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Digital Literacy and the Development of Digital Education

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Abstract

Based on the concept of a digital turn in sociology proposed by Professor S. Kravchenko, the author, using the example of specific sociological studies of Russian research centers, analyzes the influence of the level of digital literacy of the population on the prospects of digital transformations in society. Digital literacy is considered as an integral indicator, including information, technical, communicative and innovative component. In addition to age and gender differentiation, the level of digital literacy is also affected by settlement and territorial factors, confirming that there is an urgent problem of digital inequality. With the ethical side of information literacy, the situation is also ambiguous. This indicator shows how deeply a person reflects on the information found and used. 45% do not think about the benefits and harms of the information they receive on the Internet. The quality of information also becomes a very revealing factor — the majority of respondents are critical to the information received and its sources. More than 70% admit that the media they have chosen may not always provide information reliably. Unexpectedly, in addition to the social group of people with higher education, the greatest skepticism in this regard is also characteristic of young people. Information literacy of the younger generation and lower computer literacy of the older generation reveal a deformation of the socialization process due to the emergence of the phenomenon of “spiritual distance” between these generations.

Keywords: digitalization, a digital turn in sociology, digital literacy, information literacy.

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1. Introduction

From the initial large-scale technological trend, digitalization has transformed into a global industry that integrates into all social, economic and political processes, including becoming a significant factor in the socialization of modern man. The young generation perceives everything that happens in this area as a natural process, but older people are very ambiguous about digital technologies and their active penetration into their lives.

2. Methodology and Methods

S. Kravchenko introduces the concept of “digital turn in sociology” into scientific circulation, actualizes precisely the humanistic component of this process, emphasizing the fundamental importance of shifting the emphasis of the principles of global technological transformations from rationality, pragmatism and mercantilism [2]. And, accordingly, from digital sociology, as a scientific field that studies digital methods of social cognition [9] more attention is shifted to the sociology of digitalization, which studies the social aspects of digitalization, the factors and consequences of this process for a person, social groups and society as a whole. N. Marres argues that “digital” entails changes in the relationship between knowledge, society and technology [3]. In addition to the “advantages of digital technologies” noted, in particular, in the education system [4], a number of underestimated risks and threats [1] are clearly manifested, in particular, the risks of unauthorized collection of private information, total digital surveillance, violation of an individual’s personal space and other.

Person involved in the process of digitization depends not only on its attitudes and barriers to perception of innovation, but also on the degrees and preparedness for such a change. One of the factors of digitalization of modern public life is the level of digital literacy of the population, which is understood as a basic set of knowledge, skills and attitudes that allow a person to effectively solve everyday tasks in a digital environment.

3. Results and Discussion

In this context, the results of studies conducted by the NAFI analytical center in 2018–2019 are very interesting. [6, 8]. Within the framework of the research program “Public Preparedness for the Digital Economy”, a successful attempt was made to determine the level of digital literacy of representatives of various age groups. It is quite obvious that a significant difference has been revealed in the level of digital literacy of modern adolescents and adults. 15% of Russian teenagers demonstrated a high level of basic competencies in the digital environment (the proportion of respondents with an Index of 90 per cent points and above). The gender aspect here was very indicative — among the most immersed in the digital environment were 32% of girls and 68% of boys.

A similar proportion of adults have a high level of digital literacy — 26%. According to the research methodology developed from the level of digital literacy of 100-max scale, enabling the use of such components of digital literacy as information (knowledge of the specifics of the information and its various sources, skills in searching the relevant

information and its comparison, in respect of benefits and harms setup information); computer (knowledge of the computer device and its functions, skills in using a computer and similar devices, settings regarding the role of the computer in daily practice); media literacy (knowledge of media content and its sources; skills in searching for news and fact checking, attitudes towards the accuracy of information communicated through the media), communicative literacy (knowledge of the specifics of dialogue in digital communication, skills in using modern means of communication, attitudes regarding ethics and communication standards in a digital environment); technological innovations (knowledge of modern technological trends, skills to work with gadgets and applications, attitudes towards the benefits of technological innovations).

Today, 45% of Russians have a high level of digital literacy. At the same time, a quarter of the adult population — 28 million Russians — have low digital literacy, and the main barriers to improving it are a weak interest in technological innovation and a relatively low level of knowledge of digital devices. Other NAFI studies have shown that Russians understand the importance of knowledge and skills in technology: half of those surveyed, busy working (52%) are already actively using digital technology in the workplace, and 1/3 are convinced that they will lose their jobs if do not receive regular training in this area [8].

The Russians demonstrate the highest level of competencies in the field of media literacy (the sub-index is 65 per cent points), and the lowest is in the field of computer literacy (the sub-index is 46 per cent points). Differentiation is also very indicative among residents of megacities and rural areas (59 and 49 per cent points, respectively).

With the ethical side of information literacy, the situation is not so clear. This indicator shows how deeply a person reflects on the information found. 45% do not think about the benefits and harms of the information they receive on the Internet. Critical attitude to information obtained and its source, presently 72%, are aware that the media they choose can't always provide information reliably, and the greatest of skepticism in this respect is inherent in people with higher education and youth.

On April 18, 2019, the VCIOM (Russian Public Opinion Research Center) presented research data on whether Russians encounter fake news in the media and on the Internet, and whether they can distinguish reliable information from false information [11]. Over the past year or two, 31% of Russians faced unreliable news on the Internet, and among people with higher education this percentage was higher — 38%. Every fifth (20%) of the respondents met similar news on television (26% among people with higher education). Another 7% noticed news that was untrue in the newspapers, and 5% on the radio.

About 72% of the population uses the Internet “daily, almost daily” and “several times a week,” sociologists found. In 2001, there were only 2-3% of Russians like that. About 45% of citizens go online “several times a day” (among young people 87 versus 6% among Russians over 65). About 56% of Russians regularly use social networks (an increase of 2.5 times in eight years), about a third of the country’s population have never used them. Among young people, 85% visit networks “daily or almost daily” versus 8% in the older age group [12].

It is obvious that a person’s attitude to innovative technologies is closely related to media literacy, information, computer and communication literacy, and 36% of respondents show interest in this area. Representatives of the older generation are less interested in technological innovations, despite the fact that half of the Russians realize that modern gadgets help in everyday life and make it easier (58%), although 53% noted that it is still difficult for them to master modern technologies [8].

An individual’s digital literacy is directly related to innovative processes in various spheres of his life. In particular, in the field of education in the research process, the most relevant in practice digital competencies of the teacher were specified: digital communication with students and colleagues; using a computer to create new learning materials and adapt existing ones; assessment of the reliability of information and the identification of false or biased information; safe and responsible use of digital technology; use of digital technology in the educational process and tracking online student’s activity; use of digital tools to measure and track students’ progress and understand the need for their additional support [10].

If we compare the level of digital literacy of teachers and their students, it can be noted that the level of digital literacy of teachers exceeds the level of digital literacy of adolescents 12–17 years old and young people 18–24 years old, despite the fact that representatives of these target subgroups showed a rather high level of digital literacy — 73 out of 100 possible in adolescents (14–17 years), and 77 out of 100 possible among young people aged 18–24 years.

In the education system, with the support of the state and business, it is necessary to develop programs to increase the computer literacy of teachers, provide methodological support for their activities, including using distance learning technologies, an important point being the creation of an accessible digital environment for teachers from all regions of Russia.

Whenever possible, computer technologies should be widely used in research activities, in working with sources, in analyzing and processing data, and directly in the educational process. Specialized government bodies, industry research organizations

should monitor the availability and demand for digital resources for teachers at all levels of education in order to quickly resolve problem situations.

Monitoring digital literacy of teachers, as well as periodically measuring the level of information, communication and technical competence of teachers will help diagnose the current situation, develop and effectively implement measures to increase the willingness of teachers to use digital technologies in the educational process.

At the same time, most of the informative and communicative processes in organizations are actively being converted to new digital formats, so 77% of Russian large businesses are ready to switch to cloud technologies. Such data are contained in the comprehensive study "The demand for cloud technologies in Russian business", first conducted on the Russian market by SberCloud and the NAFI Analytical Center in November 2019. According to the study, in the next 2–3 years, the business intends to maintain or increase costs for cloud technologies planning to make use of e-cloud by 48% of the companies of big business, 28% of small businesses and 20% of medium-sized businesses [13].

The global transition to "cloud technologies" observed and actively implemented over the past few years exacerbates this distance and increases not only the innovative, spatial and technological, but also the cognitive distance between generations, not only within the framework of family and interpersonal communications, but also on the scale of production, industry and institutional interactions. Not only the communication system is changing, but also the way of thinking, which is becoming an urgent subject of research not only by sociologists and psychologists, but also by representatives of many related scientific fields. The concept of a digital turn in sociology, suggesting the humanistic basis of the ongoing transformations, could become a methodological basis for a comprehensive study of the social aspects and consequences of digitalization of modern society.

It is possible to identify the main factors stimulating the incorporation of e-cloud: reducing operating costs of the organization, simplify interaction units, reduce the time of data analysis, freeing up resources for strategic tasks and reduce the time when decision making. At the same time, the main barriers to moving to the "cloud" are still budgetary restrictions on information technology, the need to restructure business processes, concerns in the field of cybersecurity, and the unpreparedness of senior management.

Thus, the aspects of cybersecurity and inertia of the development of digital literacy, actualized at the theoretical level, while realizing the inevitability of digitalization in all spheres of life, the threat of crowding out the human factor not only from the production

sphere, but also from the managerial sector when it is replaced by artificial intelligence, were confirmed and on an empirical level.

4. Conclusions

Digital turn in sociology, which can be taken as a basic concept, which allows to obtain a methodological landmark study of the changes taking place, has no apparent determinism, due to the complexity of Super Digital and of reality. The impact of the digital turn on society and man is multifaceted and manifold. Most of the modern concepts and approaches emphasize that the effects of digitization are multiple and according to N. Marres and "digital" entails a change of interaction in technology and social life, between the knowledge society and technology [3], but V. Vanderburgh states that each new generation is socialized in new technical procedure, which differs significantly from the previous [5], which implies that not only the process but spiritual gap between row generations. In this context, the empirical support of scientific research, which will also allow the use of digital technology in the research process, will be a very interesting and demanded direction. "To study digital transformations by numbers" is one of the aspects of the ambivalent influence of digital technologies on the development of sociological science.

Digitalization is a serious challenge to sociology. Digital risks and metamorphoses not only determined social and cultural changes, but radically changed the nature of society and man, bringing them to a new level of social connections and cultural life [2]. And it is very important that the main participants in the changes, represented, including by the scientific communities, increasingly support the humanization of digital transformations, so that digitalization accompanies the birth of new ethical realities based on humanism, solidarity and security, and instead of pragmatism and formal rationalism.

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