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Digital Innovations – Opportunity to Elderly People?

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Abstract: Growing number of ageing people is a worldwide phenomenon because of the longer life expectancy and because of the lower birth rate not only in Finland but in all industrialized countries in the world. This means consequences for the societies, for the economies and mostly, for the elderly people themselves. These implications are related e.g. to the growing need of health care and social welfare services, which will require totally new solutions based on new technology i.e. artificial intelligence and digitalization. In this paper we will present results from the survey made in 2018, where around 50 elderly people were interviewed in South Finland. Results of these qualitative semi-structured interviews will open the window to the needs and challenges as well as hopes and desires that the elderly people have in their every-day life. The focus of interviews is especially in their use of digital technology and devices as well as in their use of any kind of digital services.

Keywords: Future Needs of Elderly People, Assistive Digital Technology

1 Problem

Growing number of ageing people is a worldwide phenomenon because of the longer life expectancy and the lower birth rate in Finland and in all industrialized countries. This means consequences for the societies, for the economies and mostly, for the elderly people themselves. These implications are related e.g. to the growing need of health care and social welfare services, which will require totally new solutions based on new technology i.e. artificial intelligence and digitalization in the home care of elderly people (Finnish Ministry of the Environment 2017). In this paper we will present results from the survey made in 2018, where 55 elderly people were interviewed in South Finland. Results of these qualitative semi-structured interviews will open the window to the needs and challenges that the elderly people have in their every-day life. The focus of interviews is in the use of digital technology and of digital services. The interviews were run by the students of Laurea UAS from Lohja campus during the spring/summer in 2018 (Unpublished students reports 2018). These results will provide insights for the needs of elderly people concerning their everyday life in urban and rural environments. The interviews will cover age groups from 55 to 95, including both female and male. From the data collected there are 7 elderly in 55-64 years old age group, 19 elderly in 65-74 years old age group, 19 elderly in 75-84 years old age group and 10 elderly are 85 years or more, the oldest one among the elderly is 96 years old male person. In the 55 samples, there are 45 people living in city centre and 10 of them living in rural area.

These results here are from the Laurea UAS´s part of the project, where the other partners are Tampere University of Technology TUT and Häme University of Applied Sciences HAMK, which will complete the study during the autumn 2018.

According the project plan the general aims are (Weck et al. 2018):

(i) to increase understanding of perspectives for new services utilising digital assistive technologies needed to sustain aging people's active living at home and
(ii) to generate sufficient evidence that portrays a desirable future for ageing people with regard to digital assistive technologies based on individual and professional users' needs and practical experiences.

The primary focus lies on the assistive digital technology for active ageing that includes any products and services, and how ready they are to accept them in the field of healthcare and wellbeing, too (Heart, T. & Kalderon, E. 2013).

2 Reseach design

This project consists of three parts: First, the pilot study interviews, which were run in the spring 2018 as an aim to form the persona cards of the ageing people in different age groups with various education basis (academic/non-academic) in rural and urban areas in Finland (see Weck et al 2018). Second, based on pilot study, the semi-structured interview formula was created by the research group for the interviews. The first round of the interviews was run during the spring/summer 2018 by Laurea UAS. These interviews will continue in autumn 2018 with focus group interviews arranged by TUT and HAMK. Third part of the study will be the concluding study focusing on visionary concept design (Leppimäki et. al 2008) for elderly people by facilitated co-creation sessions. The results collected from the interviews will form a database for this service design workshop, facilitated by Laurea in the winter/spring 2019.

The persona cards were created according to the interviewees´ age, sex and living environment. Additionally, the following descriptive characteristics were in focus: ability or constraints regarding physical, psychological, cognitive or social dimensions as well as their digital activity, i.e. the ownership and use of digital devices in everyday life. The educational background like academic or non-academic was considered as well. At least one male and one female from each age group with different characteristics and academic background was interviewed. All together 10 pilot semi-structured interviews were conducted to build an understanding about their daily activities, challenges and needs (Weck et al. 2018).

The face to face interviews were conducted by students of Laurea UAS in spring/summer 2018. They were using the survey formula created by the research group of this project. The questionnaire included different themes concerning **Background information** like age, sex, place of living, education, physical/cognitive/social restrictions; **Use of digital devices** like devices in use, benefits of them, barriers for their use; **Needs in everyday life** like hopes and fears, expectations for the future and supply and demand for devices and services today and in the future. Questions were open by the nature, but they included also given answer alternatives to help the students to keep the focus on the theme. All together 25 students by Laurea made these individual interviews during the spring/summer 2018.

TUT and HAMK will continue the work by **focus group interviews** and that work is progress. Before the shared visionary concept design workshop in winter 2019 the results from TUT and HAMK will be completed at the end of the year 2018.

Visionary concept design workshop in winter 2019 will focus on new products and services for elderly people (Laitinen & Meristö 2016). Service design methods (Yu & Sangiorgi 2017) will be used together with futures research methods in facilitated co-creation process, where the participants are from the ecosystem of all actors concerning the wellbeing of elderly people, including the elderly people and those close to them as well.

3 Findings

The pilot study brought important insight to the main study and its objectives, which are now completed with deeper interviews among 55 elderly people. The most commonly used device among the elderly people was the smart phone, 36 of 55 people had it. For the results, there are 20 people who are using laptop, 15 people using personal computer and only 10 people used tablet, but there were also 16 people using none of the digital devices. Only one of these non-users had digital devices at home, in order to give for his daughter an opportunity to help him in everyday activities e.g. banking issues.

Aging people's needs and preferences for digital assistive technology seem to be positive, although they are not yet very familiar with the latest devices and applications. Skills and competences to use them are still limited especially in the oldest age group females outside city centers (see Weck et al 2018). The desirable future among the oldest applicants seems to be the situation where they have both information of the supply of many kind on opportunities and also skills to use different applications and devices. The fear of not being able to manage new technology or of the threat concerning safety and security in digital connections might form one barrier not to adopt the newest technology without hesitation.

Among the sample, there were 29 elderly people reporting having no difficulties or restrictions concerning their physical, psychological, cognitive or social health and wellbeing. On the other hand, there are 24 elderly having physical difficulties like difficult to walk or see. Cognitive difficulties had 13 elderly people in the sample, e.g. in understanding or memorizing things and instructions. Finally 5 of them had psychological difficulties concerning their mental health and 4 of them had social difficulties like to get friends or to interact with people.

The main reason not to use digital devices seems to be, that there is no need on that. Manual services still work. Some of repliers also thought that digital devices are expensive to buy and to use, too. They thought that their skills and competences to use digital devices in a safety way are limited: those not using digital services were afraid of security issues: "what if my personal information will be published without permission?" Also the location opportunity in the smart phone or in other devices seems to be an issue to be afraid of, especially for those, who live alone. Some of them mentioned the addictions to play mobile applications without pause. Sometimes the awareness of the supply of different devices and services is limited and that is the reason not to use them.

In city centers people were more positive to use digital devices than in rural areas, although the real need would be more acute in the countryside, where the face-to-face services have moved to the urban centres in Finland, too. People in city centers are more eager to connect with other people and society digitally, whereas people in countryside will use face to face services and to meet also friends and relatives personally. Also, the elderly people in younger age groups are more positive towards eServices than those in older age groups. Also the educational and professional background have an impact on the willingness to use digital devices. The curios mind will stay curios, if surviving without difficulties, and to adopt new devices and applications is easier compared to those with more difficulties or less skills.

Based on literature review it was observed, that still, elderly people mainly have positive attitude to use electronic services, but many problems were recognized, too (see e.g. Rosenlund, M. & Kinnunen, U-M 2018; Kötteritzsch & Weyers 2016). E.g. unclear symbols might be reasons for lower use of e-services. Thus, according to Tuohimaa et al. (2014) e-health services might have an empowering impact on people's life generally, if also the practical things like too small font in applications will be solved.

4 Lessons learned

The preliminary findings of the study will address both theoretical and practical implications, and in general will provide valuable insights on the desirable future for ageing people with regard to innovative digital technology for active ageing (Weck et al 2018).

In the open questions in the interviews we were asking the elderly people, which areas are the most important to them, when thinking the benefits of the digital devices in everyday use. First of all the banking services seem to be the most common reason to use digital devices, although there is still sometimes need to visit the bank personally, too. For elderly people the health issues will play an important role in their lives, and the digital doctor advisory services instead of the traditional face to face visits or phone services would be a valuable add to their wellbeing, which would give special motivation to use digital devices. Digital devices and
services hopefully will enable for elderly people an opportunity to stay at home as long as possible, answered one of the elderly people in this sample. Although the serious issues like banking and medical services were on the top of the list, the attention was paid to the entertainment services and to everyday news, too. Also hobbies e.g. regarding sports were mentioned when discussing the demand of the digital services in the future. Elderly people in rural areas could find their hobby tribe from internet, e.g. from the Facebook group. Nordic walking alone is not so inspiring than that in a group, even if in digital group with discussion opportunity.

The results from the interviews concerning security and safety issues show, that the awareness e.g. of the intelligent security can empower elderly people to use digital devices and increase their feeling of safety and security in addition to the home alarming systems, which many of them were familiar with.

The quite large number of elderly people answering no need for digital devices is a challenge. The promotion for and education on new digital devices and motivation for these new services is a key enabler for larger numbers of device users among elderly people. A must is not such a good teacher than a passion to be a part of the digital tribe

around his or her favourite hobby or even around the family members living in another part of the world. Then elderly people learn new things, they want to learn new things and after all, they want to share their experiences among their friends by tutoring them on basis of their own experiences.

Not only individual elderly people, but also firms and institutes working with elderly people need more information. Caring houses and medical centers but also academic researchers among business stakeholders should consider, what kind of digital services and devices can be provided to elderly people to deliver them a better wellbeing and healthier life at home. E.g. difficulties concerning physical or cognitive restrictions should be analysed carefully in all aspects of everyday life and to provide solutions to help them instead of to put more stress on them, i.e. in the everyday duties the use of digital devices can replace the normal duties which without help were not possible any more.

Product and service design should face the difficulties recognized and develop new more customer-oriented digital devices for elderly people. Thus, the elderly people are not a homogenous group. The transition in a society will divide the younger group from the oldest group quite sharply: those from 55 to 64 years old are still in working life and at the work they will use digital devices anyway. The oldest part of the sample is from 85 to 95, having also the most of the restrictions and difficulties in physical and cognitive capabilities, without any practical experience on digital devices during their working carrier. For younger group the motivation is not the key issue, for the oldest ones either. The younger need customer-oriented services, but the older ones probably will benefit most of the mentoring model instead of the education to use devices. These assumptions will be developed further in the last part of the research work when developing new type of services and devices for different age groups among elderly people, divided according to the place of living, background education and general difficulties, too.

The findings will drive digital innovations for active ageing and increase demand for new services, which will be generated in the last part of the project focusing on visionary concept design in co-creation with all the actors in the ecosystem around these innovations.

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