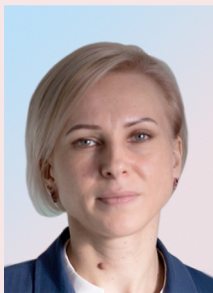


Students' Digital Literacy: Competence-Based Approach



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Abstract. Currently, digital technology has a significant impact on socio-economic development in various societal spheres. In this regard, the importance of the formation of digital competencies in student youth is increasing. Modern generation should have these competences in order to work effectively and use the digital environment safely. The article presents an overview and systematization of scientific concepts that reveal the content of digital literacy. We show how the scientific category “digital literacy” correlates with “digital competence”. Concrete facts have confirmed that the use of digital technology in education involves the formation of digital competencies, the importance of which is beyond doubt, as well as the fact that digital literacy promotes the development of skills in search, analysis, critical understanding of the information received; it also helps to use digital platforms and network technology competently and in compliance with the basics of security in the digital environment. In this regard, the purpose of our research is to identify the level of formation of digital competencies in students in the higher education

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system (on the example of the Chelyabinsk Oblast). Scientific novelty of the work lies in theoretical substantiation of the content of digital literacy and systematization of approaches using a competence-based approach. In this context, the results of a survey of students of four universities in Chelyabinsk, aimed at identifying regional features and problems of the formation of digital competencies in the higher education system, are of interest. The findings of our research can become an important methodological tool in determining risk groups by the level of formation of digital competencies in students, developing methods for the safe use of digital content, preventing the spread of destructive online practices among young people and promoting their safe use of digital content.

Key words: higher education system, student youth, informatization, digital literacy, digital technology, digital competencies, digital security.

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Introduction

Analyzing innovation processes in Russia, we should note that all of them are aimed at developing the potential of the digital economy and, to some extent, contribute to increasing competitiveness, ensuring economic growth, strengthening the national sovereignty of the state and improving citizens' quality of life. Under the current circumstances, digitalization affects aspects of company management and the modernization of technological processes that determine the development of production. Moreover, the digital transformation of the industrial sector requires improving the quality of professional training. It is important for university graduates to master information and communication technologies to maintain the intellectual and creative potential, making professional decisions, while taking into account the economic, moral aspects of the innovative development of society. This issue is actively discussed at the international expert level: in the leading analytical centers of the UN¹, in the World

Economic Forums², Worldskills³, in reputable international scientific publications (Belshaw, 2016; Gil-Garcia et al., 2017; Kullaslahti et al., 2019; Mersyanova et al., 2022).

The President of the Russian Federation V.V. Putin noted at the Saint Petersburg International Economic Forum (SPIEF 2017): “We intend to multiply the number of specialists in the digital economy and, in fact, we will have to address quite a broad challenge, a national-level challenge – to achieve general digital literacy” (Dolidze, Cherdakov, 2018). Thus, the head of state indicated the importance of implementing the program “Digital Economy of the Russian Federation” of July 28, 2017 1632-r, which by RF Government Resolution became the main focus of the country's strategic development for 2017–2030⁴.

² Willige A. How Do We Make Sure Our Children Are Fluent in Digital? World Economic Forum. Available at: <https://www.weforum.org/agenda/2017/01/ways-to-preparekids-for-jobs-of-future/> (accessed: November 17, 2022).

³ Loshkareva E., Luksha P. et al. (2017). Future Skills. What we need to know and be able to do in a new complex world. Moscow: WorldSkills Russia.

⁴ The Digital Economy Program: RF Government Resolution 1632-r, dated July 28, 2017. Available at: <http://publication.pravo.gov.ru/Document/View/0001201708030016> (accessed: January 12, 2023).

¹ United Nations E-Government Survey 2018. United Nations Department of Economic and Social Affairs. Available at: <https://publicadministration.un.org/publications/content/pdf>

Before the adoption of the program, the development of digital literacy received somewhat superficial attention, which caused risks in the use of digital technology by the population in practice. It is the implementation of the program “Digital Economy of the Russian Federation” provided an opportunity for the wide application of the “digital literacy” concept. The use of information technology as a technological means of communication, a kind of tool for creating a digital educational space contributes to the formation of skills required for human existence in a digitized world. The program defines that the share of the population with digital competencies should be 40%. However, in reality, the pace of digitalization is a little bit ahead of the Russians’ digital skills.

Moreover, the process of digitalization of society is addressed in federal strategic documents: Presidential Decree 203 of May 9, 2017 “On the Strategy for the Development of Information Society in the Russian Federation for 2017–2030”; the project “Modern Digital Educational Environment in the Russian Federation” in the context of the state program “Development of Education”⁵. The Strategy for Information Society Development states the importance of “developing innovative educational technologies, including distance and e-learning”⁶. In modern conditions, the problem of expanding digital consumption and the formation of a digital culture is becoming more and more relevant. The education system has a significant role in the process of digital competence

formation⁷. Thus, the federal project “Digital Learning Environment” states the need to update the content of education and create opportunities for students to freely navigate in the digital space. It is important to understand that digital literacy as a set of specific knowledge and skills becomes an integral element of professional and general cultural competence of the person. Moreover, in order to adapt to the new trends in social relations, the education system must restructure its content using new teaching methods and techniques. It is for a reason that, the state program “Development of Education for 2018-2025” focuses on the need to equip educational institutions with online services for the implementation of vocational education programs in the context of digital transformation⁸. In this case, the strategic task is to train competent personnel to operate in the digital economy. At the same time, we should emphasize the important role of pedagogical support for the media platforms, digital technologies in the educational process, giving flexibility to the learning opportunities of students, raising them to the center of the networked world and contributing to their readiness for professional and personal self-development.

As we see, in the context of the era of digital education, the process of digital literacy development among students becomes relevant. On the one hand, it is caused by the widespread use of digital technology in society, and on the other hand, by a lack of readiness to safely perceive and use digital content. In our opinion, this is what determines the need for scientific understanding of the new possibilities of information and educational

⁵ On Approval of the State Program of the Russian Federation “Development of Education”: RF Government Resolution 1642, dated December 26, 2017 (amended from December 24, 2021) (with additions entered into force from January 6, 2022). Available at: http://www.consultant.ru/document/cons_doc_LAW_286474/792cf113479908cd6826e29248342aae7d22626b/

⁶ On Protecting Children from Information Harmful to Their Health and Development: Federal Law 436-FZ, dated December 29, 2010 (latest revision). Available at: http://www.consultant.ru/document/cons_doc_LAW_108808/

⁷ On Approval of the Information Security Concept for Children: RF Government Resolution 2471-r, dated December 2, 2015. Available at: http://www.consultant.ru/document/cons_doc_LAW_190009/65c73cdecf9794a8f8f67bdb438d964c9336f436

⁸ On the Strategy for the Development of Information Society in the Russian Federation for 2017–2030: Presidential Decree 203, dated May 9, 2017. Available at: http://www.consultant.ru/law/podborki/informacionnoe_obschestvo

environment of universities for the digital literacy formation, and the study, the purpose of which is to identify the level of students' digital competence formation in the higher education system (on the example of the Chelyabinsk Oblast). Nowadays, it is important for universities to form digital competencies and to train future specialists for working in the digital world. In the study, we set tasks for theoretical generalization and systematization of scientific approaches to the study of digital literacy; substantiation of its most important components; identification of criteria and the level of formation of digital competence among students of universities of the Chelyabinsk.

Literature review

Within the framework of digital policy and economy, the modern educational environment is characterized by a high rate of informatization and places new demands on all spheres of human activity. The modern professional needs to have comprehensive abilities to meet the challenges of the time. In addition, in a digital economy conditions there is an increasing need for professionals who are able to continuously improve their knowledge and skills, easily adapt to new production technologies, effectively use modern information technology tools.

Typically, digital society is a complex technosocial system in which rapidly spreading technology determines modes of human activity, behavior, and ways of thinking. As researchers note, digitalization is a transformation, and technologies are the tools with which it occurs, covering all spheres of society (Dashchenko, 2018; Sukhareva, 2018). This generates a modernization of the higher education system aimed at "equipping" students with key competencies: political, social, communicative, informational, and professional⁹.

⁹ Bologna Process: Learning Outcomes and Competency-Based Approach (2009). Moscow: Research Center for Educational Quality Problems.

Knowledge becomes an important source of professional and personal improvement of students, which is possible only with the application of innovative methods in the educational process, comprehension of the digitalization processes and generalization of users' experience in the network environment.

The development of the information society has led to the spread of the concept of "digital literacy", which refers to the set of knowledge necessary for the safe and effective use of digital resources, the ability to understand and apply the information provided in a variety of formats and a wide range of sources. In the global scientific community, the term first appeared at the turn of the century (Gilster, 1997, Berman, 2017; Soldatova et al., 2017; Sharikov, 2018; Kullaslahti, Ruhalahti, 2019). Paul Gilster was the first who used the term "digital literacy" in a book published in 1997 with the identical title "Digital Literacy". He interprets this concept as the ability of the actor to find the necessary information on the Internet; conscious synthesis and correct work with digital material; the ability to create an innovative product, to solve problems in the digital environment, to form the skill of safe use, new opportunities of digital technology. At the same time, the researcher is convinced that being in the field of hypertext makes it possible to quickly navigate from one resource to another, it forms new patterns of human behavior, features of communication, which contributes to the development of network thinking (Gilster, 1997). Since then, the concept has become more and more varied as digital technology has spread. An analysis of the interpretation of the concept "digital literacy" revealed a wide range of interpretations, which confirms the value of this concept in today's digital society (*Tab. 1*).

Table 1. Variety of concepts of “digital literacy”

Representatives (authors)	Content of the concept
P. Gilster (Gilster, 1997)	Ability to understand and use information with the help of computers
A. Martin, J. Grudziecki (Martin, Grudziecki, 2006); C. lordache, I. Mariën, D. Baelden (lordache et al., 2017)	Ability to apply digital tools and instruments for identification, management; evaluate, analyze, and synthesize digital resources, create media expressions, and communicate with others in the context of specific life situations to enable meaningful social action and to reflect on this process
J. Kullaslahti, S. Ruhalahti, S. Brauer (Kullaslahti et al., 2019)	Ability to access, understand, integrate, evaluate, and create secure content through digital technologies for creation of workplaces and entrepreneurship
L. Limberg, O. Sundin, S. Talja (Limberg et al., 2012)	Ability to search, analyze, and critically evaluate the information contributes to solving a variety of problems
D. Berman (Berman, 2017)	A person’s ability to use digital tools to his or her advantage
A.F. Yakunin (Yakunin, 2016); S.G. Davydov, O.S. Logunova (Davydov, Logunova, 2015)	Ability for safe participation, critical reflection on production and content consumption
O.V. Eltsova, M.V. Emelyanova (Eltsova, Emelyanova, 2020)	Personal formation of the subject, including a system of knowledge, skills and abilities in the use of digital resources, positive motivation and digital activity
M.V. Slesar (Slesar, 2018)	Ability of create content with the help of digital technology using computer programming skills, information search and share, communication
Source: Own compilation based on a literature review.	

Thus, despite our common position in assessing digital literacy as a general awareness of an individual’s possible goals, tasks, and ways of using digital tools, some researchers subsume the understanding of “digital literacy” under digital resource skills; another group of scholars emphasizes the effective use of digital resources for problem solving.

Digital literacy is the set of knowledge and skills necessary to use digital technology and Internet resources safely and effectively. It includes digital competencies, digital consumption and digital security. Digital competence is a multifaceted moving goal that is constantly evolving as new technologies appear (Falloon, 2020; Zhao et al., 2021). Researchers suggest that digital competence can be replaced by digital literacy in an educational context, as it pays significant attention to ethical and social aspects, security. In the context of education, digital competence is considered as the ability to apply the knowledge and skills necessary

for implementation, evaluation, and continuous revision of the educational process content. While studying specialized disciplines, students should not only acquire knowledge, but also improve digital competencies necessary for competing in the labor market (Koloskova, 2021). The formation of digital competencies must correlate with meaningful content of the digital economy key competencies, which include communication, critical and creative thinking in a digital environment, self-development under uncertainty, and information management. At the same time, digital competencies should be perceived not only as technical skills, but also as skills focused on the cognitive, social and emotional aspects of working and living in a digital environment.

Digital consumption reflects the level of availability of digital technology: hardware and software. Forming digital competencies, the higher education system is designed to prepare students not only for the employment, but also for life in the

digital reality, which means that it is not enough only to master digital technology. Consequently, higher education must lay a solid foundation and form a flexible system for the development of digital competencies of students. Digital security should include mastery of safe networking skills, protection of personal data, ensuring the confidentiality of information. Thus, building digital competencies means developing students' abilities to use a variety of digital tools for work productivity.

According to C. Davis and co-authors, the digital technologies create opportunities for enriching the learning experience, expanding the horizons of learning (Davis et al., 2017). Moreover, the use of digital technology makes students active participants instead of passive consumers of information, which forms their syncretic thinking and information security through the creation of a digital space (Friedrich, 2013; Belshaw, 2016; Hoff, 2016; Woodworth et al., 2017). For example, D. Belshaw suggested eight key components of digital literacy (cognitive, constructive, communicative, critical, civic, cultural, creative, confident use) that promote quality human interaction with the digital environment (Belshaw, 2016). It should be kept in mind that fake news has become dominant in the world, exacerbating the problem of not only finding information, but also of evaluating digital content (Saunders, 2018). Furthermore, digitalization and convergence have led to global changes in communication. Today, new patterns of digitalization use are vague, hybrid, and more complex than before (Bjur et al., 2013; Schørder, 2014). Most scholars agree that digital literacy is seen as an individual's ability to create and use content with the help of digital technology, including information search and selection skills, network communication, and computer programming.

Unfortunately, Russian researchers began to study these problems relatively recently (Lisenkova,

2017; Rozina, 2017; Sharikov, 2018; Astakhova, 2019; Antipina et al., 2020). For example, A.V. Sharikov reveals the content of four approaches to the study of digital literacy (communication and technology, media and information, psychological and pedagogical, industrial). Subsequently, based on the conditional division of the outlined approaches, the scientist proposed a component model of digital literacy, including technical and technological and content and communication capabilities, technical and technological and socio-psychological threats (Sharikov, 2018). In turn, pointing out the importance of digital competencies of students, L.V. Astakhova identifies key types of information activities: consumer (search, selection, evaluation, interpretation, protection of digital content), reproductive (interaction and interchange of digital content), productive (creation, integration and processing of content), reflective (identification of digital needs) (Astakhova, 2019). Practice confirms that digital literacy skills are necessary for any person not only to exist in the digital environment, but also to function successfully in it to find effective solutions to many problems in any sphere of life (Antipina et al., 2020). In our opinion, digital literacy should be multi-component.

G.U. Soldatova and E.I. Rasskazova hold a similar position, pointing to the need to transition from digital literacy to digital competence, aimed at the formation of knowledge, skills, motivation, responsibility, which will allow using information and communication technologies effectively, critically, and at the same time use information and communication technologies safely (Soldatova, Rasskazova, 2014). This point of view is shared by V.S. Petrova and E.E. Shcherbik, who emphasize the formation of the so-called "skills of effective use of new technologies" (Petrova, Shcherbik, 2018) in the framework of the competence approach. At the same time, they proposed a system called "areas of digital competence", including information literacy,

communication, content creation, security, and the ability to solve technical problems. It is these structural components of digital competence that are recognized as fundamental components of student's digital literacy.

As we can see, most researchers come to the consensus that the understanding of digital reality can teach a person to objectively assess the information obtained, and the use of digital technology becomes a source of development, which should be formed in the educational environment of the educational institution. And digital tools are becoming a common attribute of the educational process. However, students need constant support in including digital practices, especially in an academic context. Thus, a theoretical analysis of scientific concepts reveals the content of digital literacy, which represents the ability to effectively and safely use of digital technology, the use of digital knowledge, skills and abilities to solve problems in a particular context. In addition, the process of its formation involves mastering the algorithms of search for information, knowledge of information resources, risks and opportunities in the digital environment, the ability to assess the quality and reliability of content in the information space.

Research methodology

The basis of our research is a competence approach, which allows us to assess the level of digital competence and safe behavior on the Internet. Digital competencies are important components, so-called indicators of digital readiness of students, because as digital technology develops and spreads rapidly, the need for digital competencies of every citizen to build an effective digital society increases.

We assessed digital literacy level by nine competencies: digital technical literacy (searching, filtering information and digital content); evaluation and analysis of data, information and digital content; computer literacy, including mastery of

desktop software skills; operation of peripheral computer devices; creation and development of digital content; modification and integration of digital content; communication and cooperation (sharing information through digital technologies, digital etiquette, responsibility); digital security competencies (protecting personal data and ensuring privacy, protecting health); digital technology problem solving (solving technical problems, identifying needs and technology solutions). Conditionally, the formation of digital competence was divided into three levels: high, medium and low. In our opinion, the advantage of the methodological approach is that it allows us to consider students not only as an object of the digital environment that has professional knowledge and is able to use various information and communication technologies, but also as a subject, ready for effective work activities (information environment, communication, consumption, technosphere), whose behavior is based on a sense of responsibility.

To implement the purpose and objectives of the work we used a set of scientific methods: comparative, statistical, correlation analysis, sociological methods. The study was conducted in March – May 2022 by the Department of Sociology of the Institute of Media, Social Sciences and Humanities of South Ural State University (National Research University) and the Research Center for Monitoring and Prevention of Destructive Manifestations in the Educational Environment of the Chelyabinsk Institute for Development of Professional Education. On the basis of the quantitative method on a standardized questionnaire surveyed, 1st–5th-year students of higher educational institutions in Chelyabinsk at the age of 17 years and older. The sample size was 1972 people, the sample was representative, the error did not exceed 5%, the method of conducting – questionnaire at the place of full-time education of the respondent, method of data collection – direct

survey. Students from four universities participated in the survey: South Ural State University for the Humanities and Pedagogy, South Ural State University, Chelyabinsk State University and Chelyabinsk State Institute of Culture and Arts. These are technical and socio-humanitarian universities, which allowed us to identify the features of knowledge and problems of formation of digital competencies in the context of digital technology, media and information literacy, security, problem solving among students of different professional orientation of training. Sociological information was processed using IBM SPSS Statistics (version 22.0) with the use of correlation coefficients.

Results of the research

Using a competency-based approach, we consider digital competencies as tools and indicators of digital literacy that include a basic set of knowledge, skills, and attitudes for using the Internet. The use of digital technology tools helps the student effectively and safely operate in a digital environment to achieve educational, professional, and personal goals. Digital literacy creates a digital eco-environment, renews the content of sociocultural processes, including communication, and enables students to be free and safe in a digital space where security is a key component.

This is confirmed in the results of our study. It was important to find out how students define digital literacy. The results of the study showed that the majority of respondents understand digital literacy as the ability to use digital technology in learning/work, the ability to freely and safely navigate in the digital space and the availability of knowledge in the field of information, electronic security. Moreover, the ability to use digital technology in learning/work is more significant for students of the Institute of Culture (79.3%) than for other universities. At the Pedagogical University, respondents preferred skills in the digital learning environment (44.6%) and possession of

relevant information about the new opportunities of the network space (53.2%). It is noteworthy that competences such as information search on the Internet and its analysis and possession of relevant information about the new possibilities of the network space and readiness to work in a digital educational environment are also relevant for the respondents. At the same time, the vast majority of respondents do not consider communication in social networks as a key criterion, an indicator of digital literacy, most likely due to the fact that for today's youth online communication is already normal. In everyday life, students use social networks for communication actively, and sometimes completely switch to online communication only, easily create groups of interest, meet, communicate, exchange opinions on various issues, discuss current topics, movies, music, etc. The study found no statistically significant differences in the understanding of digital literacy among students of different gender, age, place of residence, and standard of living. At the same time, most students are of the opinion that digital literacy is necessary for working remotely, finding new opportunities to earn money online, critically comprehending the information received, being able to navigate the interface, and forming a basic set of skills for problem solving.

During the study, we have identified a number of problematic issues that relate to the aspects of students' safe use of the Internet. The results of the student survey showed that the level of digital literacy depends largely on the level of IT skills, knowledge and skills in the field of media security on the Internet. Moreover, digital literacy is noticeably higher among respondents with a high level of IT skills. However, respondents aged 22 and older (23.0%) are more likely to have a high level of IT skills than other age groups of students. In addition, it was found that there were more such respondents among boys (21.3%) compared to

girls (10.4%). For every second student with a high level of knowledge and skills in the field of media security, the skills of possessing relevant information about the new possibilities of the network space are important, which certainly indicates the actualization of the content of educational programs. It was noted that respondents aged 23–24 years (56.1%) show a heightened interest in mastering information. The results of the survey showed that almost 2/3 of students have an average knowledge of IT-technology (65.6%), with a significantly higher share among respondents aged 17–18 years (72.5%). However, among the latter, there are those who believe that there are no threats in the Internet space (20.0%). This proves the need to constantly inform students about the existing Internet threats, the formation of skills and abilities to resist destructive content with the help of digital technology. Thus, according to VCIOM, in 2021 for the vast majority of young people (96%) aged 18–24 the Internet and social networks are the main sources of information that they use daily (74%)¹⁰. It is well known that social networks are the most active tool for spreading destructive and extremist ideas. The results of our study show that respondents have more developed digital technical literacy skills, including searching and filtering information and digital content, than media security competencies. This is confirmed in other studies conducted in Russia in recent years (Brodovskaya et al., 2019; Strekalova, 2019; Vedyashkina, Vedyashkina, 2021).

At the same time, it was found that the share of respondents of the Institute of Culture, who have formed the competence of technical literacy, compared with the students of other universities, is small. Only one in five students has the ability to operate peripheral devices on a personal computer,

and to solve problems related to digital technology. Moreover, boys (32.6%) have developed these competencies more often than girls (16.9%). Every second boy owns personal computer software (55.5%). Among girls, only one-third have these skills. In turn, girls have developed communication and cooperation skills, including information exchange through digital technology, digital etiquette (44.4% vs 39.9%).

The issue of media security competence among university students remains problematic. The study found that despite mastery of digital competencies in general, only one-third of university respondents are proficient in security skills, including personal data protection, privacy, health. There is a small number of respondents (10.7%) who are able to fully modify and integrate digital content. The results of the correlation analysis for these variables are presented in *Table 2*.

Nowadays, the digital environment for many young people is a source of information, a technology and a space for communication. Young people trust the data posted on the Internet, they learn about the latest news in the country and the world on digital platforms, and find the necessary information.

The results of the survey showed that the most popular among students are social networking platforms such as “VKontakte” (90.6%), “Telegram” (72.5%), “YouTube” (63.4%), “TikTok” (47.8%). These platforms are used equally often by students at all of these universities. Among the respondents there were many who are regularly active on Instagram, in spite of the bans¹¹ (32.5%). On the Internet every fourth respondent, regardless of the university, orientation of professional training, age and gender, faces content that contains signs of aggression (60.1%), demonstrates

¹⁰ Media consumption in Russia today. VCIOM Sputnik survey. Available at: <https://ok.wciom.ru/fileadmin/userupload/2021media.pdf> (accessed: October 17, 2022).

¹¹ The platform is prohibited by Russian law and is classified as extremist in Russia.

Table 2. Formation of digital competencies of university students depending on the level of IT-technology proficiency and knowledge, skills in the field of media security on the Internet, %

Digital competencies	All interviewed	Level of IT skills				Level of knowledge and skills in the field of media security on the Internet					
		High	Average	Low	Difficult to answer	High	Above average	Average	Below average	Low	Difficult to answer
Digital technical literacy, including searching and filtering data, information, and digital content	56.6	73.7	60.2	37.1	28.3	71.1	64.9	52.2	34.8	21.6	29.6
Evaluation and data analysis, information and digital content analysis	44.9	56.4	46.6	32.9	32.1	59.9	48.6	41.0	33.3	29.7	22.5
Computer literacy, including mastery of desktop computer software skills	43.8	68.0	44.8	25.2	27.4	54.9	51.3	38.8	31.9	13.5	23.9
Communication and cooperation; includes information exchange via digital technology, digital etiquette	43.1	49.4	46.5	31.9	17.9	50.7	50.2	40.6	27.7	24.3	14.1
Security, including protection of personal data and ensuring confidentiality, health protection	31.7	40.9	33.4	19.5	24.5	46.7	38.1	25.8	14.2	18.9	16.9
Operation of peripheral devices on a personal computer	20.9	35.1	20.9	12.1	11.3	27.6	24.4	17.9	13.5	10.8	14.1
Digital problem solving; includes solving technical problems, identifying needs and technology solutions	20.0	42.1	18.8	9.3	13.2	33.9	25.5	12.8	12.1	13.5	11.3
Creating and developing digital content	19.6	30.5	20.3	11.8	7.5	31.6	20.4	16.0	10.6	10.8	23.9
Digital content modification and integration	10.7	18.1	10.0	8.0	8.5	19.1	11.8	6.6	7.1	16.2	14.1
Difficult to answer	9.8	3.5	7.3	17.9	31.1	2.6	5.0	11.6	15.6	16.2	47.9
None	3.7	0.0	2.3	11.5	5.7	0.7	3.3	3.4	9.2	21.6	1.4
Others	0.1	0.0	0.2	0.0	0.0	0.3	0.0	0.1	0.0	0.0	0.0
The amount exceeds 100%, since the respondent could give several answers. Source: own compilation based on the results of a sociological survey.											

destructive, suicidal behavior (52.3%), contributes to the spread of drugs (11.0%), and is a platform for the development of the forbidden “Columbine” movement (8.4%). At the same time we identified other threats to the digital environment, which are of concern to respondents: leakage of personal data caused by the network (74.1%), viruses and phishing (63.3%), hacking personal pages (60.1%). Almost every second student is concerned about the threat of online bullying, and girls (50.8%) are more likely to be bullied than boys (37.6%). All this confirms the relevance and importance of improving digital literacy and safety of today’s youth in the Internet space. The need to develop appropriate methods and technologies for the safe use of digital content in universities and to prevent the spread of destructive Internet practices among young people has been substantiated.

Conclusion

The digital transformation of the economy requires students to develop digital literacy in the learning process. In the present conditions, not only the competitiveness of future professionals, but also their quality of life in the future depends on the formation of digital competencies. In the learning process, young students actively use a variety of digital technologies. Unfortunately, the pace of digitalization is outpacing users’ skills in mastering it. The results of our research confirmed a significant “sagging” of critical digital competencies and professional skills. Besides, it was revealed that the majority of students master IT-technologies mainly at the average level. It is important to understand that possession of an insufficient level of digital competence significantly reduces the competitiveness of the future specialist in the labor market, which creates a need to focus on

fundamental changes in the content of educational programs, the active use of digital technology and control over the process of forming digital competences in the process of training students. It should be remembered that in the context of the spread of destructive and extremist content on the Internet, it is the development of digital literacy that largely determines the lives and health of students. In this regard, teachers should inform students about the threats and risks of the digital environment, carry out preventive activities, teach how to use various digital resources safely, and monitor compliance with ethics and communicative literacy in the digital environment whenever possible. It is important to teach students how to critically evaluate information on the Internet and how to use reliable and verified digital resources and services. To improve the digital literacy of students at the university level, it is necessary to work on the implementation of systemic, interdisciplinary training practices with the mandatory mastering and application of digital skills as a learning tool. Moreover, it is necessary to develop a unified methodological approach to monitoring the formation of digital competencies. We believe that these activities will increase the level of digital competence of students. The results of our research are of practical significance for assessing the digital competencies of students, including digital security competencies, the level of digital literacy, identifying risk groups for exclusion from digital development processes; developing measures aimed at preventing threats and risks of the digital environment for young people; making managerial decisions, developing strategic programs at the regional and municipal levels, including within the framework of the national program “Digital Economy of the Russian Federation”.

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