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Information Technologies in the Lives of Older People: Sociological Research Experience

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Abstract: The article analyzes the degree of computational efficiency of older people in using digital technology processes. A sociological survey was conducted in the form of a questionnaire, which was attended by 383 (N = 383) people living at their place of residence in the city of Yelets, Lipetsk region. It is noted that low skills in using the field of information technology are a significant barrier to people's participation in the digital society: it turns out that some people receive pension income, earning disadvantaged in the conditions of digitalization. In the context of this standard, information technology can be considered as the development of resources, the degree of ownership of them – as new criteria for social stratification. It is indicated that digital integration provides a higher level of opportunity to adapt in the modern information society, helps improve the quality of life and the formation of a sense of independence, psycho-emotional self-confidence, natural actions and deeds, and also directly affects their socio-political activity and allows the implementation of the main trends value-wise motivational sphere. The survey showed that the predominant interest of older people in information technologies that provide social communication and the demand for forms of digital communication with government agencies are combined with insufficient awareness of the most modern digital solutions and a conscious desire to improve their own information competence.

Keywords*: information technology, digital literacy, social activity, social adaptation, older people.*

1. Introduction

Research into the use of digital technologies by older people is often legitimized by the needs of modern society, in which demographic aging makes it necessary to increase the participation of older generations in active economic and social life. This is all the more important as current research confirms that older people are disproportionately less involved in digital technology practices than the younger population. According to one recent study, half of older people feel satisfactory in the world of modern information technologies, 13% feel good, but only 2.4% feel excellent [2]. Both the widely understood humanistic motivation, which finds expression in various forms of care for older people, and much more pragmatic economic reasons force society to take care of the mutual adaptation of older people, on the one hand, and the modern digital information environment, on the other. Practical actions to ensure digital literacy of older people and scientific reflection in relation to these practices are elements of a broad strategy being implemented today aimed at preserving and maintaining the social activity of people of the "third age". It is this perspective that is revealed in a variety of international documents in the field of aging [15], the United Nations Principles for Older Persons [4], and the Madrid International Plan of Action on Aging [3]. The WHO strategy defines actions in three priority areas of "active aging": health (consists of the physical, mental and social well-being of a person), participation (multifaceted activities of older people in social, economic, cultural, spiritual and civil spheres, in addition to their production (labor) activity in the labor force), security (accessibility of the physical and social environment for older people; income security; and the availability of safe and decent work) [5]. Similarly, the concept of "active longevity" is used in Russia in a number of program documents. For example, this is the "Strategy of Action in the Interests of Older Citizens in the Russian Federation until 2025", the national project "Demography", the federal project "Older Generation" [1].

We are talking about improving the quality of life of older citizens, gaining them greater independence and independence, increasing the healthy life expectancy of the population, maintaining and strengthening health, improving the social and psychological well-being of older citizens, expanding opportunities for their participation

in various spheres of society and, not Lastly, this will improve the socio-economic situation in the country. Thus, the subject of attention is a complex of physiological, psychological and social factors that, if properly taken into account and corrected, could ensure that an elderly person maintains vital activity through the use of various kinds of digital services, as well as reduce the generation gap between them and representatives of younger ages.

A more complex question is regarding the prospects for preserving the prefigurative nature of culture, with which we are dealing in this case. In other words, the digital inequality recorded in relation to older people as a social group is obviously caused by a complex of reasons that cannot be reduced only to a lack of inclusivity in the field of modern information technologies. Most of the latest research suggests that the introduction and use of digital technologies in old age is hampered by a number of physiological and psychosomatic barriers, including a decrease in perceptual abilities due to deterioration of vision and hearing, impaired coordination and fine motor skills, changes in socio-emotional and existential terms, such as the formation of caution , suspiciousness and haste. A barrier is also the lack of internal motivation to master new ways of receiving, processing and transmitting information. Without this motivation, older adults tend to quickly give up learning new technologies when inevitable difficulties arise. The strongest incentives for older people to master new technologies are the motives of obtaining or maintaining a job and other types of social activity that provide the desired social inclusion.

Without disputing this completely traditional version of the interpretation of the situation, which orients us towards the development of forms of social support for older people as a social group, we will add a few more significant comments to it. It should be taken into account that the technological revolution, which led to the development of information technologies at the turn of the 20th and 21st centuries, has so far meant the constant updating of these technologies and the obsolescence of what until recently seemed to be the most modern technological solutions. This situation created a significant gap in the practices of receiving, processing and transmitting information, which, on the one hand, turned out to be sufficient to give rise to a fundamentally new situation in society and culture, and on the other, developed in parallel with the preservation of more traditional forms of social and professional communication. The very existence of the latter implied the gradual formation of a group of people who could not experience significant difficulties for a long time due to their lack of skills in mastering modern digital technologies and only after a long time would they feel the need to compensate for their lag. At the same time, almost half of people of retirement age feel disadvantaged in the conditions of digitalization. Information technologies can be considered as a development resource, and the degree of proficiency in them can be considered as a new criterion of social stratification. Thus, when choosing such a perspective to consider the problem, the primary ones are not the age characteristics of these individuals, but the very presence of a technological gap, which implies a specific delayed development of already sufficiently developed digital technologies.

The reproduction of the situation that has arisen due to these circumstances depends on how significant the changes in digital technologies will be as they subsequently develop. Today it is quite difficult to imagine the situation in which modern youth and people of mature age will find themselves as they gradually grow up. It is likely that we will no longer see such significant differences in technology adoption and attitudes between different age groups. Its presence creates a unique situation that can be used to clarify the social role of modern digital technologies by determining the attitude of older people towards them. The nature of the demand for digital technologies among these individuals will indicate the most significant social aspects of digitalization.

In light of the above, the topic of the study was to study the attitude of older people to the social functions of digital technologies. The applied task of the study was to determine the most popular topics for courses on the development of digital literacy among older people.

2. Literature review

Faced with demographic aging, many countries have undergone significant changes in their policies towards older workers, reflected in a move to policies that explicitly promote longer working careers and retention of older workers [11]. Pension reforms carried out in European countries, including Russia, have an impact on the social status of older people. Increasing retirement time, increasing the level of employment of older people in the labor market [8]. A number of studies suggest that older workers are less willing to participate in training and career development. They are less motivated, generally less likely to engage in learning and career development, more resilient and less willing to change, less trusting, less healthy and more vulnerable to work-family imbalance [13]. However, a significant proportion of employers, although to varying degrees in each country, attribute the aging of their workforce to a growing gap between labor costs and productivity. Employers who expect the gap to widen do not apply additional organizational measures either to improve productivity or to adjust the balance of costs and productivity. This leads to discrimination against older people and a decrease in the level of employment of

the elderly population in the labor market [9]. Employment of the elderly population in the context of digitalization of the economy at the enterprise level depends on which effect in relation to older people will be dominant - the replacement effect or the addition effect. If enterprises introduce digital technologies, but older workers are treated as a relatively expensive and less productive resource with low digital literacy, then the demand for older workers will decrease, which leads to a fall in the employment rate of older workers in the labor market [17]. The rate of decline varies between different countries. The employment rate among older people is based on the interaction of "push" factors, which reduce their opportunities in the labor market, and "pull" factors (for example, early retirement), which reduce their incentives to stay or look for work [16].

As digital technologies penetrate the lives of people, including older people, the need for appropriate training for these age groups increases. Older adults often have difficulty using digital devices such as smartphones, computers, and often lack the basic digital literacy required to use multimedia interactive devices. Digital technologies make life easier for older people by allowing them to overcome physical barriers such as distance, personal mobility, social contacts and overall well-being [7].

Older people's use of information and communication technologies can improve their well-being and quality of life. Material well-being, health and social relationships are the main factors determining the subjective quality of life. To improve the quality of life of older people, information technology must mediate the relationship between these three important factors and quality of life. However, to date there is relatively little evidence that information technology has improved the quality of life of older people [10].

Although government policies and strategies for older people tend to focus on the need to teach them technology skills and improve their digital literacy, the relationship between skills and technology use is not straightforward. Older people have varying degrees of information technology skills and varied motivations [14]. Research shows that older people most often define digital technology as "computers and phones." Older people who consider themselves "confident users" have knowledge about digital technologies and are interested in acquiring additional skills, wishing to acquire new knowledge through individual lessons [6]. However, as older adults pursue further education in information technology, they face a number of challenges that arise as a result of acquiring new skills. The courses they take may not be the most suitable for them and may be very different from each other. The individual approach of the teacher, the availability of the course and the learning environment influence both the attitude towards the educational process and the quality of the skills acquired. In general, despite the presence of not only constructive, but also destructive strategies for adaptive behavior of older people, their low proportion as active Internet users compared to young people, digital inequality, technoageism and technostress, a number of authors conclude that there have been significant changes in everyday life, satisfaction a wide range of material, social and spiritual needs and empowerment of older people, as well as a positive impact on their health, relationships, work, leisure, social and political activity, and overall life satisfaction.

3. Materials and methods

The conclusions presented in the article are based on data from a study conducted at the Department of Philosophy and Social Sciences of Yelets State University. I.A. Bunina. A sociological survey was conducted in the form of a questionnaire, in which 383 (N = 383) people living at their place of residence in the city of Yelets, Lipetsk region, took part. The vast majority of respondents (95%) use a computer or smartphone in everyday life. Among the respondents, 80.2% were women and 19.8% were men. Most of them (78.3%) are between 55 and 70 years old. The rest (21.7%) are 71–81 years old. 16.7% were of pre-retirement age and worked, 22.5% worked while receiving an old-age pension, 60.8% were non-working pensioners. The presence in the study of groups of respondents of both pre-retirement and retirement age allows us to expand the age range of respondents and will determine the possible dynamics of changes in assessments among a larger number of age and social groups. Among the irrigated, the majority (89.6%) had personal pages on social networks.

The survey was carried out by distributing printed questionnaires to university staff and students of the social work department. Processing and analysis of empirical data were carried out using the software and analytical package SPSS version 22.

The survey questions are divided into two blocks. The first contains questions to determine the respondents' attitude towards digital technologies as such, as well as to determine the assessment of the main threats on their part and the most significant positive factors of the impact of digitalization on the social sphere. The second involves clarifying the characteristics of individual practices of interaction between older people and digital technologies. The questionnaire as a whole gives an idea of what digital skills are most in demand among older people. This, in turn, points to areas of social life that obviously require digital literacy in the modern world, even

for such a specific group as older people. The degree of interest of older people in mastering digital skills and, consequently, in overcoming the digital divide, indirectly allows us to judge the degree of integration of digital technologies into modern society.

The theoretical basis of the study was made up of modern ideas about the social role and significance of digital technologies, as well as the results of studying the process of compensating for the lag of older people in their development through various forms of teaching digital skills.

4. Results

The vast majority of respondents predictably assumed that the introduction of information technologies has more positive consequences than negative ones (Table 1). Nevertheless, the distribution of answers taking into account the social status of the respondents allows us to see that with absolute (100%) support for this thesis among people of pre-retirement age, the share of working pensioners who found it difficult to answer exceeds the share of those who found it difficult among non-working pensioners by more than 15 percentage points. The explanation for this fact is probably a much greater desire to compensate for the lack of communication through the use of information technology among people who are not involved in direct work activity in its much larger volume of social contacts.

Table 1: Distribution of answers to the question about the nature of the consequences implementation of information technologies (one answer option, %)

Answer options	Among all respondents	Among workers of pre-retirement age	Among working pensioners	Among non-working pensioners
More positive consequences than negative ones	**80,9**	**100,0**	**62,8**	**82,4**
More negative consequences than positive ones	**7,0**	0,0	10,5	**7,7**
I find it difficult to answer	12,0	0,0	26,7	9,9

It is the opportunity to maintain social contacts with loved ones that turns out to be the main positive consequence of the spread of information technology for all groups of respondents (74.2%) (Table 2). It is interesting that the opportunity to expand the circle of communication and establish social contacts attracts a smaller, although comparable, number of respondents (61.1%). The reverse order of priorities can be observed only in the group of people of pre-retirement age, who attach greater importance to the search for new social contacts (64.1% and 48.4%, respectively). The most popular options in all groups also include increased availability of information (70.0% of all respondents). It should also be noted that none (0.0%) of working pensioners consider an increase in the speed and efficiency of work as a positive effect of the introduction of information technologies, while among people of pre-retirement age, and, most interestingly, among non-working pensioners this option was chosen relatively actively (29.7% and 14.2% of those irrigated).

Table 2 Distribution of answers to the question about positive consequences implementation of information technologies (several answer options, % of respondents)

Answer options	Among all respondents	Among workers of pre-retirement age	Among working pensioners	Among non-working pensioners
Increased availability of information	70,0	**82,8**	39,5	77,7
Facilitate communication with friends and relatives	**74,2**	48,4	**62,8**	**85,4**
Opportunity to expand your circle of communication and establish social contacts	61,1	64,1	50,0	64,4
Simplifying the process of purchasing goods and services	43,9	29,7	25,6	54,5
Increased speed and efficiency	25,6	51,6	0,0	27,9
Improving quality of life through increased levels of independence	36,6	65,6	0,0	42,1

Opportunities of distance education technologies	30,0	29,7	24,4	32,2
Human resource management (used for hiring and training new employees)	13,6	29,7	0,0	14,2

Thedistribution of answers to the question about the negative consequences of the spread of information technology (Table 3) showed that even the possibility of theft of funds from a bank account (52.0% of answers) and personal data (66.1%) worries respondents less than the dissemination of false information (77.3%). Only among respondents of pre-retirement age are these problems assessed as equally significant. All other options, including a negative impact on children, were chosen much less frequently. The least popular option is dependence on technology (13.8%, and respondents of pre-retirement age never chose this answer option at all). It can be assumed that in this case we are dealing with the reproduction of assessments of threats from information technologies broadcast in the media and broad official socio-political discourse. The need to spread technological innovation in this context is not denied, and the degree of protection from negative financial consequences is perceived as quite high. Against this background, it is the danger of uncontrolled dissemination of information that is perceived most acutely by people of pre-retirement and retirement age.

Table 3
Distribution of answers to the question about negative consequences implementation of information technologies (several answer options, % of respondents)

Answer options	Among all respondents	Among workers of pre-retirement age	Among working pensioners	Among non-working pensioners
Dissemination of false information via the Internet	**77,3**	**67,2**	**61,6**	**85,8**
Inability to control children's use of digital technologies	30,5	65,6	14,0	27,0
Personal data may be hacked	66,1	64,1	50,0	72,5
Possibility of stealing funds from a bank account	52,0	65,6	48,8	49,4
Increased control over human life by the state	27,2	15,6	25,6	30,9
Lack of real life, real communication	32,4	12,5	48,8	31,8
Technology Addiction	13,8	0,0	14,0	17,6

The answer to the question about the ways of personal use of a computer and smartphone (Table 4) again confirmed the paramount importance of social communication (the corresponding choice was made by 90.1% of respondents). A comparable number of responses suggested reading news reports (69.7%) and paying utility bills (66.7%). One of the last places, although with an unusually high result, is naturally occupied by computer games (19.6%), still overtaking e-books in popularity. When comparing different groups of respondents, it becomes possible to observe interesting patterns. The demand for communication with relatives becomes almost absolute among non-working pensioners (96.6%). As we move from a group of working people of pre-retirement age to working pensioners and, finally, to non-working pensioners, the demand for paying for utilities using digital services is growing, but the prevalence of using information technology to maintain awareness of the news agenda among non-working pensioners, on the contrary, is decreasing compared to persons of pre-retirement age. The latter fact can be compared with a significant drop in the choice of the option “I watch videos on topics that interest me” and, as one might assume, reflects not so much the lesser interest of the older generation in the news agenda, but rather the continued importance of television among this group of the population.

Table 4
Distribution of answers to the question about methods of personal use computer/laptop/smartphone (several answer options, % of respondents)

Answer options	Among all respondents	Among workers of pre-retirement age	Among working pensioners	Among non-working pensioners
I communicate with relatives and friends	**90,1**	81,3	**79,1**	**96,6**

I am applying for social services (making an appointment with a doctor, receiving certificates, etc.)	53,8	45,3	41,9	60,5
I use Smart Home	1,0	0,0	1,2	1,3
I use applications that allow me to monitor my health and conduct self-diagnosis	23,5	1,6	51,2	19,3
Taking online courses	3,4	7,8	2,3	2,6
I read e-books	17,2	18,5	14,0	18,5
I listen to music	46,2	17,2	38,4	57,1
Playing games	19,6	29,7	0,0	24,0
I watch videos on topics that interest me	52,7	84,4	48,8	45,5
I read the news to keep up to date with events	69,7	**100,0**	60,5	64,8
I order goods from online stores	52,5	81,3	48,8	45,9
I interact with chatbots and personal assistants	0,0	0,0	0,0	0,0
I pay utilities	66,7	45,3	60,5	73,8

Among the respondents, the majority (88.9%) had personal pages on social networks. Among the people with whom respondents communicate via the Internet, in most cases there are relatives and those with whom people know personally (69.4%). However, a fairly significant number of respondents have among their regular contacts people whose relationships were established and maintained exclusively through social networks.

The survey showed (Table 5) that, according to respondents, for an elderly person, mastering information technology provides, first of all, the opportunity to more easily interact with authorities, receive government services and pay utility bills (72.6%). This option is in the lead with almost the same importance in all groups of respondents, which is interesting to compare with the importance that was given to social communication in almost all other cases. All other options received significantly fewer choices. In particular, the second most popular answer, suggesting an expansion of social connections and circle of friends, was chosen by only 59.0% of study participants. It is interesting that 31.1% of respondents, primarily from among those of pre-retirement age, suggested the importance of employment opportunities through the Internet.

Table 5

Distribution of answers to the question about the most significant things for an elderly person opportunities that open up when increasing computer literacy (several answer options, % of respondents)

Answer options	Among all respondents	Among workers of pre-retirement age	Among working pensioners	Among non-working pensioners
Interaction electronically with authorities, applying for government services, paying for services	**72,6**	75,0	**73,3**	**71,7**
Expansion of social connections, wider circle of communication	59,0	76,6	48,8	57,9
Availability of information for self-development and self-improvement	58,2	68,8	73,3	79,8
Greater variety of leisure activities, access to entertainment materials	45,7	**98,4**	47,7	30,5
Employment via the Internet	31,1	51,6	36,0	23,6
I find it difficult to answer	8,1	0,0	0,0	13,3

The distribution of answers to the question about preferred topics of study in possible courses to improve digital literacy (Table 6) turned out to be relatively even, although the option that involved working with electronic services for paying utility bills naturally received the largest number of choices (46.7%). It is worth paying attention to the interest in editing images and video materials, as well as in working with the State Services portal (43.9%). In this case, there are no significant differences between the groups of respondents.

Table 6
Distribution of answers to the question about preferred study topics to improve digital literacy (several answer options, % of respondents)

Answer options	Among all respondents	Among workers of pre-retirement age	Among working pensioners	Among non-working pensioners
Working with text documents	42,0	**56,3**	47,7	**48,5**
Creating and editing images and videos	44,6	53,1	40,7	27,9
Communication on social networks and video calling programs	39,2	34,4	36,0	41,2
Interaction with banks via the Internet	37,1	28,1	50,0	34,8
Working with the Gosuslugi portal	43,9	15,6	**74,4**	39,9
Working with email and instant messengers	38,1	46,9	47,7	32,2
Working with electronic utility payment services	**46,7**	51,6	50,0	44,2
Working with sites Avito, Cyan, Domklik, Rabota.Ru, etc.	24,3	31,3	48,8	13,3
Storing and protecting information on a computer	28,5	0,0	36,0	33,5
I find it difficult to answer	8,4	0,0	0,0	13,7

The last question sought to obtain information about what percentage of respondents used the Internet for relatively non-trivial social activities, which in themselves could demonstrate a person's involvement in a broader socio-political context (Table 7). The types of activities selected for the question were those related to political and social activism at both the local community and national levels. It turned out that more than a third of survey participants (38.6%) used the Internet to post information about local problems, which again indicates the extremely high demand for direct contacts with local authorities, implemented in this case through information technology. Issues related to citizen participation in the political process received a small number of elections.

Table 7
Distribution of answers to the question "Which of the following have you had to do on the Internet?" (several answer options, % of respondents)

Answer options	Among all respondents	Among workers of pre-retirement age	Among working pensioners	Among non-working pensioners
Donate money to charities, strangers in need	17,5	15,6	25,6	15,0
Post information about local problems (for example, garbage dumping, broken playground, etc.)	**38,6**	39,9	33,7	40,6
Participate in online voting on political issues	12,3	**45,3**	16,3	1,7
Speak out on social and political issues on blogs, social networks, and news sites	17,5	10,9	**46,5**	8,6

Visit the websites of parties, public (non-profit) organizations, political leaders	1,8	9,4	0,0	0,4
Sign petitions, bills, appeals on the Internet	0,5	1,6	0,0	0,4
None of the above	32,6	0,0	24,4	**44,6**
I find it difficult to answer	2,3	0,0	0,0	4,5

5. Discussion

The results obtained from the study sufficiently illustrate the situation with the involvement of the elderly population in the use of information technologies and make it possible to formulate a number of conclusions that could be taken into account when forming a strategy for consistently overcoming the age-related aspects of the digital divide in modern conditions. As we noted earlier, this task cannot necessarily now be interpreted as some permanent function of the education system, social services, or the activities of commercial information technology developers. However, at the present stage, solving this problem is a necessity.

Evidence suggests that the number of older people using information technology is gradually increasing, but there are differences in the nature and extent of its use between age groups. At the beginning of 2023, there were 127.6 million Internet users in Russia, that is, Internet penetration is 88.2%. In January 2023, there were 106.0 million social media users in Russia, accounting for 73.3% of the total population. The most frequently used social networks in Russia (% of the total number of social network users): VK – 75.3%, WhatsApp – 71.5%, Telegram – 64.4%, Odnoklassniki – 43.5%, TikTok – 42.6 %.[1] According to these figures, the presence of older people on the Internet is growing.

Our study generally confirms the significant prevalence of information technologies among people of pre-retirement and retirement age. It is even more significant that the forms of use of digital services naturally repeat the fundamental forms of social communication characteristic of people of this age. Social networks, mobile applications that make it possible to make video calls, allow older people to keep in touch with their loved ones and friends, participate in social life and avoid social isolation. The Internet turns out to be an important source of information, but at the same time, it is precisely as such that it raises suspicion.

It is characteristic that the majority of irrigated people are able to identify those information technologies whose proficiency they would like to improve. This indicates the demand for a variety of information literacy courses aimed at people of pre-retirement and retirement age. The content of digital literacy programs should be tailored to older adults' learning styles, interests, and expectations. The data from our survey allows us to affirm the need to expand the digital competencies of older people in areas that meet their everyday needs. At the same time, it becomes obvious that the most modern technologies, such as “smart home”, virtual excursions, interaction with chatbots and personal assistants, augmented reality, etc., that is, those technologies that can potentially not only complement forms of non-digital communication and interaction with social structures, but can significantly change the lifestyle of older people, are still not in demand, and their possession is not particularly known as a task.

6. Conclusion

In the conditions of informatization of modern society and the formation of a new social reality, information technologies are becoming one of the key adaptive resources of older people, facilitating their integration into the information and digital space. However, to use information technology as an adaptive resource for older people, continued work to improve their digital literacy is required. The survey showed that the predominant interest of older people in information technologies that provide social communication and the demand for forms of digital communication with government agencies are combined with insufficient awareness of the most modern digital solutions and a conscious desire to improve their own information competence.

[1] Digital 2023 Global Overview Report. URL: https://datareportal.com/reports/digital-2023-russian-federation (access date: 1.03.2024).

The results obtained can be used in making management decisions on the formation of social policy at all levels of management, as well as in the implementation of social policy and priority national projects “Education” and “Demography”.

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