

# Using Technology for Improving the Social and Physical Activity-Level of the Older Adults

Milla Immonen, Anna Sachinopoulou, Jouni Kaartinen, and Antti Konttila

VTT Technical Research Centre of Finland, Kaitoväylä 1, 90571 Oulu, Finland  
{Milla.Immonen,Anna.Sachinopoulou,Jouni.Kaartinen,  
Antti.Konttila}@VTT.FI

**Abstract.** Social media and internet technologies are regularly used by young and adult population. Older adults are using social media rarely, even though these technologies have the potential to ease and enrich their lives. This article discusses different possibilities for the use of technologies to enrich the lives of older adults by activating them socially and physically. Technology can also support the maintenance of close relationships with relatives and care givers and ease their workload.

**Keywords:** Social motivation, social media, Internet, older adults, exercise.

## 1 Introduction

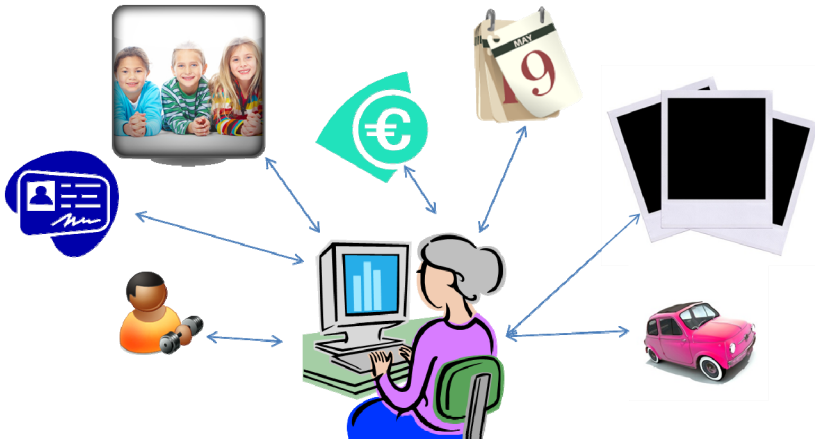
This article describes the ways that the new technologies can help older adults enjoy their pension years, focusing on social networking, socially motivated hobbies and physical exercises. Although today's recently pensioned persons have little experience on computers and social media, they are often willing to learn how to use new technologies. They are motivated to do so by their wish to be more aware of the life of their children and grandchildren, to be informed about interesting events, discussions and social networking. Even though traditional methods for communication, such as telephone, are valued among the elderly people [1], they also value peripheral awareness of friends and family. Older adults also tend to associate using a method of communication in a specific situation primarily with its advantages or benefits [2].

This article will describe potentially suitable and modifiable technologies for elderly use and present some ideas for the use of these technologies. User interaction methods for the older adults will not be discussed here. It is the belief of the authors that most of the described technologies will need modifications in order to accommodate with suitable user interfaces for older adults.

## 2 Valuable Everyday Life

Depression in old age is an important public health problem. Among others, depression in elderly persons has been associated with social deprivation that may rise from health or other reasons [3]. For example, unexpected death of a spouse or

expected death after a long stressing caregiving period increases the chances for depression among the surviving spouses [4]. A solution to this problem can be given by new technologies that can be combined and modified for the use of older adults and support a more social and thus happier life. While designing user interfaces and usability for elderly persons, the earlier, already familiar technologies should be kept in mind to improve the acceptance [2], [5], and [6]. Different possibilities for the use of Internet technologies are visualized in Figure 1.



**Fig. 1.** Possibilities for the use of Internet technologies for the older adults in communication with relatives, services such as banking and travelling, and socializing, e.g. sharing experiences and keeping up with events and carpooling.

## 2.1 Information Sharing

Older adults very often have children and grandchildren whom with they are willing to share daily thoughts, images and videos. The need is bigger if the relatives live in a different city or country and they don't meet very often. The information sharing can be made easy by direct or indirect communication technologies. Direct communication technologies are those resembling the telephone and that can be provided at a cheaper price through the Internet. Indirect communication technologies are for example the social media where users provide updates about their life, thoughts and feelings which are then available for their "friends" to read. In both cases, technology can add value to everyday life and improve the elderly quality of life. One important issue, especially addressed by the elderly users [7] is security. Information sharing should happen only with the people intended to see the information and it should be made easy for the elderly users to choose who they communicate with. Shared information can also include care instructions or hints for the different aspects of life, for example healthier life. Also car-pooling saves money, resources and environment and can be easily arranged through social media technologies.

## **2.2 Social Networking**

After the working years, the social activities are reduced and it is not easy to find new friends. According to previous research [8], older adults are willing to find new friends, preferably from the close surroundings. Keeping contact with former colleagues and life time friends is still essential but becomes more difficult. An online system, that will connect people through interest groups and discussion forums, could help older adults to maintain long-term relationships but also find new friends. It has been shown in recent studies, that videoconferencing makes older adults happier, more connected and less isolated [8] thus adding to their quality of life.

## **2.3 Time Scheduling**

Online digital calendars can support time scheduling for older adults and their relatives. The help of grandparents in child care is valuable and important for the family. By using online calendars, suitable times can be suggested by the parents and the grandparents can accept or reject them. It can be also easy for them to see what activities their grandchildren have and from where they will have to pick them up. Such calendar can also be used in scheduling online the care times or visiting times between relatives of the elderly person, so that the person is visited often enough.

Remembering of important days, i.e. birthdays, is important for the older adults and their relatives. The calendars could be used for reminding these days too.

## **2.4 Social Motivation**

Despite the known benefits of exercise for older adults, the majority of these individuals do not exercise regularly. Although the benefits of the exercising are the main motivation for doing so, the social aspects also are important. Hearing about other older adults exercising, or seeing others exercising, can be highly motivating. Shared stories about gained benefits, such as better coping with daily activities or less falls than earlier, are also important. Knowing that someone is interested in or following your activity level or exercise program can be also motivating. Social media has potential to play an important role in social activation. The information of the benefits of the exercising or different hints and guides for exercising can be shared through the social media. Even if the user of social media does not result in increasing the exercise regime of elderly persons, they at least motivate them to be socially active and encourage him or her to contact people, organize meetings and go out of the house.

# **3 Suitable Technologies**

## **3.1 Skype and Other Live Communication Technologies**

Skype is a communication tool among the information technology and web communication tools that is most favored by the elderly persons. [9] It is thought that this is due to its simplicity as well as its resemblance to a normal phone, a concept

familiar to everyone. However, there are some characteristics that require attention in order to make the tool easier for use by elderly persons. Skype's user interface is easy to use as it is, but it could be modified to be more usable and similar to older technologies, to be more acceptable by the older adults. For example, initializing connection with someone could be directly put under an icon of a traditional phone. The quality of the Skype video calls leaves still much to be desired. Other live communication tools are not as popular as Skype, and mostly share the same difficulties. In some cases the open source tools are preferred, because Skype's developer license doesn't allow development on mobile or tablet platforms.

### 3.2 Facebook and Google+

Although social media platforms, as Facebook and Google+, are popular, reported usage level among the older adults is very low. One reason may be the fact that the function of Facebook and Google+ is not well understood. It is often challenging to realize who is seeing one's statuses, photos, pictures etc. and what ones sees on his wall, or how one should react to what is shown. Security issues are one of the most worrying issues for the older adults in the Internet use [5], [6]. Since there is no precedent technology that can relate to Facebook and Google+, another paradigm should be found in order to make it easy for the older adults to understand what is Facebook and Google+.

It is possible to develop applications that use Facebook or Google+ in the background. Facebook provides an open source software development kit (SDK) for website development for both JavaScript and PHP [10]. Similarly, Google+ has an API, which can be used for integrating Google+ with other applications [11]. These developer API's enables using Google+ in a more friendly way. Facebook and Google+ could be used for information sharing, scheduling and motivation.

## 4 Conclusions

Social media technology can benefit elderly users by making them more active and more social. There exist already some tools that are being used by few elder users but need to be further developed in order to increase usability and acceptance by a vaster elder community. Some new tools such as online agendas and calendars can also be beneficial.

## References

1. Romero, N., van Baren, J., Markopoulos, P., de Ruyter, B., IJsselsteijn, W.: Addressing Interpersonal Communication Needs through Ubiquitous Connectivity: Home and Away. *Ambient (Cmc)*, 419–429 (2003)
2. Melenhorst, A.-S., Rogers, W.A., Caylor, E.C.: The Use of Communication technologies by Older Adults: Exploring the Benefits from the User's Perspective. In: *Proceedings of the Human Factors and Ergonomics Society 45th Annual Meeting* (2001)

3. McDougall, F.A., Kvaal, K., Matthews, F.E., Paykel, E., Jones, P.B., Dewey, M.E., Brayne, C.: Prevalence of depression in older people in England and Wales: The MRC CFA Study. *Psychological Medicine* 37(12), 1787–1795 (2007)
4. Burton, A.M., Haley, W.E., Small, B.J.: Bereavement after caregiving or unexpected death: Effects on elderly spouses. *Aging and Mental Health* 10(3), 319–326 (2006)
5. Chou, W.-H., Lai, Y.-T., Liu, K.-H.: Decent Digital Social Media for Senior Life: A Practical Design Approach. In: *Proceedings of the 3rd IEEE International Conference on the Computer Science and Information Technology, ICCSIT (2010)*
6. Goswami, S., Köbler, F., Leimeister, J.M., Krcmar, H.: Using Online Social Networking to Enhance Social Connectedness and Social Support for the Elderly. In: *Proceedings of the International Conference on Information Systems ICIS, Saint Louis, MO, USA (2010)*
7. Tieto- ja viestintätekniiikan käyttö, Official Statistics of Finland (2010) (in Finnish), [http://www.stat.fi/til/sutivi/2010/sutivi\\_2010\\_2010-10-26\\_fi.pdf](http://www.stat.fi/til/sutivi/2010/sutivi_2010_2010-10-26_fi.pdf)
8. Savolainen, L., Hanson, E., Magnusson, L., Gustavsson, T.: An Internet-based videoconferencing system for supporting frail elderly people and their carers. *Journal of Telemedicine and Telecare* (2008)
9. Study of elderly persons using Skype and Facebook, <http://www.dailymail.co.uk/sciencetech/article-1385330/Rise-silver-surfers-Grandparents-using-Skype-Facebook-stay-touch-family-record-numbers-seen-before.html>
10. Facebook developer API's: <https://developers.facebook.com/>
11. Google developers API's: <http://code.google.com/>