

Internet as a Source of Information and Knowledge:

Reality and Prospects

(Case Study of the Research Educational Centre of the VolRC RAS)

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Abstract. Building knowledge economy and smart-society is a development priority in the modern world. The younger generation of Russians use the Internet more actively than the older one and this is one of the important indicators of the pace of building smart-society in our country, which requires careful and comprehensive consideration. The aim of this research is to study a place and role of the Internet in the information space of 5-11 form students, enrolled in additional education programs at the REC VolRC RAS, and identify prospects of its use as a tool for the formation of human potential that meets requirements of smart-society and digital economy.

Keywords: knowledge economy, smart-society, smart-education, internet

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1 Introduction

Building knowledge economy and smart society is a development priority in the modern world.

International principles of smart-society and approaches to its creation are defined by the Okinawa Charter on Global Information Society (2000), the Declaration of Principles. Building the Information Society: A Global Challenge in the New Millennium (2003), and the Action Plan of the Tunis Commitment (2005). Based on these principles, the Russian Federation worked out the Strategy for Smart-Society Development, which marked the beginning of the intensive use information and communication technologies by public authorities, business and citizens.

Smart-society is a new quality of society, where the combination of the use of hardware and software, services and the Internet designed by people leads to qualitative changes in the interaction of subjects, helping obtain new effects – social, economic and other benefits for a better life (Tikhomirova, Tikhomirov (Eds.), 2012).

The ability to find, adequately perceive and productively use new information in a timely manner is the most important quality of an individual in such a society Van Laar, E., van Deursen, A. J., van Dijk, J. A., & de Haan, J., 2017).

Since the mid-1990s, surveys conducted in various countries have revealed the growing population of networked services in everyday information seeking and communication (Savolainen, 2004).

Despite the fact that the level of using personal computers and the information and telecommunication network “Internet” in Russia is still lower than in Europe and there is a serious gap in digital skills between certain population groups¹, the Internet occupies a major place in the structure of media preferences of the Russian population. Thus, according to the data provided by the National Research University Higher School of Economics (NRU HSE), in Russia at the end of 2017, 84% of the population aged 15-74 had ever used the Internet; 61% of the population used the Internet every day².

At the same time, the younger generation of Russians use the Internet more actively than the older one (98.2 % in the age group of 15-24 years; 41.7% – in the group of 65-74 years). This is one of the important indicators of the pace of building smart-society in our country, which requires careful and comprehensive consideration.

It is no coincidence that in Russia for ten years much attention has been paid to the use of the Internet by children and adolescents. For example, the 2012 study resulted in the conclusion about the formation of the younger generation as the first Internet generation of Russia with special, different from previous generations methods of communication and comprehension of the world. The Internet restructured the information space of Russian teenagers. A diverse range of communication sources and mechanisms that form the media environment are used altogether to search for information. Computer sources, the Internet (72%) take a lead there (Tsimbalenko, Sharikov, Mayorova-Sheglova, Makeev, 2012).

According to another study conducted by the Web Development Foundation in 2013, Russian children and adolescents are rapidly mastering the Internet in the situation of a significant and slowly reducing digital gap between adults and children. Russian parents and teachers are not yet sufficiently aware of both enormous possibilities of the Internet and new risks and threats of the Web (Soldatova, Nestik, Rasskazova, Zotova, 2013). The same conclusions were confirmed in 2019 as part of the continuation of this study.

Table 1: Intensity of Internet use (2013-2019)

Intensity	Adolescents, %			Parents, %	
	2013	2019		2013	2019
	Aged 12-17	Aged 12-13	Aged 14-17		
Low (1 hour on average)	10	20	9	28	36
Average (3 hours a day on average)	76	67	54	61	50
High (more than 5 hours)	14	13	37	7	14

- For the last 6 years the intensity of Internet use has increased among adolescents and parents.
- Older teenagers use the Internet more often than the younger ones: every third spends more than 5 hours online.
- Parents lag behind their children by their activity on the Web. Average online activity is characteristic of half of the parents and low – of a third.
- Every second parent is unaware of their child's high online activity (Soldatova, 2019).

Thus, we state that the Internet takes a primary place in the information space of the younger generation of Russians and is a kind of way of life with the assistance of information technologies.

¹ Program “Digital economy of the RF”, approved by the RF Government Order as of July 28, 2017 No. 1632-r

² Available at: http://www.gks.ru/free_doc/doc_2018/info-ob2018.pdf.

To form and develop human potential of the younger generation of Russians, the task of using Internet capacities becomes crucial in these conditions.

The aim of this research is to study a place and role of the Internet in the information space of 5-11 form students, enrolled in additional education programs at the REC VolRC RAS, and identify prospects of its use as a tool for the formation of human potential that meets requirements of smart-society and digital economy.

2 Research methods

The study is conducted with the help of a sociological survey. The authors have developed a special questionnaire, which includes several blocks of questions (41 questions) aimed at studying various aspects of the Internet use.

The *first block of questions* is focused on studying features of user activity (use and actions). This comprises questions about frequency and intensity of the Internet use, devices applied, and places where schoolchildren go online.

The *second block of questions* is aimed at identifying adolescents' attitude to their health while being online.

The *third block of questions* considers importance of the Internet in adolescents' life, attitudes to virtual communication, types of activities that users implement online, value orientations and a degree of trust in online information.

The *next fourth block of questions* determines, how REC students (respondents) consider social networks.

The *final block of questions* concerns REC students' (respondents) trust in network resources.

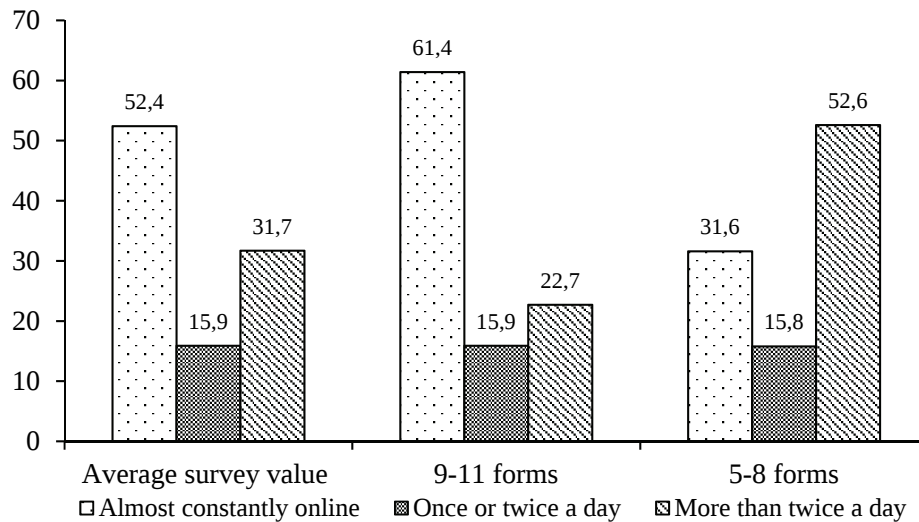
The survey method includes personal interviews by questionnaires, consisting of 41 questions in the second half of 2018 at the REC VolRC RAS. So, 63 REC students took part in the survey, including 26 boys and 37 girls. According to the age composition of the study, the sample included students aged 11-18: 5-8 forms (19 people); 9-11 forms (44 people).

3 Results and discussion

So, there are the results. The Internet as a source of information and knowledge: what is the reality?

1. It is revealed that all the surveyed schoolchildren (100%) use the Internet every day (Fig.1). At the same time, 61.4% of the 9-11 form pupils are almost constantly online, and the majority of younger students (52.6%) go online once or twice a day. That is, the activity of using the global network increases by senior classes. These trends coincide with the all-Russian data presented above (tab. 1).

Figure 1: Distribution of answers to the question “How often do you use the Internet?” (% of the number of respondents)



2. The most important quality of a person in the knowledge economy is the ability to timely find, adequately perceive and productively use new information, so the results on the block of questions about the “content” of Internet surfing are of particular interest.

Of 4 types of Internet resources, REC VoIRC RAS students use information websites and online services actively and e-commerce websites and online representations to a lesser extent. As for the content, here preference is given to amateur content or Internet resources that are actively developing and improving primarily thanks to users themselves, called Web 2.0.

Thus, the search for information is a key activity when using the Internet. Most students browse online entertainment resources, providing music, movies, horoscopes, tests, etc. (every day – 54%, often – 24%); look through the content related to hobbies (every day – 52% and often – 29%); read the newsfeed of social media (every day – 63%, often – 14 %; only two of the surveyed students are not registered in social networks) (tab.2).

Schoolchildren’s online “behavior” is a mirror reflection of trends in the society as a whole. For example, the study conducted by the NRU HSE shows that 78 % of the Russian population using the Internet participates in social networks; 53 % use the Internet to download movies, images, music; watch videos; listen to music or radio³.

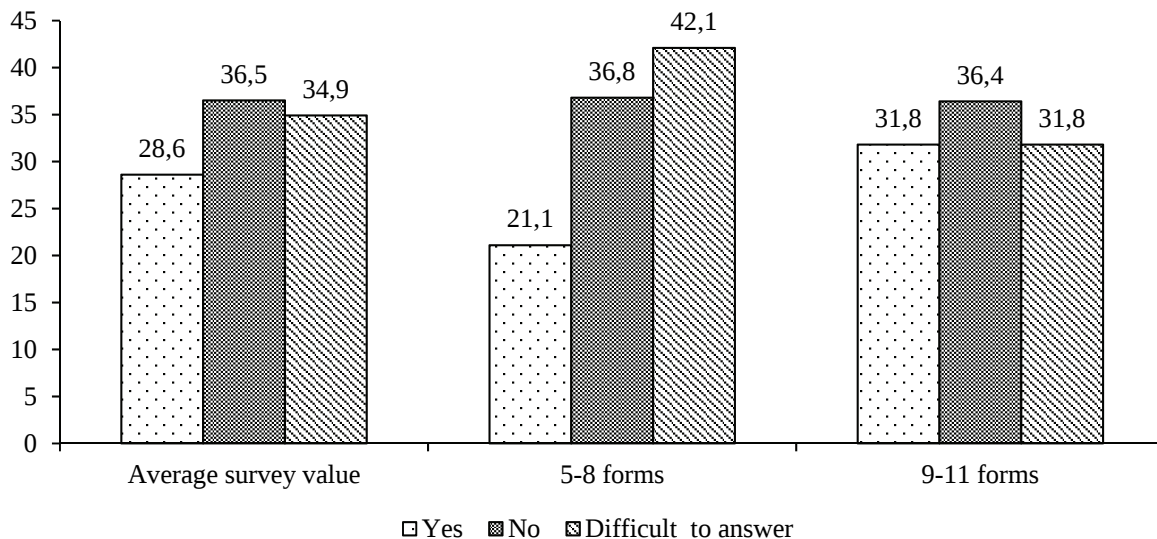
³ Available at: http://www.gks.ru/free_doc/doc_2018/info-ob2018.pdf.

Table 2: What do you do online and how often?

Online activities	Frequency			
	Constantly (every day)	Often (some times a week)	Seldom (some times a month)	Never
5 – 8 forms				
Looking for information and news	31.6	47.4	15.8	5.3
Using instant messaging (Skype, Viber, ICQ, Whatsapp, private messages, etc.)	42.1	42.1	0.0	15.8
Browsing for content related to hobby	31.6	42.1	21.1	5.3
Spending time on entertainment resources (music, movies, horoscopes, tests, etc.)	42.1	36.8	10.5	10.5
Reading the news feed on social networks	57.9	5.3	5.3	31.6
Distant learning, self-education	5.3	52.6	21.1	21.1
Playing online games	26.3	15.8	26.3	31.6
Calling or receiving calls via the Internet (Skype, etc.)	10.5	21.1	36.8	31.6
Checking e-mail	31.6	21.1	26.3	21.1
Posting (messages) in social networks	10.5	26.3	36.8	26.3
Posting your photos, pictures, recipes and other creative results	10.5	21.1	47.4	21.1
Commenting on blogs / posts / photos / discussion forums/ sites / other people	10.5	31.6	26.3	31.6
Keeping your blog or microblog	0.0	10.5	15.8	73.7
Participating in online contests and drawings	5.3	15.8	52.6	26.3
Making purchases in online stores	0.0	15.8	42.1	42.1
9 – 11 forms				
Looking for information and news	38.6	45.5	6.8	2.3
Using instant messaging (Skype, Viber, ICQ, Whatsapp, private messages, etc.)	52.3	22.7	4.5	15.9
Browsing for content related to hobby	61.4	22.7	13.6	0.0
Spending time on entertainment resources (music, movies, horoscopes, tests, etc.)	59.1	18.2	18.2	0.0
Reading the news feed on social networks	65.9	18.2	9.1	2.3
Distant learning, self-education	22.7	29.5	29.5	13.6
Playing online games	11.4	18.2	15.9	50.0
Calling or receiving calls via the Internet (Skype, etc.)	13.6	20.5	27.3	34.1
Checking e-mail	4.5	22.7	47.7	20.5
Posting (messages) in social networks	11.4	29.5	29.5	25.0
Posting your photos, pictures, recipes and other creative results	4.5	9.1	52.3	29.5
Commenting on blogs / posts / photos / discussion forums/ sites / other people	0.0	27.3	43.2	25.0
Keeping your blog or microblog	2.3	6.8	9.1	77.3
Participating in online contests and drawings	2.3	6.8	9.1	77.3
Making purchases in online stores	2.3	6.8	54.5	31.8

It should be noted that a third of the surveyed students actively uses the Internet for learning and self-development and would not be able to study successfully without it (Fig. 2).

Figure 2: Would you be able to successfully study and self-develop without the Internet assistance?



4. Social networks, disclosing diversity of online information — both amateur and professional content in its various forms, serve the surveyed students as a platform of self-presentation and development of various social roles. Thus, 95.5 % of the schoolchildren are active users of the social network “V kontakte”, while 70.5 % of the senior school students and almost half (47.3%) of the 5-8 form pupils use the network to communicate with other users. This network gives an opportunity to share all kinds of content. Pupils lay special emphasis on multimedia content: photos, videos and audio files.

YouTube video hosting, focused on video sharing is not much less popular among respondents and quite well-known among teenagers (90.0%). The third most popular service, actively used by schoolchildren and focused on creating their own content, is “Instagram” – a mobile Internet application for photo sharing, which appeared in 2010 and instantly gained huge popularity among teenagers and young people around the world. Moreover, the popularity of these networks is the same in both age groups, and almost half uses social networks for education (45.5%) (Fig. 3,4).

Figure 3. What social networks, video and blog hosting sites are you registered with? (% of the number of respondents)

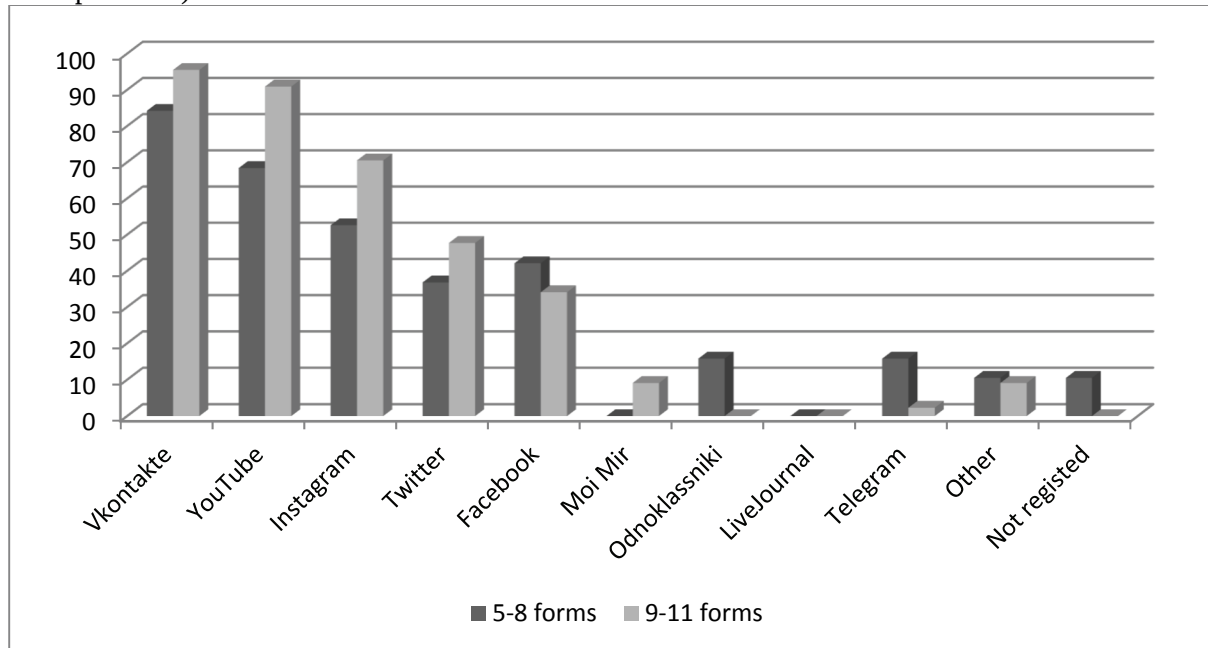
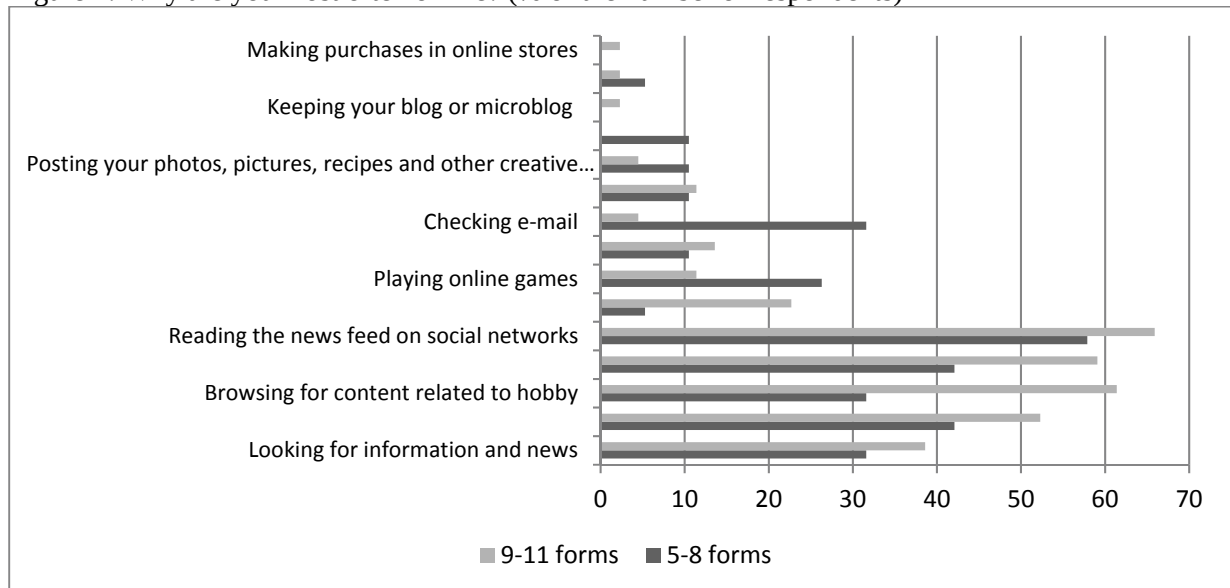
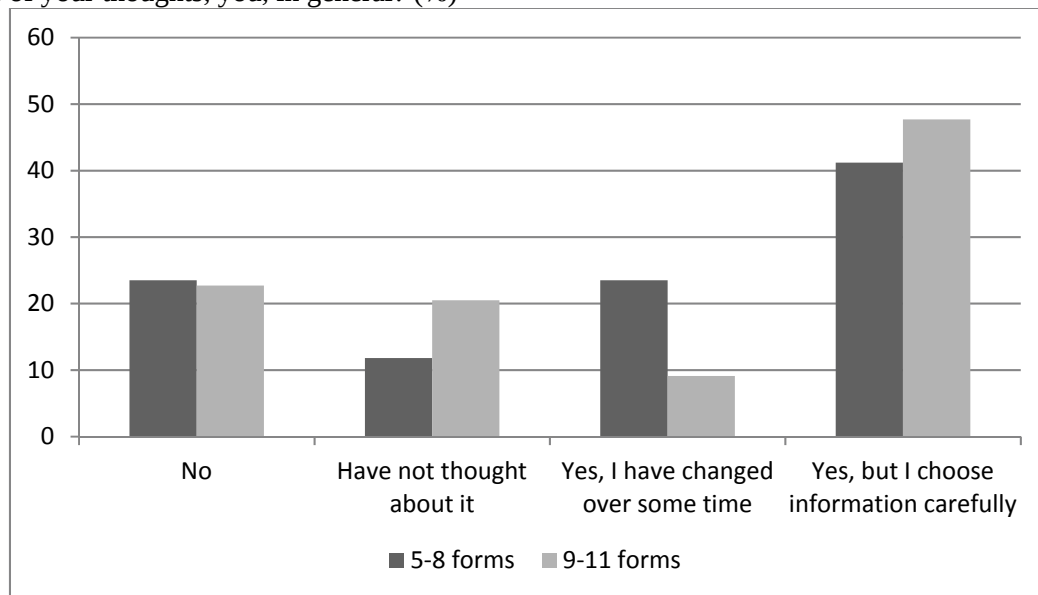


Figure 4: Why are you most often online? (% of the number of respondents)



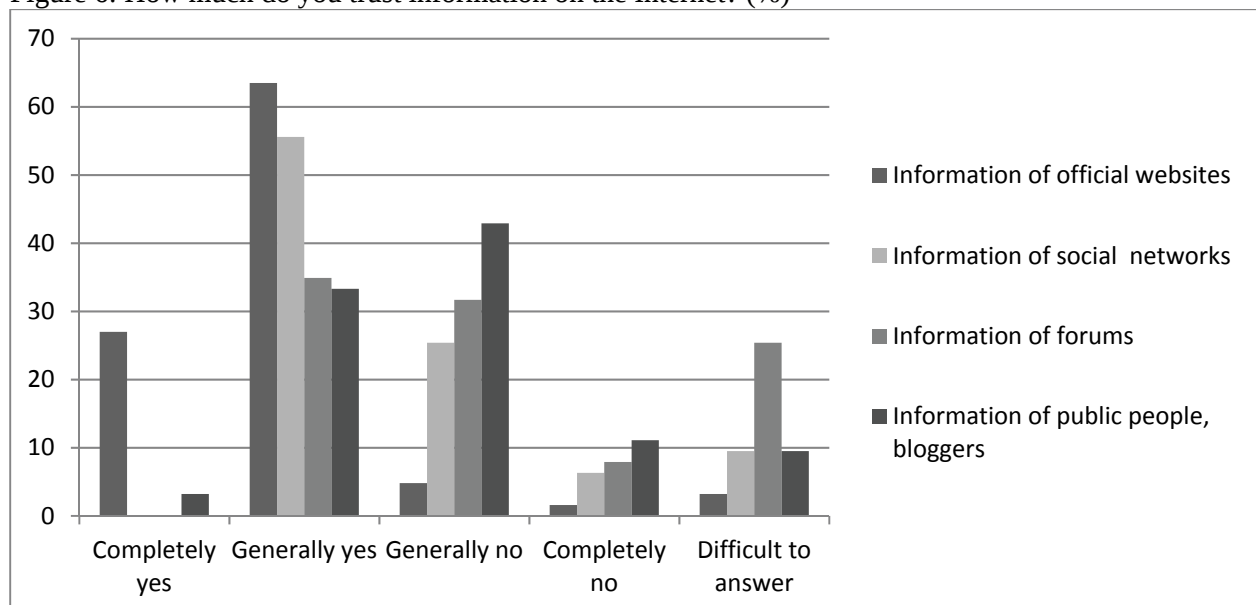
5. We should mention the impact that content of the groups, the surveyed students are registered with, make on formation of their worldview and behavior, in general. Almost half of the students answer “Yes” to the question, although they believe that they select information carefully. 23.5% of the junior students and 9.1% of the senior note their change under the impact of content. It involves certain risks (communication, content) (Fig.5).

Figure 5: What do you think, information in the groups, you are registered with, affects your worldview, course of your thoughts, you, in general? (%)



As for evaluation of the information obtained on the Internet, we can not say that it enjoys exceptional trust, but respondents trust data of official websites completely (27%) or mostly (63.5%). Another 55.6 % mostly trusts information from social networks. Thus, the question arises about the younger generation's ability to critically perceive information and test it (Fig.6).

Figure 6: How much do you trust information on the Internet? (%)



The Internet as a source of information and knowledge: what are the prospects?

Modern students are representatives of netgeneration, “digital generation”: the Internet, mobile devices, social networks are a familiar and comfortable environment for them.

At the same time, nowadays a negative image of social networks and the Internet is being created in the society mostly due to the widespread use of online risks. Hence, since school days it is of particular relevance to form purposeful attitudes to the work with information technologies and schoolchildren’s interest vectors in the implementation of their own capabilities (“smart-competences”), which are laid at school age and become the basis for formation and expansion of human potential. So, in our opinion, it is necessary to use educational opportunities of the Internet through the creation of a digital educational environment for the younger generation of Russians – adolescents and children (pupils). Among surveyed schoolchildren, 18 % and 37% often use the Internet for distance learning and self-education on a daily basis, while the overall situation in Russian society is somewhat different. Only 3.6 % of the Russian population uses the Internet for distance learning.

4 Conclusions and suggestions

What do we suggest and will we try to implement?

Creation of an electronic platform at the premises of the existing REC VolRC RAS online economic school, which combines various formats of resources (video lectures, online courses, online journal, social networks, etc.). Its use will contribute to formation of students’ smart competencies.

The key features of the platform are the following: refusal from the traditional learning model as a content transfer, real-time feedback, possibility of personal communication with a teacher and other students, testing, statistical information on progress, services for document sharing (all these opportunities were presented at the REC VolRC RAS economic school).

Since the Russian society has yet to develop skills and encourage population to use the Internet space for self-education, which is an indispensable condition for quality life in the knowledge society, our study is very relevant, as it involves formation of a smart-competence model, its testing and development of recommendations for implementing the model in Russian regions.

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