Value Aspects of Digitalization of the Educational Environment

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Abstract: The relevance of our research is due to the processes taking place in modern Russian education. Value orientation is the most important component of human life, the basis for the formation of life goals and, as a result, acts as a motivation that encourages a person to behave in accordance with their expectations. The authors try to define the phenomenon of the value of digitalization of education, to describe digitalization as a value at the personal level, to explain the process of reassessment under certain circumstances, taking into account the fundamental factors of sustainable development of the world. The digital approach changes the attitude to the values of education, rethinks them. In the new prefigurative model of education, defined by the framework of digitalization, there are no clearly defined hierarchies, students are an active beginning, easily adapt to rapid changes, focused on creativity, innovation and independence. A new form of education appears: groups of «mutual education» are formed on the basis of horizontal connections. The prefigurative model of education is focused on the development of competencies that will be in demand in the future, i.e. it has a preventive nature. In this regard, the priorities of competencies are also changing: hard skills, which the traditional model of education was focused on, are giving priority to soft skills. Among soft skillsь - critical thinking, ethics and communication skills - are the most relevant.

1 INTRODUCTION

The development of humanity in the modern world determines the process of digitalization. Two and a half thousand years ago, the great Pythagoras suggested that «everything in the world is a number» Karl Friedrich Gauss continued: «Mathematics is the queen of sciences», thus paving the way for philosophical positivism. The millennial philosophy of numbers has found physical reality in the modern world, in the world of information, cybernetics, digital technologies and artificial intelligence. Today we can say with full confidence that the process of development of ICT and digital technologies is qualitatively changing the way of life, capabilities and thinking of a person. The transformation process is connected both with the rapid development and increasing availability of technologies, and with the pandemic. The pandemic of 2019-21 has activated diverse online processes on an unprecedented scale, when broadband connectivity and the development of digital resources have become a vital necessity for adults and school children to work, study and access all kinds of services (Ainoutdinova, Tregubova, Ng, Kopnov, 2022). The emergency development of electronic resources and Internet technologies in the era of the pandemic had a contradictory impact on the perception and evaluation of this process, and also presented special requirements for the educational process, all its components - from planning to implementation. Cardinal changes are connected not only with the material, but also with the spiritual side:

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it is not enough to fill the school with computers, it is also important to create new needs, attitudes and values. The main problem of the digitalization era is the psychological and value maladaptation (especially of people of the pre-digital era) to rapid technological progress: internal changes do not keep up with external changes (Vafina, Paigunova, Appakova-Shogina , Gut, Sanger, 2020). The current situation actualizes the purpose of the study – the study of the value aspects of the digitalization process in the field of education.

2 MATERIALS AND METHODS

The methodological basis of the article is the work of modern researchers in the field of media philosophy in general and axiology in particular. In the process of writing the scientific work, the authors used: - comparative and empirical methods of information retrieval, which helped the authors to obtain the necessary amount of data on the issue under discussion, - a systematic approach that provides a thorough analysis of existing socio-cultural interactions, - methods of analysis and synthesis aimed at identifying values as part of socio-cultural reality and defining them as a significant part of modern society, is a method of induction and deduction. The work was also influenced by a number of Russian authors in the field of axiology and pedagogical psychology. The concepts of Claire Graves, M. Mead, Nassim N.Taleb, E. Toffler, D. Bell were used as reference methodologies.

3 RESULTS

The emerging model of education will inevitably lead to a qualitative transformation of the value system of the educational process. It can be assumed that this meaningful value transformation in the era of digitalization will consist in the following:

Traditional values will give way to innovative ones: teachers should be ready for constant changes in all aspects of the educational process. Updating standards, templates, programs, methodological support, educational resources – this process is no longer temporary, but permanent. This will be due to both technological development and the constant updating of the demands of society and the market for specialists of various profiles.

Narrow specialization will become a thing of the past. Considering that I will be doing more and more routine work with ICT, a wide range of skills and abilities becomes a competitive advantage of a teacher. The era of the pandemic presented the first lesson of this kind: traditional contact learning skills needed to be expanded with distance learning skills. Narrow professionalism as a value is being replaced by universal professionalism. The same universalism will become the value basis for a painless change of occupation in a dynamically developing world.

The next important professional competence of a teacher will be mastering electronic and digital resources – both as pedagogical tools and as opportunities for self-development. We will all become a bit of «IT people». And there is a very thin value boundary here. Digital tools can corrupt both the teacher and the student: to get a result, it will be enough to load the appropriate neural network with the task, and the lecture, presentation, task will be written and solved without the participation of the subjects of the educational process. On the other hand, these same digital tools provide unprecedented opportunities to diversify the educational process. Modern researchers, at the moment, present separate author's classifications of roles, skills and competencies of teachers related to the digitalization of the educational process, in particular, based on gradations of ICT proficiency levels by teachers. Equally important, in our opinion, is the classification of the roles, skills and competencies of teachers, with an emphasis on the value foundations of the process of digitalization of education.And in this regard, we can get both creative value and corrupting anti-value. The fascination with digital resources will inevitably put participants in the educational process (as, indeed, all people) before a value choice. Perhaps this value choice will be the most important in the digital world.

And finally, no matter how banal it sounds, the value of freedom is actualized. The modern hierarchical structure of education already today demonstrates its clumsiness, inability to respond to public demands in an actual way. The emerging system of «horizontal» accessible education puts participants in the educational process before the freedom of choice – what to teach? how much to teach? how much to pay? where to teach? when to teach? And this inevitable explosive growth of the educational market in the digital civilization will be based not only on freedom of choice, but will also require from us the inevitable responsibility – the teacher for the educational content, the student for the assimilation of this content. «We are all sentenced to freedom,» and this value constant will become more relevant than ever in the era of digitalization.

4 DISCUSSION

There are 3 stages in the formation of the information society (Panov, Patrakov, 2020):

Stage 1 (1940s-60s): forecasting and futurology of the information society, the period of optimistic dreams and fantasies on the topic, including the first ideas of the future of the Internet (the era of the pre-digital environment).

Stage 2 (60s – late 1990s): the birth of the information era, scientific futurology (E. Toffler, D.Bell) and the formation of the information industry, the transformation of the computer from a factor of industrial development into a fact of mass consumption. In 1970, Xerox developed Ethernet technology designed to transfer data between various computer networks, and also created the first Xerox A personal computer. The transition from an optimistic perception of information and computer technology to an understanding of the risks and uncertainties of the development and expansion of these technologies.

Stage 3 (late 1990s to present): globalization and emergent development of information, computer and digital technologies, avalanche-like growth and updating of information, «loss», awareness of the lag of the human mind and psyche, fear of losing control over the development of the information sphere and social processes in general (Nassim N.Taleb) (Taleb, 2007; Balatsky, 2023). Increasing pessimism in assessing the prospects for the development of technologies from ICT to artificial intelligence (dynamic processes of digitalization of the world).

The most important aspect of the development of the information world is the «embedding» of the world community in the environment of digital technologies, i.e. the process of computerization and digitalization of society. According to Wikipedia, in 2005, 16% of the world's population had access to the Internet (in developed countries – 51%), in 2010 – 30% (in developed countries - 67%), in 2017 – 48% (in developed countries – 80%). According to the report of the International Telecommunication Union (ITU) published on October 1, 2022, prepared for the 21st ITU Conference, 54% of the world's population used the Internet in 2019, and by the end of 2022 this figure will reach 66%, that is, 5.3 billion people.

By 2022, 84% of households in Russia have access to the Internet, and the share of users of this network has grown to 82% of the country's population. In 1998, 1 million Russians had access to the Internet, in 2022 130 million residents of our country can use the Internet (Trofimova, 2022). The experience of digital transformation of society accumulated to date allows us to identify the main features (opportunities) of the information society, which in one way or another affect the education system: 1. Dynamic, explosive accumulation and change (and, accordingly, obsolescence) of information. Every two years, humanity produces as much information as it has produced in the entire pre-digital history. This generates digital neologisms – «information noise», «information pressure», «information flow», etc..

2. Expanding access to information for everyone, regardless of socio-economic status and ethno-cultural characteristics. With the development of neural networks, even the language barrier is removed. This aspect of digitalization and informatization of society has two important consequences. Firstly, the monopoly on information is being eliminated, this also applies to teachers: the knowledge approach in education is changing to competence-based, soft skills are being updated in comparison with hard skills. Secondly, a person loses his bearings in this mass of information, truth and falsehood (manipulation, fake) are difficult to distinguish, it is necessary to make efforts to process information to form his own position, his worldview, his principles and ideals (goals). It is an undeniable fact that it is not difficult to find information today, but it is difficult to «absorb» it into the consciousness and memory of students. As a result, we get a superficial "clip" thinking and the lack of our own answer to certain questions (Voiskunsky, 2016).

3. Along with the availability of information, the opposite trend is also observed: the algorithms underlying the functioning of all information systems, in fact, not only simplify and accelerate the solution of problems, but at the same time limit the freedom of action, choice, being unable to enter «our situation» and solve the problem in a strictly limited framework. The model of algorithms in education is familiar to all tests. Testing in the educational process has demonstrated all its advantages and disadvantages to date.

4. Digitalization makes it possible for anyone to show their creative potential – in all spheres of public life. In science, art, business, social activities (Sirotkin, Chumicheva, Kulikovskaya, Kudinova, 2020). Today we can name a whole galaxy of Russian writers who were born in the «bowels» of the blogosphere. The Internet makes art accessible not only in the aspect of consumption, but also of creation, i.e. electronic resources allow an «ordinary» person to go beyond the traditional subjectivity defined by society, and today a person can position himself with a whole train of identities and social

roles. For example, a scientist today can also be a writer, a popularizer of science, a philosopher, a blogger, a public figure, a teacher, an expert, etc.

5. ICT and digitalization have an equally strong and ambiguous impact on communication and, in general, on cultural identity. It's not just about wide communication opportunities: it's enough to look into your smartphone and count the number of your chats, for example, in WhatsApp or groups in «Kontakts» – compare this volume with the number of contacts 10 or 20 years ago. We are also talking about a qualitative change in communications based on digital technologies. Symbolization of speech, its impoverishment, anglicisms, generally accepted grammar violations in the «digital» Russian language, shorthand of speech and, as a consequence, shorthand of thought (form begins to influence the content!). Emoticons or - even more symbolic brackets – replace the need for awareness and expression of one's emotions. The absence of live contact not only impoverishes emotional empathy and empathy, but also creates the opportunity to distort the transmission or perception of the real emotional state of the interlocutor. The «digitization» of communications leads to a qualitative change in the content and forms of communication culture, as well as has both its positive and negative manifestations.

These changes caused by the process of digitalization have a huge impact on all spheres of social life. One of the most dramatically changing is the field of education. The main subjects of the educational process are teachers and students. The slow pace of the evolution of mankind and the gradual process of accumulation of knowledge formed over the centuries a classical model of education in which the teacher was authoritative and authoritarian, and the student was in a subordinate position, and this nature of relations in traditional society was preserved throughout the life of the teacher and student. Nowadays, the pace of development has accelerated enormously, the volume of information doubles every 2-3 years, electronic technologies are radically changing the forms and methods of education.

These changes impose new requirements on the teacher, as well as on the whole society of the post-industrial era: the need to constantly study, be able to combine deep specialization with a broad outlook, develop flexibility of thinking, be ready to change activities due to the rapid obsolescence of some professions and the emergence of new ones (the theory of 10,000 hours by M. Gladwell) (Gladwell, 2009). Such drastic changes in lifestyle and work necessarily form new value and ideological foundations of a person of the «digital world». If we talk about education, then we are talking about the formation of a prefigurative model in which the roles of «teacher» and «student» are undergoing a radical transformation. The adult generation («teachers»), brought up in the traditions of a post-figurative or configurative culture, have difficulty adapting to the new changing world, as evidenced by numerous surveys of the post-pandemic period. The period of online learning, in which we found ourselves unwittingly during the period of mass isolation in 2020, demonstrated a loyal perception of distance learning of the younger generation (students and schoolchildren), in contrast to teachers who experienced severe stress due to their unwillingness to work in new conditions (Ainoutdinova, Khuziakhmetov, Tregubova, 2017; Vaskov, Isakov, Bilovus, Bulavkin, Mikhaylenko, 2021).

The prefigurative model (term by Margaret Mead) (Mead, 1983) of education is based on the fusion of the positions of the teacher and the student. Young people who quickly assimilate new information, new skills and new rules gain a competitive advantage and are able to perform pedagogical functions, sometimes while still on the school or student bench. The adult generation, on the contrary, is forced to constantly take care of their qualifications, turning into «eternal students». In the new model of education, there are no clearly defined hierarchies, students are an active beginning, easily adapt to rapid changes, focused on creativity, innovation and independence. A new form of education appears: groups of «mutual education» are formed on the basis of horizontal connections. A person with exclusive knowledge or a competitively significant skill can create a training group for everyone, in which neither age, nor education, nor position have any meaning. The prefigurative model of education is focused on the development of competencies that will be in demand in the future, i.e. it has a preventive nature. In this regard, the priorities of competencies are also changing: hard skills, which the traditional model of education was focused on, are giving priority to soft skills. Among soft skills, critical thinking, ethics and communication skills are the most relevant. The training is carried out on the basis of cooperation and interaction between teachers, students and experts. High technology and narrow specialization in the professional market form the need for individual trajectories of education, the training of «piece» specialists.

5 CONCLUSIONS

Such value changes in the educational process are a reflection of such value changes on a social and universal scale. What will be the value world of the digital age? Perhaps the most optimistic and hopeful answer to this question can be found in Graves' concept of spiral dynamics (Beck, Larsen, Solonin, Viljean, Jones, 2019). Changes in the era of digitalization, on the one hand, threaten the very existence of the species Homo Sapiens, but, on the other hand, open up unprecedented opportunities in the evolutionary spiral of humanity. Having described historical models of the value evolution of mankind, Graves came to the conclusion about a qualitatively new stage emerging in an information and technologically saturated highly interactive world. The author marked this new nascent stage in yellow («yellow level»). Graves is sure that the mission of the yellow level is to sort out the blockages and confusion historically accumulated by layers of different levels, so the image of the yellow level is a «flexible flow». This inspiring flexibility of the «yellow level» allows you to enter the value worlds of all previous systems – to interact with them in their psychological languages, healing their wounds and strengthening a healthy core. Thus, the Yellow level is the level of large–scale thinking and vision. A person of the yellow level acts from an internally directed existential ethical center, making his own choice independent of anyone, relying on various sources, but not limited by rigid external rules and dogmas. In conclusion, it should be noted that the scale of the inner content of a person of the Yellow level can be provided only by the same large-scale change in the external, objective in relation to a person, opportunities created by the world of digital technologies.

REFERENCES

Ainoutdinova, I.N., Tregubova, T.M., Ng, Ju., Kopnov, V.A., 2022. New roles and competencies of teachers in the ICT-mediated learning environment of Russian universities. *Education and Science Journal*, 24. № 1. pages 191-221.

Vafina, A.H., Paigunova, Y.V., Appakova-Shogina ,N.Z., Gut, A.V., Sanger, P.A., 2020. Theoretical and applied potential of tourism axiology and environmental subjectivities. *Caspian Journal of Environmental Sciences*, 18. № 5. pages 525-531.

Panov, V.I., Patrakov, E.V., 2020. Digitalization of the information environment: risks, perceptions, interactions: monograph. 199 pages.

Taleb, N.N., 2007. The Black Swan: the impact of the highly improbable: Random House. 480 pages.

Balatsky, E.V., 2023. Nassim Taleb's Black Swan: a new view on chance.

The number of Internet users by the end of 2022 will reach 5.3 billion? IA Red Spring. https://rossaprimavera.ru/news/9c9c18fe.

Trofimova, I.N., 2022. Accessibility and use of the Internet: the problem of digital inequality. *Russia: trends and prospects of development*, No.17. pages 468-473.

The Age of Digital Independence. Retrieved from: URL: https://www.un.org/en/pdfs/ Digital Cooperation-report-for%20web.pdf (accessed 18.10.2020).].

Voiskunsky, A.E., 2016. Behavior in cyberspace: psychological principles. Man. 2016. No. 1. pp. 36-49.

Sirotkin, O., Chumicheva, R, Kulikovskaya, I., Kudinova, L., 2020. Social reproduction of generations in the face of digital challenges E3S Web Conf. 273 10022.

Gladwell, M., 2009. Geniuses and outsiders: Why is everything for one and nothing for the other? 256 pages.

Ainoutdinova, I. N., Khuziakhmetov, A. N., Tregubova, T. M., 2017. Advantages and disadvantages of distance education for university students In Russia. *Modern Journal of Language Teaching Methods*, Vol.7, Is.9/2, pages 431-444.

Vaskov, M., Isakov, A., Bilovus, V., Bulavkin, A., Mikhaylenko, N., 2021. Digital literacy of modern higher education teachers E3S Web Conf. 273 12035.

Mead, M., 1983. Culture and continuity. Investigation of the conflict between generations. M. Mead, Culture and the world of childhood. M. pages 322-361.

Beck, D., Larsen, T., Solonin, S., Viljean, R., Jones, T., 2019. Spiral dynamics in Practice. A model for the development of personality, organization and humanity, Alpina Publisher. 328 pages.

Dr. Graves theory. URL http://www.clarewgraves. com/theory.html (accessed 03.02.2023).