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## The Use of Information and Communication Technologies by Elderly People

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### Abstract

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The article considers how elderly people use different types of Information and Communication Technologies (ICT) and studies their readiness to use ICT in everyday life, based on the data obtained in a sociological survey. We made a hypothesis that age has an effect on older people's attitudes towards ICT. In this article ICT will include the Internet, mobile devices and on-line banking. We discovered the types of ICT which will be used by older people in their everyday lives. We stipulated four areas of the use of ICT in older people's lives such as financial, administrative, accessible and entertainment. During our research we concluded that respondents aged 55 to 64 are more active in using IT and demonstrate their interest in different spheres of everyday life. We also concluded that there were no differences in the results between genders. Overall, the sociological survey has indicated that more than 42% of respondents have the skills to use modern Information Technologies. It has been noted that over the past years the government has been encouraging older people to use ICT in their lives. The government in the Tomsk region is also working to achieve this.

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**Keywords:** Information and communication technologies (ICT), elderly people, quality of life of elderly people, active ageing (long living), the use of electronic gadgets by elderly people, preferences of the use of IT technologies by elderly people.



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## 1. Introduction

Old age is characterized by the end of working lives as we reach retirement and active involvement in social networks and interpersonal relationships. The possibility of working on the Internet is becoming a key issue to help elderly people to maintain an active social. Modern ICT, as one of the important ways of the development of not just the economy but also human social and communication links, make the use of ICT in everyday life very important, especially for elderly people who have already developed their preferences.

Nowadays, Information and Communication technologies allow us to enhance the scale of activity of elderly people and to create a new ‘virtual personality’ with numerous opportunities. The question is: are elderly people ready to use ICT? What attitudes regarding its use are predominant in the given age group and do elderly people consider the learning how to use technologies and developing skills in carrying out different activities necessary?

A research has been carried out in this region and the data of a sociological survey are compared to the data of statistics revealing how ICT is used in the Russian Federation and foreign countries (the survey was carried out on people aged 55 and older in April 2015 in Tomsk and the Tomsk region in Russia).

The research considers the following questions: what is the attitude of elderly people towards Information Technologies? Are they able to use them in everyday life? Do older people have the ability to use new electronic technologies? Are they willing to develop skills to learn how to use modern computer technologies?

One of the issues of the research is that the attitude of older people towards Information Technologies depends on their age. The closer people are to the age of active users of technologies, the more they use them in everyday life. On the contrary, the older a human is, the more they refuse to use them in their life due to less access to technology.

The Survey was conducted at Tomsk Polytechnic University sponsored by the Ministry of Education and Science of the Russian Federation on the basis of research works «Assessment and improvement of social, economic and emotional well-being of older people».

## 2. Problem statement, research questions, purpose of the study

Information and Communication Technologies include:

- The Internet (social networks, e-mail, browsers, listening to music, watching films, reading or listening to e-books, computer games, Skype etc.);
- Means of mobile communication (calls and SMS messages, applications for quick messages via a mobile phone such as Viber and WhatsApp);
- Electronic on-line payments.

In the evaluation of skills in the use of Information and Communication Technologies in order to solve everyday issues, the international experts use an index that measures the demand of Internet services among older people. The index is calculated according to the amount of people aged 55-74 who use the Internet no less than once a week. Experts believe that this index allows us to identify the

level of development of the surroundings of older people, which helps them communicate with other people via ICT (Active Ageing Index Home, 2013).

The results of the sociological survey that we conducted, show that the majority of respondents have the means of electronic communication and use them in everyday life. According to them, a mobile telephone is the most common, available and regularly used means of electronic communication. Only 6% of people older than 75, of the respondents said they don't use a mobile telephone and prefer to use a landline. 88.5% of respondents have their own mobile telephones and family members of 11.5% use mobile telephones.

According to the survey mobile communication ranks second place among older people, after personal communication. 26.5% of respondents communicate daily via mobile telephones with their relatives, acquaintances and friends (33.6% of respondents socialize daily face to face) and 24% use a mobile telephone several times per week (65.3% of respondents have a personal communication several times a week). 2% of respondents don't use a mobile phone for communication (0.5% don't socialize with other people at all).

The other popular electronic device that is used by older people is a laptop. The survey shows that 12 % of respondents use the Internet in their free time. 27% of respondents have their own computers and 27% have computers in their families. 38% use their computers regularly and 17% occasionally. Among people older than 70 only 11 % use a computer regularly. In cities, 18.5% respondents use the Internet and it is more popular there than in rural areas (10.9 %). 16.5% respondents seldom use the Internet in their everyday life, 55.3% have never used the Internet. 38% don't know how to use it and don't want to. 6% know how to use the Internet but they don't use it. 16% cannot use the Internet but are willing to learn.

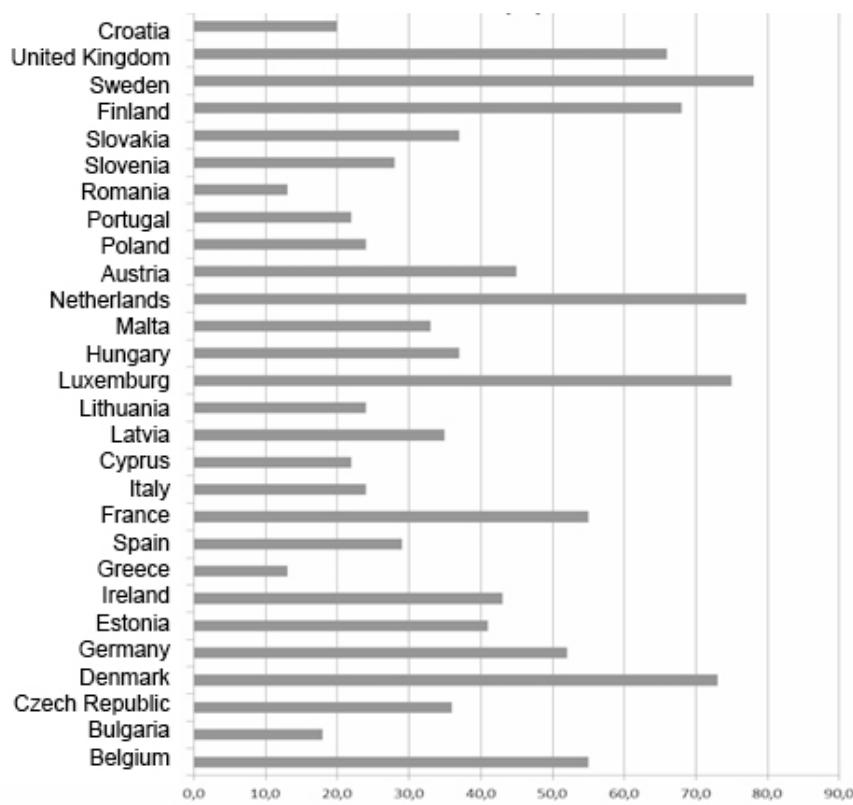
15.3% of respondents communicate with their relatives, acquaintances and friends via the Internet every day and 4.8% several times a week.

The data received from the survey coincides with the general Russian statistics and data on the Internet usage of older people. Among older adults, smartphones are less popular than other devices. Only 6% use them regularly and 6% seldom. 6% of respondents own smartphones and the family members of 11% of them have a smartphone at home. According to the age the group of people between 55 and 60 do not know how to use modern Information Technologies but are willing to learn. In the age group older than 75, 75% do not know but want to use computer technologies in their daily communication.

### **3. The level of Electronics skills and the need of adopting Information Technologies**

The age stratum plays a significant role in developing ICT skills. As it stands, adults 65 and older face several barriers and challenges when it comes to adopting new Information and Communication Technologies. This explains the decrease in the demand for ICT and its wide use as there is a large amount of people in the senior age group. Comparing the results of the international research and the data on the use of ICT that we have received from the sociological survey conducted in the Tomsk region in 2015, we can confirm the conclusions made above (Selwyn, 2004; Smith, 2014).

The sociological survey has indicated that more than 42% of respondents have the skills to use modern Information Technologies which, in total, corresponds to the level of demand for ICT (figure 1) in Austria, Ireland, Hungary and Estonia (Rozhdestvenskaya et al., 2015).



**Fig. 1.** The use of information and communication technologies by older people in European countries.

One of the main aims of the research was to identify the level of interest of older people in developing skills and acquiring new knowledge (Leontyeva et al., 2015). The demand for developing new skills and receiving new information is an important indicator of personal growth and development. Demand to master the new information and a skill is an important indicator of the ongoing development of the personality for people of retirement age, and future retirees (Vershkova et al., 2016). The survey has determined the skills of using computer technologies and the level of those skills. Table 1 shows the level of skills of electronic devices.

**Table 1.** The use of ICT by older people in their daily communication (the city of Tomsk and Tomsk region, 2015).

Possible Responses	55-64 years old	65-74 years old	75-84 years old
1. Sending SMS messages from a mobile phone	67%	32%	2%
2. Searching for the necessary information on the Internet	79%	26%	3%
3. Speaking to relatives (friends) on Skype	35%	32%	2%
4. Socializing on social network sites	42%	21%	3%
5. Using email	27%	9%	0%
6. Playing computer games	68%	62%	18%
7. Downloading music and films from the Internet	49%	4%	0%
8. Shopping and making payments online	77%	42%	8%
9. Filling in forms and documents online	65%	9%	1%

As can be seen in Table 2, in the age group of senior adults older than 75, a low percentage (1-2% of respondents) use ICTs in their day-to-day lives. The application of ICT by older people depends in what areas they use them (figure 2).

Application areas of Information and Communication Technologies by older people in day-to-day lives			
Finance	Administrative Activity	Communication and Leisure	Methods of tech adoption
<ul style="list-style-type: none"> <li>• Online payments. It saves time and helps to avoid mistakes when filling in the forms</li> <li>• Electronic banking and private finance (wealth) management</li> </ul>	<ul style="list-style-type: none"> <li>• Getting information from the authorities responsible for providing medical, legal and social services</li> <li>• Getting useful household information</li> <li>• Reading the news</li> </ul>	<ul style="list-style-type: none"> <li>• New friends, acquaintances</li> <li>• Communication with friends, relatives, colleagues</li> <li>• Computer games</li> <li>• Listening to e-books, music</li> <li>• Watching films</li> <li>• Creating and looking through photo albums</li> </ul>	<ul style="list-style-type: none"> <li>• Contacting social services online</li> <li>• Use of mobile devices (phones, smartphones, tablets) to contact the world, including emergency calls</li> </ul>

Fig. 2. Application areas of ICT by older people.

Due to the process of informatization the ability to pay for IT devices is becoming one of the factors of mobility and competence. From this sociological survey we discovered that, 84% of respondents pay for IT services themselves while 10% do it with the help of the relatives (children, grandchildren).

In the older age groups, people aged 55 to 64 more than 90% pay for IT services themselves, and among adults of 75 and over, 64% of respondents pay for the services. This age group is characterized by a large number of people who don't use electronic devices (17% of respondents).

Twenty three percent of older people aged 55 to 64, 58% aged 65-74, and 74% aged 75 and over are unable to use modern banking methods (online shopping and internet banking). 12.5% respondents aged 55 to 64, 9.2% aged 65 to 74, and 3% aged 75 and over want to learn how to use Internet banking.

Over the past years the government has been promoting ICT inclusion among older people. In the Tomsk region, promoting ICT inclusion among older people is fundamental to the work of local government. Due to the initiative of the Department of Information Society Development, a number of infrastructure projects to develop regional ICT society have been implemented. One of the projects is a pilot program designed to increase computer literacy and develop Information and Communication Technology skills of Tomsk residents within the frames of the international program «e-Citizen». The aim of the project is to develop initial computer skills such as Office applications, Internet browsers and email. In 2015, people who reached retirement age showed a great interest in the project (Результаты реализации проекта в 2015 году, 2016). The distance education program «Azbuka Interneta»: basic computer skills» has also been implemented. It is a joint initiative of the Pension Fund of the Russian Federation and JSC «Rostelecom» which aims to increase computer literacy among all people who are interested in it. Under the state program «Development of Information Society in Tomsk Region» a project is being implemented to create a chain of centers available for all groups of people. Here they will have access to government and municipal services offered online using state information sources,

commercial and public organizations of the Russian Federation and Tomsk Oblast and other Internet service providers.

According to the data collected from a sociological survey, the collaboration and implementation of such projects are popular with older people. A survey of 2015 showed that 83% of respondents aged 55 to 64, 32% aged 65 to 74, and 8% aged 75 and over prefer to independently access the sources of organizations providing medical, legal and social services. The data shows that 64% of respondents aged 55-64, 8% aged 65-74 and 8% aged 75-74 are more likely to get useful household information via the Internet, but people over 75 say that they never do this.

12% of seniors aged 55 to 64 read the news on the Internet, while those aged 75 and older prefer to watch the news on TV or listen to the radio.

Some 24% of older adults aged 55 to 64, 77% aged 65 to 74 and 97% aged 75 and older are unable to use social networking sites. Fourteen percent of respondents aged 55 to 64 and 7% aged 65 and older are ready to learn how to use social networking sites.

15.8% of respondents aged 55 to 64 do not know how use the Internet, with 12% of them ready to learn. 74% aged 65 to 74 and 5% are likely to learn how to use it. Other age groups do not show interest in using the Internet on a daily basis. 43% of respondents aged 55 to 64 are unable to download films, music or e-books from the Internet, 10% of them are willing to learn how to do it. 96% of older people aged 65 to 74 also do not how to download things from the Internet, but only 2% of them are willing to learn.

Some 11% of respondents aged 55 to 64 and 72% aged 65 to 74 are not email users, but 32% aged 55 to 64 and 9% aged 65 to 74 are willing to learn. 35% of respondents aged 55 to 64 and 84% aged 65 to 74 are not Skype users, but 18% aged 55 to 64 and 5% aged 65 to 74 are willing to learn. The other age group aged 75 and older does not show any interest in using Skype on a daily basis, but it should be noted that they are ready to use it with the help of relatives (children and grandchildren). The percentage of such users is forty three.

32% of seniors aged 55 to 64 and 38% aged 65 to 74 do not play computer games. 11% of people aged 55 to 64 and 16% aged 65-74 are willing to learn. Among the older adults aged 75 and over, 82% of respondents do not play computer games and 5% are willing to learn.

Older people who do not know how to send SMS messages account for 6% in the age group 55 to 64, 68% aged 65 to 74 and 89% aged 75 and over. Among seniors, 4% aged 55 to 64, 9% aged 65 to 74 and 2% aged 75 and over are willing to learn. All respondents from these age groups have noted the importance of mobile phones in their daily life.

Demand for adopting Information and Communication Technologies among older people shows the level of their interest and involvement. It should be noted that this involvement in new technologies that are mostly designed for young people will solve future problems with ICT adoption as the modern generation will reach the age of retirement with 100% technical competence. The movement of older people into the world of ICT continues to increase in speed, and there is a tendency towards the adoption of modern technologies and the development of skills necessary to use Internet resources on a daily basis, mostly because it concerns social aspects of life.

As was reflected in our survey data, older adults aged 55 to 64 are mostly interested in developing new skills. We have found no gender differences as the percentage of respondents willing to develop new skills is low for both males and females.

We have identified a link between the level of education and use of ICT while learning how to use electronic devices. Many older people with higher education do not need to develop any additional IT skills. It is characterized by a big number of respondents who are not willing to learn how to use information and communication technologies on a daily basis, but on the other hand they do know about them and their functions.

#### 4. Conclusion

The sociological research conducted in 2015 determined the link between the age of respondents and level of ICT usage. With regards to ICT, we have come to the conclusion that the age of people can influence their interest and attitude to Information and Communication Technologies. Respondents aged 55 to 64 are likely to develop an interest in using ICT in different spheres of their daily lives, unlike people aged 75 and older.

Mobile communication has much more presence in the daily lives of older people. All respondents who took part in the survey noted the necessity of mobile communication. We consider it important to conduct further research on the creation of effective tools to improve the psychological well-being of older adults. First, on the basis of existing successful models of universal competence for sellers, it is advisable to develop a competency model for sellers serving older adults in the information and communication field. Secondly, it is necessary to create a methodology for creation of a psychological portrait of the older adults and to use valuable advice to work with people of different psychological types (Kiseleva et al., 2016).

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