

# QUALITATIVE ANALYSIS OF OLDER USERS' PERCEIVED REQUESTS AND OPPORTUNITIES WITH TECHNOLOGIES

Mari Feli Gonzalez<sup>1</sup>, David Facal<sup>1</sup>, Ana Belen Navarro<sup>1</sup>, Arjan Geven<sup>2</sup>,  
Manfred Tscheligi<sup>2</sup>

<sup>1</sup>Fundación Instituto Gerontológico Matia – INGEMA. Camino de los Pinos, 27-bajo,  
20018. Donostia – San Sebastián. Spain

{mari.gonzalez, david.facal, ana.navarro} @ingema.es

<sup>2</sup>CURE – Center for Usability Research and Engineering

Hauffgasse 3-5, A-1110 Vienna, Austria {geven, tscheligi} @cure.at

**Abstract.** This work aims to describe the elderly people's opinions when they are presented scenarios developed into the HERMES project. Two focus groups were held in Austria and Spain in order to collect their impressions about the way in which the technology can cover their needs. Though some of them are reluctant to use the technology, they welcomed some functionalities of the HERMES system and they consider that using it can help them to be familiarized with technology. This evaluation has provided with meaningful information to the developers of the system to improve it and it guarantees the system addresses elderly people's needs.

**Keywords:** scenarios, focus group, user's perceptions, cognitive games

## Introduction

The increase and expansion of the Communication Technologies in recent years have led to the development of a series of new opportunities for leisure and social activities for older people. However, older people are often reluctant to accept any technology that aims to reduce their autonomy or minimize their cognitive or functional efforts because it would mean dependency [1]. It has been showed that the assessment of needs in elderly people can improve the technology function when the subjective nature of need construct, that means the elderly people's feelings, is taken into account [2]. In this regard, analysis and understanding of the older users' feelings when interacting with technology devices in different scenarios is a key requirement that adds value to assistive technology.

The current paper is derived from the HERMES (*Cognitive Care and Guidance for Active Aging*) project, co-funded by the European Commission within the 7th Framework Programme [3]. Its objective is to reduce age-related cognitive decline and facilitate episodic memory, advanced activities reminding and cognitive training.

## QUALITATIVE ANALYSIS OF OLDER USERS' PERCEIVED REQUESTS AND OPPORTUNITIES WITH TECHNOLOGIES

It provides assistance but also promotes the autonomy of users in their daily lives, employing pervasive non obtrusive technology at home and outside the home.

The first step in this project was to carry out a requirement analysis which provided us with relevant information to formulate real scenarios where the HERMES system can be used. The persons in the scenarios were older adults that suffered from minor memory impairments but lead an active lifestyle that is supported by HERMES.

Five scenarios have been developed: (a) facilitation of episodic memory, (b) cognitive training, (c) advanced activity reminding, (d) conversation support, (e) mobility support. The part of the work presented in this paper, aims to:

- (1) Check whether scenarios have been perceived as relevant and realistic
- (2) Assess the potential users' opinions about the HERMES functionalities.

### Methodology

Fundación Instituto Gerontológico Matia - INGEMA (Spain) and CURE – Centre for Usability Research and Engineering (Austria) have been involved in the evaluation of the HERMES scenarios. Both partners chose to conduct focus groups, a qualitative methodology which helps to assess the users' attitudes, preferences and initial reactions to the use of the HERMES system. In the focus group held in Vienna, 7 older adults attended and the one organized in San Sebastian was composed of 8 older adults. The scenarios were presented to the older participants in a Power Point presentation while all their comments were commented.

### Results

#### Facilitation of episodic memory

HERMES addresses age-related decline of episodic memory by providing a possibility to record events of elderly people's daily life. The participants of the focus group were a little sceptical about whether they would need to record conversations at home. The scepticism was directed towards the need for detail in everyday conversations and also towards the fact that these conversations might include secrets not meant for recording. They perceived that this solution was somewhat intrusive for them and also for the people coming to their houses.

Only one woman saw the need for recording private conversations. In general, participants preferred that the system only records when it is programmed to do so. Some of the participants pointed out that they may use it more extensively in the future if their memory abilities become impaired. The 66% of the participants would use HERMES in case they might forget something important.

#### Cognitive games

All of the participants agreed that cognitive training is relevant for their life and therefore welcomed the opportunity of doing it through the HERMES cognitive

games. Participants who are currently playing computerized cognitive games perceive HERMES games positively since they provide the possibility of doing cognitive training on the basis of real-life, personal information previously stored in the system [4].

#### **Advanced activity reminding**

Participants commonly use calendars in order to remember what they have to do in the future. Only some of them entered their appointments in their mobile phone. They would use HERMES to store appointments only under certain circumstances.

When participants were asked about the difficulty level of storing an appointment in HERMES they answered that they were confident that it might not be too difficult, although they would prefer to keep using the calendar as long as possible.

HERMES also allows for setting a reminder based on location, rather than on time. This feature is designed to work in a PDA with GPS and it affords the user the possibility of being reminded of the recorded note whenever he is near the location again. In the focus groups, participants welcomed this feature. They pointed out that it would not be hard, even though it is difficult for them to imagine how the system can do it.

#### **Conversation support**

HERMES provides possibilities to support social interaction and facilitates conversations when people are experiencing certain problems with forgetfulness by searching for contents stored in the system.

Participants agreed they would use this function of the system as support for social interaction. They considered that it could be nice to look at pictures from one's youth or to hear voices from the past, and it might be also practical: no more searching for old pictures in different places.

#### **Mobility Support**

One of the results of the requirement analysis study [1] was the need for an active life-style of older adults in order to stay healthy. By active life style, people mean going out, meeting with friends and families and the like. HERMES supports older adults in doing so by providing an easy to use PDA.

Participants perceived a mobile device mainly as a telephone. They would like to record special events when they are outside the house such as a conference. But they would not use it routinely for their daily life. It was perceived to be more productive for people with memory impairment; nevertheless, they think it would be fruitful for them as a way of acquiring further experience with communication technologies.

## QUALITATIVE ANALYSIS OF OLDER USERS' PERCEIVED REQUESTS AND OPPORTUNITIES WITH TECHNOLOGIES

### Conclusions

The information collected through the focus groups carried out in Vienna and in Spain is similar. The focus groups provided fruitful feedback about problems and needs related to older users' perceptions about how they interact with technology in home and out-of-the-home environments. Main conclusions of the focus groups are:

(1) Usefulness is the main area of interest for the older adults who participated in the study. It seems they are not interested in technological devices if these do not contribute to making their lives easier; (2) Usability is another key area for participants. Although they recognize that technology can make their life easier, they tend to use more familiar strategies in order to cope with memory difficulties; (3) The use of real-life information is considered a key point of the HERMES system, especially regarding cognitive games. Nevertheless, privacy issues are relevant for them, not only because of privacy issues, but also because technology may interfere with social interactions if relatives and friends are not fully confident of the system; (4) Although sample size is necessarily small in focus groups, it seems that those people with previous experience with information and communication technologies evaluate the HERMES scenarios more positively; (5) Regarding user experience, they consider that using systems such as HERMES can help them to be familiarized with technology. In fact, although they consider HERMES more useful for people with age-related memory impairments, using it would make them more experienced and protect them against the cognitive decline in the future.

### Acknowledgements

This work is part of the EU HERMES project (FP7-216709), partially funded by the European Commission in the scope of the 7th ICT Framework. Special thanks to all the partners of this project for the great work done in scenarios development described in this document.

### References

1. Buiza, C., Gonzalez, M.F., Etxaniz, E., Urdaneta, E., Yanguas, J., Geven, A., Höller, N., Tsheligi, M.: Technology Support for Cognitive Decline and Independent Living – Presenting the HERMES Project. Presented at Gerontological Society of America Conference, Washington D.C. (2008).
2. Walters, K., Iliffe, S., See Tai, S., Orrell, M. (2000). Assessing needs from patient, carer and professional perspectives: The Camberwell Assessment of Need for Elderly people in primary care. *Age and Ageing*, 29, 505-510.
3. <http://www.fp7-hermes.eu/>
4. Buiza, C., Gonzalez, M.F., Facal, D., Martinez, V., Diaz, U., Etxaniz, A., Urdaneta, E., Yanguas, J.: Efficacy of Cognitive Training Experiences in the Elderly: Can Technology Help? Proceedings of the 5<sup>th</sup> International Conference on Universal Access in Human Computer Interaction. (2009).