The "Digital Divide" as a Feature of the Modern Educational Process: Ambivalent Assessments

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ABSTRACT

The article is devoted to the analysis of the "digital divide", which is clearly manifested in the educational process. Modern education has gone the way of digitalization, which has become particularly evident in the current conditions of the pandemic. The focus is on the problem of "digital skills", which are necessary in modern educational practices and the degree of development of which indicates digital inequality. The main goal is to compare estimates of the "digital divide", which has both positive and negative connotations. The arguments of digital optimists and digital pessimists are considered. The methodological basis is the principle of socio-cultural determination. It is specified by a three-component model of micro-, meso- and macro-perspectives. At the micro level, the effect of education is included. At the mesoscale, scientists look at the home context. At the macro level, the social context is included. The positions of digital optimists and digital pessimists are analyzed on the basis of modern scientific research. The author shows that "digital optimists" believe that traditional knowledge is "dead knowledge". Digitalization is a completely new practice for the human central nervous system, having a stimulating effect. On the contrary, digital pessimists discover new areas of risk by detecting numerous cognitive deformities caused by digitalization. It is concluded that digital determination creates new risk areas in the educational process. It gives rise to a new type of rationality aimed at using ready-made information resources, borrowing and compiling information, and, ultimately, causes to a gap between conceptual and digital thinking.

Keywords: digitalization of the educational process, "digital divide", "digital skills", "digital optimists", "digital skeptics", risks of digital education

I. INTRODUCTION

Digitalization has become one of the main priorities of the modern world. New sixth technological stage give rise to a digital world, where digital determination affects all kinds of interactions, leading to computerization of life itself. The modern era sets new priorities. The change in the communicative foundations of civilization is characterized by a shift towards informational forms of interaction. They become powerful "mediators" of the modern existence and claim to a significant degree of dominance. Today, the Internet deprives anyone of the monopoly of knowledge. In a pandemic, network interactions and online services tend to "go viral", that is, to be mainstream instead of traditional educational practices. However, the effects produced by this digital shift remain unpredictable and understudied. This study focuses on the problem of the "digital divide", which reveals a distinct digital inequality with regard to

possessing "digital skills". Unlike generation Z, generations X and Y seem to be unable to acquire strong digital skills, that the younger generation acquires in the process of primary socialization and then improves them, surfing the Internet most of their time.

The term "digital skills" emphasizes which skills are seen as primary and necessary in the 21st century. The image of the Man of the Future is incomplete without basic "digital skills" that reflect the trends of modern development. A person of the 21st century must be able to operate with a significant amount of various information and skillfully manage online content. At the same time, researchers notice that most of our contemporaries do not have time to master the latest technologies and are faced with the fact that they lack specific skills for Internet communication. The study aims to analyze the ambivalent *socio-psychological* estimates of the "digital divide", which has both positive and negative connotations. The focus is on the

positions and arguments of "digital optimists", "digital pessimists" and "digital skeptics".

II. METHODOLOGICAL STRATEGY AND THEORETICAL FOUNDATIONS OF THE RESEARCH

We proceed from the assumption that the context of an era strongly influences the interaction between people and determines the characteristics of a person in the 21st century. Therefore, the methodological basis of research is the principle of socio-cultural determination, which defines the effects of the modern digital era on human life, giving rise to a new type of personality. The principle of socio-cultural determination is concretized by a methodological approach that takes into account the three-component model of micro-, meso- and macro-perspectives. At the micro level, the effect of education is included. At the mesoscale, scientists look at the home context. At the macro level, the social context is included. We agree with the position of the researchers that these levels capture the emergence of a specific digital divide, as well as the emergence of a new form of social inequality in various spheres [1].

We also rely on the activity approach and the method of comparative analysis. The research uses historical and evolutionary analysis of developing systems proposed by A. G. Asmolov. The research is based on the methodological potential of the convergence process in its basic meanings. Firstly, "convergence" means the synthesis and integration of the subject's digital skills and network capabilities and resources. Secondly, the concept of "convergence" points to the symbiosis of subjects of natural-physical type and Artificial Intelligence (AI), Artificial Super Intelligence (ASI).

As we assume, the concepts of "uncertainty" and "complexity" have already firmly entered modern life of the academic community and have become peculiar characteristics of our time. Regarding concept "complexity", it should be noted that the modern world can be defined through the concept of "complexity", which is viewed as a characteristic feature of the 21st century.

Modern methodologists assess "uncertainty" as a dominant trend that characterizes not only the cutting edge of science, but also the era itself. The concept of "uncertainty" reflects the type of interactions that do not have a final stable form. It characterizes existence when the image and the real state of the future are not determined [2]. It is the fact, that people are forced to make a number of key decisions under conditions of both ontological and technological uncertainty. The theoretical basis of the study is the works by A. A. Asmolov, A.N. Leontiev, V.K. Finn, I.M. Feigenberg as well as research M. McLuhan, W. Bennett and A. Segerberg, A. Clark, S. Korupp, G. Small, T. Moody, P. Siddarth, S. Bookheimer and others.

III. ARGUMENTS OF "DIGITAL OPTIMISTS" IN THE CONTEXT OF MODERN SCIENTIFIC RESEARCH

The so-called "digital optimists" emphasize indisputable advantages of technological development in all areas, including educational practices. Standard traditional knowledge, according to them, is "dead knowledge". They believe that Internet provides broad opportunities for expanding the outlook, meeting diverse needs and "networking". "Digital optimists" view the process of digitalization as a tool to improve all kinds of scientific interaction.

Digital tools are seen as the basis for connective action, that indicates cooperation based on information technologies [3]. Moreover, they also become an extension to an individual's physical and mental abilities. Researchers argue for large-scale info-interactions, pointing out that they are a completely new practice for the human central nervous system, changing brain activation patterns and having a stimulating effect [4].

It should be emphasized that the study of these advantages is reflected in a number of conceptual theories. The idea of the convergence of human abilities with the Internet environment as a new stage of anthropo-technological evolution is supported by a number of theories and concepts, among which are the theory of "Understanding Media: The Extensions of Man" by M. McLuhan, [5], "Chelovek Dostroennyy" by I. Feigenberg [6] as well as the idea of natural integration of man and technology by A. Clark. For example, according to Andy Clark, the human mind regularly involves a number of devices in its field (pen, notebook, phone, etc.). Human thinking is not limited to the brain, cranium, and even the body. The author suggests the further natural inclusion of new technologies in the process of human interaction with the world. In his opinion, the human mind will necessarily be complemented by technological advances. In this regard, A. Clark even proposes a term such as "electronic brain enhancements" - "EBEs" [7].

It can hardly be denied that computer memory and intelligent systems provide a number of benefits. They are largely exceed the natural capabilities of man. Today, intelligent systems function as the main agent of modern human existence. Special attention should be given to the research, according to which the structure of consciousness represented by knowledge + mind + a person's subjective world is very similar to the structure of intellectual system. Its structure includes a knowledge base + fact base + a problem Solver + Interface [8]. Therefore, convergence, namely interpenetration of individual's abilities and possibilities offered by digitalization, sets a new direction for personogenesis. Apparently, one should pay attention to

the fact that the phenomenon of "network collaboration" arises, which offers innovative forms of interaction and generates a new sociability.

Another fundamental innovative achievement of the digital era should be recorded. This is big Data technology. In fact, Big Data expand human abilities, enabling us to define typical algorithms and calculate the most probabilistic logic of events. Big Data makes it possible to collect, structure various information, and also receive a lot of additional information. The analysis of large amounts of diverse information may reveal hidden relations and regularities. Therefore, at the present time, the so-called "datafication" has a powerful effect, which is based on the statement that "the data speak for themselves". "Datafication" means transformation of social action into online quantified data. After being structured and interpreted, data is used to generate behavior patterns. As a result, it seems necessary to record a kind of specific "datafication turn", which brings essential changes in the human life world.

IV. THE POSITION OF "DIGITAL SKEPTICS" AND NEW AREAS OF RISK IN DIGITAL EDUCATION

"Digital pessimists" or "digital skeptics" hold a different view. They are discovering new areas of risk generated by the digitalization of the educational space. "Digital pessimists" emphasize unpredictable effects, cognitive deformations, and even personal deviations that are caused by a large-scale digitalization educational landscape. Today, the infocentric world with its virtual imitation effects has flexible tools for influencing human consciousness and his psycho-mental sphere. "The Man at the Computer" becomes an obedient recipient. The subject of the 21 century is characterized by simplistic and fragmentary thinking coupled with information overload, reduced concentration and the desire to become self-fulfilled in the Net.

While the general cultural situation of our time is associated with the expectations of a holistic knowledge and reflective awareness of the acute problems of our time, "the man of the digital era" seeks to find and adopt ready-made information resources that are fragmentary and mosaic. Thus, digital communication actors act as "content viewers", they only scan the information in a superficial way, without translating it to personal knowledge. It's the fact, the information search and skimming dominate over comprehension of the meaning of this information. The transition to rapid "screen reading" transforms conceptual culture. Digital technologies connected with the perception of a huge amount of information lead to cognitive impairment of brain functions, intellectual development and emotional sphere.

According to the position of digital pessimists, a significant deforming factor is the lack of personal physical "face to face" contact, which is an attribute of the new "social network". Therefore, a new "risk zone" is technology dependence, generating a new type of "interactive" loneliness. The negative consequences of the digital era include the phenomenon of "digital solipsism", which is becoming widespread. A subclass of computer people is emerging, who lead a reclusive life and earn a living on the Internet.

It should be noted that the digital environment generates a peculiar type of rationality which allows random borrowing and compilation of information. In our opinion, this type of rationality, based on the "rent of knowledge", hinders the development of thinking. Due to the fact that "the man of the digital era" strives to use ready-made information resources copyright is losing its value, which is a disturbing symptom for scientific cohorts and science in general. As we know, references as an "academic component" of science and education are absolutely essential. References are viewed as an indicator of authorship and reliability of scientific discoveries, as well as scientists' social responsibility. Plagiarism, compilation, aggressive scientific discourse cannot be tolerated. The conceptual process of subject-activity thinking and the digital ways of discovering and experiencing the world seem to be in antagonistic relation.

However, controversial issues cannot be avoided in the debate between digital pessimists and digital optimists. According to the "pre-digital" paradigm, the priorities of which are close to "digital pessimists", classical education was seen as a "screening apparatus" of unacceptable ways of thinking and explanation. The transfer of knowledge was based on both teacher skills and personal teacher-student interaction. As we noted earlier, it was the experience of personal contact that was seen as an important semantic priority of training and education. Moreover, personal interaction led to further professional connections and relationships [9]. In addition, the disciplinary cohorts did not allow those conclusions that were fundamentally inconsistent with the principles of the existing scientific picture of the world. It should be emphasized that, starting from the early stages, the scientific discipline monitored scientific careers. "Digital pessimists" are confident that only by means of conceptual thinking high-quality explanatory knowledge is provided, linking scientific achievements into a holistic picture of the world. As a rule, it is in the texts of scientific disciplines that causal relationships, laws and characteristics of reality are reflected.

In the current situation, digital technologies lead to the effect of multitasking as a characteristic feature of people's behavior. Multitasking is caused by the need to "digest" multidirectional information flows and

combine various kinds of activities. Thus, multitasking prevents the development of a holistic worldview and gives rise to fragmented and flexible ideas about the world, norms and values.

"Digital skeptics", who are less categorical than "digital pessimists", express their negative assessment of the impact of rapidly evolving technology by asking. How are social and digital connected? Can the social be completely absorbed by the digital? Does the project of our happy future depend solely on technology? Perhaps the rapidly developing Big Data technologies set the transpersonal mode of control and coercion of both the individual and society?

V. CONCLUSION

The main conclusions are as follows. Firstly, the "digital divide", which is characterized by variations in digital skills, is ontologically caused by the gap between the digital world and reality associated with traditional educational practices. Convergence, understood as the interpenetration of personality abilities and capabilities offered by digitalization and intelligent systems, sets a new trajectory for personogenesis.

Secondly, digital determination which has penetrated the educational process, gives rise to a new type of instrumental rationality aimed at using ready-made information resources, borrowing and compiling information, and, ultimately, creates a gap between conceptual and digital thinking.

Thirdly, digital world imposes its own values and priorities, which are projected onto the education sector. These include, on the one hand, the desire to leave a "network footprint", create a "digital image" and "digital reputation", increase the number of followers and likes. On the other hand, anonymity, depersonalization of the digital actor, or his multiple identity become new norms and values. All this clearly illustrates anthropological deformations.

Fourthly, we believe that the stress of the "digital divide" situation leading to world outlook deformations can be reduced under the following condition. If, in a situation of open scientific narration, leaders and participants in the educational process explain the regularities of reality in an understandable form, interacting "face to face" with the audience, they thereby not only popularize scientific results and contribute to their introduction into general cultural practice, but also preserve the tradition of forming conceptual thinking.

Fifthly, in the digital environment, the competences of critical thinking and creative approach are seen as the most promising strategies of the educational process. In addition to the high level of professionalism, the necessary regulators of the modern educational process are stress resistance, the ability to respond to constructive criticism, expand the area of mutual understanding, and draw the right conclusions. On the contrary, the lack of critical reflection on the problems of digitalization can be a major barrier to both understanding the modern world and improving the correct ideological and behavioral choice of representatives of the modern generation.

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