

New intellectual technologies and actual problems of the modern information society

Nuevas tecnologías intelectuales y problemas reales de la sociedad de la información moderna

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ABSTRACT:

A problem is raised about the place and role of science and education in the global systemic crisis caused by the transition of humanity to the era of the information society and the "flexible" neo-liberal economy. It is necessary to change the strategy of civilization development from extensive to intensive. To do this, radical measures are needed to improve the technology of knowledge production and management, which requires large-scale reforms in the field of science and education, aimed at the formation of a synthetic picture of the world.

Keywords: intellectual technologies, information society, science and education, synthetic picture of the world.

RESUMEN:

Se plantea un problema sobre el lugar y el papel de la ciencia y la educación en la crisis sistémica mundial causada por la transición de la humanidad a la era de la sociedad de la información y la economía neoliberal "flexible". Es necesario cambiar la estrategia del desarrollo de la civilización de extensa a intensiva. Para ello, se requieren medidas radicales para mejorar la tecnología de producción y gestión del conocimiento, que requiere reformas a gran escala en el campo de la ciencia y la educación, orientadas a la formación de una imagen sintética del mundo.

Palabras clave: tecnologías intelectuales, sociedad de la información, ciencia y educación, imagen sintética del mundo.

1. Introduction

Entering the discourse of post-industrialism, Russian researchers focused on the works of its founding fathers: Daniel Bell, Alvin Toffler, Francis Fukuyama and Peter Drucker (on the issues of the management of the new society). Due to the still present ideological tendency to focus on the works of recognized classics in search for the methodological foundations of own research, the works written in the 70s - 80s of the last century obtained a significant national reception in Russia. Another possible reason for Russia's slower incorporation into a

new reality is the relatively long period of relic modernism that ended politically with the collapse of the USSR but continued in the living worlds of former Soviet citizens until the beginning of the "zeros". Meanwhile, the global information society in its modern form significantly differs in its parameters from those that were laid down by theorists of post-industrialism. As Kenneth J. Gergen correctly observed: "In previous centuries, only the emperor, the pope, the king or the Fuhrer had the power and resources to imagine globalization - the possibility of an infinite expansion of the boundaries of influence, possessions, permissibility and/or self-aggrandizement. Cheap technologies of communication and transport made the potential of globalization available literally to everyone" (Gergen, 2016). The problem is that not that imaginary globalization has become actual, but something quite different, in relation to which the globalization of futurists is nothing more than an epiphenomenon.

The actual discourse of the post-industrial society, in our opinion, is most accurately indicated by Manuel Castells, a researcher of the neoliberal globalization, by the developments of the German liberal conservative school of Joachim Ritter, mainly the theory of the split and compensation of Hermann Lübbe and the theory of the two types of modernity of Zygmunt Bauman. M. Castells in his program work "The Information Age: Economy, Society and Culture" expresses the conviction that in developed economies of the West production relies on educated people aged 25-40 years, leaving more than a third of human resources unclaimed. The way out of this situation is found in the neoliberal strategy of the world economy development, which is guided by the international economic organizations: IMF, WTO, WB. The threat of mass unemployment is eliminated by the expansion of individual freedoms, restriction of state intervention in economic life, strict fiscal policy, liberalization of trade and prices, and deregulation of entrepreneurial activities. The totality of these measures will make it possible to counteract the threat of unemployment with the highly segmented social structure of the labour market, which is characterized by extreme flexibility, individualization, and mobility of work. Criticism of M. Castells concerns not the very ideology of a flexible market, but methods of its promotion, when strict conditions of "structural adaptation" were imposed on national economies through direct government action or through the activities of IMF, WB or WTO, without taking into account the specifics of the situation in them. Conclusion: the flexible market is flexible only at the stage of recruiting into unprotected forms of employment, the structure of corporations and the structure of intelligence do not lose their rigidity (Lukiyanova et al., 2017).

Hermann Lubbe is the most prominent representative of the school of Joachim Ritter, who took the interest of a famous historian to the society of modernity and accepted the thesis of its alienation from previous history and culture. This alienation is most noticeable in the field of law applicable to an individual, regardless of his historical origin, "the person's value is that he is a person, not that he is a Jew, a Catholic, a Protestant, a German, etc.", the universal freedom in law erases the specific historically conditioned features of the origin of the individual, as well as in the principles of building a civil society that frees the individual from the history of his origin, accepting him as a bearer of individual economic interests. Cutting away from tradition, neglecting the "origin" is projected from these spheres into the family, culture, science. The latter cuts off man from nature and religion. The modern man is a man of a non-historical society, liberated from tradition, from the power of natural and divine forces.

Despite the fundamentally different interpretation of modernity (for M. Castells it is the post-industrial information society, for G. Lübbe it is still the modern society), the described approaches have a common point - the network concentration of modernity, the network society. Z. Bauman identifies two types of modernity: "solid" modernity and "liquid" modernity: "The kind of modernity that was the target, as well as the cognitive frame of classical critical theory, in a retrospective analysis is strikingly different from that set by the frame life of modern generations. This modernity seems "heavy" (compared with the current "light" modernity), and even better - "solid" (as opposed to "liquid", "fluid" or "melted"), dense (compared with "diffused" or "capillary") and finally systemic (in contrast to network). This heavy/solid/dense/systemic modernity of the era of the "critical theory"

concealed the tendency towards totalitarianism" (Bauman, 2008). The metaphor of "solid" modernity, as opposed to "fluid" modernity, allows us to comprehend the transition from clearly structured economic models to the changing and mobile economic situation of modernity of our time.

A new type of public relations, which are built around flexible, fluid, disregarding any borders of capital flows, information, technologies, solving some problems (pushing away the challenges of mass unemployment) generates others, especially noticeable on a regional scale. In the Russian regions, thanks to the neo-liberal course to increase the flexibility and mobility of the labour market, a layer of mostly young and economically active citizens is formed capable of perceiving new motives and labour strategies in such areas as the Internet economy. With all the advantages noted by the supporters of the neo-liberal ideology, this form of adaptation of the economically active population to a changing socio-economic situation gives rise to a number of problems typical of an unprotected form of employment. We emphasize that we are not talking about pensioners, housewives, and persons with disabilities, but active young people experiencing difficulties with formal employment in the current conditions of regional labour markets.

The system of higher education in the regions, aiming to correspond to world trends, guides the student to search for his own educational trajectory; concerned with achieving the indicators on the employment of students (monitoring is carried out according to data provided by the state employment service, whose activities, if we compare its interactive portal with the section "work" on AVITO portal, are focused not on helping in finding a job, but on keeping an account of those who apply for special payments), state higher education institutions do not impede the early employment of students, transferring them to an individual training schedule, allowing full-time and part-time work. The complexity of the economic situation in many Russian regions justifies this practice by making it possible to shorten the period of future training, gain practical experience; in fact, even full-time students, having grown up at the first two years for independent life, from the third year on become random people in the university, earning social capital outside the institution. Estimating situation in Omsk is possible by analysing vacancies on the already mentioned AVITO portal. Commercialized education in private universities, which should be seen as more or less professional counselling in the process of self-education, only exacerbates the problem, leading to status frustration. Investing in education, trusting advertising appeals to invest in their future, young people, receiving a diploma testifying to the employer against its owner, face the fact that the future is a chain of constantly changing temporary jobs, without prospects. Many graduates of universities simply refuse to search for jobs in their specialty and career development, preferring creative search and independence. Independence sponsored by parental support allows such young people to lodge for some time as consumers in the industry of experiences (tourism, travel). Independence, multiplied by unsettledness and uncertainty, in the long run, may cause bitterness, form a rather explosive youth environment, prone to protest actionism. In 2012, Vitaly Kurennoy noted the connection between the orientation on the emotional experience of life and the logic of protest movements: "I can conclude that that part of the people that constitutes the very new in these protest and political phenomena, they really live in a logic that is close to the society of experiences. That is, an immediate emotional experience, and by the way, any collective action of this kind is a very strong and unexpected emotional experience, and this experience is in many ways more important than long-term rationalized political programs in which this phenomenon is attempted to be formalized by the existing political forces, which, of course, are also present in the framework of this social phenomenon "(Kurennoy).

Student mobility programs actively implemented in the regions partially eliminate the problem of student actionism, moving the unsettled "urban nomads" across the country. Early adaptation to the flexibility of the market is especially effective in polytechnic and engineering specialties, giving young people from the regions the opportunity to gain a foothold in large industrial centres, but considering that the world division of labour is a stronger trend than the local and temporary import substitution course, to substantiate conclusions an in-depth analysis by industry sectors is required. The experience of the program of international social internships AIESEC designed for young people from 18 to 27

years is noteworthy. Offering work in a team of volunteer students from different countries in the environment, culture and education projects, this organization conducts recruiting of the most active student youth from the regions. The organization's philosophy focuses on self-development and global involvement using positive examples of its graduates Bill Clinton, Helmut Kohl, Kofi Annan, etc. At the same time, even the leadership of the organization is built in such a way that the persons managing at all its levels are replaced every year (people enter position for the sake of experience, therefore, it is of no use to them to be for several years in one position) being an example of the non-hierarchical network society of M. Castells.

2. Materials and Methods

Despite the considerable resources allocated to science and education by the state, Russian students do not see in it a resource that could be used effectively or invested in building their future. The scenario that is being implemented today can be estimated as the Russian version of the world precariat, in the term of Guy Standing, consuming intellectual resources of the region only for own needs. It is impossible to stop this process, Niklas Luhmann claimed that no society today can "seal" its borders, prevent comparison of external and internal conditions. Making state investments in education effective, and presence of students in universities understandable for them and their employer is possible if this problem is considered not only in the context of Russian higher education but also in the broader context of the development of intellectual culture and fundamental science.

As of the beginning of the XXI century, concerning fundamental science, more and more painful questions are accumulated. Is there a rationale for mathematics or is it an effective and yet uncontested universal scientific mythology? The nature of the electric current is unknown, nor is there clarity in determining the place of information in physical reality. The serious achievement of biologists - the discovery of the genetic code, in fact, is limited to descriptions of mechanisms for the synthesis of primary structures of protein molecules. If you refrain from questions about how their tertiary structures are formed, it is appropriate to ask questions about the logistics and navigation of the required amino acids at the right time at strictly defined assembly sites. There are no reliable, reasonably correct hypotheses in the scientific sense, explaining the origin of life, man, society. Since its inception, social and economic sciences have faced fundamental questions about the status of laws regulating economic and social processes. Humanities, unfortunately, since the end of the XX century have little influence on the accelerating growth of violence in society, increased disagreements, misunderstandings of different subjects.

Serious criticism of modern science unfolds. On the one hand, it is conducted within the "corporation"; for example, the state of modern science in "Methodenstreit" is critically addressed by the philosopher N.S. Rozov (Rozov, 2011), the economists VM. Efimov, P.A. Orekhovskiy (Efimov, 2011; Efimov, 2011b; Orekhovskiy, 2013). On the other hand, science is harshly criticized by practitioners, in particular, S.B. Pereslegin (Pereslegin, 2007; Pereslegin, 2011), N. Taleb (Taleb, 2014).

This allows us to draw conclusions about the deep crisis in science, extending to education and aggravated by the bureaucratization of relations in the relevant institutions. To find the way out of this situation, the fundamentals noted above need to be addressed. We need a transition to visual strategies in cognition and learning, as well as the unfolding of the information-field paradigm as the basis of the scientific picture of the world in the XXI century.

A key factor in the development of man and society is the labour productivity factor, and its growth should be ensured by science and support of education. This process will be successful provided that humanitarian and social technologies are created and improved as tools that improve people and society. But for this, labor productivity in science and education itself should grow due to new discoveries, the development of technologies for the transfer of knowledge and the development of intelligence. We will assume that the scientific and technological progress ended at the end of the 20th and the beginning of the 21st century. As in ancient times, imperfections of the intellect of the archaic mythopoeists were

overcome by rationalism, and the scholasticism of the late Middle Ages was replaced by the science of the new time; from the beginning of the 21st century, science and education themselves need innovation changes.

Let us pay attention to the following fact. F. Bacon, R. Descartes, B. Pascal, N. Copernicus, T. Braga, and G. Galilei obtained their main results outside the walls of universities, although it was them who discovered the foundations of classical science in intellectual culture. Only after the "university revolution" (Collins, 2002) from the beginning of the XIX century a research university is formed. It is difficult to make reliable assumptions in this area, but, obviously, modern universities around the world are going through a difficult period (Readings, 2009). Let us note that geniuses of the new era, idols of youth are people who dropped out of universities, successful start-ups, and not successful graduates of higher education. With the emergence of the intellectual culture, science and education as a subsystem of society claim to have a monopoly over knowledge. Since the beginning of the XXI century in connection with the intensive development of the Internet and computer technology, this monopoly begins to be violated. This is clearly manifested already from primary school, where students have access to the same information resources as teachers; in higher educational institutions and postgraduate education, the situation is aggravated by the fact that for each next generation, interaction with computers, the Internet, inclusion in virtual reality is becoming an increasingly familiar activity (the notion of generations "Y", "Z"). In the first half of the XX century the ability to generate knowledge positioned the intellectual, now this ability has entered the mass culture. Priority positions are taken by the examination of knowledge, which is quickly institutionalized in the forms of various commissions, editorial boards, expert councils, etc. This process not only proceeds against the backdrop of a decline in the creativity and growth of bureaucracy in science, education and in society as a whole but intensifies it.

3. Results

The transition to a new era is accompanied, alas, by the devaluation of accumulated knowledge and methods, there is a "contraction" of knowledge, which is accompanied by their irreplaceable losses. In these conditions, new interfaces are required for the transformation of information flows into knowledge (understood, interpreted information), heuristic ideas about priorities in cognition and knowledge with settings for synthesis are needed.

A radical solution to this situation is possible in two areas: the search for new institutional forms for science and education, starting from schools and pre-school institutions; a deep reform with an orientation toward creativity, acquisition of new results. In the interests of coordinating work in these areas, the movement from reflection of substantive (fundamental) constraints for science and education is topical: linearization of thinking, speech, and writing; domination of the material-energy paradigm; a catastrophic gap between the automation of computing and the automation of reasoning, due to the growing discrepancy between the contentive-semantic and formal-mathematical aspects in research, learning, design, to the formation of new intellectual technologies.

Work on new intellectual technologies provides for the creation of cognitive tools that change the basic approaches to the perception, processing, use of information, in the application of visualizations of different types and levels of rigidity, the construction of keywords of a special type.

4. Conclusion

The fundamental foundations of innovative activity convince in its immanent connection with the interdisciplinary approach. Innovation in any of the sciences (novation) will not become an innovation without an effective output of the product to the market, therefore, economic issues are added to special tasks, for example, from biology and chemistry. New intellectual technologies are a field of scientific activity, but their implementation, a necessary condition for their becoming an innovation, is not realized without their cultivation in the areas of training and design.

The work on creation and implementation of new intellectual technologies in the form of a "super-goal" should focus on the formation of a modern person's synthetic picture of the world, and this idea can be effectively implemented in the formulation and solution of problems of integrating science, education, design.

Addressing the topic of new intellectual technologies is connected with the idea of the transition of humanity to a new era. Its duration and character are determined by the speed and depth of transformations in intellectual culture. A significant risk is a contradiction between the needs of society in the intellectual revolution. On the one hand, due to this, a society with a new culture and in a changed civilizational envelope should move into a new era, on the other hand, processes of mass intellectual degradation, bureaucratization, and a drop in creativity are observed. At the same time, humanity lives in a highly information-saturated environment, and the intellectual culture of the mass consumption society tragically lags behind the complexity of life support systems (Razumov and Sizikov, 2015).

Creation of new intellectual technologies, in turn, requires reflection on the causes and mechanisms that caused stagnation in intellectual culture, science and education.

Constructive in the work on intellectual technologies are goals for synthesis, including associations of research, training, design activities, which are advisable to open on the basis of any university and faculty.

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