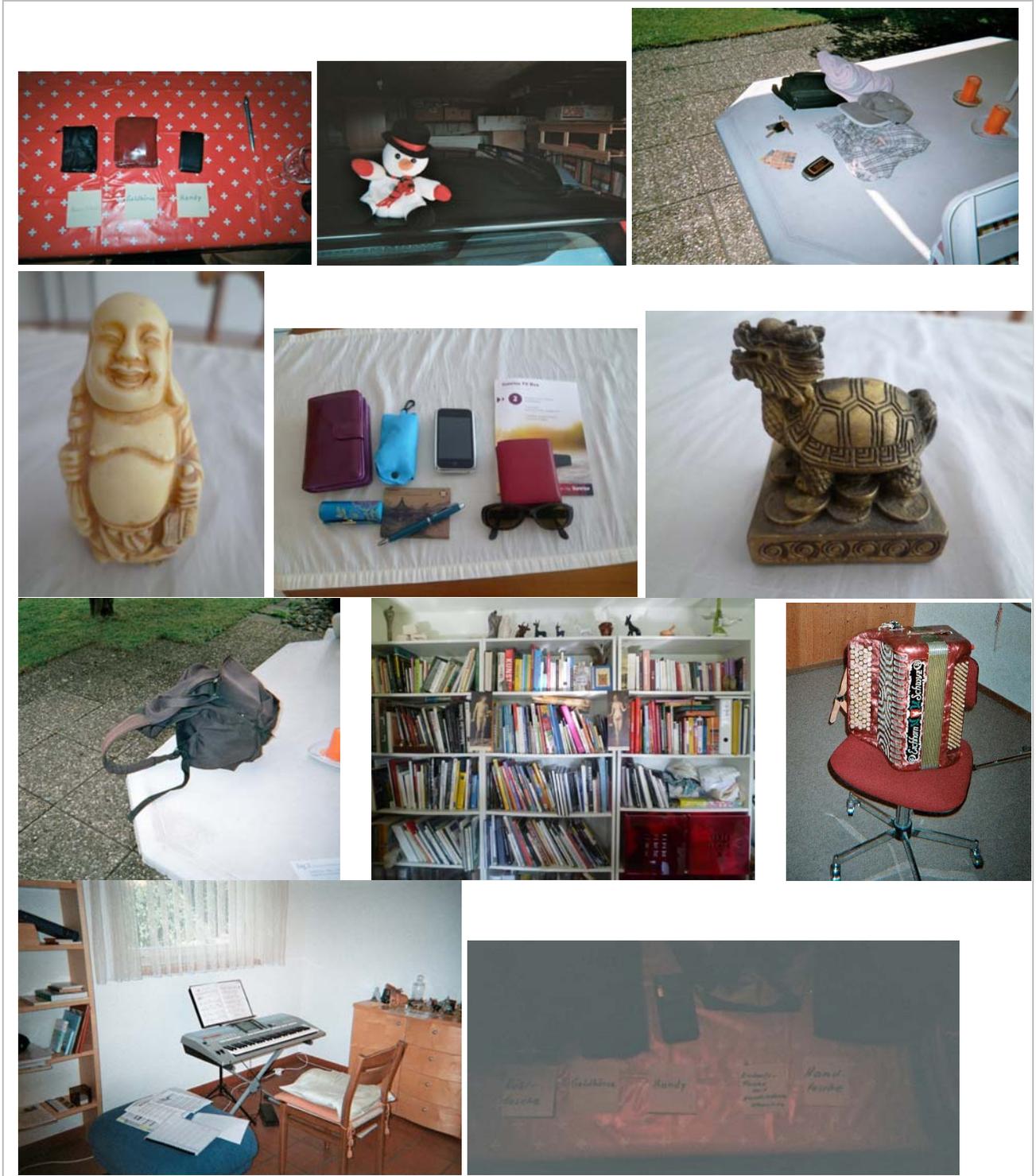
Appendix D Interpretation of Results – Students Workshop

Concept "Care Connect"

WAS? CARECONNECT verbindet Menschen. Speziell ältere Personen können hier vom Komfort der einfachen Bedienung und vom Gefühl der Sicherheit profitieren.

WER? Ältere oder auch Kinder brauchen in gewissen Situationen Hilfe oder einfach nur Rückhalt und Sicherheit.

WIE? Ein modular aufgebautes Kommunikationssystem von kompatiblen Geräten schafft Verbindung zwischen zwei Nutzergruppen (z. B. Elderly und Caregiver).

WANN? Besonders in der späten Lebensphase, in der noch genügend körperliche und geistige Leistungsfähigkeit vorhanden ist steigt das Bedürfnis nach der einfachen Kontaktaufnahme.

WO? CARECONNECT ermöglicht allen Beteiligten das Verbleiben in ihrer gewohnten Umgebung. Die Geräte werden hauptsächlich im Haushalt genutzt. Der Unterstützer genießt durch Handy, Laptop, Tablet, usw. alle Freiheiten der Mobilität.

WARUM? CARECONNECT ermöglicht Kommunikation, die niemals stört. Die Geräte sind so gestaltet, dass man sie leicht verstehen kann. Sogar das liebgewordene, alte Radio kann in die Konfiguration eingebaut werden. Auf diese Weise kann auch die Umwelt geschont werden.

Günter

58 Jahre, Angestellter
Geschieden
Lebt allein in einer Kleinstadt (50.000 EW)
2 erwachsene Kinder, 1 Enkelkind
Günter hört gerne Musik und spielt
Gitarre in einer Jazzband.
Er ist gerne in seiner Wohnung und
beschäftigt sich mit seinem Computer.

Johanna

82 Jahre, Pensionistin (früher Hausfrau)
Verwitwet, keine Kinder
Ihr Neffe Günter ist ihr einziger Verwandter,
er lebt 10 km entfernt.
Johanna lebt in einer Kleinstadt (5.000 EW)
in einem Haus mit Garten.

So oft es geht arbeitet Johanna in ihrem
kleinen Garten. Sie schaut täglich fern
und hört Radio. Wöchentlich besucht sie
ihren Seniorenverein, nimmt auch an
dessen Ausflügen teil. Johanna hat keine
technischen Kenntnisse und besitzt
kein Mobiltelefon.
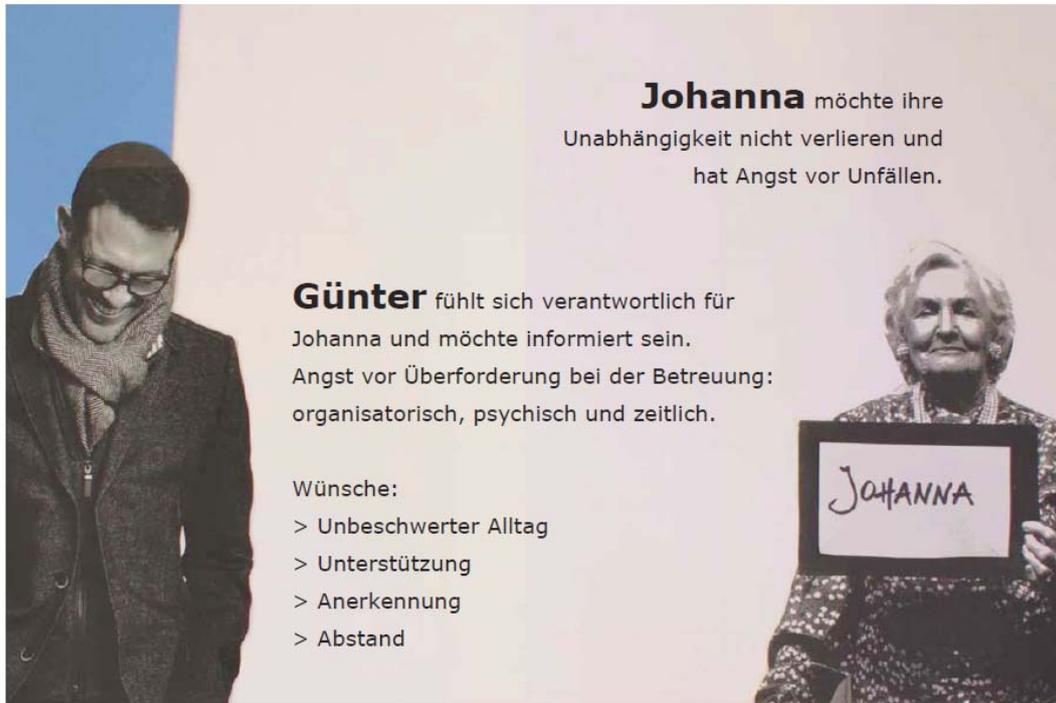
JOHANNA

Johanna möchte ihre Unabhängigkeit nicht verlieren und hat Angst vor Unfällen.

Günter fühlt sich verantwortlich für Johanna und möchte informiert sein. Angst vor Überforderung bei der Betreuung: organisatorisch, psychisch und zeitlich.

Wünsche:
> Unbeschwerter Alltag
> Unterstützung
> Anerkennung
> Abstand
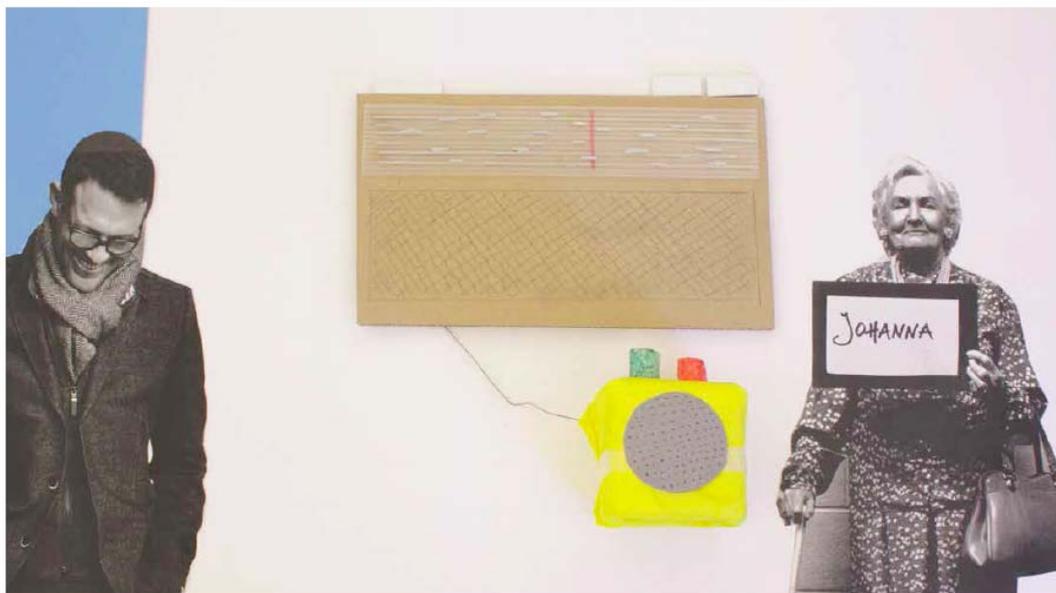
care(connect

Johannas lieb gewordenes altes Radio wird von Günter mit einem internetfähigen Adapter ergänzt.

Günter nimmt mit seinem Mobiltelefon eine Nachricht auf. Der Adapter beginnt zu leuchten. Johanna hört die Nachricht über ihr Radio ab, wann immer sie möchte.
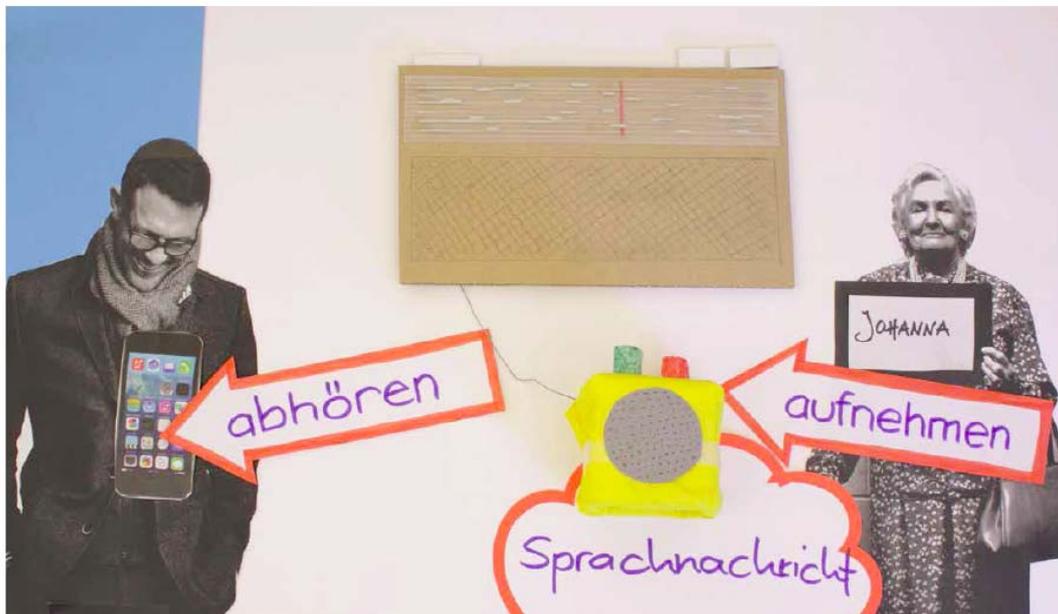
Auch Johanna kann über den Adapter Nachrichten aufnehmen, die Günter jederzeit z. B. über sein Mobiltelefon abhören kann.

Im Notfall kann Johanna durch das Aussprechen definierter Wörter ein Notsignal auf Günters Handy oder an eine Hilfsorganisation absenden.

Ein weiteres Modul ist ein Schlüsselanhänger mit RFIT-Funktion. Der Adapter erkennt Bewegungen von Johanna, die den Schlüsselanhänger bei sich trägt.

Der Schlüsselanhänger hat auch eine Notfunktion.

Ausbaustufe des care_connects ist ein Internet-Radio, das die Eigenschaften des Adapters besitzt und zusätzliche nützliche Funktionen bietet.

Für mobile Anwendungen kann das Radio mit einem
tragbaren und stoßsicher ausgeführten Tablet ergänzt werden.
Die Grafik ist besonders einfach und bedienerfreundlich gestaltet.
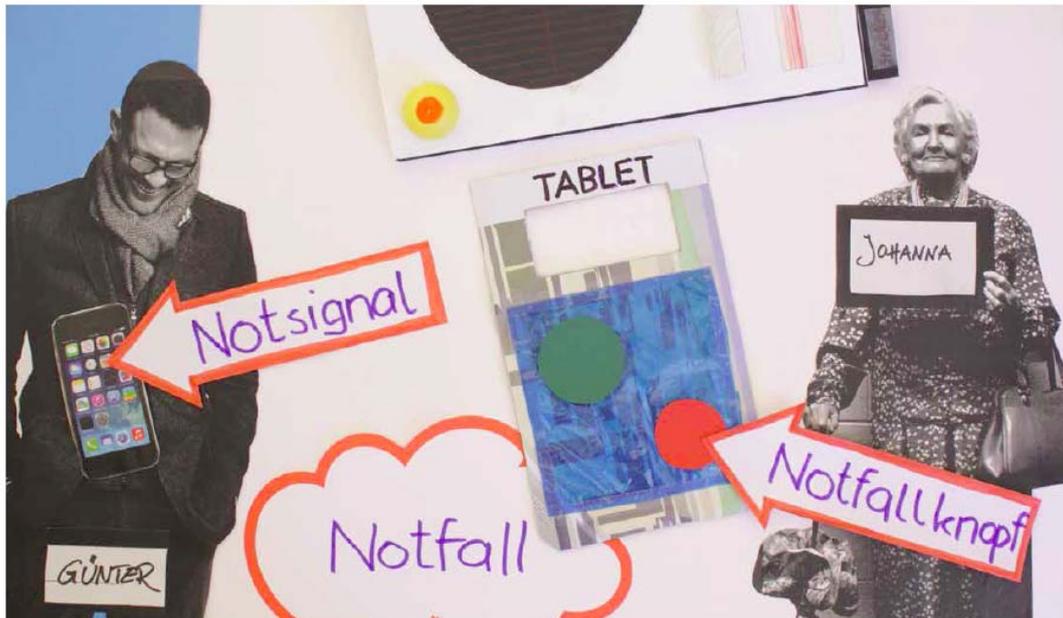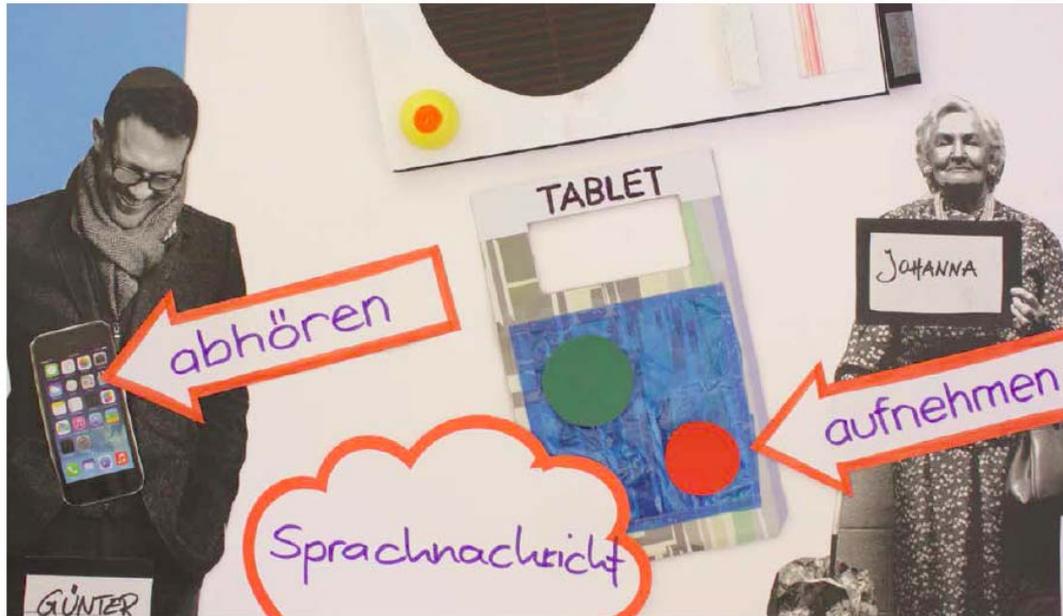
Adapter und altes Radio

> Gegensprechfunktion mit leuchtfähigem Gehäuse
> Spracherkennung
> RFIT-Erkennung
> Kompabilität für Tonsignal mit alten Radiogeräten

care connect

Radio

> UKW und Internet
> RFIT-Erkennung
> Notfallknopf
> Gegensprechfunktion
> Spracherkennung
> Ladestation für das Tablet
> Zusatzlautsprecher für das Tablet
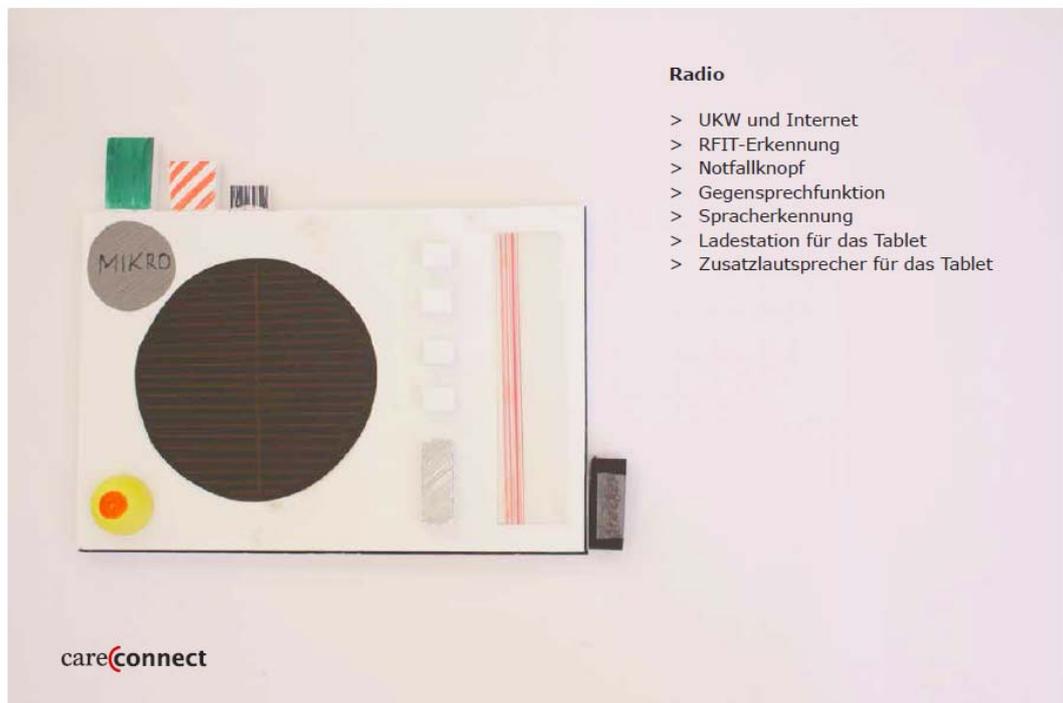
care connect

Schlüsselanhänger

> Talismanfunktion
> RFIT-Geber
> Notfallknopf
> optional mit Notfalldaten
> Beatmungstuch
> Notfallmedikamente

care(connect

TABLET

Tablet

> Notfallknopf
> Gegensprechfunktion
> Spracherkennung

Optionen:
> SMS
> Medien
> Spiele
> Gymnastikprogramme
> Medikamentenerinnerung
> Aufgabenbörse (zB: Hilfswerk,
  Omadienst, Pfarre etc.)
> soziale Netzwerke

care(connect

Concept "care-in-motion"

Care in motion

Ist ein Kommunikationssystem zwischen Familienmitgliedern, die ihre Liebsten trotz räumlicher Distanz immer gerne bei sich haben wollen.
Es ist stationär oder mobil anwendbar und lässt sich individuell und nach persönlichen Wünschen zusammenstellen. Es richtet sich im Speziellen an Personen, die ihren Alltag allein bewältigen können.

In seinen Grundfunktionen ist das System mit einem Notrufnetzwerk ausgestattet. Dieses Netzwerk ist erweiterbar. Es lässt eine geschlossene Kommunikation zwischen zwei Personen zu – Care giver/Care taker, kann aber auch auf einen erweiterten Personenkreis ausgedehnt werden – Care motion Forum.

Wie funktioniert Care in motion?

Installiert wird das System in den Wohnraum der Benutzer. Hierzu kann jede Wand der Wohnung verwendet werden. Die Grundausstattung besteht aus drei Komponenten, die je nach individuellen Wünschen erweiterbar sind:

• Care Board
• Care Cube
• Care Key

Im Care Board ist die Haupttechnik untergebracht. Hierfür ist ein Strom- und Internetanschluss notwendig. Alle anderen Komponenten werden magnetisch an beliebiger Stelle auf dem Care Board befestigt. So bald die Komponenten auf dem Care Board positioniert sind, ist der Datenaustausch wie auch die Stromversorgung aller Komponenten gewährleistet. Zusätzlich werden die mobilen Devices in ihren Boxen aufgeladen.

Die Lichteffekte des Care in motion

Optisch wird die Funktion des gesamten Systems mit Licht unterstützt. Liegen alle Devices in ihren Boxen bzw. in der Wohnung ist das Licht weiss. Fehlt ein Device, ändert sich die Lichtstimmung und der Benutzer erkennt, dass ein Gegenstand nicht im Wohnbereich liegt.

Die Lichtspiele werden erst aktiviert so bald der Bewegungsmelder angesprochen ist. All diese Informationen sind dem Care Giver in seinem System ebenso ersichtlich.

Personalisierung des Care in motion

Das Care Board bietet Platz für persönliche Erinnerungen in Form von Postkarten, Fotografien u.v.m., die die betreffende Person einfach auf dem Care Board aufbringen kann.

**Wie lebt es sich mit Care in motion**

Care in motion ist ein unauffälliger Begleiter bei allen Aktivitäten indoor wie auch outdoor. Es ist nicht notwendig sich neue Gewohnheiten anzueignen, die bestehenden Gewohnheiten werden in das System mit aufgenommen.

Ein direkter und indirekter wechselseitiger Kontakt ist zu jedem Zeitpunkt gewährleistet und zwar durch Licht aber auch durch akkustische Signale der einzelen Devices. Direkter Kontakt zwischen Care Giver und Care Taker ist über das Care Desk via Textnachricht oder Videostream möglich. Auch das Forum kann auf diese Weise erreicht werden.

Ein grosser Notfall-Button ermöglicht durch ein geschlossenes System den direkten Kontakt zu den Einsatzkräften und informiert sofort den Care Giver.

Alle Funktionen sind outdoor über die mobilen Devices wie Care Key, Care Mobile oder Care Desk möglich. Der Erweiterung des Systems mit anderen mobile Devices sind keine Grenzen gesetzt.
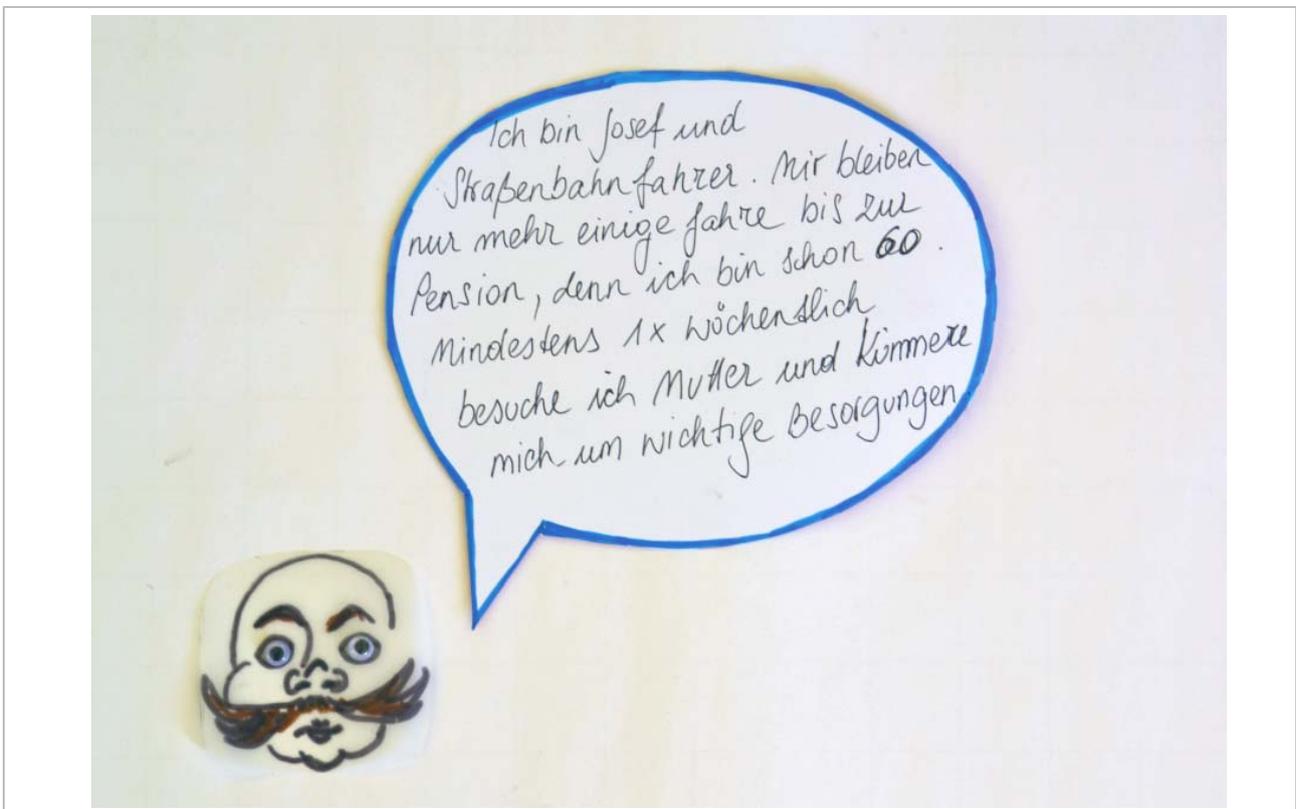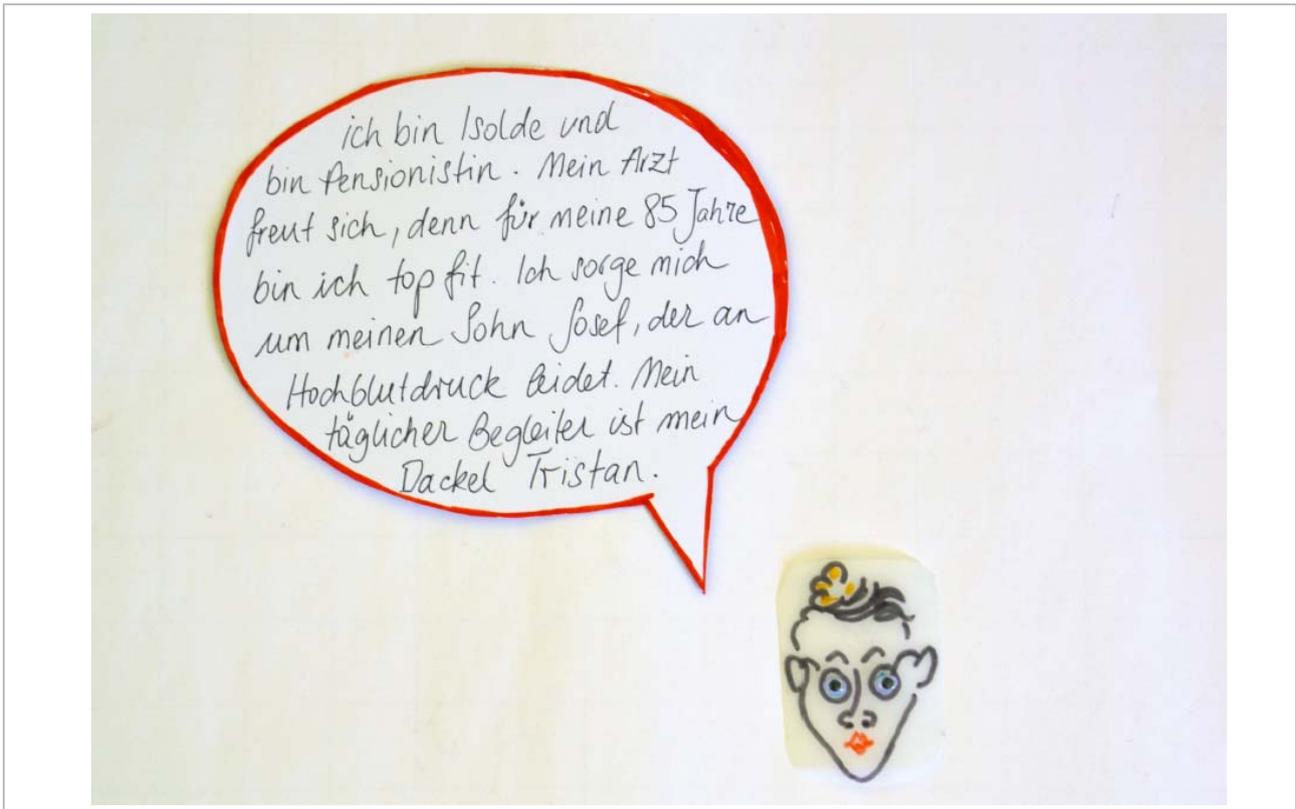
Care in motion ist einfach in der Installation.

Care Board wird an die Wand fixiert und an die Strom- und Internetverbindung angeschlossen.
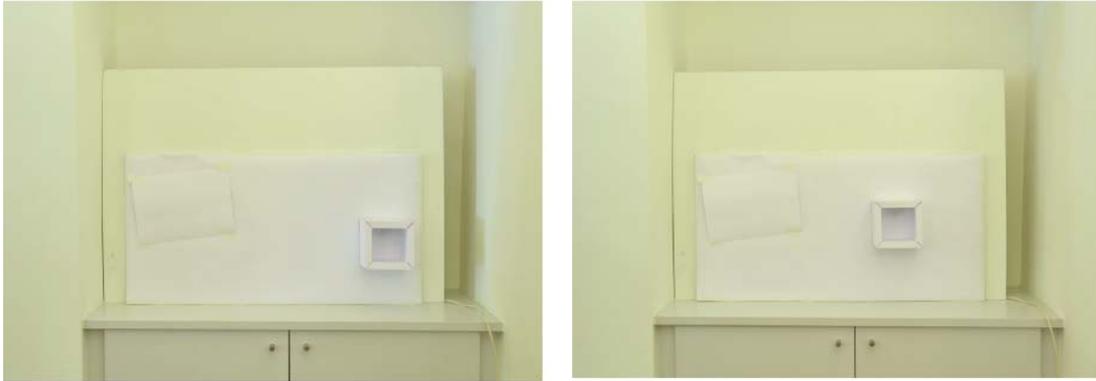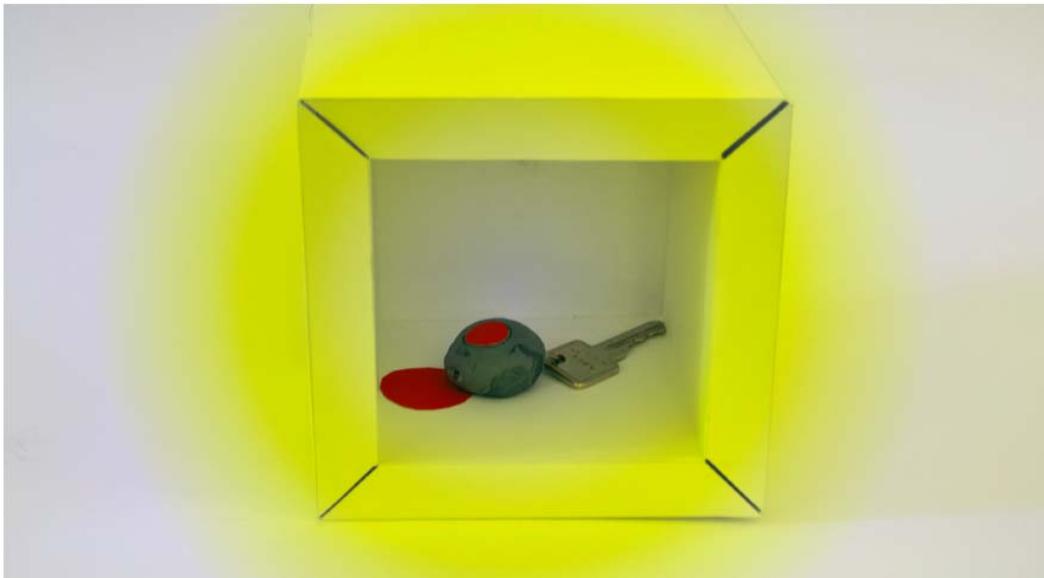
Care Cubes werden frei auf dem Care Board positioniert.
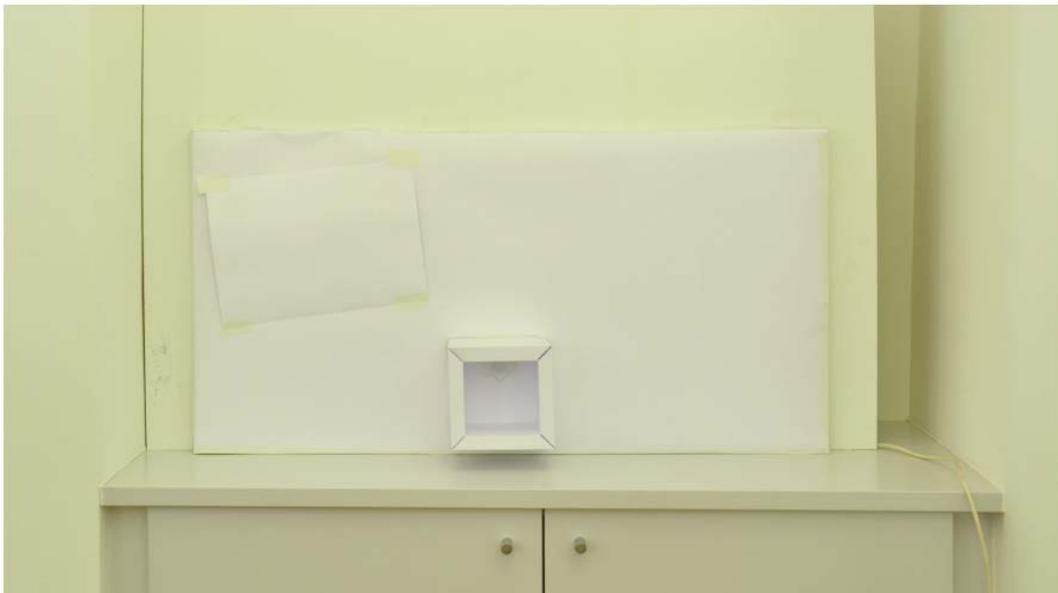
Sie können jeder Zeit wieder verschoben werden.

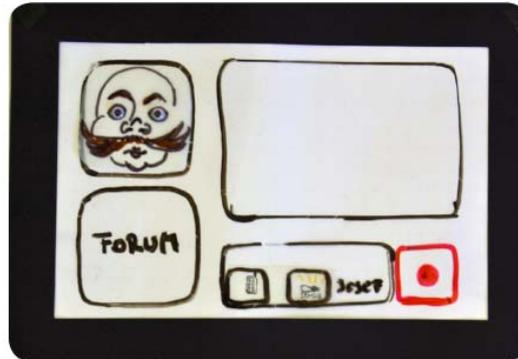Die Grundausstattung ist das Care Board und der Care Key.
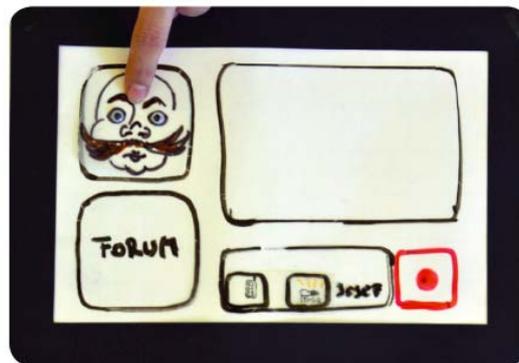

Der Care Key wird im Care Cube automatisch geladen.

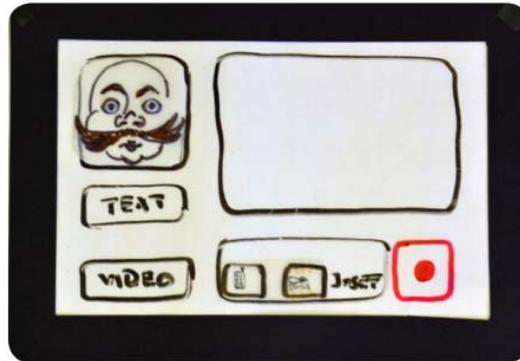Befülltes Care Board nach individuellen Wünschen.

Mobiler Care Desk auf Care Board fixiert und persönlich gestaltet.
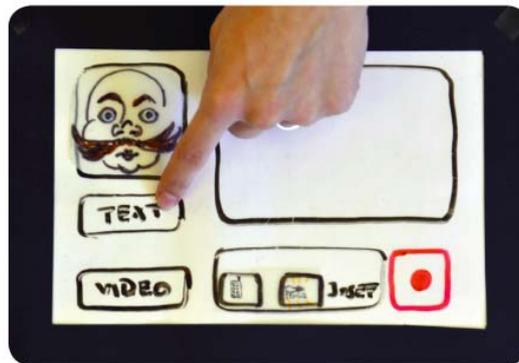
Care Desk im Startscreen.

Care Desk Kontaktaufbau zum Care Giver.

Care Desk Kommunikationsauswahl

Nachricht an Care Giver.

Care Taker – Absenden der Nachricht.

Care Giver – Nachrichtenempfang auf seinem mobile Device.