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DIGITAL SKILLS AS A RESPONSE TO THE CHALLENGES OF THE MODERN SOCIETY

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Abstract: *Purpose: The purpose of the article is to study the level of students' digital literacy that determines their educational progress. Design/methodology/approach: The authors consider current trends in the formation of an information-oriented society and their impact on the development of digital skills of university students, which are associated with the development of national projects and programs, with the challenges of civilization to professional education. The anthropo-oriented and competency-based approaches underlying the study determined the choice of methods: extrapolation and modeling. On this basis, in the context of the research, much attention is paid to information, intellectual, communicative, and anthropo-oriented challenges that affect the development of digital literacy of university students. Based on the research data analysis, the emphasis is made on the fact that the digital competence of university students is a complex system of a personality, associated with such categories as "responsibility" and "information", with the individual's readiness for network interaction, with information skills and with the ability to generate and maintain online content. Results: It is shown that students widely use digital technologies and the Internet for personal purposes, communications and training, and this trend of digitalization of all processes will only increase. Educational organizations are actively developing websites and electronic services that automate educational and management processes; the importance of mobile devices in the educational process is increasing, which demands the requirements for the students' skill level. Originality / value: The study has significant prospects for the further research related to the digitalization impact on the education quality and student performance, as well as its impact on individual processes – for example, educational process management, quality management, etc. in the digital environment.*

Keywords*: information-oriented society, digital literacy, digital skills, students, higher education.*

INTRODUCTION

Currently, the issues of economy and education digitalization have become relevant. Considerable importance in the digital economy is paid to the digital literacy of the society, which characterizes the ability of the population to use new technologies in their personal life and professional activities. At the state level, this is reflected in the development strategy of the information-oriented society for 2017-2030 (Decree of the President of the Russian Federation, 2017) and the Digital economy program (Order of the Government of the Russian Federation, 2017). One of the most important directions of the program is the direction "Personnel and education", designed to provide training of the personnel who meet the requirements of the digital economy and have a high level of digital competence (Government of the Russian Federation, 2018). The cost of digital economy development in 2017 in the higher education sector came to 23.6 billion rubles (0.03 % of GDP) (Abdrakhmanova et al., 2019).

In these circumstances, the research relevance on digital literacy of the population is increasing. The most complete picture of this process is presented in the statistical collection prepared by specialists of the Higher School of Economics (Abdrakhmanova et al., 2019). The study of students' digital literacy is of particular interest, since it is the graduates of educational organizations who will represent the human resources potential of the Russian economy in the near future (Olkhovik & Lipatova, 2018; Strekalova, 2019). At the same time, higher education itself is undergoing significant changes related to the introduction of digital technologies in the activities of educational establishments. All these factors demonstrate the relevance of studying the issue of digital literacy of Russian students. Since the topic of having and development of digital skills is a broad topic, in this paper we will focus only on the sociological aspect of the research on the use of the Internet by students at Russian universities.

MATERIALS AND METHODS

Current development of information-oriented society influences and is associated with the phenomenon of "information and digital culture, identity and society," clarifying the meaning of the phenomenon "digital competence" (Safuanov et al., 2019; Sinyagina & Artamonova, 2018). The challenges of the professional education of university students and the process of developing their information competency are described vividly in studies by M. N. Nevzorova, M. A. Nevzorova, N. V. Gerova, M. V. Lapenok, V. I. Petrova, A. E. Polichka, I. V. Nosko, and A. G. Bochkareva (Nevzorov & Nevzorova, 2013; Lapenok, 2014; Petrova & Bondareva, 2019). Following M. N. Nevzorov and M. A. Nevzorova, the study drew attention to the following approaches to education as modern trends to form an information-oriented society that affect the development of information competency of university students. These approaches are: informational, intellectual, communicative, anthropo-oriented (Nevzorov & Nevzorova, 2013).

The first one is an information challenge. The authors highlight several studies that reveal the problems of the first challenge. The study of V. V. Guzeev is of particular interest, who spoke about the competency as "the professional space of responsibility" (Tabachuk, 2019). Digital competency of university students is a complex system in the structure of an individual, associated with the categories "responsibility" and "information".

It is in the process of developing this competency when university students pay much attention to working with information, which contributes to making a well-educated person who can get a lot of ideas from the context. One of the trends of an information-oriented society formation is the "clip thinking", which is the subject of research by Dnepropetrovskaya N. V. (2018), Gladkov A. V. et al. (2018), Vaganova O. I. et al. (2019, 2020a, 2020b), which, on the one hand, protects from information redundancy, develops multitasking and at the same time has a negative impact on the developing the ability to analyze incoming information, generates the process of using technologies in network interaction.

The second one is an intellectual challenge. This issue is reflected in the research of I. V. Robert, M. N. Nevzorov and a number of other authors. The high level of digital competency of university students is a professional result such as "self-analysis of their activities", emphasizes M. N. Nevzorov.

The third one is a communication challenge. Nowadays, in the information-oriented society, there is a trend to replace real communication with virtual (network) communication in professional training and the process of developing digital competency of students, which has positive and negative features and consequences. The phenomenon of "network individual" (A. A. Akhayan) appears and is accepted in pedagogy. Many authors (A. A. Ahayan, I. B. Gotskaya, V. M. Zhuchkov) emphasize that the very concept of "network individual" does not have a generally accepted understanding yet, at least in pedagogical discourse (Gruzdeva et al., 2018, 2019, 2020). A. A. Akhayan (2017) notes that a network individual is a person who takes the ability and the right to meet cognitive and communicative needs as a value at the time of its occurrence (at peak interest).

The purpose of the research is to study the level of students' digital literacy that determines the training results. The research objective: explore the purposes, frequency and intensity of the Internet use for personal use, communication, and training; determine their digital literacy that is necessary for successful training; assess students' awareness of digital educational services provided by educational institutions; identify difficulties in using digital technologies in personal life and for studies.

At the first phase of the study, a survey was conducted using standard Google forms. The survey was conducted in December 2019 - January 2020. The total number of respondents was 135. The survey was attended mainly by respondents aged 15-24 (92.6%), who lived in Nizhny Novgorod (91.9%), the rest of respondents lived in Nizhny Novgorod region, 63% of women and 37% of men, most of them worked (87.4%) and 96.3% studied. At the second stage, the results were compared with the average values of similar indicators in the country, and conclusions were drawn regarding the degree of students' digital literacy.

RESULTS

At the beginning of the study, it was interesting to determine the goals and frequency of the Internet use by students for personal purposes, communication and training. The answer to this question will help us compare the level of digital literacy of students with average values of similar indicators in the country. The results are presented in Tables 1, 2, and 3.

Table 1. Internet use for communication

Use of communications	Percentage
Social networks	94,1
Sending or receiving email	84,4
Phone calls or video conversations via the Internet	80,7
None	0

Table 2. Internet use to search and download digital content

Search and download digital content	Percentage
Downloading movies, images, music; watching videos; listening to music, radio	96,3
Reading or downloading online newspapers or magazines, e-books	56,3
Playing video or computer games/ mobile phones games or downloading them	53,3

Table 3. Internet use for distance learning, job search, and ordering goods (services)

The use of the Internet	Distance learning	Job search	Ordering goods (services)
Percentage of positive responses	93,3%	77%	96,3%

Nowadays most young people are active users of social networks (94.1%), they also send or receive email (84.4%), fewer people use phone calls and video conversations via the Internet (80.7%). Most of Internet users download movies, images, music, and watch videos online; listen to music, radio (96.3%), half of the respondents read online and download newspapers or magazines, e-books (56.3%) and play games or download them (53.3%). For distance learning, 93.3% of young people also use the Internet, slightly less for job search (77%). Many people order goods and services online (96.3%).

The obtained results allow us to state that students use the Internet for communication most frequently (80%), downloading digital content (96.3%), ordering goods and services (96.3%) and for distance learning (93.3%). The Internet is used for job search a little less often (77%). Comparing the results of the survey with the national average numbers, it can be noted that young people are more active Internet users. They use social networks (78% of people aged 15-74 in 2017), make phone and video calls (49%), send and receive e-mails (44%). At the same time, Russians (aged 15-74 in 2017) downloaded movies, images, music, and also watched videos online; only half of respondents listened to music or radio (53%), a quarter of respondents read online and downloaded newspapers, magazines or e-books (25%), and a third played games or downloaded them (31%). A small percentage (10%) of people (15-74 years old in 2017) used the Internet for job search, even less for distance learning (4%), 29% for ordering goods and services (36.2% aged 15-24).

Hereafter, it is necessary to determine the frequency of Internet use by students. The survey revealed that young people cannot do without the Internet and use it almost every day (96.3%), which indicates a high frequency of Internet access, and therefore, wide opportunities for using its resources for educational purposes. When studying how students can access the Internet, we asked them to specify the devices that are mainly used for this purpose (Table 4).

Table 4. Use of mobile devices to access the Internet

Mobile devices	Percentage
Mobile phone (smartphone)	97,8
Laptop, netbook	69,6
Tablet	13,3

In addition to mobile devices, young people use a computer (78.5%), a TV with Internet access (46.7%), video game consoles (11.9%), pocket PCs (8.9%) and e-books (4.4%). The obtained answers allow us to state that the most common devices for accessing the Internet are mobile phones, smartphones (97.8%) and laptops (97.8%). According to these indicators, students are far ahead of the national average numbers – 53.1% of Russian residents (15-74 years old) used mobile phones in 2017, 10.9% used a laptop or netbook, and 9.4% used a tablet. Then we evaluated the digital skills that students have. The answer to this question allowed us to understand better what real skills students have, since in modern conditions, an increasing number of educational programs are presented as e-learning courses, and the development of distance digital education is only increasing (Table 5).

Table 5. Digital skills

Digital skills	The percentage (135 young people, 2019-20) in Nizhny Novgorod region	The percentage (2017, Russian Federation, people aged 15-74)*
Using text editors	94,1	41,7
File transferring from computers to devices	76,3	27,4
Spreadsheeting	69,6	22,7
Using software for editing photo, video, and audio files	74,1	20,6
Connecting and installing new devices	59,3	9,7
Creating electronic presentations using special programs	74,8	9,1
Change the settings or configuration settings of the software	28,1	3,4
Installing a new operating system or reinstalling it	33,3	3,0
Software creation using programming languages	5,9	1,2

The survey results show that students generally have better digital skills than other respondents do over the country (table 5). For example, the majority of respondents use file transfer technologies (76.3% compared to 27.4% in the country), use texts and spreadsheets (94.1%) and (41.7%), respectively, photo, video and audio editing programs (74.1% compared to 20.6%), and electronic presentations (74.8% compared to 9.1%). Fewer students have more complex skills related to connecting and installing new devices, changing software parameters, installing the operating system, and creating software, and this is several times higher than in the country. This indicates the need for diagnostics of digital skills at the beginning of training and their development during the training.

CONCLUSION

The research results allow us to state that digitalization has a significant impact on education, actively transforming all its elements. Education is becoming more flexible, long-distance and mass, digital devices and various gadgets are becoming more used, all these factors lead to higher digital skill requirements. The results of the survey suggest that: students make extensive use of digital technologies and the Internet for personal

purposes, communication and training, and this trend of digitalization of all processes will only increase; educational organizations are actively developing websites and electronic services that automate educational and management processes; the importance of mobile devices during the educational process is intensifying, which increases the requirements for the level of students' skills. The study has significant prospects for further research related to the study of digitalization impact on the quality of education and student performance, as well as its impact on individual processes – for example, management of educational process, quality management of education and others.

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