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CURRENT PROBLEMS OF MODERN DIGITAL EDUCATION IN
RUSSIA

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Abstract

The article is devoted to the problems of introduction of digital technologies in education in Russia within the framework of the Bolon process. Along with the advantages of technical means, they create risks: harm to health, opportunistic behavior of students and sometimes educational institutions, formalism, the formation of standardized thinking, the possibility of total control over the learning process, censorship, sensory hunger when replacing live communication with machine communication, technical errors, violation of communication channels due to insufficient quality of technology, deterioration of students' memory, ability to analyze information and communicate, violation of traditional moral values, etc. There is an emerging gap between levels of education: cheaper e-education at the bachelor's level is being created for "ordinary" people, but the normal sphere of education remains for the elite. The article analyzes the financing of the education system and related indicators – the average age of teachers, material and technical base. It contains proposals for prevention and reduction of risks of using digital technologies and the Bologna process in General in Russian education. To return spirituality to the educational process, it is necessary to turn to traditional culture. You need to increase the number of classroom hours. Getting rid of excessive techno-logization is possible with a return to the achievements of the old education system in Russia (writing skills, oral counting, memory development). It is necessary to deal with excessive formalization. The methods used are economic and statistical analysis.

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1. Introduction

Digitalization is one of the aspects of the introduction of the Bologna system of education in Russia since 2003. However, the introduction of digital technologies faces risks in terms of medicine, psychology, information security, spirituality, and Finance.

The official position on the prospects for Russia's entry into the Bologna system was optimistic (for example, the Minister of education V. M. Filippov, the rector of RSUH Yu. Afanasiev, etc.) (Kushnir, 2018), while other specialists were critical of this reform (HSE rector Ya. Kuzminov, MSU rector V. Sadovnichy, etc.).

In Western Europe, the Bologna process is also subject to criticism. Employees of the University of Nanterre, Professor Ani Vinokur, coordinator of the international forum on education reform Karol Sigman, say that European elite universities (Cambridge, Paris Institute of political science, etc.) refused to participate in this process. This means that the European Union is building a deregulated sphere of education for "ordinary" people but it remains a normal sphere of education for the elite (Kushnir, 2018).

2. Bibliography

Considering publications on this topic, we note that:

1) most publications of both domestic and foreign authors on the digitalization of education do not question the need for technical innovations, pass on the experience of their implementation, or write about the positive impact of digital technologies on learning (Condruz-Bacescu, 2019) and even actively promote electronic education, creating an «electronic ideology» (Kondakov, 2019; Kushnir, 2018; Tsifrovizatsiya shkoly: riski i perspektivy, 2019);

2) critical comments include either a complete negative attitude to the results of the introduction of a foreign education system (Taranov et al., 2019), or consider the negative impact of digital technologies, especially health risks (Hussain et al., 2018; Pervaiz, 2016; Strekalova, 2019; Tsifrovizatsiya shkoly: riski i perspektivy, 2019; Tsots, 2019; Verbitskiy, 2019), social and spiritual system (Kychuk, 2016; Privalov, 2010; Privalov, 2012a; Tyurikov et al., 2017), security risks in schools (Włodarczyk, 2019), the role of ethno-cultural education in preventing these risks (Sergeeva et al., 2018) , in General - a comprehensive analysis of the risks of the Russian educational system from the point of view of national security (Vodenko, 2019);

3) many publications on the topic of education financing consider: *first*, the ratio of funding in Russia and foreign countries (Pereverzeva & Shamne, 2017), and *second*, the main trends of structural changes in funding in Russia and in the regions (Abankina et al., 2018; Fridman & Verbetsky, 2017; Romanov, 2018b). Some suggest optimizing budget expenditures in the form of cutting government spending and searching for extra-budgetary funds, focusing on personalizing education funding (Abankina, 2019), implementing public-private partnerships (Kilinkarov, 2019; Romanov, 2018a), or other market-based ways to Finance universities in-house (Momotova et al., 2019), for example, using the model of optimizing the management of universities own funds to Finance R & d (research and development) (Bogomolova et al., 2018).

3. Research result

First of all let's note the advantages of digital education:

- 1.Speed and unlimited amounts of information transfer to consumers.
- 2.The target audience may be limited to the presence of registration and passwords.
- 3.Various technical possibilities for transmitting in-formation (audio, video).
- 4.Various feedback options (e-mail, webcams, on-line, etc).
- 5.Opportunities to persuade consumers using psychology.
- 6.Almost unlimited data transmission distances.
- 7.Creating compact electronic databases with search engines.
- 8.Opportunities for "independent", i.e. objective assessment of students 'knowledge – "quantitative assessments" (ratings).

Against the background of the advantages of digital technologies, their disadvantages are often lost:

1. Causing harm to health (vision, hand joints, psyche) (What harm does a computer do to a person, 2019).

2. Digital technologies dramatically increase the risks of opportunistic behavior of students and various scammers.

3. In the "strategy for the development of electronic industry in Russia for the period up to 2025", the need for the production of microchips for their implantation in the brain, which should be ready for the domestic industry (Strategiya razvitiya elektronnoy promyshlennosti Rossii na period do 2025 goda, 2019), is stated for granted.

4. On the one hand, electronic control systems should increase security, in particular, against the threat of terror-ism (Privalov, 2011), on the other – total control, censorship in the case of broadcasting a training session via the Internet. Positive control over the state of health (mental, in terms of narcology) of teachers and students. However, "feedback" from students can have excesses, such as abuse of teachers.

5. Technology in the process of reducing University teachers and replacing their work with virtual communication with students on the Internet generates sensory hunger, a lack of live emotions. There are technical difficulties, errors, and insufficient quality of equipment.

6. Access to the Internet makes students want to reduce the cost of effort for training, impairs their memory, ability to analyze information and communicate. There is a violation of traditional moral values.

There is a threat to restrict Russians ' access to the Inter-net for political purposes, which can cause great damage to the economy.

However, given the cyclical development of society and the projected post-market stage of development of civilization and culture in the coming decades (Sorokin, 2000), we can assume fundamental changes in the entire system of modern education.

7. The last important issue is the financing of education, which primarily affects the formation of human capital, measured primarily by the human development index (HDI). The relationship between investment in human capital and GDP is obvious (Laptev et al., 2017; Shabashev et al., 2017).

Take for example the top ten HDI leaders in 2017: Norway (0.953), Switzerland (0.944), Australia (0.939), Ireland (0.938), Germany (0.936), Iceland (0.935), Hong Kong, China (0.933), Sweden (0.933),

Singapore (0.932), the Netherlands (0.931) (Indeksy i indikatory chelovecheskogo razvitiy..., 2020). They are also the leaders of countries where science and education are more funded (Gosudarstvennyye raskhody stran v protsente ot VVP. Vsemirnyy Bank, 2020).

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According to Figure 1, Russia is not in the lead. The average value is 4.0 %, and Russian budget expenditures on education are 0.5% lower than the average.



Figure 1. Public spending on education as a percentage of GDP, 2017 (Kratkiy statisticheskiy sbornik “Obrazovaniye v tsifrah: 2019”)

Lack of funding is one of the main problems of Russian education. Let's look at the dynamics and composition of these expenditures in the Russian Federation over the past 19 years (Table 1).

Table 1. Dynamics of expenditures of the consolidated budget of the Russian Federation on education*

Years	GDP at current prices, billion rubles	Total budget expenditures, billion rubles	Total, billion rubles	Budget expenditures on education		
				as a percentage, %		expenditure dynamics, %
				to GDP	to the cost of the budget	Chain indicator
2000	7305.6	1960.1	214.7	2.9	11.0	-
2001	8943.6	2419.4	277.8	3.1	11.5	129.4
2002	10830.5	3422.3	409.4	3.8	12.0	147.4
2003	13208.2	3964.9	475.6	3.6	12.0	116.2
2004	17027.2	4669.7	593.4	3.5	12.7	124.8
2005	21609.8	6820.6	801.8	3.7	11.8	135.1
2006	26917.2	8375.2	1036.4	3.9	12.4	129.3
2007	33247.5	11378.6	1343.0	4.0	11.8	129.6
2008	41276.8	13991.8	1658.1	4.0	11.9	123.5

Years	GDP at current prices, billion rubles	Total budget expenditures, billion rubles	Total, billion rubles	Budget expenditures on education		
				as a percentage, %		expenditure dynamics, %
				to GDP	to the cost of the budget	Chain indicator
2009	38807.2	16048.3	1783.5	4.6	11.1	107.6
2010	46308.5	17616.7	1893.9	4.1	10.8	106.2
2011	60282.5	19994.6	2231.8	3.7	11.2	117.8
2012	68163.9	23174.7	2558.4	3.8	11.0	114.6
2013	73133.9	25290.9	2888.8	4.0	11.4	112.9
2014	79058.5	27611.7	3037.3	3.8	11.0	105.1
2015	83094.3	29741.5	3034.6	3.7	10.2	99.9
2016	86014.2	31323.7	3103.1	3.6	9.9	102.3
2017	92101.3	32395.7	3264.2	3.5	10.1	105.2
2018	103875.8	34284.7	3668.6	3.5	10.7	112.4
Average for the period 2000-2018				3.73	11.29	117.74

*Calculated and built by (Konsolidirovanny byudzheth Rossiyskoy Federatsii..., 2020; National accounts, Rosstat, 2020)

As we can see, spending on education as a percentage of GDP has been declining since 2009 (from 4.6% in 2009 to 3.5% in 2017 and 2018).

The HSE expert report "12 solutions for new education" suggests that 4.8% of GDP is optimal. Maintaining the specific weight at the level of 4% is an inert scenario in which the gap from world education will increase over time (12 resheniy dlya novogo obrazovaniya..., 2020).

Low funding creates, in particular, the problem of high average age of teachers, a lack of qualified specialists and a weak influx of young workers. Let's consider the age characteristics and the proportion of teachers of different types of educational institutions (Table 2).

Table 2. Distribution of teachers by age groups in different types of educational institutions in Russia in 2017-2018*

Year	2017		2018		On average, %
	Thousand people	%	thousand people	%	
School teachers in total, thousand of them:	1079.9	100	1082.8	100	100
Persons under 35 years of age, thousand people.	244.3	22.62	246.1	22.73	22.68
Persons aged 36 to 59 years, thousand people.	574.0	53.15	565.6	52.23	52.69
Persons aged 60 years and older, thousand people.	261.6	24.22	271.1	25.04	24.63
Teachers of secondary vocational education in total, thousand of them:	137.0	100	139	100	100
Persons under 35 years of age, thousand people.	30.9	22.55	30.9	22.23	22.39
Persons aged 36 to 59 years, thousand people.	77.2	56.35	78.6	56.55	56.45
Persons aged 60 years and older, thousand people.	28.9	21.09	29.5	21.22	21.16

Year	2017		2018		On average, %
	Thousand people	%	thousand people	%	
Teachers of higher educational institutions in total, thousand of them:	245.1	100	236.1	100	100
Persons under 35 years of age, thousand people.	14.8	6.04	13.1	5.55	5.79
Persons aged 36 to 59 years, thousand people.	160.8	65.61	155.2	65,73	65.67
Persons aged 60 years and older, thousand people.	69.5	28.36	67.8	28.72	28.54

*Calculated and built by (Kratkiy statisticheskiy sbornik "Obrazovaniye v tsifrah: 2019")

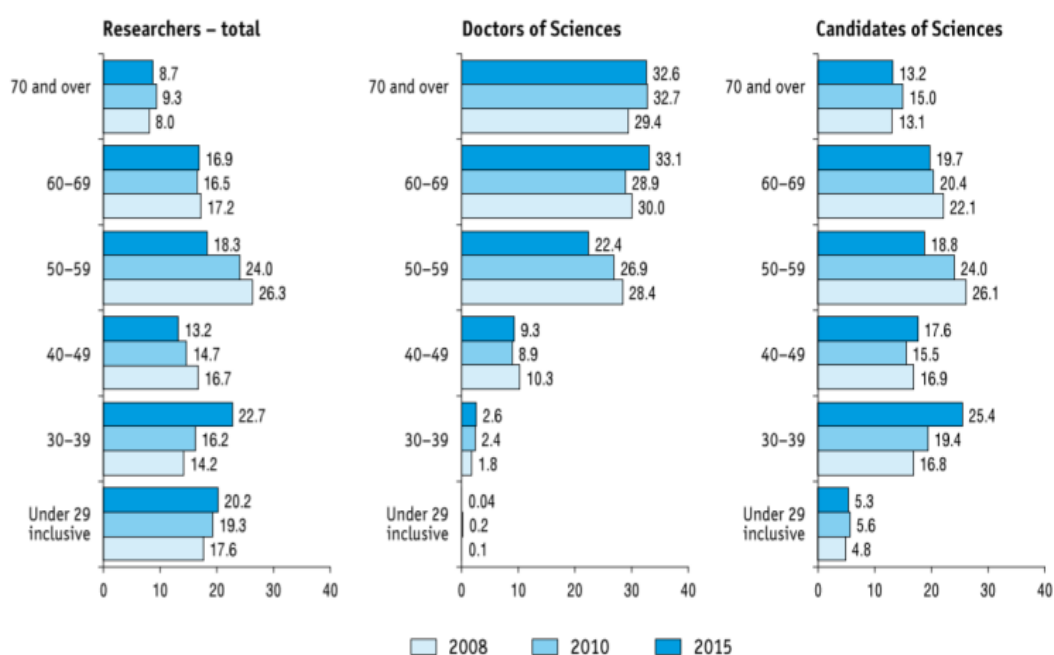


Figure 2. Public spending on education as a percentage of GDP, 2017 (Kratkiy statisticheskiy sbornik "Obrazovaniye v tsifrah: 2019")

The table 2 and Figure 2 shows the trend of aging of the teaching staff in higher Education institutions and the "rejuvenation" of school teachers. Moreover: a) the proportion of people aged 36 to 59 is the "backbone" of the teaching staff; b) it is stable in each cluster of education; C) the trend is typical for the last decade (since 2009).

With tougher competition in the educational market, shorter terms of election to office, increased requirements for publication activity (with paid publications), high cost of training in graduate school, doctoral studies and dissertation defense, reduced training hours for new state standards, few of the unshadowed young people agree to go to work in Universities, risking losing their jobs on the eve of the next accreditation.

Over the past 20 years, the average age of people employed in the economy has been lower than the average age in education, as, for example, in 2017, these figures were 40.8 years and 43.3 years, respectively (Rabochaya sila, zanyatost' i bezrabotitsa..., 2020).

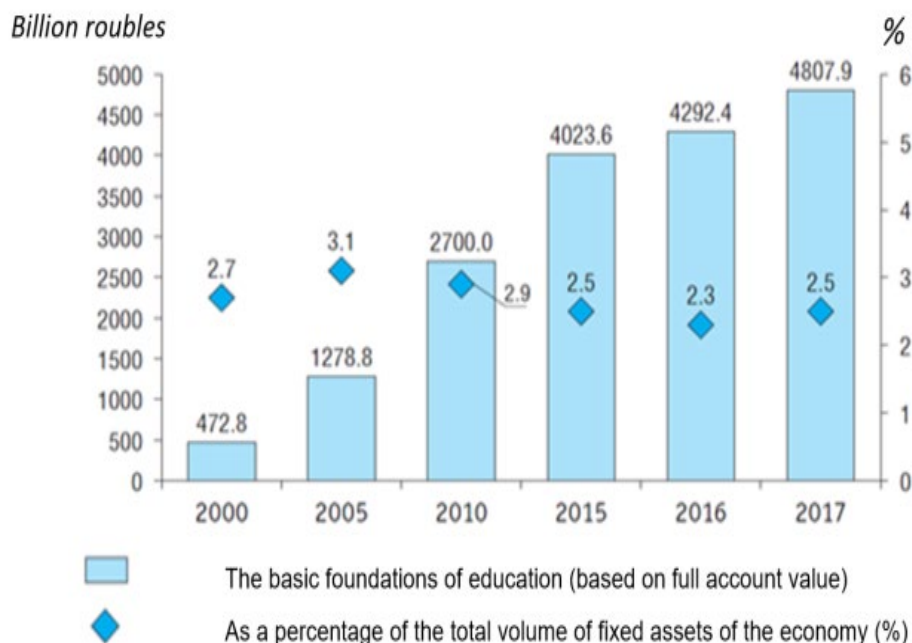


Figure 3. Fixed assets in the education system in 2000-2017

The material and technical base of education depends directly on the financing of education. From Figure 3, it is clear that the fixed assets in education, despite the growth in absolute numbers, as a percentage of the total volume of fixed assets in the economy fell significantly: in 2017, for example, compared to 2005 - by 0.6%.

Our proposals are based on the experience of implementing the requirements of the Bologna process in Russia.

1) to return spirituality to the educational process, it is necessary to turn to traditional culture. In the disciplines, it is necessary to show the interrelationships of various types of public consciousness-science, religion and morality (Privalov, 2012b). During the 2012 election campaign, Vladimir Putin expressed similar thoughts about the need to support traditional religions in Russia in the education and enlightenment system, in the social sphere, and in the Armed forces (Russian Government, 2012).

2) it is necessary to increase the number of audit hours, which is already happening spontaneously. Getting rid of excessive technologization is possible with a return to the achievements of the old education system in Russia (writing skills, oral numeracy, memory development).

3) it is necessary to deal with excessive formalization. The point-rating system, competencies, and other attributes of the Bologna system are not adequately applied to students, without taking into account their state of health, psyche, and level of social development. All this is supplemented by corruption.

4) it is necessary to increase the number of audit hours, which is already happening spontaneously. Getting rid of excessive technologization is possible with a return to the achievements of the old education system in Russia (writing skills, oral numeracy, memory development).

4. Results and discussion

Thus, the paper reveals the relationship between the lev-el of funding and digitalization processes included in the Bologna system. Opinions on the necessity and effective-ness of implementing the Bologna principles in Russia are noted. Along with the prevailing opinion about the lack of funding for the education system, there are proposals for finding additional sources of funding, optimizing expenditures, and strengthening state and public control.

Some negative consequences are analyzed: the age structure of teachers and the lack of material and technical resources. We can conclude that education requires, among other things, increased investment.

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