PRoF Award abstract – Call 2015

<deMens>

1. Research Outline

Acronym	deMens
Project name in English	deMens
Pitch (1 sentence)	deMens: a software suite to enhance communication between older persons and their environment.
Executive summary (max. 10 lines)	
Due to the aging population a growing number of older people becomes frail and socially isolated. To tackle this situation a research project was set up with the aim to develop a prototype of a tablet application to enhance the wellbeing of older persons living in nursing homes through new communication technology. A living lab was set up to develop and test the application. The research methodology was characterized by an interactive knowledge transfer model with repeated phases of development, data collection and data analysis. The methodology was based on the principles of 'co-creation' (Prahalad, 2000).The tablet computers and the software suite were experienced as user-friendly. There is limited evidence that the verbal communication between older adult, their caregivers and their family was facilitated by the developed application. Data saturation was not reached, so further research is needed before the tablet application can be made available in app stores.	

2. Cause and context of the research

Cause

Due to the ageing population a growing number of older people becomes frail and socially isolated. In Belgium 23 % of the older adults is socially isolated, as a result of a small social network. Especially those people who live in a nursing home are lacking qualitative social contact (Vandenbroucke et al., 2012). Besides social innovations, technical solutions can be used to prevent this situation. Communication technology can enrich the social contact of older people. In the past, various communication technologies have been developed. However most of these technologies are expensive and not user-friendly for older people (McCausland & Fal, 2012; Mickus & Luz, 2002), as the procedure to start the computer, the use of a mouse and a the use of several buttons is too complex. Recent research shows that computer tablets are promising for the use in the geriatric sector (CEMO, 2013). They can be used easily and intuitive. With the principles of errorless learning it is possible for older people to learn how to use them (Voigt-Radloff et al., 2011).

Therefore this research project was set up with the aim to develop a tablet application to enhance the wellbeing of cognitive healthy older persons living in nursing homes through new communication technology.

Method

Theoretical framework

The research methodology was characterized by an interactive knowledge transfer model with repeated phases of development, data collection and data analysis. The methodology is based on the principles of 'co-creation' (Prahalad, 2004), as there was a close cooperation with the future users during the development of the application.

Setting and participant selection

One private and one public nursing home participated in the study. Purposive sampling was used to achieve a heterogeneous sample. All principal stakeholders were invited to participate in the co-creation sessions. A total of 16 participants were included: seven professional caregivers, three managers of the nursing homes, four nursing home residents and two family caregivers.

Data collection

In a first phase four focus groups with caregivers and the management of the nursing home were organized. In a second phase a prototype was tested in the two nursing homes for two months with four older adults and their social environment. The use of the application was observed and videotaped. Afterwards semi-structured interviews were conducted.

Data analysis

Field notes, videos and interviews were analyzed using QSR NVivo 9 (QSR International Pty Ltd, Doncaster, Australia). A content analysis was performed after each phase of data collection. First all data associated with the use of the application and the tablet were selected. In a second phase those fragments were coded inductively. In this way possible improvements and strengths of the application were mapped.

Ethical considerations

All participants agreed to participate and signed the informed consent after a researcher informed them about the research protocol. The study was approved by the Ethical Committee of Ghent University Hospital (B670201317077).

3. Innovation results achieved

Prototype

The developed software suite consist of three applications, this includes in the first place a prototype of the application for tablet computers. This application is designed for the older persons. Secondly, an application for desktop was developed. Caregivers and relatives of the older person can use this application to send content to the older person, such as written messages, videos, images and audio files. The third application is a smartphone application, intended for relatives, as they have the same goal as the desktop application. However, with the smartphone application, it is possible to make photographs or make videos through the application.

The interface of the tablet application is simple and clear. The software sorts the messages by subject and makes them easy to read for the older persons. The application is built to use in an intuitive way and can be adapted to the needs of the older person. If needed an administrator function can be used by a family member or caregiver. This means that the settings of the application can be modified at any time by the administrator. This can be done from another device (e.g. desktop or smartphone).

Hardware

Almost every older person held the tablet by themselves. However some participants refused to hold the device out of fear to damage the device. At the moment, many accessories are available to protect the tablet from damage.

Use of the software

Most older participants used the application independently. Sometimes minor instructions were needed. To switch between the different messages, older persons can swipe, use arrows or tap the screen. Arrows were the most used navigation mode. All older participants experienced the software as user-friendly, due to the large pictograms and buttons.

Caregivers indicated that it was a large time investment to learn the older persons to work with the application.

Communication

Caregivers found the application useful to set up qualitative conversations with their residents. Through the application they could identify the interests of the older persons and so they had topics to discuss with their residents. The older persons found the application especially interesting to make contact with fellow residents, as they used the tablet and the application to have more contact with residents in real life. They used messages, pictures and videos on the application to tell other residents something about their lives. One family caregiver reported to have too little time for visiting his relative. Through the application he was able to communicate more frequent and in a different way with his father. Caregivers in one nursing home used the tablet and the application also to show the residents pictures from recent activities and to inform them about the menu. Participants saw the application as a medium to have more contact and interaction, not to reduce the amount of real life contact.

Discussion and conclusion

This qualitative research aimed to develop a tablet application to enhance the communication and the social contact between older adult and their environment. The application and the tablet computers were experienced as user-friendly. There is limited evidence that the verbal communication between older adult, their caregivers and their family was facilitated by the developed application. The goal to develop a well-functioning prototype was reached but the results of this research can't be generalized to other nursing homes. Before the tablet application can be made available in app stores, it should be tested in a broader sample. Stakeholders also advised further development of the application to use in different populations (e.g. elderly with dementia) and for different purposes (e.g. facilitate elderly to live independently at home).

4. Link to the PRoF values

deMens has a very distinct link with most of the PRoF values. The main goal of the software suite is to increase **inter generational** communication. This can be realized with the smartphone and desktop application. In this way, relatives – such as children and grandchildren – are stimulated to approach the older person based on their interests. The software suite can also help to **prevent loneliness** in older aduls.The look and navigation options of the software can be modified to the needs of the users. This makes the software suit **non stigmatising** as the **flexibility** of the application ensures that older persons with different cognitive capacities can use deMens. The **privacy** of the users is also garanteed as it is optional to use a pasword to login. To guarantee the **safety** of the older person, the optional use of an administrator in the system can prevent unwanted emotional reaction of older persons who receive controversial messages.

5. Applicable IPR rules

Artevelde University College Ghent has the intellectual property. The applicable IPR rules are described in the research and cooperation rules of the Ghent University Association.

6. Information on the partners

Artevelde University College, Gent:

- Department of nursing
- Department of secondary education
- Department of graphic and digital media
- Research group Innovation in care

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As earlier described, there was a close collaboration with two nursing homes in East Flanders, e.g. in co-creation sessions and the test phase. There was a supervision on the project of an advisory panel. This panel was consisted of nurses, head nurses, nursing home managers, health care researchers and lectureres. There was also a close contact with ‘Expertisecentrum dementie’, Paradox.

Addendum: Contact information

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