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The Relationship Between Basic Human Values and Use of Information and Communication Technology Among Younger and Older Generations

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This article presents the results of a study on the interrelationship between values and the use of Information and Communication Technology (ICT) among younger and older Russians. It was assumed that for these age groups basic values play a different role in encouraging or discouraging the use of ICT. The study was carried out using a socio-psychological survey. The questionnaire included the authors' methodology for measuring involvement in the use of ICT and a short version of Sh. Schwartz's questionnaire for assessing basic values (ESS-21). In a comparative perspective, using the moderator analysis, the connection between the active use of ICT and basic values among younger and older Russians (N=990; average age=37.6 years; 31.4% male) were assessed, taking into account their age as a moderator. As a result, it was found that the age of respondents is negatively associated with the active use of ICT, in contrast to the level of education and income level. Nine out of ten values (excluding Stimulation) are associated with the use of ICT. Several values are associated with the use of ICT, regardless of age (Power, Tradition, Benevolence, Universalism). There is also a number of values (Achievement, Hedonism, Stimulation, Conformity, Security) which in a certain way are associated with the use of ICT only among the older generation. The article discusses the results obtained.

Keywords: basic values, information and communication technologies, digitalization, moderation, young people, older generation.

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Связь базовых человеческих ценностей и вовлеченности в использование информационно-коммуникационных технологий у молодежи и старшего поколения

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Представлены результаты исследования взаимосвязи вовлеченности в использование информационно-коммуникационных технологий (ИКТ) и базовых индивидуальных ценностей у молодого и старшего поколения россиян. Предполагалось, что в этих возрастных группах базовые ценности играют разную роль в побуждении или препятствии вовлечения в использование ИКТ. Исследование проводилось с помощью социально-психологического опроса. Анкета включала авторскую методику для измерения вовлеченности в использование ИКТ и сокращенную версию опросника Ш. Шварца для оценки базовых ценностей (ESS-21). В сравнительной перспективе при помощи анализа модерации оценивалась связь активности использования ИКТ и базовых ценностей у российской молодежи и старшего поколения (N=990; средний возраст=37,6 лет; 31,4% мужчины) с учетом их возраста как модератора данной связи и контроля других социально-демографических характеристик. В результате было определено, что возраст респондентов отрицательно связан с вовлеченностью в ИКТ, в отличие от уровня образования и уровня дохода. Девять из десяти ценностей (за исключением «Стимуляции») связаны с вовлеченностью в использование ИКТ. Ряд ценностей связан с использованием ИКТ независимо от возраста («Власть»,

«Традиция», «Благожелательность», «Универсализм»). Также есть ряд ценностей («Достижение», «Гедонизм», «Стимуляция», «Конформность», «Безопасность»), которые определенным образом сопряжены с вовлеченностью в использование ИКТ только у старшего поколения. В статье обсуждаются полученные результаты.

Ключевые слова: базовые ценности, информационно-коммуникационные технологии, цифровизация, модерация, молодежь, старшее поколение.

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Introduction

The role of information and communication technologies (ICT) in society is becoming more significant every year. In particular, the importance of ICT in everyday life became evident during the COVID-19 pandemic. Online means of communication have significantly supported business and educational institutions. In this regard, the value of the ability to use ICT actively is steadily growing. Accordingly, it is necessary to understand how various psychological factors are associated with involvement in the use of ICT.

The purpose of the study was to determine the nature of the relationship between basic individual values and involvement in the use of ICT among respondents of two age categories — youth and adults. Unlike adults, the socialization of young people took place in the conditions of active ICT usage, the so-called cybersocialization [1] we can assume that in different age groups basic values may play a different role in encouraging or hindering the active use of ICT. Accordingly, our research has two main objectives: 1) assessment of the relationship between individual values and involvement in the use of ICT; 2) assessment of the moderating effect of respondents' age on the relationship between values and involvement in the use of ICT.

Basic Values and Their Impact on Behavior

Basic values indicate to a person what is important to him or her in life. The category of personality values is widely used in socio-psychological research [14]. In the theory of basic values by Sh. Schwartz, values are motivational, supra-situational goals that serve as guiding principles in people's lives [21]. In the classical version, the theory by Sh. Schwartz included 10 basic human values: "Power", "Achievement", "Hedonism", "Stimulation", "Self-Direction", "Universalism", "Benevolence", "Tradition", "Conformity", and "Security". In Sh. Schwartz's theory, the relationships between 10 basic values appear as a two-dimensional structure consisting of four types of higher order values [22]. The first dimension is the value opposition of "Openness to change" ("Self-Direction" and "Stimulation" values) — "Conservation" ("Security", "Conformity", and "Tradition" values). The second dimension includes the following values of the highest order: "Self—Transcendence" ("Benevolence" and "Universalism"

values) — "Self-Enhancement" ("Power" and "Achievement" values).

Changing Values with Age

Sh. Schwartz identified three sources of age differences in value priorities: age periods of life, physical aging, and cohort effects [22]. Young people are more in need of finding a partner to start a family and, therefore, are looking for him or her [10; 13]. As a result, the values associated with these needs should have a higher priority for young adults than for older people. In addition, young people are more focused on enjoying life and new experiences, therefore, "Hedonism" and "Stimulation" values are most important for them [8; 23]. With age, this tendency, as a rule, decreases partly due to emerging life problems (raising children, maintaining a career) and partly due to deterioration of sensory abilities [8; 9]. The importance of "Conservation" values increases with age [24]. It is important for the elderly to preserve what they have achieved and created during their lifetime, so it is typical for them to maintain a habitual way of life, social order, conservative norms, and traditions [18; 19; 22].

Therefore, the values formed during a certain period of life reflect the influence of the environment and form what an individual is guided by at certain stages of life.

The Connection of Values with the Use of ICT

Values are associated with a wide range of human behaviors, including involvement in the use of ICT. An individual's perception of ICT is influenced by values. Researchers established the following: the adoption of a new technology requires its compliance with the expectations and values of the individual [15]. For example, the more an individual values achievement, the more he or she will prefer the most advanced and progressive technologies. In addition, if an individual has pronounced values of self-development and curiosity, then he or she is highly likely to have a positive attitude to ICT [7].

People with values that determine a high propensity to risk are more likely to have a more positive attitude to the use of ICT than those with a weak propensity to risk [7]. In turn, users of social networks often have strongly pronounced values of stimulation [12].

Thus, in existing studies, we see confirmation of the idea that values can be associated with involvement in the use of ICT. However, these studies did not focus on studying the relationship of all 10 values (according to Sh. Schwartz) with involvement in the use of ICT, besides researchers did not consider this relationship in a comparative perspective — in groups of young people and adults.

Organization and Methods of Research

Sample

The study sample included 990 respondents (31,4% males), whose age varies from 15 to 72 (average age M=37,6, σ=11,284). About 62,8% of respondents had higher education, the rest — either secondary specialized or incomplete higher education (students). It is also important to note that in 2019, 76,9% of respondents were employed and 87,1% had an income above the established subsistence minimum.

Procedure

We conducted the socio-psychological study from the beginning of October 2019 to the beginning of March 2020 on the online platform "1ka.si". We distributed the link to the study through social networks such as VKontakte and Facebook.

Measures

1. *Involvement in the Use of ICT*. We used the author's methodology [4], which allows to evaluate both the entire index of the assessment of involvement in the use of ICT, and its individual components (economic activities on the Internet, communication in

social networks, smartphone use, a different area of ICT usage). The questionnaire consists of 16 items, which the respondent should answer on a 5-point scale, indicating the frequency with which the described actions are performed (from 1 — "never" to 5 — "daily"). For example, "How often do you use a computer, tablet computer or laptop in everyday life?".

2. *Basic Individual Values*. We used a short version of the questionnaire by Sh. Schwartz, included in the questionnaire of the European Social Survey [11]. To measure 10 basic values, we offered 21 statements, assuming a response on a 6-point scale.

3. We also asked questions aimed at assessing their *socio-demographic characteristics*: gender, age, education level, and income level.

Results

Table 1 presents means and standard deviations of the study variables (10 values and the index of involvement in the use of ICT), as well as the results of assessing the significance of differences in these variables between youth and adults. The results show that young people have statistically significantly higher scores on involvement in the use of ICT, as well as significantly higher scores on values such as "Stimulation", "Hedonism", "Achievement", "Power". Adults demonstrated statistically significantly higher scores on such values as "Security", "Conformity", "Tradition". The higher scores on the values of "Power" among young people look surprising. Usually, younger generations pronounce these values to a lesser extent than older ones [2].

Table 2 presents the results of assessing the relationship between the values included in the "Self-Enhancement" block, involvement in the use of ICT and age. In this case, the values of "Achievement" and "Power" are statistically significant and positively associated with involvement in the use of ICT. Age is statistically significantly and negatively associated with involvement in the use of ICT. The effect of the interaction effect (moderation effect) of the values of the "Self-Enhancement" block and age on involvement in the use of ICT is statistically significant and positive only in the case of the "Achievement" value.

Figure 1 visually shows the interaction of "Achievement" value and age when explaining the variance of the indicator of involvement in the use of ICT. The slope of the relation line becomes more pronounced

Table 1

Means, Standard Deviations, Significance of Mean Differences

Variable	Youth M (SD)	Adults M (SD)	t
Involvement in the use of ICT	3.63 (0.46)	3.18 (0.68)	7.05***
Security	4.37 (1.12)	4.82 (1.10)	-3.68***
Conformity	3.45 (1.25)	3.75 (1.24)	-2.20
Tradition	3.54 (1.10)	4.23 (1.05)	-5.86***
Benevolence	4.41 (1.18)	4.46 (1.03)	-0.38
Universalism	4.42 (0.98)	4.50 (0.93)	-0.72
Self-Direction	4.38 (0.99)	4.34 (1.05)	0.38
Stimulation	3.84 (1.25)	3.29 (1.35)	3.81***
Hedonism	4.41 (1.11)	3.57 (1.29)	6.36***
Achievement	4.26 (1.27)	3.42 (1.37)	5.77***
Power	3.89 (1.18)	3.29 (1.20)	4.63***

Table 2

The Relationship between the Values of "Self-Enhancement" Block and Involvement in the Use of ICT, Considering Age as a Moderator

Variables	Model 1 "Achievement" β	Model 2 "Power" β
Value +	.13***	.09**
Age	-.02***	-.02***
Value x Age	.006*	.004
Gender	-.03	-.04
Education	.04	.05**
Income	.06***	.06***
R^2	.14	.13
F-statistics	25.62***	22.97***

Note. Each of the models represents the value that is indicated in the column; *p<.05; **p<.01; ***p<.001.

with increasing age, that is, the relationship between the value of "Achievement" and involvement in the use of ICT increases, especially in the case of the older generation.

Table 3 presents the results of the assessment of the relationship between the values of the "Conservation" block, involvement in the use of ICT and age. In this case, the values of "Security", "Conformity", and "Tradition" are statistically significantly and negatively associated with involvement in the use of ICT. Age is statistically significantly and negatively associated with involvement in the use of ICT. The effect of the interac-

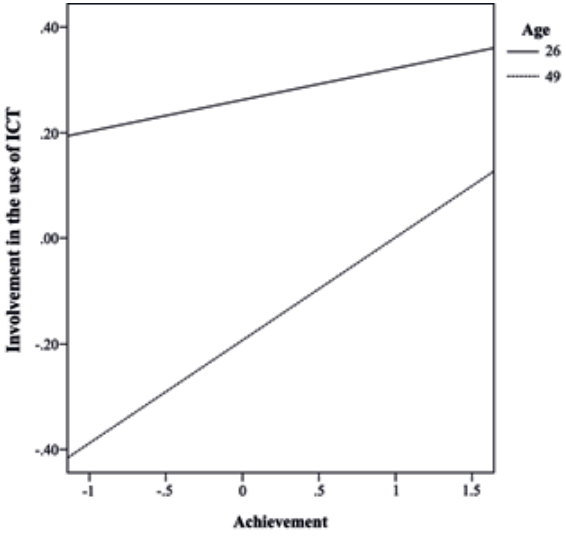

Fig. 1. Graphical Representation of the Interaction between the Value of "Achievement", Age, and Involvement in the Use of ICT

Table 3

The Relationship between the Values of the "Conservation" Block and Involvement in the Use of ICT, Considering Age as a Moderator

Variables	Model 3 "Security" β	Model 4 "Conformity" β	Model 5 "Tradition" β
Value+	-.10**	-.09**	-.09**
Age	-.02***	-.02***	-.02***
Value x Age	-.009**	-.006*	-.004
Gender	-.04	-.04	-.04
Education	.05***	.05**	.05**
Income	.06***	.06***	.06***
R^2	.14	.13	.13
F-statistics	24.90***	24.06***	22.93***

Note. Each of the models represents that is indicated in the column; *p<.05; **p<.01; ***p<.001.

tion effect of Conservation values and age on involvement in the use of ICT is statistically significant and negative only in the case of "Security" and "Conformity" values.

Figure 2 visually presents the interaction of the "Security" value and age in explaining the dispersion of the indicator of involvement in the use of ICT. The slope of the relation line becomes more pronounced with increasing age, so, the relationship between the "Security" value and involvement in the use of ICT increases, while for young people this value is not associated with involvement in the use of ICT.

Figure 3 visually shows the interaction of the "Conformity" value and age in explaining

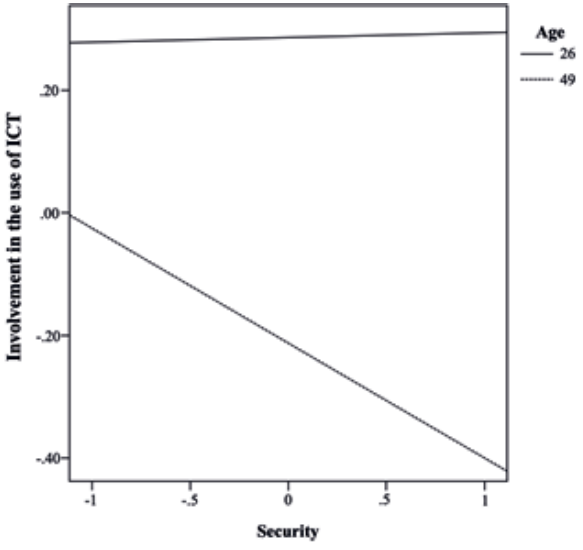

Fig. 2. Graphical Representation of the Interaction between the "Security" Value, Age, and Involvement in the Use of ICT

the dispersion of the indicator of involvement in the use of ICT. With increasing age, the slope of the relation link becomes more pronounced, so the relationship between the "Conformity" value and involvement in the use of ICT increases.

Table 4 presents the results of assessing the relationship between the values of the "Self-Transcendence" block, involvement in the use of ICT and age. In this case, only the "Universalism" value is statistically significantly and negatively associated with involvement in the use of ICT. Age is statistically significantly and negatively associated with involvement in the use of ICT. The moderation effect of age is statistically insignificant for the models presented in Table 4.

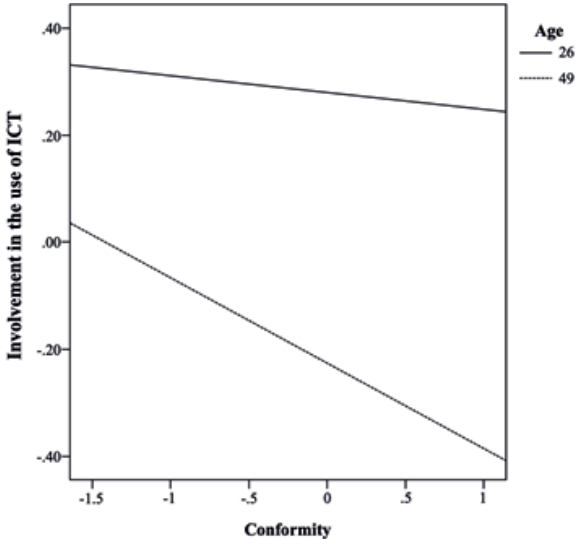

Fig. 3. Graphical Representation of the Interaction between the "Conformity" Value, Age, and Involvement in the Use of ICT

Table 4

The Relationship between the Values of the "Self-Transcendence" Block and Involvement in the Use of ICT, Considering Age as a Moderator

Variables	Model 6 "Benevolence" β	Model 7 "Universalism" β
Value+	.06	-.08**
Age	-.02***	-.02***
Value x Age	-.002	.003
Gender	-.04	-.04
Education	.05**	.05***
Income	.07***	.06***
R^2	.12	.13
F-statistics	22.15***	23.03***

Note. Each of the models represents that is indicated in the column; *p<.05; **p<.01; ***p<.001.

Table 5 presents the results of assessing the relationship between the values of the "Openness to Change" block, involvement in the use of ICT and age. In this case, the values "Hedonism", "Stimulation" and "Self-Direction" are not statistically significantly associated with involvement in the use of ICT. Age is statistically significantly and negatively associated with involvement in the use of ICT. Age is also a moderator for linking "Hedonism" and "Stimulation" values with involvement in the use of ICT.

Figures 4 and 5 visually present the interaction of such values as "Hedonism" and "Stimulation" with age in explaining the dispersion of the indicator of involvement in the use of ICT.

Table 5

The Relationship between the Values of the "Openness to Change" Block and Involvement in the Use of ICT, Considering Age as a Moderator

Variables	Model 8 "Hedonism" β	Model 9 "Stimulation" β	Model 10 "Self-Direction" β
Value+	.06	.06	-.00
Age	-.02***	-.02***	-.02***
Value x Age	.007**	.007*	-.003
Gender	-.04	-.04	-.05
Education	.05***	.05**	.05*
Income	.06***	.06***	.06***
R^2	.13	.13	.12
F-statistics	23.59***	22.85***	19.58***

Note. Each of the models represents that is indicated in the column; *p<.05; **p<.01; ***p<.001.

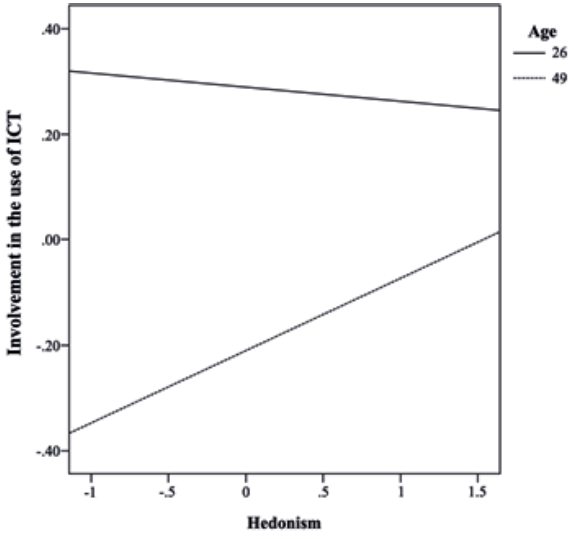

Fig. 4. Graphical Representation of the Interaction between the "Hedonism" Value, Age, and Involvement in the Use of ICT

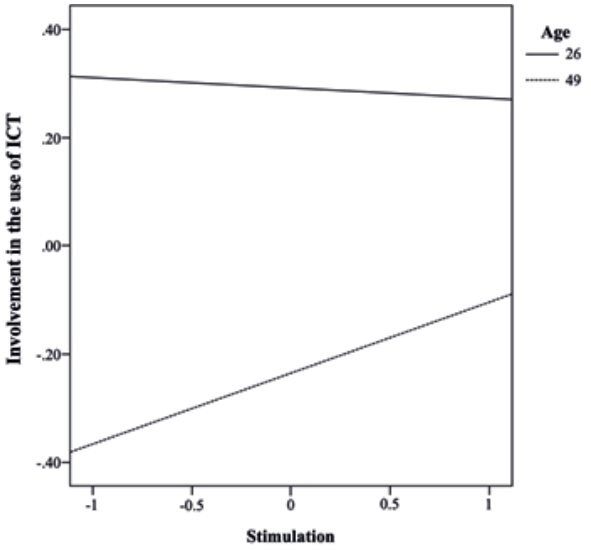

Fig. 5. Graphical Representation of the Moderation Effect between the "Stimulation" Value, Age, and Involvement in the Use of ICT

The slope of relation lines becomes more pronounced with increasing age, that is, the relationship between the "Hedonism" and "Stimulation" values and involvement in the use of ICT increases, while for young people the slope of the relation lines has a relatively horizontal position, which rather indicates their absence.

Discussion

First, we should note that age of the respondents is negatively related to involvement in the use of ICT. The constructed models also indicate that the socio-demographic characteristics (level of income and education) among respondents of two generations are positively associated with the involvement in the use of ICT, which is consistent with the results of previous studies [5].

The values of the "Self-Enhancement" block are positively associated with involvement in the use of ICT. People who prefer to control all aspects of their lives use ICT to expand their social influence [6]. For people who are mostly oriented in life on achieving success, the knowledge and skill of using such technologies is a tool for their personal and professional development [6]. However, it is important to pay attention to the fact that the values of power are positively associated with involvement in the use of ICT, regardless of age, and in the group of adults it is the values of achievement that encourage to use ICT more actively. Earlier, we drew attention to the higher scores of the power values among young people and noted that usually these values are expressed to a lesser extent among younger generations than among older ones [2]. The higher scores of the power values of the Russian youth can be explained by the fact that the value structure adjusts to the digital environment that places higher demands on involvement in the use of ICT.

The values of the "Conservation" block are negatively associated with involvement in the use of ICT. Today, ICTs are widely used in all spheres of society. However, its dynamic development leads to the fact that

the legal regulation of relations in this area does not have time to stabilize and streamline all potential user interactions, which actualizes the issue of safety in the information environment [3]. Thus, people focused on building a safe and stable society will tend to avoid the use of ICT and continue evaluating their stay in this environment in terms of potential risks [25]. This pattern of behavior is more common to adults, who have more pronounced values of "Conformity" and "Security" compared to young people.

The values of the "Self-Transcendence" block are negatively related to involvement in the use of ICT in the case of the "Universalism" value and are not related at all in the case of the "Benevolence" value [21]. These values do not differ statistically significantly in the groups of youth and adults, also, we did not find moderation — in the groups of youth and adults, the direction of the relation between universalism and involvement in the use of ICT is the same. It should be highlighted that modern technologies are little directed towards maintaining the environment and nowadays cause significant damage to it, which is contrary to the views of people whose dominant value is "Universalism" [17]. In addition, speaking about the equality of people, the role of ICT is very ambiguous, since the information space created through technology rather exacerbates the problems associated with it [20].

The values of the "Openness to Change" block are not associated with involvement in the use of ICT throughout the sample. However, when considering age as a moderator, the links between the "Hedonism" value and the "Stimulation" value with involvement in the use of information technology are updated accordingly. Thus, we see that "Hedonism" and "Stimulation" demonstrate a positive relationship with involvement in the use of ICT only in the group of adult Russians. The variety of activities that ICT now provides to users can satisfy the needs of even the most selective. Therefore, the older generation, motivated by such values as "Hedonism" and "Stimulation", is more involved in the use of information technology. While the younger generation, tempted to stay in the information and technological environment, is not inclined to satisfy its need for a variety of activities and new experiences using technology [16].

Conclusion

We found that the values associated with the involvement in the use of ICTs can be divided into two categories.

1) Values that are associated with involvement in the use of ICTs universally, regardless of the age of the respondents: "Power" (positively), "Tradition" (negatively), "Benevolence" (negatively).

2) Values that are significantly associated with involvement in the use of ICT only among adults: "Achievement" (positive), "Hedonism" (positive), "Stimulation" (positive), "Conformity" (negative), "Security" (negative).

It can be assumed that the value structure of the younger generation of Russians will increasingly adapt to the digitalization processes accelerated during the COVID-19 pandemic. Based on the identified trends, we can also assume in which direction the value shift will go. The values of achievement, stimulation, hedonism, and, probably, power will increase among new generation. The significance of the values of benevolence, tradition, and conformity will decrease. The new digital environment will support such a value structure, especially if many social contacts of the younger generation "go online", as it is happening now. We believe that when educating young people in new conditions, it is important to pay more attention to the formation of the values of the "Self-Transcendence" block (first of all, benevolence), which are important for building harmonious social relations, but may decrease when adapting to the digital environment.

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