Research approaches into communication technology for older users

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Abstract

In this paper a number of research approaches are described which are related to older adults and communication technologies. Three research projects are illustrated with very different goals, research methods and findings. The methods used in each of the projects will be discussed in terms of the type and quality of the results they generated. Open questions and challenges for research and design initiatives related to technology for older users are identified.

Keywords

Co-design, Communication technology, Contextmapping, Intergenerational communication, Older users, Qualitative research, User-centered design

ACM Classification Keywords

H5.2 User interfaces: User-centered design, H4.3 Communication Applications.

Introduction

Staying in touch with family members is becoming quite a challenge for older adults in this time of increasing digitalization of communication. While their children and grandchildren use communication

technologies and applications such as text messaging, social networks, blogs, microblogs, etc., the majority of the older population prefers to communicate face to face or by phone.

To bridge the gap between communication generations, either older people could be introduced to existing communication technologies, or new products or applications could be developed for them. This paper describes three examples of projects focusing on either introducing older adults to existing technology, or on designing new technological products for older adults. The projects differ in many respects, e.g. in aims, target groups, methodology and results. The methods and results will be discussed and challenges for research into intergenerational communication will be considered.

Introducing older users to existing communication technology

For the purpose of an intervention study [1] a large group of older adults (120 healthy 65-75 year-olds), were trained in the use of computer and Internet applications. The purpose of the study was to test the hypothesis that learning a new, complex skill would have a positive impact on symptoms of age-related cognitive decline. Amongst the applications the participants of this study were taught to use were a number of very common communication technologies, such as e-mail, sending e-cards and participating in forums.

Although the purpose of the project was not directly related to intergenerational communication, a number of relevant issues emerged from training sessions with the older adults. First of all, there are large differences

Figure 1 Computer training session with healthy, older adults.

in motivations of older users to learn to use communication technology. Participants who lived close to their family and friends did not see the need to communicate via a computer as much as participants with (for instance) family abroad. As suggested by [2], older adults thoroughly weigh the costs and benefits of learning a new skill before investing their time.

Another issue that appeared to be important for teaching older users to use computer-based communication technologies is the lack of knowledge of and experience with metaphors and conventions (e.g. desktop, files, folders, windows, drag 'n drop). Learning to understand such metaphors and conventions is probably the most essential step in learning to use an e-mail application or a forum website. Both the level of motivation and the understanding of concepts, metaphors and conventions are crucial elements in teaching older people to use communication technologies

Designing an intergenerational communication tool: a co-design approach

In a study [3] aimed at finding design opportunities for older people and friends or family members they rely on for help, we found that important latent needs exist in the area of grandparent – grandchild relationships. This study used contextmapping methods [4], in which a lot of effort is put into understanding the users, their context of use, and their world of experience. In addition, a co-design approach was adopted to involve the end users in the design process.

A small group of older users were involved in this study. A first individual session was organized with each of these users. This session was a home interview,

which was held together with a family member or close friend on whom the older users rely for help. Both contextual inquiry methods and creative generative techniques were used to map the users' contexts and to understand their (latent) needs. Based on these sessions, a group session was organized with all of the older users, one of their children and one of their grandchildren. The focus of this session was to have a brainstorm about communication across family generations. Again, creative techniques were used to explore the context and to discover latent needs of all family members involved.

After this contextual phase of the project, an iterative co-design procedure was followed to develop a prototype to facilitate intergenerational communication. Central to this design process was the idea of involving older users in the digital world of their (grand)children without forcing any new technology on them. The final prototype that was designed, was called "Piece of Family" (see Figure 2). This prototype is a large notebook with a scanner integrated in the cover. By writing a message (and possibly adding a picture, newspaper clipping, etc.), closing the book and pressing one single button, the older users are able to post to a family blog. Their (grand)children can access the blog and post to it via Internet. The (grand)parents in turn can view the blog on their television, while scrolling via a special button on their remote control. Piece of Family allows each generation to communicate on a single platform in their own preferred and familiar way (analogue writing versus digital typing).

Figure 2 The Piece of Family working prototype: a notebook with a scanner in its cover, and a small extension to the television's remote control.

Understanding the context of use of older people with dementia: relying on proxies

One of the application areas of a project focusing on combining wireless networks with sensor networks and the easy deployment thereof was a home for elderly people (http://www.ibbt.be/en/project/deus). For this project, a thorough understanding of the world of experience of the residents of this home was essential. One group of residents suffers from dementia. Because of the severity of their symptoms, using normal user and context analysis techniques (e.g. interviews, contextual inquiry) was not possible. So instead of putting the end user at the centre of design, in this project the only option was to rely on indirect reports on user experiences provided by family members and caregivers.

In order to understand the everyday context of the residents who were suffering from dementia, family members, caregivers, volunteers and healthy residents of the home for the elderly were interviewed. The interviews focused on everyday routines, experiences, problems, needs, etc. of the residents with dementia.

Based on the findings of these interviews, personas, user scenarios and user requirements were formulated. Because of the absence of direct information from the end users with dementia themselves, it was decided to make personas representing the proxies only. This was done to communicate the fact that the information conveyed by the personas was not first-hand information and that, as a result, interpretation of this information should be very careful. In the next steps of the project, this information will be used to develop new applications that will enhance the residents' everyday lives and allows a more homely atmosphere.

Lessons learned & challenges for the future

From the studies described in this paper, a number of lessons can be learned and a number of challenges can be identified for future research into intergenerational communication technologies.

- Motivation is a key factor in the acceptance of (communication) technology by older users. New technologies for this target group should have an obvious added value to them, which should be clearly communicated to the potential users. To design a communication application with such added value, thorough understanding of the users, their context and their (latent) needs is essential.
- Grasping the concepts, metaphors and conventions related to new communication technologies is difficult for older adults. When designing new communication applications, one should try to relate to metaphors, habits and conventions familiar to the potential users.
- Involving representatives of each potential target group throughout the design process helps to ensure that new applications fit users' needs, have sufficient added value and match users' frames of reference. Involving groups of older users and users from younger generations at the same time is recommended in designing intergenerational communication applications.
- When designing new communication applications to be used by multiple generations, users of each generation should be able to use the application in a way that is familiar to them and in a way they desire.
- When designing for users with whom direct communication is not possible, one needs to rely on information from observation and from proxies, which only results in indirect findings. More research into methods to understand such target groups is required.
- When using proxies to understand end users that cannot be involved in contextual research themselves, one should be very careful in interpreting and communicating the findings.

Acknowledgements

Citations

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