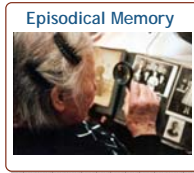


Buiza, C¹., Gonzalez, MF¹., Etxaniz, A¹., Urdaneta, E¹., Yanguas, J¹., Geven, A²., Höller, N²., Tscheligi, M².

¹ Fundación INGEMA, Camino de los Pinos, nº 27, 20018 San Sebastián, Spain

² CURE Center for Usability Research & Engineering Hauffgasse 3-5 Vienna Austria.



Episodic Memory

HERMES Past



Prospective Memory

HERMES Future



Cognitive Training

HERMES Training

BACKGROUND

Aging is often accompanied by various forms of physical and cognitive decline. Particularly, cognitive decline in aging brings along with it the reduced capabilities in working memory and information processing, a reduced ability to encode new memories of events and facts and, particularly, to remember events (episodic memory), to plan events in the future (prospective memory) or to remember the source of information that is to be stored in either. This results in a loss of detail of memories and, what is more severe, in the inability to plan one's own life and a subsequent reduced quality of life.

HERMES is a project founded by the 7FP Framework Program of the European Union. The main objective of HERMES is to reduce the cognitive decline, achieved through an assistive technology focused on both prospective and episodic memory and also in cognitive games. The project results in a combination of a home-based and mobile devices to support the users' cognitive state and prevent cognitive decline. The target group includes elderly people suffering from Age Associated Memory Impairment (AAMI), but without any other cognitive impairment.

The first step followed in this project has been to carry out an extensive users' requirements analysis under different approaches. The main result of this analysis are shown in this work.

METHODOLOGY

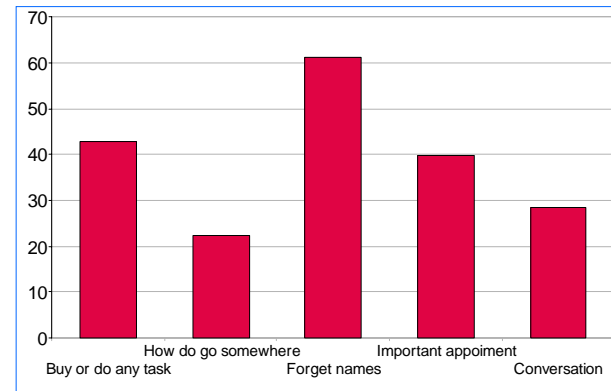
In order to collect the users' requirements some tools both qualitative and quantitative were applied. The methodology applied is shown in table 1. With these tools the team aimed to gather the relevant information for the project. Besides, a review of the state of the art about elderly people's needs in HERMES domains: health and prevention, safety and security, cognitive training and sharing was done. All the tools created were based on the recommendations found in the literature. For the memory assessment the Wechsler Memory Scale (WMS-III) (Wechsler, 2004) and the Memory Complaint Questionnaire (MAC-Q) (Crook, Feher & Larrabee, 1992; Montorio & Izal, 2002, for the Spanish version) were used.

In the project six partners are working, but mainly two of them (CURE & INGEMA) were involved in this phase of the project, with the collaboration of one partner (AIT) that administered the questionnaire in their country.

METHODOLOGY FOR COLLECTING USERS' NEEDS

METHODOLOGY	PART.	OBJECTIVES
Questionnaire	118	Its purpose was to gather a big amount of data with overall information about 3 specific areas of each person: sociodemographic information, needs and information to be reminded, and experience with technology
Focus groups	4	To develop questions that urge the participants to discuss topics regarding their daily life requirements and needs in general, and their requirements and needs regarding a device, as the one that it is intended to be developed within the HERMES project.
Interviews	48	They have been used as another form to obtain information about the domains that the project will cover: health, security and memory and cognitive training needs as well as forgetfulness in general, problems and emotions, compensation strategies, and use of technology
Cultural probes	6	To provide an opportunity to "connect" with a user on an emphatic level. We see the strength of the method in providing us with glimpses of the life of our test-subjects.
Diary	30	To collect all forgetfulnesses that occur during one whole week in the daily lives of the participants.
Memory Assessment	18	To assess both subjective and objective memory performance

UNCOMFORTABLE SITUATIONS BECAUSE OF NOT REMEMBERING SOMETHING



RESULTS

The main results obtained with the methodology explained above were the following:

Questionnaire: The social services mainly used by elderly people are: primary care doctor (93.7%); nurse (69.8%).

Elderly want a device that reminds them the following issues: shopping list (48.3%); conversation with doctor (31.0%), or their families (24.1%), things they have to do (48.1%).

The situations in which they feel uncomfortable because of not remembering something is when buying or doing any task (42.85%); how to go somewhere (22.22%); forget names (61.9%); important appointments (39.68%); conversations (28.5%)

Focus Group: The main conclusion extracted from the focus group was that elderly people of this generation are reluctant to any technology that aims to reduce their autonomy or minimize their cognitive or functional effort. They use external aids that, if they were implemented as technology, should be easier and simpler than the currently used.

Interviews: To be able to live independently is very important for elderly people. People did not see how technology could help them with this but were open to give it a try should they be in need of it.

Cultural Probes: When it comes to the use of technology, the probes reveal that in the daily lives of the participants technology does play a minor role.

Diary: Most of them have approximately forgotten from 5 to 7 events per week.

Memory assessment: Working memory and digit span are the indexes showing the lowest scores; visual processing and memory are in better shape without losing important contextual information; attentional processes are the ones with the lowest performance in the assessment of the users.

REFERENCES

Crook, T.H., Feher, E.P. & Larrabee, G.J. (1992). Assessment of memory complaint in age-associated memory impairment: The MAC-Q. *International Psychogeriatrics*, 4, 165-176.

Wechsler, D. (2004). *WMS-III, escala de memoria de Wechsler-III, manual de aplicación y puntuación*. Madrid: TEA Ediciones

CONCLUSION:

This phase has been an important feedback to the development of the scenarios and uses cases. Also, some conclusions about how the interface and the interaction with the device has to be can be drawn. These results indicate that a flexible, intuitive, easy-to use- system must be developed, which is able to be used by differently skilled elderly people, a device able to integrate the heterogeneity of the people who are 65 years-old and older. This focus on different skills, and personalized levels of difficulty do not imply that the system has to be a reminding device with no demand of efforts from the user, since they have clearly stated that they do not want a device that makes them feel more dependent.