AMBIENT ASSISTED LIVING, AAL

JOINT PROGRAMME

ICT-BASED SOLUTIONS FOR ADVANCEMENT OF OLDER PERSONS' INDEPENDENCE AND PARTICIPATION IN THE "SELF-SERVE SOCIETY"

D2.4

Pilot Study Evaluation Report

Project acronym:	**GeTVivid**
Project full title:	**GeTVivid - Let's do things together**
Contract no.:	**AAL-2012-5-200**
Author:	**PLUS**
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TABLE OF CONTENTS

TERMINOLOGY & ABBREVIATIONS

E.g. ..... Example given

HbbTV ..... Hybrid Broadcast Broadband TV

ViA ..... Values in Action

SUS ..... System Usability Scale

1. EXECUTIVE SUMMARY

1.1 Link with the objectives of the project

In the GeTVivid project a user-centred design approach is applied that is combined with the Values in Action (ViA) approach. For the intermediate evaluations in T2.3 and the pilot studies in T2.4 the research goals and the evaluation procedure were defined in D2.1 (see Figure 1). The values for the Values in Action (ViA) approach were derived from the user requirements. They build the basis for the different evaluations and the iterative development. In T2.3 four evaluation rounds with users and experts will be conducted before the final pilot studies in order to ensure a high quality towards the end of the project.

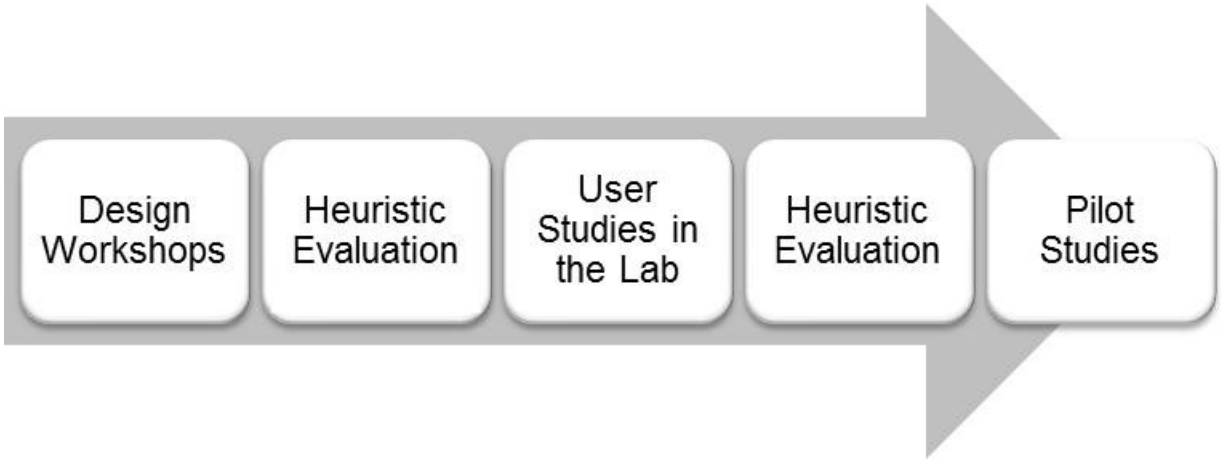

Figure 1: Evaluation Procedure

1.2 State of the art

In the following, user-centred design, values and specifically the Values in Action approach are described in detail.

1.2.1 User-centred design

User-centred design [Norman and Draper, 1986] is a multidisciplinary design approach and philosophy, which describes a prototype-driven software development process, where the user is highly integrated and involved during the design and development process. User-centred design is based on the active involvement of users and refers mainly to the usefulness and usability of a product [Mao et al., 2001]. It enables emergent interaction between designers & developers and users, and finally enhances users' acceptance.

The approach consists of several stages, which are iteratively executed: Requirements analysis, design/ implementation, and evaluation. It is a multi-stage problem solving process that not only requires designers to analyse and foresee how users are likely to use a product, but also to test the validity of their assumptions with regard to user behaviour in real world tests with actual users.

1.2.2 Values

Values are "*desirable transsituational goals, varying in importance, that serve as guiding principles in the life of a person or other social entity*" [Schwartz, 1994, p.21]. Values define what a user considers important in life [Friedman et al., 2008]. Values are centred in people and refer to the properties or features of the desired objects (e.g., technologies) [Fuchsberger et al., 2012].

1.2.3 Values in Action (ViA)

The Values in Action (ViA) approach aims to support value- and user-centred design in AAL projects. ViA is based on the consideration that values can include both, the user's perspective (e.g., emotions or experiences) as well as technological aspects, which are important for AAL projects. It assigns needs from the requirements analysis to different factors related to usability, user experience, and user acceptance and the six different values (i.e., functional, social, emotional, epistemic, interpersonal, and conditional).

Fuchsberger et al. [2012] developed the ViA approach in order to find a suitable evaluation approach that combines usability, user experience and user acceptance and assesses users' requirements and needs. ViA is based on the consideration that values can include the user's perspective (e.g., emotions or experiences) as well as technological aspects (e.g., accessibility or adaptivity), which are important for AAL projects. ViA can also provide a valuable input for the business perspective in terms of helping to define the value proposition [Moser et al., 2014]. In D2.1 the different values and factors for GeTVivid are described (see also Figure 2). According to the results of the requirements analysis all values are important whereby the order is functional, interpersonal, social, and emotional value. The epistemic and conditional are least important and therefore greyed out in Figure 2.

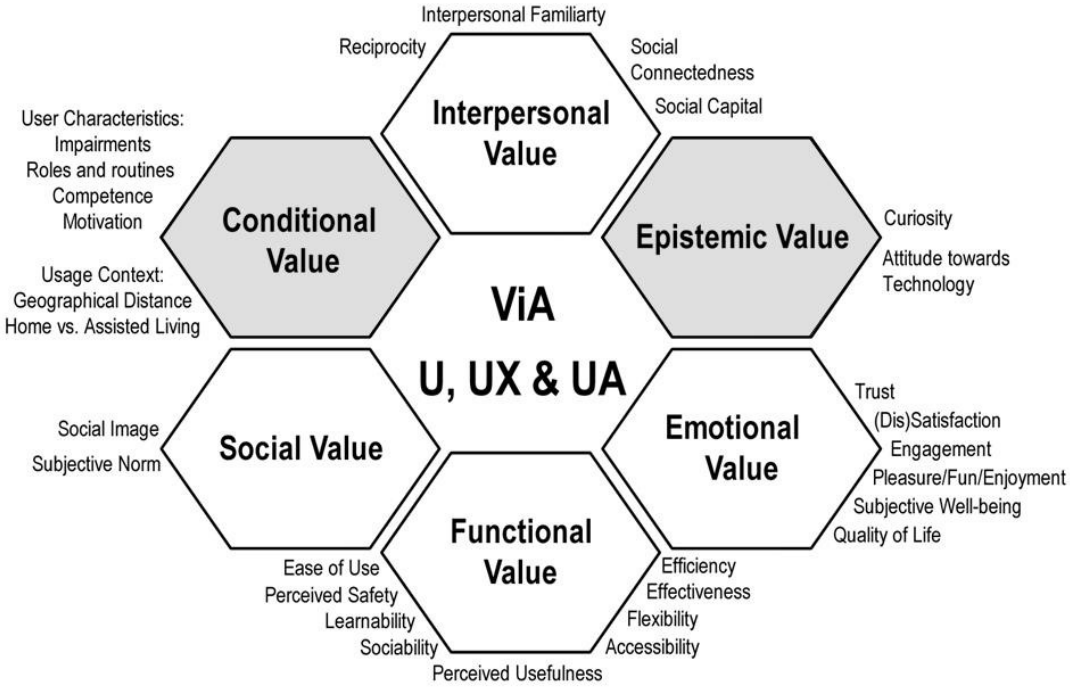

Figure 2: ViA for GeTVivid

2. PILOT STUDIES

The development started with sketches for the mobile device (i.e., click dummy for the tablet) that were iterated with the partners. Afterwards, a video prototype was created to illustrate a possible interaction between the TV and mobile device. The iterated design sketches illustrated different functionalities by showing several exemplary screens. As a first evaluation activity, four workshops with end users took place in Austria, Switzerland and Germany. The participants of the workshops were asked to evaluate the appropriateness of these sketches in an exploratory manner. Based on the feedback a redesign was done and implemented for the TV and mobile device. As a second step the first prototypes were evaluated with experts from different domains by conducting a heuristic evaluation. Afterwards, the prototype was improved and the development continued. As a next step the second prototypes (i.e., containing already most of the planned features and functionalities) were evaluated with end users in a lab setting at the EUOs organizations. Before the final pilot studies, the iterated third prototypes were evaluated with experts from different domains by conducting a second heuristic evaluation. Finally, the iterated prototypes have been evaluated over 10 weeks with 34 end users at CURAVIVA Switzerland (i.e., especially the Old Age Department, which is the research and development division for the sector of elderly and care homes is mainly responsible for developing new and innovative services and projects for the benefit of their member homes), EURAG Austria (i.e., is dedicated to obtain the life quality and the self determination of senior citizens, maintain a bridge between generations, to empower the older generation, and to prevent discrimination of older persons), and VMKN in Germany (i.e., Verein für Menschen mit Körperbehinderung Nürnberg e.V. (VMKN) has been dedicated to advancing and supporting individuals having physical and/or multiple disabilities).

2.1 Research Goal and Questions

The user studies in the field aimed at evaluating the final prototypes together with users in a real-life setting. The prototypes provide different functionalities that were evaluated to find out how well they satisfy users' needs. The user studies took place in Austria (organized by PLUS and EURAG), in Germany (organized by PLUS and VMKN), and Switzerland (organized by PLUS and CURAVIVA).

In the following, the central research questions are outlined. They are structured according to different values as well as usability (U), user experience (UX) and user acceptance (UA) factors (as described in the evaluation framework document) that are going to be addressed.

Functional value:

RQ 1: To what extent does the platform address age related limitations (e.g., cognitive or physical) in terms of understanding, navigation, and interaction with the platform (Accessibility)

RQ 2: To which extent do the users believe that using the platform is free of physical and mental effort? (Ease of use)

RQ 3: To which extent do the users believe that the platform would facilitate achieving their goals? (Perceived usefulness)

Interpersonal value:

RQ 4: What characterizes the support exchange on platform in terms of reciprocity? (Reciprocity)

RQ 5: To what extent does users' experience of social connectedness increase when using the platform over a longer period of time? (Social connectedness)

RQ 6: To what extent do the users believe that other users on the platform are similar to them? (Interpersonal familiarity)

RQ 7: To what extent do users believe that social capital can evolve when using the platform over a longer period of time? (Social Capital)

Social value:

RQ 8: To what extent does social image of user change when using the platform over a longer period of time? (Social image)

RQ 9: Which subjective norms do users perceive when using the platform (e.g., expectations)? (Subjective norm)

Emotional value:

RQ 10: To what extent does subjective well-being change when using the platform over a longer period of time? (Subjective well-being)

RQ 11: To what extend do users trust other users and the system? (Trust)

Epistemic value:

RQ 12: To what extent does the usage of the system provoke the user's curiosity about and interest in the system and its content? (Curiosity)

2.2 Methods

The following section details, the applied methodological approach for the pilot studies as well as the overall study procedure and the temporal application of certain methods.

2.2.1 Approach

A formative user study was applied, which is usually characterized as a method to investigate the usability, user experience and acceptance of interactive systems in order to design the respective system suitable in the users' sense. The main distinction between a formative and a summative study is set in the iterative nature of formative testing and the overall goal to improve the system's design [Tullis and Albert, 2008].

The study was subdivided into a qualitative analysis including all interviews (further description below) and a diary to be filled out by each participant as well as a quantitative analysis containing the questionnaires outlined below. The former will be used for a broader, but also more distinct interpretation of the questionnaire results.

In the following, questionnaires and models are described, whereof items were selected that are appropriate to answer the RQs and assess different factors (see also mapping in Section 2.2)

System Usability Scale (SUS) [Brooke 1996]

The SUS [Brooke 1996] is a simple, ten-item scale giving a global view of subjective assessments of usability. Despite being a self-described "quick and dirty" usability scale, the SUS has become a popular questionnaire for end-of-test subjective assessments of usability. Scoring the questionnaire yields a usability score in the range of 0–100, i.e., 80 to 100 users likes the system, 60 to 79 users accept the system and 0 to 59 users dislike the system. The following items are from the SUS:

1. I think that I would like to use this system frequently.
2. I found the system unnecessarily complex.
3. I thought the system was easy to use.
4. I think that I would need the support of a technical person to be able to use this system.
5. I found the various functions in this system were well integrated.
6. I thought there was too much inconsistency in this system.
7. I would imagine that most people would learn to use this system very quickly.
8. I found the system very cumbersome to use.
9. I felt very confident using the system.
10. I needed to learn a lot of things before I could get going with this system.

Accessibility

Accessibility means that users with specified disabilities or limitations can perceive, understand, navigate, and interact with the system in a specified context and thereby achieve certain goals with the same effectiveness, efficiency and satisfaction of use as non-disabled people or people without limitations [Brajnik, 2008]. The following items are self-developed and validated:

1. Important information was highlighted in the platform.
2. The colours used in the platform were well differentiable.
3. Selecting functionalities in the platform was not a problem.
4. The contrast between the foreground (e.g., text) and the background in the platform was high enough.
5. All necessary information to use the platform was provided in the system.
6. The navigation in the platform was always clear enough to proceed.
7. The main elements of the platform (e.g., menus or buttons) were highlighted well.
8. Sufficient feedback was provided in the platform, to know whether my operations were correct or not.
9. A lot of choices were needed in order to reach a goal.
10. It was very challenging to interact with the platform, due to too much information on it.

Ease of use

Ease of use describes the extent to which an individual believes that using a particular system would be free of physical and mental effort [Chutter, 2009]. The easier the use of a system, the more likely is an acceptance by the user [Davis, 1989]. The following items were derived from Davis [1989] and Chutter [2009]:

1. Learning to operate the platform was easy for me.
2. I found it easy to get the platform to do want I want it to do.
3. My interaction with the platform was clear and understandable.
4. I found the platform flexible to interact with.
5. It was easy for me to become skillful at using the platform.
6. I found the platform easy to use.

The following items were derived from [Deci and Ryan n.y.]:

1. I think I would be pretty good in using the system.
2. After working with the system for a while, I would feel pretty competent.
3. I would be satisfied with my performance while using the system.
4. I would be pretty skilled in using the system.
5. I won't be able to use the system very well.

Perceived usefulness

Perceived usefulness is the extent to which an individual believes that using a particular system would enhance performance [Chutter, 2009]. "*A system high in perceived usefulness … is one for which a user believes in the existence of a positive use-performance relationship*" [Davis, 1989, p. 320]. The following items were derived from Davis [1989] and Chutter [2009]:

1. Using the platform for my daily activities would enable me to accomplish them more easily.
2. Using the platform would improve my daily life.
3. Using the platform would enhance my effectiveness on the daily activities.
4. Using the platform would make it easier to do my daily activities.
5. I would find the platform useful for my daily activities.

Reciprocity

Reciprocity is the behavioural response to a perceived kindness or unkindness [Falk and Fischbacher, 2003]. Reciprocity is based on the principle that people match behaviours they experienced from others with the actions they perform for others. It is about the extent to which it comes to reciprocal actions between users and implies that user often match behaviours experienced from others with actions performed for others in proportion to what they receive [Carr, 2006].

Social connectedness

Social connectedness is the sense of belongingness that is based on having sufficient close contacts, which depends on the satisfaction with the size and quality of one's social network. Loneliness is the counterpart of social connectedness and belongingness [Van Bel et al., 2008 or Visser et al., 2010]. The quantitative aspect is constituted by the size of one's social network as well as the amount of interactions with the members of the

network. The qualitative aspect comprises the degree of closeness in one's relationship [Van Bel et al., 2008]. The following items were derived from Lee and Robbins [1995]:

1. I feel disconnected from the world around me.
2. Even around people I know, I do not feel that I really belong.
3. I feel so distant to people.
4. I have no sense of togetherness with my peers.
5. I do not feel related to anyone.
6. Even among my friends, there is no sense of brother/sisterhood.
7. I do not feel I participate with anyone or any group.

Interpersonal familiarity

Interpersonal familiarity deals with an understanding of the current actions of other people or of objects [Luhman, 2000]. Strauss et al. [2001] explained the "similar-to-me" hypothesis, which was first introduced by Byrne [1971]. The hypothesis says that people will be rated higher the more similar they are or believed they are to the other. The following items were derived from the personality with the Big Five Inventory [Rammstedt and John, 2007]:

I see myself as someone who …

1. … is reserved
2. … is generally trusting
3. … tends to be lazy
4. … is relaxed, handles stress well
5. … has few artistic interests
6. … is outgoing, sociable
7. … tends to find fault with others
8. … does a thorough job
9. … gets nervous easily
10. … has an active imagination

Social capital

Social capital is related to the resources, which are embedded and emerge in social relationships, and is non-proprietary to each of the interacting parties [Bourdieu, 1986]. These relationships are characterized by norms of trustworthiness and reciprocity that arise from connections among individuals or social networks [Putnam, 2000]. Putnam [2000] distinguishes between bridging and bonding forms of Social Capital. Whereas bridging forms facilitate the access to external resources and identity of big social groups, bonding forms increase cohesion and identity of small groups. We will use an adapted version of the Facebook Intensity Scale from Ellison et al. 2007 in order to assess users' frequency of use and the integration of the platform into their everyday life.

1. The GeTVivid platform is part of my everyday activity
2. I am proud to tell people I'm using the GeTVivid platform
3. The GeTVivid platform has become part of my daily routine

4. I feel out of touch when I haven't used the GeTVivid platform for a while
5. I feel I am part of the GeTVivid community
6. I would be sorry if the GeTVivid platform shut down
7. Approximately how many TOTAL friends/contacts do you have on the GeTVivid platform?
8. In the past week, on average, approximately how much time PER DAY have you spent actively using the GeTVivid platform?

On basis of the GeTVivid requirements analysis (see D2.2), we extracted social roles and related expectations of actions (i.e., how someone is expecting someone else to act in a certain situation) from existing support-exchange practices of older adults. Based on these social roles and role expectations, the following items were derived [Moser et al., 2015]:

1. My expectations have been met and I found someone on the platform, who supported me/would have supported me anytime.
2. My expectations have been met and I found someone on the platform, who supported me/would have supported me in urgent cases.
3. My expectations have been met and I found someone on the platform, who supported me/would have supported me with material resources e.g., to pass on read newspapers, to borrow me tools).
4. My expectations have been met and I received support in return from all to whom I have provided support as well.
5. My expectations have been met and I found someone on the platform, who supported me/would have supported me on an emotional level.
6. If needed, I provided support at anytime.
7. In urgent cases, I have provided spontaneous support.
8. If needed, I have supported with material resources.
9. I could give all who supported me something in return (e.g., support).
10. If needed, I provided emotional support anytime.

Social image

Social image is defined as the extent to which users may derive respect and admiration from peers in their social network [Lin and Bhattacherjee, 2010]. It is however more important in the case of interactive systems, where the systems act as the media for communication and social interaction [Venkatesh et al., 2003]. It is the degree to which one perceives that the usage of the technology can enhance the status within a social group [Chismar and Wiley-Patton, 2002]. It is a central factor that influences the adoption of an innovation. The following items were derived from Moore and Benkast [1991]:

1. Using the platform improves my image within the community.
2. People in my community who use the platform have more prestige then those who do not.
3. People in my community who use the platform have a good reputation.
4. Using the platform is a status symbol in my neighbourhood.

Subjective norm

Kowalcyk [2008] defines it as an individual's perception of what important others feel about adopting an innovation. Subjective norm refers to the normative influence (e.g., direct or indirect pressure) exerted by significant referent others such as peers, friends and family members on a person's intention or opinion to perform a specific behaviour (e.g., [Peker, 2010] or [Lin and Bhattacherjee, 2010]). The following items were derived from Kowalczyk [2008]:

1. People who influence my behaviour think I should use the platform.
2. People who are important to me think I should use the platform.
3. My close friends think I should use the platform.
4. My peers think I should use the platform.
5. People whose opinions I value prefer that I use the platform.

Subjective well-being

Subjective well-being can be defined by ten features, i.e., competence, emotional stability, engagement, meaning, optimism, positive emotion, positive relationships, resilience, self-esteem, and vitality. High levels of well-being have been shown to be associated with a range of positive outcomes, including effective learning, productivity and creativity, good relationships, pro-social behaviour, and good health and life expectancy [Huppert and So, 2013]. The following items were derived from Huppert and So [2013]:

1. Most days I feel a sense of accomplishment from what I do.
2. (In the past week) I felt calm and peaceful.
3. I love learning new things.
4. I generally feel that what I do in my life is valuable and worthwhile.
5. I am always optimistic about my future.
6. Taking all things together, I'm happy with my life.
7. There are people in my life who really care about me.
8. When things go wrong in my life it generally takes me a long time to get back to normal. (reverse score)
9. In general, I feel very positive about myself.
10. (In the past week) I had a lot of energy.

Trust

Trust has been defined as "*the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party*" [Mayer et al., 1995, p 712]. A trustor's decision on whether or not to trust a trustee is a composite construct composed of the trustor's interdependent assessments of the trustee's benevolence, integrity, and ability, as well as their own propensity to trust, and any previous experiences they may have had [Mayer et al., 1995]. The following items derived from McKnight et al. [2002].

1. I think that people really do care about the well-being of others.
2. A user on the platform is sincerely concerned about the problems of others.

3. I think that people care enough to try to be helpful, rather than just looking out for themselves.
4. I think that most people keep their promises.
5. I think that people generally try to back up their words with their actions.
6. I think that most people are honest in their dealings with others.
7. I usually trust people until they give me a reason not to trust them.
8. I generally give people the benefit of the doubt when I first meet them.
9. My typical approach is to trust new acquaintances until they prove I should not trust them.
10. I believe that people on the platform would act in my best interest.
11. If I required help, people on the platform would do their best to help me.
12. People on the platform are interested in my well-being and not just in their own.
13. I believe that most (professional) people do a very good job on the platform.
14. A large majority of (professional) people on the platform are competent in their area of expertise.

Curiosity

Hu et al. [2005] investigated and defined it as the tendency of users to seek for something novel. This is a condition for sustained interest and a prerequisite for users to focus their attention. Curiosity is also an important motivator for exploratory behaviour to gain new information. The following items were derived from Renner [2006].

1. I'm interested in the people on the platform.
2. I would like to learn about the habits of others with the help of the platform.
3. I would like finding out what others are doing on the platform.
4. I would like to look into other people's profiles.
5. When I see new offers and demands on the platform, I would take a look at them.
6. I'm interested in other people's thoughts and feelings.
7. Other people's life stories interest me.

2.2.2 Recruitment

Overall 34 participants have been recruited for the pilot study via the three EUOs contacts and networks in Austria, Germany, and Switzerland. PLUS supported the EUOs during this process. The participants have been recruited according to fit the persona profiles of Frank and Anna. In D2.2 the two identified Personas for GeTVivid are described in more detail.

Initially it was intended to recruit up to 60 end users, but due to some limitations of the study set-up, a feasible number of 34 participants could have been recruited. One of the major limitations of the study, which also made the recruitment much more complicated, was that the end users had to use the HbbTV boxes that were provided by us and couldn't use their own boxes instead (i.e., some of the participants had to switch between two boxes to use GeTVivid which might have led to a reduced usage of the platform). Furthermore, another recruiting requirement had been that GeTVivid users needed to have cable television, which consequently excluded people having satellite TV beforehand from participation.

2.2.3 Procedure

In the first week of the pilot studies, all setups were installed at the participant´s houses (i.e., a set-top box connected to the internet and a tablet). This time was also used to gather more detailed information about participants everyday life via the pre-interview (further description below), such as current support situation related to family, friends and neighbourhood as well as social and physical activities and ability to handle day to day businesses (work, shopping, household, etc.).

The next nine weeks were for the real usage of the platform, whereby participants had to fill out the diaries that were given to them in the first week of the study. They were asked to note down their daily activities on the platform segmented per week. Furthermore, there was a section for special experiences, positive and negative as well as most interesting, alternating every week. The diaries also included questionnaires to be completed after every second week (see also Table 1 and Table 2 and below).

After approx. 5 weeks of study conduction, semi-structured telephone-interviews were conducted. Those telephone-interviews consisted of a semi-structured guideline of questions to be asked to the participants. Those were conducted by the respective community managers of the three EUOs and gave an insight into the current usage of the GeTVivid platform. These telephone-interviews also targeted to identify technical issues and other difficulties the participants experienced, which were directly communicated to the technical partners to allow for ad-hoc fixes. With the interview the opportunity was seized to further motivate and inform community members about the remaining procedure.

In week ten, the technical equipment was de-installed and a post-interview was conducted, which was also semi-structured in reference to the RQs.

Value	RQ	Questionnaires	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10
Functional		System usability scale (SUS)		X				X				
	RQ1	Accessibility		X				X				
	RQ2	Ease of use				X				X		
		Perceived competence				X				X		
	RQ3	Perceived usefulness				X				X		
Interpersonal	RQ4	Reciprocity										X
	RQ5	Social connectedness	X									X
	RQ6	Interpersonal familiarity	X									X
	RQ7	Social capital										X
		Expectations Inventory				X				X		
Social	RQ8	Social image										X
	RQ9	Subjective norm										X
Emotional	RQ10	Subjective wellbeing	X									X
	RQ11	Trust	X	X				X				X
Epistemic	RQ12	Curiosity				X					X	

Table 1. Schedule for the applied quantitative measures and the respective factors that were explored within those different activities.

	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10
Pre-Interviews										
ADLs, social connectedness, demands of support services, social activities	X									
Telephone Interviews										
Usage experiences, problems, needs articulation, meeting new people etc.					X					
Post-Interviews										
Usage problems, general issues, perceived usefulness/ trust, reciprocity, social capital/ connectedness										X
Diar										
Best /worst activity			X		X		X		X	X
Most interesting		X		X		X		X		X

Table 2. Schedule for the applied qualitative methods and the respective factors that were explored within those different activities.

2.3 Sample Description

For the pilot study 34 participants were recruited by the EUOs according to fit the persona profiles of Frank and Anna (see D2.2). The sample included three couples that were provided with one setup per household (i.e., they used the set-top box and tablet together).

Eighteen of the participants were male and 16 female, whereof, eight participants represented Anna and thus, 26 represented Frank. However, it may be noted that some of the participants fitting into the Frank persona tended to be more active (i.e., in terms of physical mobility and social engagement) than actually described in the persona. The participants' age ranged from 33 to 85 years (M=65, SD=12.4), with Anna being averagely 76.25 years (SD=7.32) and Frank being 60.54 years (SD=11.40) old (see Figure 3). The participants representing Frank were mostly living with their spouse/ partner and the ones representing Anna were primarily living alone (see Figure 4).

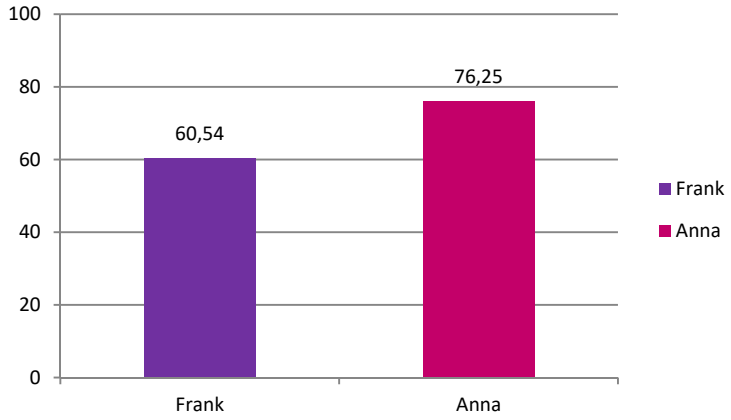

Figure 3. Mean age distribution of participants according to personas.

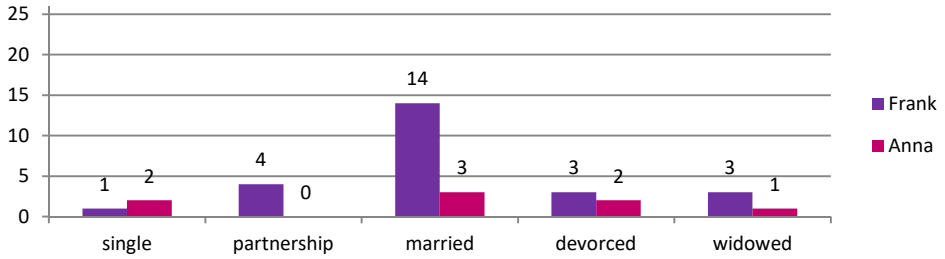

Figure 4. Living situation of personas.

Nearly all participants representing Frank owned a computer with Internet (see Figure 7) and predominantly perceived themselves as experienced users (see Figure 8). About two third of them owned a mobile phone with internet access, only five with no access and none of them was without a mobile phone (see Figure 9). They also stated their usage abilities to be quite good (see Figure 10). Furthermore, all of them owned a television, half with and about a third without Internet access (see Figure 5).

Participants representing Anna primarily had a computer with Internet at home (see Figure 7), however, they mostly perceived themselves as medium experienced (see Figure 8). Half of them owned a mobile phone with Internet and altogether three subjects had one without Internet access. Only one of them had no mobile phone at all (see Figure 9). They generally perceived themselves as quite experienced users, still not quite as experienced as those representing Frank. The following Figures present more detailed information about technology/ device usage as well as the participants' respective usage experience.

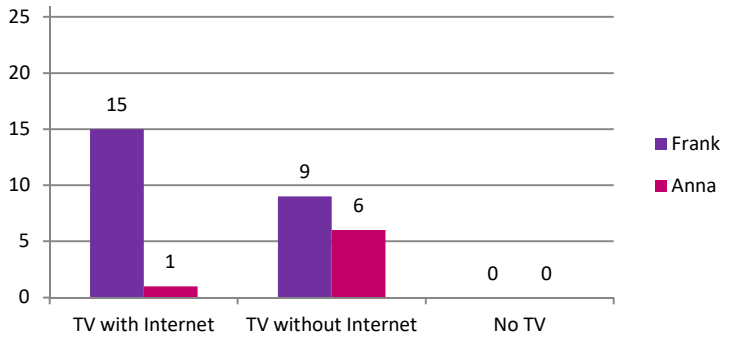

Figure 5. TV usage per persona.

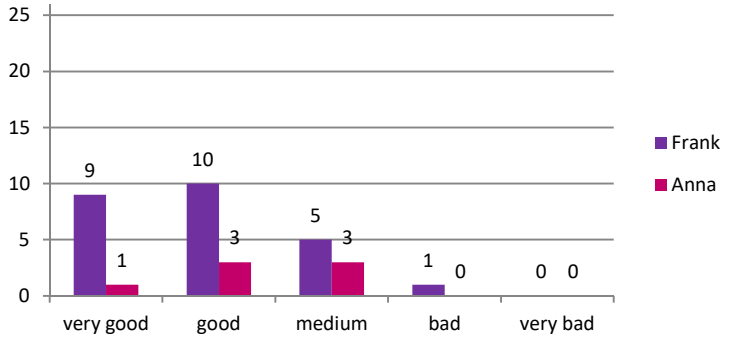

Figure 6. Usage experience in using TV per persona.

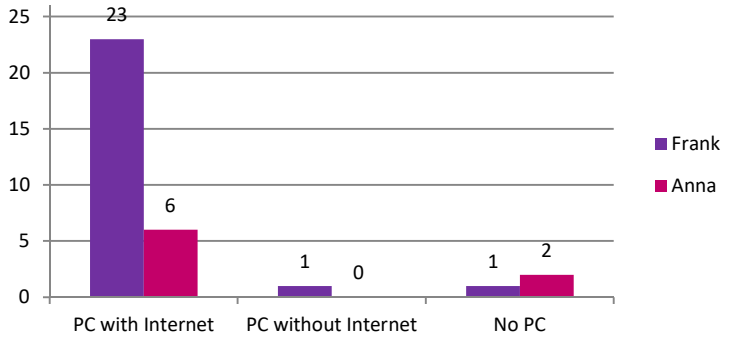

Figure 7. PC usage per persona per persona.

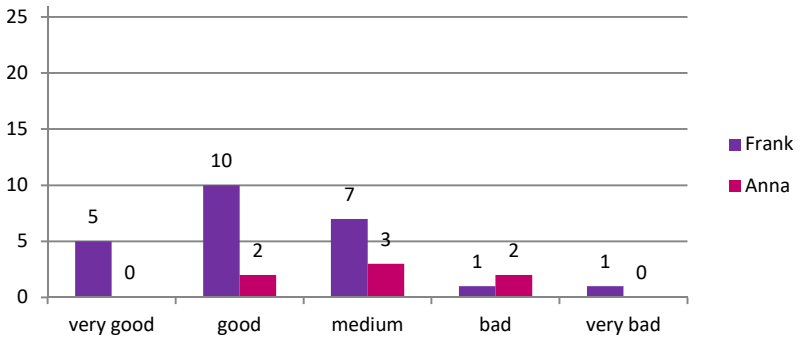

Figure 8. Usage experience in using a PC per persona.

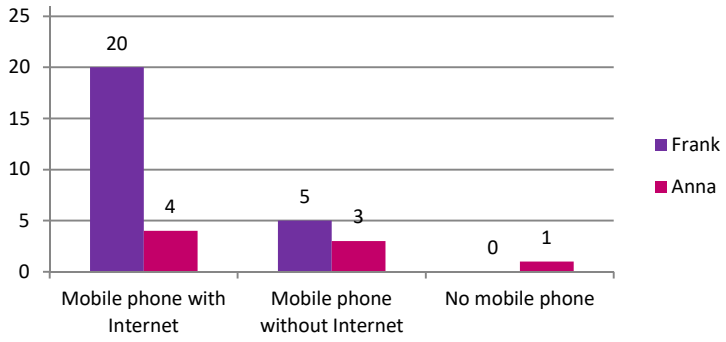

Figure 9. Mobile Phone usage per persona.

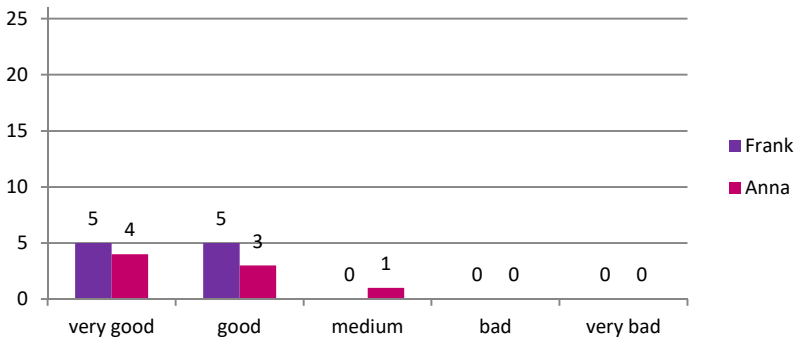

Figure 10. Usage experience in using mobile phones per persona.

Concerning a more general overview of technology usage the sample was could be subdivided into three different user types. Information about possession of various devices (as displayed above) as well as subjective statements concerning their actual everyday use (e.g., social networks such as Facebook and others, working with technologies, using the internet for orderings, etc.) were used for this assessment. Three subjects *did not at all/ rarely* use technologies, six were *moderate* users and the majority (N=21) was *frequent/ every day* users. For two subjects no information was at hand.

In general, participants articulated that they currently found themselves in a good support situation, and that they could and already did get help if needed from families (N=19), but also from professional services (N=20) including care givers, support services, e.g., house-hold related (N=11), professional help with technology, as well as ordering services via Internet. More than half of the participants talked about a more or less supportive neighbourhood (N=21). However, eleven subjects claimed not to have any or much help in this respect (three of them did not want any). Altogether 13 participants did not mention anything in that account. When it comes to providing support, 27 participants could and also would like to offer help to their neighbours (e.g., watching pets, help with technology and more), whereof eleven were already giving some kind of support to others. Moreover, for one participant this would not be possible because of severe physical impairments and four others did not give any information concerning this matter.

Furthermore, nearly all of them still were highly active (N=29) mentioning activities like gardening, going for a walk, biking and more. Only two of them articulated some physical difficulties. They also primarily (N=29) stated to manage their daily activities well (e.g., household, shopping, or work), and only three subjects seemed to need support in that regard. Due to the information given, social activities could be differentiated into two groups, *neighbouring* and *others* (containing all activities out of neighbourly context).

More than half of the participants (N=26) explained to be engaged in some kind of social activities with their families and friends, view as well-being members of groups and clubs. Fewer subjects seemed to have social relations to their neighbours (N=14). Regarding the latter, 26 subjects talked about having relationships/activities with friends and families (two did not and three gave no information). On the contrary, only 14 participants stated to have some kind of neighbourhood engagement, whereas ten did not (partly not wanted) and seven considered it to be moderate. In this respect, more than half (N=26) talked about the importance and personal wish of social contact, three did not want any or more of it and for the other three it was dependent on the type of contact.

For the duration of the study there were five participant drop-outs due to several reasons, e.g., technical difficulties leading to frustration, too little engagement on the platform/unresponsive behaviour of other participants on the platform, insufficient time to deal with the platform (*"time-consuming"*) as well as *"uninteresting/ boring"* offers/ activities on the platform. Two participants did not use the platform at all.

2.4 Limitations

Along with the study set-up as well as the participant sample, some limitations need to be highlighted and considered for the overall interpretation of the results. First, and potentially most importantly the sample for the pilot study was not perfectly matching for the purpose of GeTVivid (i.e., being a support exchange platform). Since the key idea of GeTVivid is the support exchange, the sample was most likely representing the offer side (i.e., being very active) while the demand side seemed to be underrepresented (i.e., no real support needed/demand situations).

Another limitation of the study was the technical requirements (e.g., necessity for cable TV, extra set-top box) that had to be met for recruiting participants. Many older adults, especially in more urban areas, do not have cable TV but rather satellite TV.

Finally, the on button on the tablets was very hard for our target group to use, which has led to frustration and annoyance by the participants. They had issues in turning the tablet on/off. The tablets used for the pilot studies have been heavily tested by the technical partners before the study. However, we came to understand that some technical conditions of the tablets still led to usability issues by our target group. We consider these technical issues as having a strong effect on the overall assessment of the platform.

2.5 Results

The results are structured according to the values of the ViA Model [Fuchsberger et al., 2012], which are centred in people and refer to the properties of the objects (in this case technology) they desire, i.e. users seek to achieve their values. Regarding the questionnaires, participants were asked to only rate those items they could answer due to their experiences. This might partly explain why case numbers for Anna and Frank differed considerably (see numbers of cases in the tables below). Further, due to the general high missing rates concerning the questionnaire items and also as participants did not continuously tick off all items of a specific questionnaire/scale (only some/selected items they were able to assess), missings were excluded case wise to remain as much raw data as possible. Consequently, the quantitative data could not be analysed by means of interferential statistics.

However, in the following the RQs are answered giving the overall means for Frank and Anna for an overview of how participants perceived the platform. Along with the quantitative data also qualitative findings are reported in reference to the RQs. All results are summarized for each value respectively. One participant was excluded from further quantitative analysis, because s/he was working for one of the EUOs and was recruited after the studies had begun, and therefore not fitting in a persona profile as well as not being an actual anti-persona. Therefore, the respective results are only considered in the qualitative analysis.

2.5.1 Functional value

The functional value, which is defined as the perceived utility for achieving specific tasks or practical goals, refers for example, to the factors perceived ease of use and perceived usefulness. For the pilot studies the System Usability Scale (SUS) [Brooke 1996] was used for further insights in this regard.

RQ 1: To what extent does the platform address age related limitations (e.g., cognitive or physical) in terms of understanding, navigation, and interaction with the platform? (Accessibility)

Frank perceived the GeTVivid platform as rather accessible and Anna on the other hand perceived it as neutral (see Figure 11). A reason for that might be that for Anna felt (*neither nor to rather disagrees*) that a lot of choices were needed to reach a specific goal and that the interaction with the platform was challenging because of too much information on it. Moreover, Frank perceived the colours in the platform as quite differentiable (*agree* to *rather agrees*) and Anna as *neither/nor.* In this matter, it was mentioned by one participant that colours were hard to differ when having visual impairments (e.g., colour-blindness). Frank (*agrees* to *rather agrees*) felt that the Feedback provided by the platform was sufficient and Anna perceived it as not quite sufficient (*neither nor* to *rather disagrees*). For further information see Table 3 and Table 4.

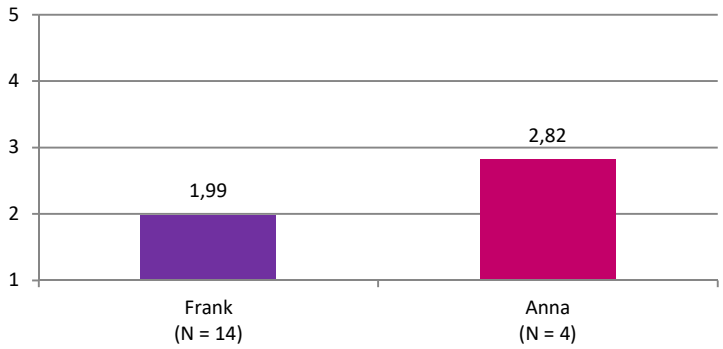

Figure 11. Mean accessibility per persona.

	Week 2					
	Frank			Anna		
	Mean	SD	N	Mean	SD	N
Important information was highlighted in the platform.	2,46	0,52	13	2,33	0,58	3
The colours used in the platform were well differentiable.	**1,57**	0,65	14	**3,00**	2,00	3
Selecting functionalities in the platform was not a problem.	2,00	0,88	14	3,00	1,16	4
The contrast between the foreground (e.g., text) and the background in the platform was high enough.	1,50	0,65	14	2,67	1,16	3
All necessary information to use the platform was provided in the system.	1,86	0,86	14	2,75	0,96	4
The navigation in the platform was always clear enough to proceed.	2,07	1,00	14	2,75	0,50	4
The main elements of the platform (e.g., menus or buttons) were highlighted well.	1,71	0,73	14	2,00	0,00	2
Sufficient feedback was provided in the platform, to know whether my operations were correct or not.	**1,85**	0,80	13	**3,00**	0,82	4
*A lot of choices were needed in order to reach a goal.	2,42	1,00	12	**3,67**	1,38	3
*It was very challenging to interact with the platform, due to too much information on it.	2,07	1,07	14	**3,25**	0,96	4

Table 3. Questionnaire items for accessibility week 2 [Brajnik, 2008],
5-point Likert Scale (1 – agree, 2 – rather agree, 3 – neither/nor, 4 – rather disagree, 5 – disagree)
*** means the scale was inverted, i.e., the item is not negative anymore.**

	Week 6					
	Frank			Anna		
	Mean	SD	N	Mean	SD	N
Important information was highlighted in the platform.	2,33	0,49	12	2,00	0,00	2
The colours used in the platform were well differentiable.	1,75	0,97	12	2,67	2,08	3
Selecting functionalities in the platform was not a problem.	2,17	1,03	12	2,00	0,00	3
The contrast between the foreground (e.g., text) and the background in the platform was high enough.	1,92	0,90	12	2,00	0,00	3
All necessary information to use the platform was provided in the system.	2,08	0,90	12	2,00	0,00	2
The navigation in the platform was always clear enough to proceed.	**1,67**	0,65	12	2,00	0,00	3
The main elements of the platform (e.g., menus or buttons) were highlighted well.	1,67	0,49	12	2,00	0,00	2
Sufficient feedback was provided in the platform, to know whether my operations were correct or not.	**1,75**	0,62	12	**3,67**	0,58	3
*A lot of choices were needed in order to reach a goal.	**2,75**	0,87	12	**3,00**	1,00	3
*It was very challenging to interact with the platform, due to too much information on it.	**2,17**	1,03	12	**2,00**	0,00	2

Table 4. Questionnaire items for accessibility week 6 [Brajnik, 2008].

RQ 2: To which extent do the users believe that using the platform is free of physical and mental effort? (Ease of use)

For Frank the GeTVivid platform was rather easy to use, whereas for Anna it was rather easy to neutral (see Figure 12). It was especially easy for Frank (*agrees* to *rather agrees*) to learn to operate on the platform. For Anna on the other hand, it was not too easy (*rather agrees* to *neither nor)*. However, for both, a slight tendency for operation to get easier over time/with practice could be observed. In this context, three participants particularly mentioned that they learned to operate and navigate on the platform without previous knowledge. The interaction with the tablet was overall perceived to be easier and faster than working with the remote control. For further information see Table 5 and Table 6.

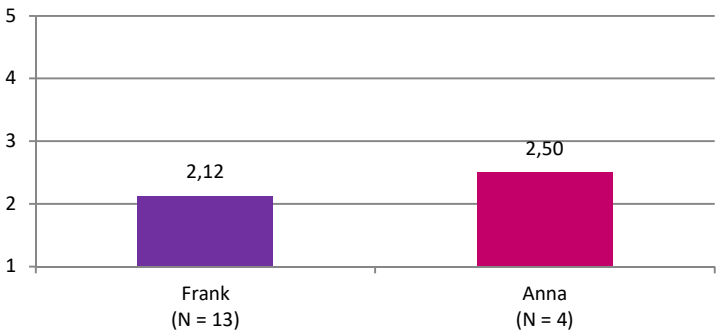

Figure 12. Mean ease of use per persona.

	Week 4					
	Frank			Anna		
	Mean	SD	N	Mean	SD	N
Learning to operate the platform was easy for me.	**1,92**	0,86	13	**2,50**	1,29	4
I found it easy to get the platform to do want I want it to do.	2,31	1,03	13	2,50	1,29	4
My interaction with the platform was clear and understandable.	2,08	0,64	13	2,33	0,58	3
I found the platform flexible to interact with.	2,38	0,77	13	2,33	0,58	3
It was easy for me to become skilful at using the platform.	2,31	1,03	13	2,33	1,53	3
I found the platform easy to use.	2,00	0,82	13	2,25	0,96	4

Table 5. Questionnaire items for ease of use week 4 [Davis, 1989], 5-point Likert Scale (1 – agree, 2 – rather agree, 3 – neither/nor, 4 – rather disagree, 5 – disagree).

	Week 8					
	Frank			Anna		
	Mean	SD	N	Mean	SD	N
Learning to operate the platform was easy for me.	1,78	0,67	9	**2,00**	1,00	3
I found it easy to get the platform to do want I want it to do.	2,11	0,60	9	2,00	0,00	2
My interaction with the platform was clear and understandable.	2,11	0,60	9	2,00	0,00	2
I found the platform flexible to interact with.	2,11	0,60	9	2,00	0,00	2
It was easy for me to become skilful at using the platform.	2,22	0,97	9	2,00	0,00	2
I found the platform easy to use.	2,11	0,78	9	2,00	1,00	3

Table 6. Questionnaire items for ease of use week 8 [Davis, 1989].

The overall mean concerning perceived competence per persona indicates that the users of the platform tend to rather agree that they are competent in using the system. Questionnaire items on perceived competence were asked in week 4 and week 8, and the means for single items indicate that the users perceived competence in using the system has decreased from the first to the second measurement. Especially two items have been rated worse in the second point of measurement. For Anna a mean of 2,33 for the item "I would be pretty skilled in using the system" in week 4 has increased to a mean of 4,50, meaning that Anna tends to disagree towards the end of the study that she feels pretty skilled in using the system. For Frank a mean of 1,62 for the item "I won't be able to use the system very well" (negative item) in week 4 has increased to a mean of 4, meaning that Frank tends to think that he will be able to use the system very well. The means for the remaining items were rather stable for both points of measurements. For further information see Table 7 and Table 8.

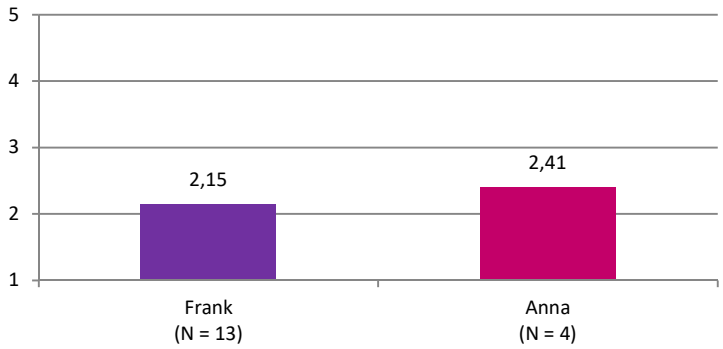

Figure 13. Overall mean on perceived competence per persona.

	Week 4					
	Frank			Anna		
	Mean	SD	N	Mean	SD	N
I think I would be pretty good in using the system.	2,00	0,71	13	2,00	1,00	3
After working with the system for a while, I would feel pretty competent.	1,85	0,69	13	2,00	0,82	4
I would be satisfied with my performance while using the system.	2,00	0,71	13	3,00	1,63	4
I would be pretty skilled in using the system.	2,00	0,71	13	**2,33**	1,53	3
*I won't be able to use the system very well.	**1,62**	0,87	13	1,67	1,16	3

Table 7. Questionnaire items for perceived competence week 4 [Deci, E., and Ryan, R. n.y.], 5-point Likert Scale (1 – agree, 2 – rather agree, 3 – neither/nor, 4 – rather disagree, 5 – disagree), * means the scale was inverted, i.e., the item is not negative anymore.

	Week 8					
	Frank			Anna		
	Mean	SD	N	Mean	SD	N
I think I would be pretty good in using the system.	2,22	0,67	9	1,67	0,58	3
After working with the system for a while, I would feel pretty competent.	2,00	0,50	9	1,50	0,71	2
I would be satisfied with my performance while using the system.	2,11	0,60	9	1,67	0,58	3
I would be pretty skilled in using the system.	3,44	0,88	9	**4,50**	0,71	2
*I won't be able to use the system very well.	**4,00**	0,87	9	3,50	2,12	2

Table 8. Questionnaire items for perceived competence week 8 [Deci, E., and Ryan, R. n.y.].

RQ 3: To which extent do the users believe that the platform would facilitate achieving their goals? (Perceived usefulness)

Frank and Anna perceived the GeTVivid platform as rather not useful (see Figure 14). Particularly, both found that using the platform would *rather not* to *not at all* enhance their effectiveness on daily activities as well as not make them any easier. This might be due to the fact that the participants did not experience to be in need of support or support was already well organized for them.

This is probably due to the fact that the platform was rarely used as an opportunity for support exchange and mostly for social purposes/networking in general (e.g., meeting new people, getting to know each other as well as social events like playing cards), which was altogether perceived as positive and welcoming. In that respect, participants particularly found that the member meetings were very *"encouraging"* (in terms of further confidence in dealing with the technology) as well as connecting. A few members (N=5) also communicated to have built up some kind of friendship/*"fellowship"*, some of which they wanted to maintain and in this sense, the platform was generally found to be useful to get into contact with other people. Furthermore, those offers related to support exchange were perceived as *"not relevant/uninteresting"*, *"repetitive"* and the usefulness of such offers/demands tended to break down with geographical distance between members (*"no fast/spontaneous help possible").* For further information see Table 9 and Table 10.

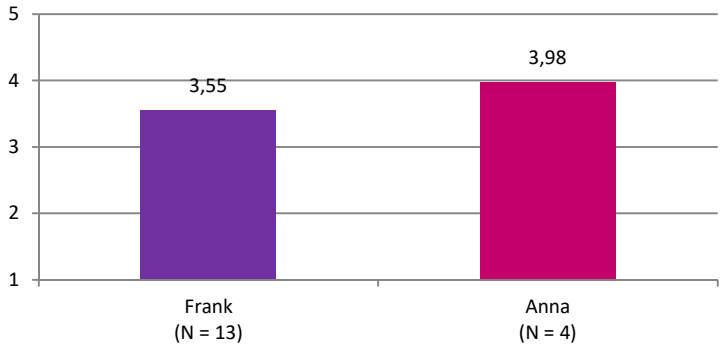

Figure 14. Mean perceived usefulness per persona.

	Week 4					
	Frank			Anna		
	Mean	SD	N	Mean	SD	N
Using the platform for my daily activities would enable me to accomplish them more easily.	3,75	0,96	12	4,33	0,58	3
Using the platform would improve my daily life.	3,50	1,09	12	4,25	1,50	4
Using the platform would enhance my effectiveness on the daily activities.	**3,58**	1,00	12	**5,00**	0,00	3
Using the platform would make it easier to do my daily activities.	**3,75**	0,87	12	**4,67**	0,58	3
I would find the platform useful for my daily activities.	3,42	1,08	12	4,00	1,41	4

Table 9. Questionnaire items for perceived usefulness week 4 [Davis, 1989] and [Chutter,2009], 5-point Likert Scale (1 – agree, 2 – rather agree, 3 – neither/nor, 4 – rather disagree, 5 – disagree).

	Week 8					
	Frank			Anna		
	Mean	SD	N	Mean	SD	N
Using the platform for my daily activities would enable me to accomplish them more easily.	3,33	1,22	9	4,50	0,71	2
Using the platform would improve my daily life.	3,22	1,39	9	4,50	0,71	2
Using the platform would enhance my effectiveness on the daily activities.	**3,44**	1,13	9	**4,00**	1,41	2
Using the platform would make it easier to do my daily activities.	**3,44**	1,33	9	**4,50**	0,71	2
I would find the platform useful for my daily activities.	3,44	1,33	9	3,67	1,53	3

Table 10. Questionnaire items for perceived usefulness week 8 [Davis, 1989] and [Chutter,2009].

Summary functional value:

The following section details the gained insights concerning the research questions related to the functional value. First, insights regarding the SUS score in comparison to the Lab Studies (see D2.3.) are outlined, followed by a summary of the findings related to accessibility, ease of use and perceived usefulness. According to the overall SUS score (see Figure 15), Frank and Anna accept the system. In comparison to the lab studies, where Frank slightly disliked and Anna only started to accept it. This can be seen as a considerable improvement of the GeTVivid platform, in particular for Frank.

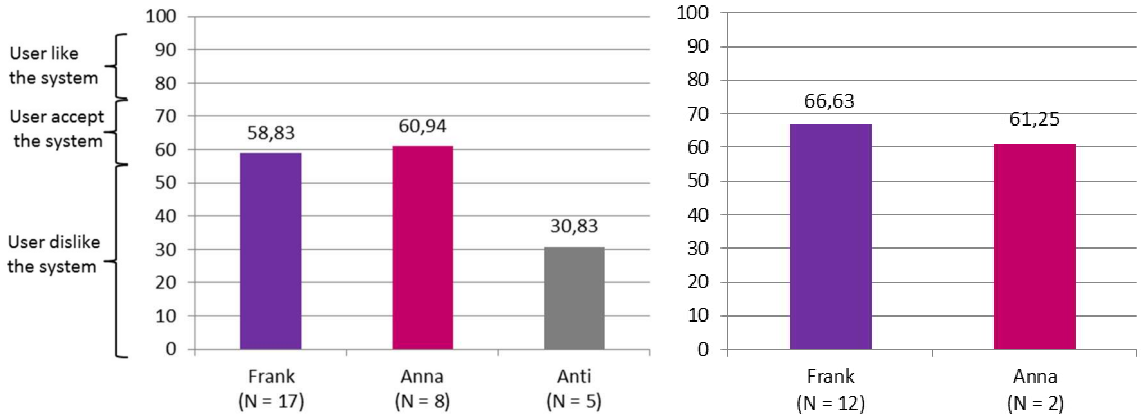

Figure 15. SUS score of lab studies (left) pilot studies per persona in comparison to the SUS scores of the pilot studies (right) Figure 16.

In general, navigation and interaction seemed to be quite easy for many participants (*"interaction is very simple"*) and especially those subjects did not need any additional support for using the platform. Three of them stated that even without any previous knowledge/competences, in particular regarding using the tablets, they did learn to navigate on the platform with time and practice. Relating to this, those subjects (N=2) who mentioned initial concerns of destroying something overcame their uncertainty with practice and also by

sharing experiences with other members, especially at the meetings. The visibility and font sizes seemed to be fine for people without visual impairments, but for people with some impairment (N=1) higher contrasts for colours (*"louder colours"*) would be preferable.

Furthermore, there had been some confusion about whether own demands/requests were posted or not, because of no visual representation given. Moreover, the fact that posts were organized by the date of an upcoming offer/demand (i.e., an event), and not by the recency of the post, was perceived as slightly irritating (N=2). This means that the users would have expected to find the most recent posts on top of the list in order to know about and easily find new posts.

Tablets were overall found to be easier (*"ideal")* to interact with than television remote control (N=12) (*"I would continue to use the system but not on a TV", "remote/ TV is complicated/ troublesome"*), especially when having movement difficulties with hands. Moreover, with those participants still being quite mobile and active in everyday life, hardware dependency was found to be impractical (*"no checking in-between possible"*), and in some cases usage was perceived as *"time-consuming"* (N=6). In that regard, participants declared the repeating log-ins on the platform as unnecessary as well as again *"troublesome"* (which was actually a bug that could not be solved during the study). Some (N=13) stated that despite technical difficulties (e.g., problems with two receiver boxes, tablet could not be switched on, etc.) and small group sizes the system generally was *"interesting/good idea"* and basically usable.

Concerning perceived competence, the overall mean per persona indicates that the users of the platform tend to rather agree that they are competent in using the system.

Main Take-Away Message

- Frank perceived the GeTVivid platform as rather accessible and Anna on the other hand perceived it as neutral
- For Frank the GeTVivid platform was rather easy to use, whereas for Anna it was rather easy to neutral
- Frank and Anna perceived the GeTVivid platform as rather not useful
- According to the overall SUS score Frank and Anna accept the system
- Frank and Anna rather believe that they are competent in using the GeTVivid platform

2.5.2 Interpersonal value

The interpersonal value is about the experiences while an interaction between humans via a technology, but not for the purpose of self-presentation. For the pilot study the factors reciprocity, social connectedness, interpersonal familiarity as well as social capital were extracted.

RQ 4: What characterizes the support exchange on platform in terms of reciprocity? (Reciprocity)

In general, the post interview provided little information/feedback from participants regarding reciprocity of exchange. The GeTVivid platform was mostly used as a social network and not for real support exchange (also see 2.5.1 0Perceived usefulness). Those social events/ activities taken (e.g., going for a walk, meeting for a coffee, playing cards together) were accepted well and perceived as positive (*"without the platform I would never have gone to a card-play just like that but it really was much fun"*)

All in all, there were more support offers than demands and they partly did not match regarding their topics. Consequently, offers were perceived as *"irrelevant"*, *"uninteresting"* and *"repetitive"* (also see perceived usefulness). Further, for the more active participants the unresponsive-behaviour of other members caused frustration. The general little activity on the platform due to the small sample sizes was also found to be disappointing (*"it´s a pitty"*, *"I would have expected more dynamic on the platform"*, *"so little is happening, it would have been better with more people"*).

RQ 5: To what extent does users' experience of social connectedness increase when using the platform over a longer period of time? (Social connectedness)

Frank and Anna feel to be rather good socially connected (see Figure 17). In this regard, they did not further profit from the GeTVivid platform in their experience of belongingness with others. Additionally, a slight tendency to feel more distant to people over the period of the pilot studies could be observed for both, Frank (*agrees* to *rather disagrees*) and Anna (*rather agree* to *neither nor*). For further information see Table 11 and Table 12.

Participants themselves gave various reasons for this, such as the sample size, general little activity and unresponsive-behaviour. They further would have liked some more information about other members on personal profiles (e.g., more pictures or interests) to get into contact more easily as well as the opportunity to give feedback on past events/activities. Concerning the feeling of relatedness with other members, the offline meetings were perceived as crucial and very positive.

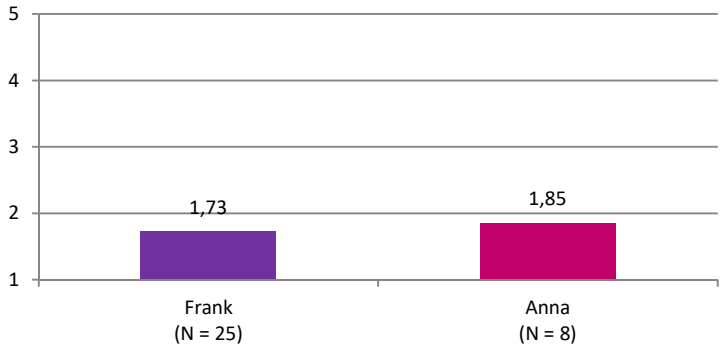

Figure 17. Mean social connectedness per persona.

	Week 1					
	Frank			Anna		
	Mean	SD	N	Mean	SD	N
*I feel disconnected from the world around me.	1,72	1,10	25	1,38	0,74	8
*Even around people I know, I do not feel that I really belong.	1,56	0,77	25	1,86	1,26	7
*I feel so distant to people.	1,48	0,50	25	1,63	0,91	8
*I have no sense of togetherness with my peers.	1,72	1,06	25	2,00	1,31	8
*I do not feel related to anyone.	1,28	0,46	25	1,88	1,25	8
*Even among my friend, there is no sense of brother/sisterhood.	1,32	0,56	25	1,88	1,25	8
*I do not feel I participate with anyone or any group.	1,52	0,87	25	2,50	1,51	8

Table 11. Questionnaire items for social connectedness week 1 [Lee and Robbins, 1995], 5-point Likert Scale (1 – agree, 2 – rather agree, 3 – neither/nor, 4 – rather disagree, 5 – disagree) * means the scale was inverted, i.e., the item is not negative anymore.

	Week 10					
	Frank			Anna		
	Mean	SD	N	Mean	SD	N
*I feel disconnected from the world around me.	1,20	0,41	15	2,00	2,00	4
*Even around people I know, I do not feel that I really belong.	1,93	0,83	14	2,50	1,92	4
*I feel so distant to people.	3,73	1,27	11	3,00	1,63	4
*I have no sense of togetherness with my peers.	2,00	0,91	13	2,50	1,92	4
*I do not feel related to anyone.	2,38	1,45	13	2,00	1,41	4
*Even among my friend, there is no sense of brother/sisterhood.	2,58	1,38	12	1,50	0,58	4
*I do not feel I participate with anyone or any group.	2,69	1,44	13	1,75	1,50	4

Table 12. Questionnaire items for social connectedness week 9 [Lee and Robbins, 1995].

RQ 6: To what extent do the users believe that other users on the platform are similar to them? (Interpersonal familiarity)

For a starting point, the Big Five Inventory from Rammstedt and John (2007) was used to get an insight of how users evaluated themselves. In this regard, Frank and Anna did not differ in their personalities (see Figure 18). For further information see Table 13 and Table 14.

According to that the interviews revealed that members rather homogenously felt that the users did not perfectly fit the purpose of the platform (*"we are not the right people").* Depending on their own age and also perceived technology affinity, they believed to be either *"too young"* or that the platform was more useful *"for one/ two generations after [them]"*

However, an unbalancing of support offers and support demands could be observed (more offers than demands in general) and they also seemed not to match exactly in their topics. Consequently, users had talked about diverging interests and offers were partly perceived as *"uninteresting"* (also see reciprocity). Members also differed in their amount of actual activities on the platform. Two different user types could be extracted from the interview data as well as the average time per day spent on the platform (also see 2.5.2 RQ 7: Social Capital): active members (N=11) and lurkers (N=9), i.e., people who regularly went online but did not actively engage (posting, messaging, etc.) on the platform. Standard Deviations further show that the sample seemed to have a similar self-perception.

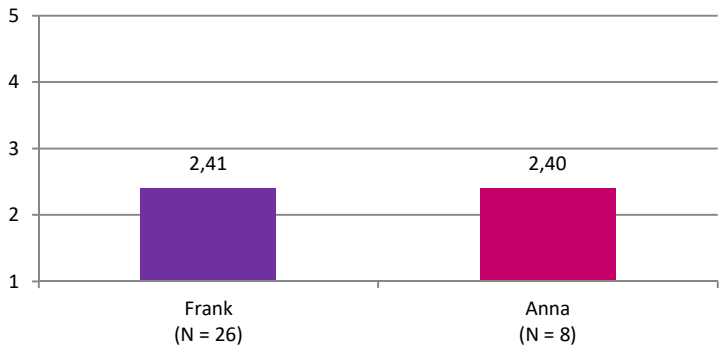

Figure 18. Mean interpersonal familiarity per persona.

	Week 1					
	Frank			Anna		
	Mean	SD	N	Mean	SD	N
*I see myself as someone who is reserved.	2,77	1,21	26	3,13	1,25	8
I see myself as someone who is generally trusting	2,23	0,82	26	2,25	0,71	8
*I see myself as someone who tends to be lazy	2,12	1,14	26	2,13	0,99	8
I see myself as someone who is relaxed, handles stress well.	2,42	0,90	26	3,00	0,93	8
*I see myself as someone who has few artistic interests.	2,46	1,03	26	2,50	1,31	8
I see myself as someone who is outgoing, sociable.	2,15	0,78	26	2,13	1,46	8
*I see myself as someone who tends to find fault with others.	2,65	0,94	26	2,13	0,35	8
I see myself as someone who does a thorough job.	1,88	0,71	26	2,00	0,54	8
*I see myself as someone who gets nervous easily.	2,23	0,91	26	3,13	0,99	8
I see myself as someone who has an active imagination.	2,04	0,87	26	2,25	1,39	8

Table 13. Questionnaire items for interpersonal familiarity week 1 [Rammstedt and John, 2007], 5-point Likert Scale (1 – agree, 2 – rather agree, 3 – neither/nor, 4 – rather disagree, 5 – disagree) * means the scale was inverted, i.e., the item is not negative anymore.

	Week 10					
	Frank			Anna		
	Mean	SD	N	Mean	SD	N
*I see myself as someone who is reserved.	3,58	0,90	12	4,00	0,82	4
I see myself as someone who is generally trusting	2,91	0,54	11	2,33	1,16	3
*I see myself as someone who tends to be lazy	2,85	1,21	13	1,25	0,50	4
I see myself as someone who is relaxed, handles stress well.	3,10	0,88	10	4,00	1,41	2
*I see myself as someone who has few artistic interests.	2,91	1,04	11	2,00	X	1
I see myself as someone who is outgoing, sociable.	3,20	0,79	10	3,00	0,00	3
*I see myself as someone who tends to find fault with others.	1,50	0,71	10	1,00	0,00	3
I see myself as someone who does a thorough job.	2,78	0,44	9	3,50	0,71	2
*I see myself as someone who gets nervous easily.	2,40	0,70	10	2,50	0,71	2
I see myself as someone who has an active imagination.	3,30	0,95	10	4,00	X	1

Table 14. Questionnaire items for interpersonal familiarity week 10 [Rammstedt and John, 2007].

RQ 7: To what extent do users believe that social capital can evolve when using the platform over a longer period of time? (Social Capital)

The GeTVivid platform did rather not enhance the social capital for Frank and Anna (see Figure 19). This may be due to the fact that they were socially well connected at the time pilot studies were conducted and they did not further profit from using the platform. Consequently, they did not really feel out of touch when not having used the platform for a while (Frank: *rather disagrees*; Anna: *disagrees)* and the platform did rather not become a part of their everyday life (Frank & Anna: *rather disagree*).

The average of new contacts made via GeTVivid was ranging from 1.33 for Anna to 2.00 for Frank. Getting into contact with new people was generally perceived as elevating and in some cases participants also wished to keep in touch after duration of the pilot studies (N=5) (also see perceived usefulness). In this respect, it was also noted that a view subjects knew each other beforehand (N=4). The average time per day spent on the platform for Frank was 40 minutes and for Anna 11 minutes. The reason for the difference might be that most subjects were online only for a couple minutes, if at all and those few participants visited the platform more frequently and also for a longer period of time (N=8) were mostly representatives of the persona Frank. For further information see Table 15.

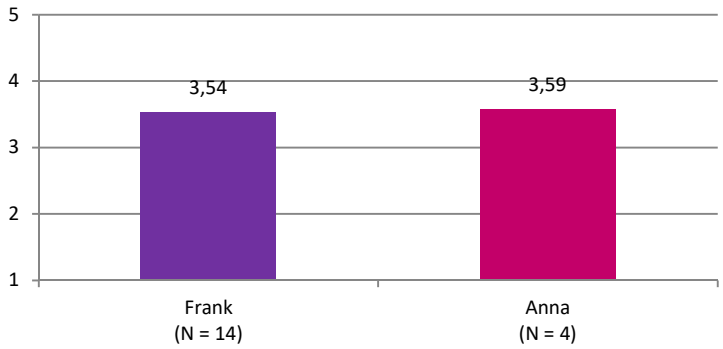

Figure 19. Mean social capital per persona.

	Week 10					
	Frank			Anna		
	Mean	SD	N	Mean	SD	N
The GeTVivid platform is part of my everyday activity	**3,86**	1,03	14	**4,00**	1,41	4
I am proud to tell people I'm using the GeTVivid platform	3,00	1,35	13	3,25	1,26	4
The GeTVivid platform has become part of my daily routine	3,21	1,19	14	2,75	1,71	4
I feel out of touch when I haven't used the GeTVivid platform for a while	**4,43**	0,76	14	**4,67**	0,58	3
I feel I am part of the GeTVivid community	3,08	1,24	12	4,00	1,41	4
I would be sorry if the GeTVivid platform shut down	3,25	1,22	12	3,33	2,08	3
Approximately how many TOTAL friends/contacts do you have on the GeTVivid platform?	2,00		14	1,33		3
In the past week, on average, approximately how much time PER DAY have you spent actively using the GeTVivid platform?	39,70		10	11,00		5

Table 15. Questionnaire items for social capital week 10 [Ellison et al., 2007], 5-point Likert Scale (1 – agree, 2 – rather agree, 3 – neither/nor, 4 – rather disagree, 5 – disagree).

The overall mean concerning expectations per persona indicates that the users of the platform neither agree nor disagree that their expectations concerning the usage and other users on the platform (e.g., in receiving support when needed, in receiving support back when providing support to someone else) have been met. The overall means for Frank and Anna are rather similar, whereby Anna tends to slightly more disagree that her expectations have been met. Questionnaire items on users' expectations were asked in week 4 and week 8, and the means for single items indicate that the users' expectations in using the platform and their expectations regarding other users on the platform have increased from the first to the second measurement, meaning that the users tend to disagree that their expectations have been met. For further information see Table 16 and Table 17.

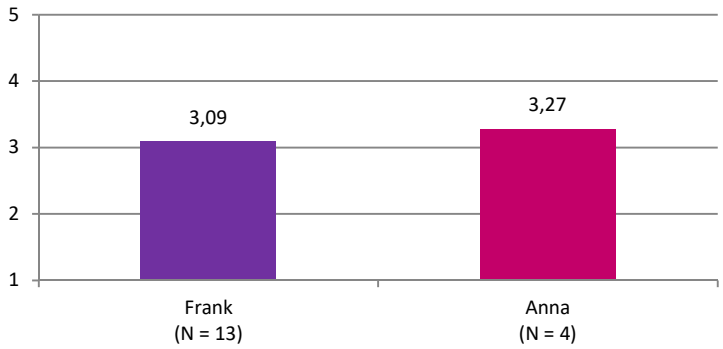

Figure 20. Overall mean expectation per persona.

	Week 4					
	Frank			Anna		
	Mean	SD	N	Mean	SD	N
My expectations have been met and I found someone on the platform, who supported me/would have supported me anytime.	3,00	1,23	13	3,00	1,00	3
My expectations have been met and I found someone on the platform, who supported me/would have supported me in urgent cases.	3,08	1,32	13	2,75	0,96	4
My expectations have been met and I found someone on the platform, who supported me/would have supported me with material resources e.g., to pass on read newspapers, to borrow me tools).	3,15	1,14	13	3,67	1,16	3
My expectations have been met and I received support in return from all to whom I have provided support as well.	2,31	1,25	13	2,00	1,00	3
My expectations have been met and I found someone on the platform, who supported me/would have supported me on an emotional level.	3,77	1,30	13	3,50	1,29	4
If needed, I provided support at anytime.	2,46	0,97	13	3,00	0,82	4
In urgent cases, I have provided spontaneous support.	2,00	0,91	13	2,75	0,96	4
If needed, I have supported with material resources.	2,46	0,78	13	2,50	1,00	4
I could give all who supported me something in return (e.g., support).	3,92	0,95	13	3,67	0,58	3
If needed, I provided emotional support anytime.	2,54	0,97	13	3,00	0,82	4

Table 16. Questionnaire items for expectation week 4 [Moser et al., 2015], 5-point Likert Scale (1 – agree, 2 – rather agree, 3 – neither/nor, 4 – rather disagree, 5 – disagree).

	Week 8					
	Frank			Anna		
	Mean	SD	N	Mean	SD	N
My expectations have been met and I found someone on the platform, who supported me/would have supported me anytime.	3,44	1,33	9	3,67	2,31	3
My expectations have been met and I found someone on the platform, who supported me/would have supported me in urgent cases.	3,11	1,62	9	**5,00**	0,00	2
My expectations have been met and I found someone on the platform, who supported me/would have supported me with material resources e.g., to pass on read newspapers, to borrow me tools).	3,88	1,36	8	**5,00**	0,00	2
My expectations have been met and I received support in return from all to whom I have provided support as well.	3,63	1,41	8	**5,00**	0,00	2
My expectations have been met and I found someone on the platform, who supported me/would have supported me on an emotional level.	3,44	1,33	9	**5,00**	0,00	2
If needed, I provided support at anytime.	2,89	1,36	9	**5,00**	0,00	2
In urgent cases, I have provided spontaneous support.	3,71	1,70	7	**4,50**	0,71	2
If needed, I have supported with material resources.	3,78	1,56	9	**5,00**	0,00	2
I could give all who supported me something in return (e.g., support).	3,25	1,58	8	**4,50**	0,71	2
If needed, I provided emotional support anytime.	3,56	1,33	9	**5,00**	0,00	2

Table 17. Questionnaire items for expectation week 8 [Moser et al., 2015].

Summary interpersonal value

On the whole, the GeTVivid platform was mostly used as a possibility to socialize and less for support exchange. One reason for that might be that participants stated to be in a good support situation by family, friends, as well as professional services. In addition to that, nearly all of them still were physically and socially very active (also see sample description). They did not need to rely on the platform in terms of building up a support network as well as feeling connected and therefore, did not enhance their social capital.

It further seemed that a real network of reciprocity in terms of help exchange could not evolve due to small sample sizes (especially in Nuremberg and Vienna), but also because of in-activity and unresponsiveness that was partly caused by insufficient time to deal with the platform or to keep an appointment (also see sample description). Those users more active would have expected and liked more activity/dynamic. As a consequence, over the course of time engagement was lessened by frustration over that as well as caused by difficulties with devices. Nevertheless, those activities that took place were perceived as beneficial and were accepted well.

It was emphasized that member meetings organized by the community manager were also appreciated and seemed to be important for users to feel more familiar and connected to others users (*"have a real person to*

the picture"). Concerning this, the possibility of giving feedback on past events was declared to be relevant as well as having more personal information about other users on their profile.

In regard to how far the users expectations concerning the usage as well as other users on the platform have been met, the overall mean per persona indicates that the users neither agree nor disagree that their expectations concerning the usage and other users on the platform (e.g., in receiving support when needed, in receiving support back when providing support to someone else) have been met. This means that the users tended to be unsure whether or not their expectations have been met.

Main Take-Away Message

- The GeTVivid platform was mostly used as a social network and not for real support exchange and those activities taken place were accepted well
- Frank and Anna feel to be rather good socially connected and did probably not further profit from using the platform
- Frank and Anna did not differ in their personalities (self-assessed)
- The GeTVivid platform did rather not enhance the social capital for Frank and Anna

2.5.3 Social value

The social value is the symbolic importance of the technology for conveying social image and includes factors such as social image and subjective norm.

RQ 8: To what extent does social image of user change when using the platform over a longer period of time? (Social image)

The GeTVivid platform did rather not improve the social image for Frank (*rather disagrees)* and not at all for Anna (*disagrees*) (see Figure 21). Similarly, the platform did not become a status symbol for both of them (Frank: *rather disagrees*; Anna: *rather disagrees to disagrees*). For further information see Table 18.

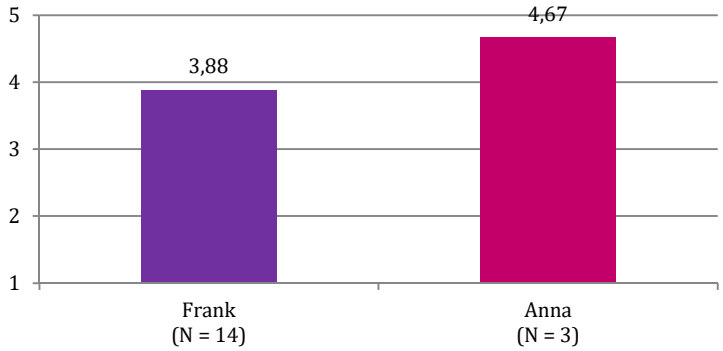

Figure 21. Mean social image per persona.

	Week 10					
	Frank			Anna		
	Mean	SD	N	Mean	SD	N
Using the platform improves my image within the community.	**4,00**	1,23	13	**4,67**	0,58	3
People in my community who use the platform have more prestige then those who do not.	3,71	1,33	14	4,00	X	1
Using the platform is a status symbol in my neighbourhood.	**4,00**	1,24	14	**4,50**	0,71	2

Table 18. Questionnaire items for social image week 10 [Moore and Benkast, 1991], 5-point Likert Scale (1 – agree, 2 – rather agree, 3 – neither/nor, 4 – rather disagree, 5 – disagree).

RQ 9: Which subjective norms do users perceive when using the platform (e.g., expectations)? (Subjective norm)

There is rather no subjective norm to use the GeTVivid platform for Frank (*rather disagrees*). Anna on the other hand (*neither nor*) is not sure (see Figure 22). In particular Frank and Anna do not feel that their peers think they should use the platform (Frank: *rather disagrees,* Anna: *disagrees*). For further information see Table 19.

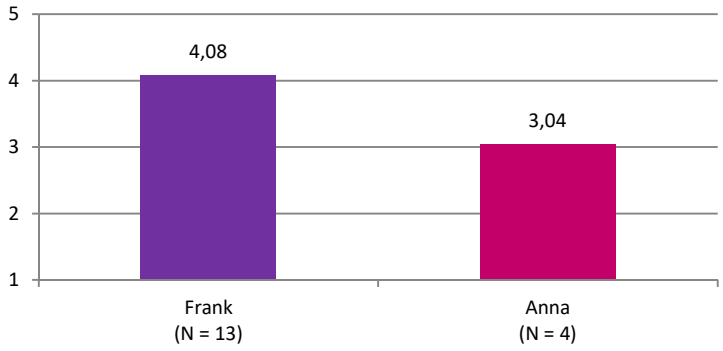

Figure 22. Mean subjective norm per persona.

	Week 10					
	Frank			Anna		
	Mean	SD	N	Mean	SD	N
People who influence my behaviour think I should use the platform.	4,08	1,38	13	3,00	1,83	4
People who are important to me think I should use the platform.	4,42	1,00	12	2,50	1,29	4
My close friends think I should use the platform.	4,33	1,23	12	3,00	1,83	4
My peers think I should use the platform.	**4,33**	1,23	12	**4,67**	0,58	3
People whose opinions I value prefer that I use the platform.	3,75	1,29	12	2,75	1,26	4

Table 19. Questionnaire items for subjective norm week 10 [Kowalczyk, 2008], 5-point Likert Scale (1 – agree, 2 – rather agree, 3 – neither/nor, 4 – rather disagree, 5 – disagree).

Summary social value

The participants noted to have an active social life at the time of the pilot studies (also see sample description). It is, therefore, not surprising that they did not need the platform to further enhance their social image. This but also the small sample sizes (especially in Nuremberg and Vienna) as well as general little activity might be partly responsible that no social norm to use the platform could derive, especially for Frank whose persona profile has a stabile social network.

Main Take-Away Message

- The GeTVivid platform did rather not improve the social image for Frank and not at all for Anna
- There was rather no subjective norm to use the GeTVivid platform for Frank

2.5.4 Emotional value

The emotional value is the potential of the technology to arouse emotions, which are believed to accompany the use of a product. The value therefore addresses factors like subjective well-being and trust.

RQ 10: To what extent does subjective well-being change when using the platform over a longer period of time? (Subjective well-being)

The GeTVivid platform did not improve the subjective well-being of Frank and Anna (see Figure 23). They seemed to be generally satisfied at the time of the pilot studies (*agrees* to *rather agrees*). Therefore, there seemed be no current aim to increase subjective well-being and quality of life by using the platform. For further information see Table 20 and Table 21.

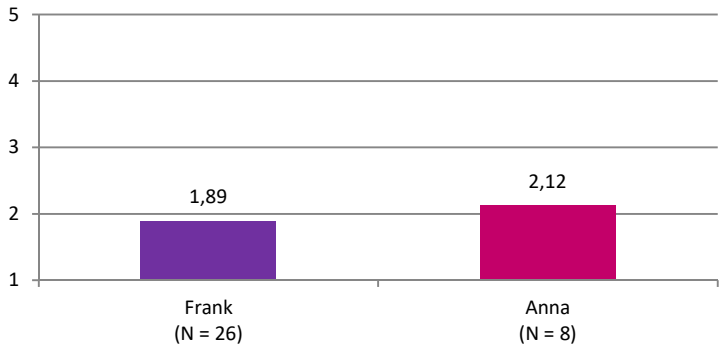

Figure 23. Mean subjective well-being per persona.

The interviews revealed a slight tendency to a decreasing subjective well-being due to various reasons explained by the participants. Frustration by technical difficulties as well as by other users not responding was mentioned. Additionally, over the course of time, a few members (N=6) experienced uncertainty/helplessness what to post, because they seemed to run out of ideas (also see trust). However, the members generally appreciated the entire project, especially because of the possibility to make new experiences as well as to meet

new people (also see perceived usefulness). One user was particularly delighted by the fact that older people were asked to participate in the project (*"great that old persons were invited for this project"*).

	Week 1					
	Frank			Anna		
	Mean	SD	N	Mean	SD	N
Most days I feel a sense of accomplishment from what I do.	2,12	0,91	26	2,00	0,93	8
In the past week I felt calm and peaceful.	1,96	0,72	26	2,50	0,76	8
I love learning new things.	1,35	0,56	26	1,75	0,71	8
I generally feel that what I do in my life is valuable and worthwhile.	1,60	0,58	25	2,13	0,99	8
I am always optimistic about my future.	2,00	0,80	26	2,00	1,07	8
Taking all things together, I'm happy with my life.	1,56	0,77	25	1,50	0,76	8
There are people in my life who really care about me.	1,31	0,62	26	1,50	0,76	8
*When things go wrong in my life it generally takes me a long time to get back to normal. (reverse score)	2,50	1,03	26	3,13	1,36	8
In general, I feel very positive about myself.	2,00	0,75	26	1,88	0,84	8
In the past week I had a lot of energy.	2,27	0,78	26	2,75	1,28	8

Table 20. Questionnaire items for subjective well-being week 1 [Huppert and So, 2013], 5-point Likert Scale (1 – agree, 2 – rather agree, 3 – neither/nor, 4 – rather disagree, 5 – disagree) * means the scale was inverted, i.e., the item is not negative anymore.

	Week 10					
	Frank			Anna		
	Mean	SD	N	Mean	SD	N
Most days I feel a sense of accomplishment from what I do.	2,06	0,93	16	3,50	1,29	4
In the past week I felt calm and peaceful.	1,94	0,83	17	3,00	1,00	3
I love learning new things.	1,53	0,51	17	1,25	0,50	4
I generally feel that what I do in my life is valuable and worthwhile.	2,24	0,90	17	2,25	1,26	4
I am always optimistic about my future.	1,94	0,75	17	2,75	0,96	4
Taking all things together, I'm happy with my life.	1,53	0,62	17	2,00	0,82	4
There are people in my life who really care about me.	1,76	1,03	17	1,75	1,50	4
*When things go wrong in my life it generally takes me a long time to get back to normal.	2,29	1,21	17	2,50	0,58	4
In general, I feel very positive about myself.	2,00	0,94	17	2,75	0,50	4
In the past week I had a lot of energy.	2,44	1,03	16	3,25	0,96	4

Table 21. Questionnaire items for subjective well-being week 10 [Huppert and So, 2013].

RQ 11: To what extend do users trust other users and the system? (Trust)

The questionnaire items concerning trust were subdivided into trust in other people in general (general trust) and trust in other users of the GeTVivid platform (interpersonal trust). Frank and Anna did not differ concerning both levels of trust (*neither nor*). They both did trust other users as much as they generally trust other people (see Figure 24 and Figure 25). For further information see Table 22, Table 23, Table 24, and Table 25.

Nevertheless, perceived *"anonymity"* (N=7) on the platform seemed to counteract interpersonal trust (*"impersonal"*). Members articulated the wish to have more personal information on the profiles but also the possibility to give feedback on past events to build a network (also see social connectedness) of trust.

Interview data showed that users generally trusted the system (N=20) and that some initial fear of doing something wrong (N=2) could be overcome by practice and experience exchange between users (also see 2.5.1). Yet, there was some uncertainty about the system structure (if posts were deleted or not/ hidden, if other users dropped-out or not, when they did not respond). Furthermore, a lack of ideas/ uncertainty of what could and should be posted (N=6) was mentioned. In this regard, two participants felt to be in a forced situation, because of little concrete need of help.

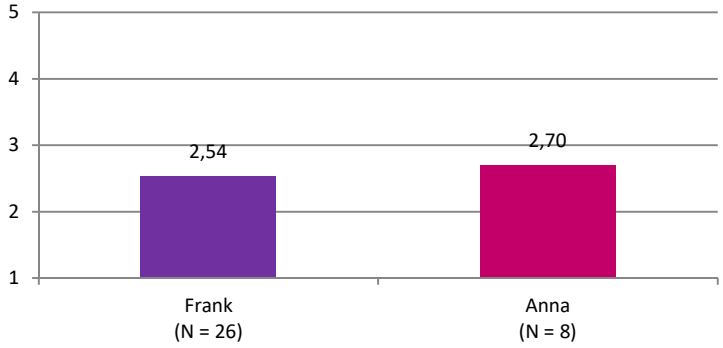

Figure 24. Mean of general trust per persona.

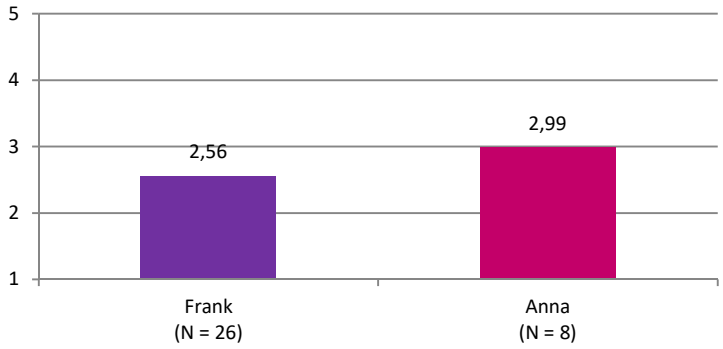

Figure 25. Mean of interpersonal trust per persona.

	Week 1					
	Frank			Anna		
	Mean	SD	N	Mean	SD	N
I think that people really do care about the well-being of others.	2,42	0,95	26	2,88	1,13	8
A user on the platform is sincerely concerned about the problems of others.	2,50	0,65	26	3,00	1,07	8
I think that people care enough to try to be helpful, rather than just looking out for themselves.	2,58	0,70	26	2,88	0,99	8
I think that most people keep their promises.	2,80	0,87	25	3,13	0,99	8
I think that people generally try to back up their words with their actions.	2,35	0,55	26	2,75	1,04	8
I think that most people are honest in their dealings with others.	2,65	0,75	26	2,88	0,84	8
I usually trust people until they give me a reason not to trust them.	1,88	0,26	26	2,00	1,07	8
*I generally give people the benefit of the doubt when I first meet them.	2,15	0,93	26	2,38	1,19	8
My typical approach is to trust new acquaintances until they prove I should not trust them.	2,46	1,17	26	2,63	1,06	8
I believe that people on the platform would act in my best interest.	2,46	0,86	26	2,63	0,92	8
If I required help, people on the platform would do their best to help me.	2,42	0,90	26	2,38	0,74	8
People on the platform are interested in my well-being and not just in their own.	2,73	0,92	26	2,75	1,49	8
I believe that most (professional) people do a very good job on the platform.	2,08	0,56	26	2,13	0,84	8
A large majority of (professional) people on the platform are competent in their area of expertise.	2,42	0,81	26	2,50	1,07	8

Table 22. Questionnaire items for trust week 1 [McKnight et al., 2002],
5-point Likert Scale (1 – agree, 2 – rather agree, 3 – neither/nor, 4 – rather disagree, 5 – disagree)
*** means the scale was inverted, i.e., the item is not negative anymore.**

	Week 2					
	Frank			Anna		
	Mean	SD	N	Mean	SD	N
I think that people really do care about the well-being of others.	2,36	1,01	14	3,00	1,41	4
A user on the platform is sincerely concerned about the problems of others.	2,79	1,12	14	3,00	0,82	4
I think that people care enough to try to be helpful, rather than just looking out for themselves.	2,43	1,09	14	3,33	0,58	3
I think that most people keep their promises.	1,86	1,03	14	2,00	0,82	4
I think that people generally try to back up their words with their actions.	2,57	0,85	14	2,67	2,08	3
I think that most people are honest in their dealings with others.	2,50,	0,86	14	3,25	1,26	4
I usually trust people until they give me a reason not to trust them.	1,69	0,48	13	2,33	1,16	3

*I generally give people the benefit of the doubt when I first meet them.	2,29	1,20	14	2,50	1,00	4
My typical approach is to trust new acquaintances until they prove I should not trust them.	2,50	0,94	14	2,75	0,96	4
I believe that people on the platform would act in my best interest.	2,29	0,83	14	2,33	1,16	3
If I required help, people on the platform would do their best to help me.	2,21	0,80	14	3,33	0,58	3
People on the platform are interested in my well-being and not just in their own.	2,57	1,02	14	3,00	1,00	3
I believe that most (professional) people do a very good job on the platform.	1,93	0,83	14	2,75	0,50	4
A large majority of (professional) people on the platform are competent in their area of expertise.	2,57	0,85	14	2,75	0,50	4

Table 23. Questionnaire items for trust week 2 [McKnight et al., 2002].

	Week 6					
	Frank			Anna		
	Mean	SD	N	Mean	SD	N
I think that people really do care about the well-being of others.	2,67	1,07	12	3,67	0,58	3
A user on the platform is sincerely concerned about the problems of others.	3,00	1,13	12	3,67	0,58	3
I think that people care enough to try to be helpful, rather than just looking out for themselves.	2,75	0,97	12	3,33	0,58	3
I think that most people keep their promises.	2,17	0,94	12	3,33	0,58	3
I think that people generally try to back up their words with their actions.	2,08	0,79	12	3,00	1,00	3
I think that most people are honest in their dealings with others.	2,58	0,90	12	3,67	0,58	3
I usually trust people until they give me a reason not to trust them.	2,08	0,79	12	3,50	0,71	2
*I generally give people the benefit of the doubt when I first meet them.	2,33	0,99	12	3,00	1,00	3
My typical approach is to trust new acquaintances until they prove I should not trust them.	2,00	0,60	12	2,50	0,71	2
I believe that people on the platform would act in my best interest.	2,67	0,78	12	3,50	0,71	2
If I required help, people on the platform would do their best to help me.	2,58	0,90	12	3,33	0,58	3
People on the platform are interested in my well-being and not just in their own.	3,00	0,85	12	3,50	0,17	2
I believe that most (professional) people do a very good job on the platform.	2,42	0,79	12	3,00	1,41	2
A large majority of (professional) people on the platform are competent in their area of expertise.	2,75	0,97	12	4,00	0,00	2

Table 24. Questionnaire items for trust week 6 [McKnight et al., 2002].

	Week 10					
	Frank			Anna		
	Mean	SD	N	Mean	SD	N
I believe that people on the platform would act in my best interest.	2,69	0,95	13	3,00	1,00	3
If I required help, people on the platform would do their best to help me.	2,08	0,90	12	2,75	0,96	4
People on the platform are interested in my well-being and not just in their own.	2,58	1,00	12	3,00	1,00	3
I believe that most (professional) people do a very good job on the platform.	2,15	0,90	13	1,67	1,16	3
A large majority of (professional) people on the platform are competent in their area of expertise.	2,75	1,06	12	2,33	1,53	3

Table 25. Questionnaire items for trust week 10 [McKnight et al., 2002].

Summary emotional value

The subjective well-being of Anna and Frank was generally high and they seemed to be satisfied. This is not surprising in regard to the fact that participants were socially well connected, indicated to have an active life-style (also see sample description and interpersonal value). It is, therefore, probable that the GeTVivid platform did not evolve to be an additional benefit for their well-being.

Altogether, users seemed to trust system as well as other users. The post-interview, however, showed that trust was counteracted by experience of anonymity on the platform, especially concerning the first contact. It was also mentioned that it would be beneficial for participants to get to know each other beforehand (N=5). In this regard, the member meetings seemed to be crucial to build up trust as well as a feeling of being connected to the others. The uncertainty caused by being inexperienced with the technologies was overcome by practice and also by exchange of experiences at the meetings.

Main Take-Away Message

- The GeTVivid platform did not improve the subjective well-being of Frank and Anna
- Frank and Anna did not differ concerning both levels of trust (general, interpersonal trust) and users, therefore, did not particularly less trust other users than they general trust other people

2.5.5 Epistemic value

The epistemic value, which is related to experiencing new products, captures the factors curiosity or attitude towards technology. For the pilot studies we extracted the factor curiosity.

RQ 12: To what extent does the usage of the system provoke the user's curiosity about and interest in the system and its content? (Curiosity)

Due to the fact that within the questionnaires missing rates strongly diverged between the two points of measurement, meaning that those participants answering the questionnaire of week 4 did not necessarily answer the same items for week 10, a sound overall mean could not be computed. Therefore, Figure 26 and Figure 27 show the means for each week. Frank and Anna were rather curious about the platform throughout the entire pilot studies. For further information see Table 26 and Table 27.

In the interviews participants explained that their initial interest was greatly lessoned by technical issues, but also by small user groups (particularly in Nuremberg (N=9) and Vienna (N=9)) and by the fact that other users did partly not respond to messages and posts. However, the idea of the platform was generally regarded as positive (*"real good", "exciting" & "fantastic",* etc.).

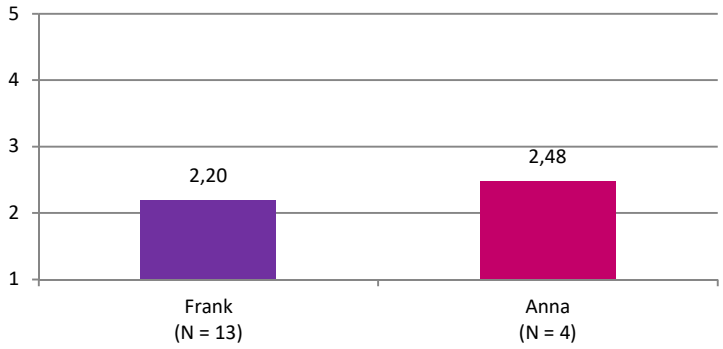

Figure 26. Mean curiosity per persona week 4.

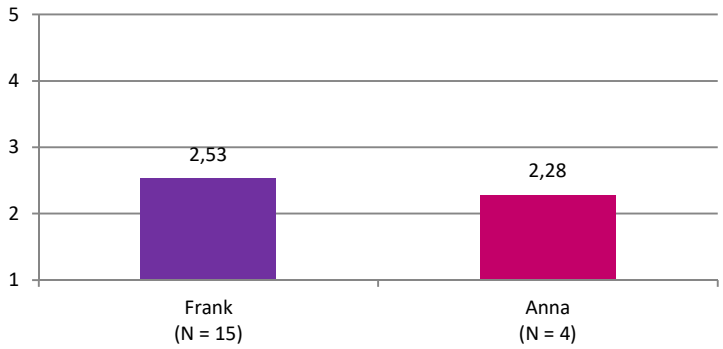

Figure 27. Mean curiosity per persona week 10.

	Week 4					
	Frank			Anna		
	Mean	SD	N	Mean	SD	N
I'm interested in the people on the platform.	2,31	0,86	13	3,00	1,00	3
I would like to learn about the habits of others with the help of the platform.	2,54	0,97	13	3,00	1,00	3
I would like finding out what others are doing on the platform.	2,38	0,92	13	2,67	1,16	3
I would like to look into other people's profiles.	2,15	0,90	13	3,00	1,00	3
When I see new offers and demands on the platform, I would take a look at them.	1,62	0,65	13	2,00	0,82	4
I'm interested in other people's thoughts and feelings.	2,23	0,83	13	2,75	0,96	4
Other people's life stories interest me.	2,17	0,84	12	2,67	0,58	3

Table 26. Questionnaire items for curiosity week 4 [Renner, 2006], 5-point Likert Scale (1 – agree, 2 – rather agree, 3 – neither/nor, 4 – rather disagree, 5 – disagree).

	Week 10					
	Frank			Anna		
	Mean	SD	N	Mean	SD	N
I'm interested in the people on the platform.	2,64	0,75	14	2,00	1,00	3
I would like to learn about the habits of others with the help of the platform.	3,07	0,73	14	2,00	1,41	2
I would like finding out what others are doing on the platform.	3,00	0,78	14	1,50	0,71	2
I would like to look into other people's profiles.	2,20	0,68	15	2,50	2,12	2
When I see new offers and demands on the platform, I would take a look at them.	1,73	0,59	15	2,00	1,00	3
I'm interested in other people's thoughts and feelings.	2,43	0,82	14	3,33	0,58	3
Other people's life stories interest me.	2,73	0,59	15	2,67	0,58	3

Table 27. Questionnaire items for curiosity week 9 [Renner, 2006].

Summary epistemic value:

Frank and Anna seemed to be rather curious about the platform over the time of the pilot studies. Nevertheless, the interview data showed that this was counteracted by some frustration caused by several reasons (e.g., small member groups or technical difficulties). Another indicator for that is the generally shrinking number of cases concerning the questionnaires over the course of time. Nevertheless, participants greatly emphasized that they liked the idea of the GeTVivid platform and also the whole project (also see subjective well-being) and that they found it interesting (*"exciting/fantastic",* etc.). In this spirit, four participants expressed the wish to continue to use the system (*"it is something that fascinates me"*).

Main Take-Away Message:

- Frank and Anna were rather curious about the platform throughout the entire pilot studies

3. FURTHER INSIGHTS

The following section details further insights gained throughout the pilot study. Those insights were mainly derived from the semi-structured pre-interviews (week 1) and post-interviews (week 10) as well as the telephone interviews that were conducted by the community managers in the middle of the pilot study (approx. in the 5th week). Questions in the (pre-, post-, and telephone) interviews were accordingly structured and mapped to the research questions and mostly already outlined in the preceding sections above. However, we also came across further qualitative insights that are not directly related to a specific research question, but which we considered as highly interesting and relevant for the outcome of the study.

First, the distance between the different users as well as the community size in general are considered as being highly important for the success of the platform. Study participants have articulated that they felt (especially in Vienna and Nürnberg) rather distant from other users in order to effectively and feasibly provide and/or take support from or to others. Long distances between users lead to too much effort (or are even not feasible due to physical impairments) to actually support and help each other. Relatedly, the users have also articulated that the size of the community is critical for the success of the platform. Critical mass is central for a vivid and engaged community that allows to share interests and to effectively match offers and demands within a feasibly distance between members.

Second, community managers are critical to motivate active engagement of users and to turn 'lurkers' (i.e., passive observers) into active members. Community managers can trigger communication among community members, decrease members' fears to get active (e.g., post something on the platform) and can arrange a get together to allow for face-to-face contact between members. Study participants consider the community managers as very central to guide the users' engagement on the platform and they are considered as anchor point to ask questions and relate to. Within the study the community managers took over a lot of different roles and activities to motivate the users. On the one hand, they sent more passive users messages to motivate them to also post offers/demands on the platform. Thereby, and if users were not sure about what to post, they provided some guidance what they could ask/provide on the platform. Some community managers also arranged offline face-to-face meetings for the users to allow them to get to know each other (reduce fears of being in contact with unknown people). On the other hand, the community members also engaged in more technical questions the users had. In case of minor technical questions, the community mangers remotely (i.e., via telephone or via the platform) supported the users to solve such issues. In case of more fundamental technical questions, some community managers came to the users homes to support them on site and explain them the usage of the platform and tablet in hands-on sessions.

4. OVERALL CONCLUSION

In general the participants have articulated to highly value the idea of GeTVivid. They like the idea of bringing like-minded people together to support each other on a frequent basis. Furthermore, they like the possibility for social exchange on the platform and to get in contact with unknown people to make potentially new friends with. Further, we were confirmed in our perspective that the community size and the distance between community members, is critical for the success of the platform. Participants' emphasized that community members should be arranged in local clusters to allow for rather easy and feasible support-exchange. Also, they articulated the need for a certain community size (i.e., critical mass) to allow for traffic on the platform and to assure that the users' interests for support-exchange and interests can be met on the platform.

Concerning the technical set-up, participants have the feeling that the TV and remote control do not really seem to add any additional value for them, since interaction with the tablet was easy to learn and use. Furthermore, participants that haven't had any previous experiences in using tablets, were rather eager to interact with the tablets and liked to mobility and portability of the tablets. The participants also disliked that cable TV as well as a separate box was necessary to be able to use the platform (i.e., some participants' even had to switch between two boxes, since HbbTV box was a necessity to use GeTVivid). We have been aware of these technical issues before the study, but currently there are no feasible technical solutions available to avoid such problems in pilot studies (e.g., as older TV sets that are currently most common in many households do not support HbbTV). On basis of the feedback we received by the participants, we believe that these technical issues had a strong effect on the overall assessment of the platform. Nevertheless, it has to be noted that nowadays the majority of sold TV sets already incorporate HbbTV that would especially in future scenarios allow and enable the GeTVivid platform to be used in many (if not all) households.

In general the study addressed 12 research questions relating to the following five values: functional, epistemic, emotional, social and interpersonal value. Those values have been mostly addressed via quantitative measures (i.e., questionnaires) throughout the study, and analysed according to the personas Frank and Anna. In the following, the main findings for each value are summarized below:

Functional value:

- Frank perceived the GeTVivid platform as rather accessible and Anna on the other hand perceived it as neutral
- For Frank the GeTVivid platform was rather easy to use, whereas for Anna it was rather easy to neutral
- Frank and Anna perceived the GeTVivid platform as rather not useful
- According to the overall SUS score Frank and Anna accept the system

Interpersonal value:

- The GeTVivid platform was mostly used as a social network and not for real support exchange and those activities taken place were accepted well
- Frank and Anna feel to be rather good socially connected and did probably not further profit from using the platform
- Frank and Anna did not differ in their personalities (self-assessed)

- The GeTVivid platform did rather not enhance the social capital for Frank and Anna

Social value:

- GeTVivid platform did rather not improve the social image for Frank and not at all for Anna
- There was rather no subjective norm to use the GeTVivid platform for Frank

Emotional:

- The GeTVivid platform did not improve the subjective well-being of Frank and Anna
- Frank and Anna did not differ concerning both levels of trust (general, interpersonal trust) and users therefore did not particularly less trust other users than they general trust other people

Epistemic:

- Frank and Anna were rather curious about the platform throughout the entire pilot studies

Especially, within the recruitment phase and throughout the study, we came to understand that GeTVivid is designed for a user group that cannot be easily accessed to. For future trials and applications of the platform it is critical to invest time to build up a liable community, consisting of people, being in balance of needing and providing support (i.e., balance between give and take). Furthermore, and this is a very important lesson learned from the study is that community managers are highly important to build up and facilitate a living, engaging, and sustaining community on GeTVivid. They are central anchor points for the users to relate to and ask questions if needed.

Overall, the results of the pilot study showed a significant improvement of the GeTVivid platform throughout the project through the iterative involvement of users and experts. Developing one interface that can be used on a TV and mobile device at the same way was very challenging, but in the end we succeeded. However, the handling of a new/additional set-top box to access the GeTVivid platform caused unforeseeable difficulties and unfortunately resulted in partial rejection of using the platform on the TV in the pilot studies. Whereas, the mobile interface on the tablet and its intuitive handling were more accepted than expected in the beginning of the project, which might be due to the already high penetration of older tablet users nowadays.

The GeTVivid platform was built as an online peer-to-peer exchange platform to empower older adults with mild impairments to benefit from receiving support for daily activities and reciprocally offering support to others. This should help improving the quality of life, autonomy, and participation in social life through connecting users in a small local community. From the pilot studies we learned that we are on a good way, but getting access to the right target group is challenging, in order to support informal care practices by mediating them online (i.e., successfully negotiating and establishing a collaboration). We still consider older adults as active and equal partners in support exchange and the GeTVivid platform is one step in the right direction to support them.

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