

# Educational Potential as a Basis for Increasing the Country's Competitiveness

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**Abstract**—The transformational processes taking place in the educational system of the Russian Federation should favor a positive formation of professional competencies and competitive advantages of young people. Increasing the level of education of the population hypothetically should contribute to the growth of labor productivity, reduce labor intensity and save time. The relevance of the research topic is due to the fact that the main basis for the growth of labor productivity, the development of innovations, equipment and technologies, and the increase in the competitiveness of manufactured products is the strengthening of educational potential. The study is based on the use of monographic, statistical, tabular and graphical methods of analysis of the modern education system. The results allow us to conclude that the differentiation of the quality of knowledge and professional competencies is determined by the basic conditions of the socio-economic well-being of families (income, status, social origin, system of moral values and others). The problem of provision of educational institutions in rural areas is especially acute. The reduction in the number of preschool and low motivation for labor in the education system and scientific activity can be the main destructive force of the domestic education system.

**Keywords:** *education, preschool education, school education, secondary specialized education, higher education, human capital, labor productivity*

## I. INTRODUCTION

A competent able-bodied population with broad and highly professional competencies can increase the country's competitiveness and labor productivity. The formation of educational potential requires a long time. It takes 11–13 years to train specialists in working professions, it takes about 14–16 years to train middle-level specialists, almost 20 years to prepare candidates of science, and 25–30 years to train highly qualified doctors. A 60% reduction in the number of admissions to graduate school, a 40% decrease in the total number of graduate students, and a 75% reduction in the percentage of defended candidate dissertations in 10-15 years will lead to the destruction of the system of training highly qualified specialists. It takes 11–13 years to train specialists in

working professions, it takes about 14–16 years to train middle-level specialists, almost 20 years to prepare candidates of science, and 25–30 years to train highly qualified doctors. A 60% reduction in the number of admissions to graduate school, a 40% decrease in the total number of graduate students, and a 75% reduction in the percentage of defended candidate dissertations in 10-15 years will lead to the destruction of the system of training highly qualified specialists.

Currently, the impact of education on the formation of high-quality human capital and the development of innovation is one of the most relevant research subjects for scientists from around the world. According to Japanese scholars studying the phenomenon of "mass education" and applying multi-level modeling, they came to the conclusion that "regional differences in the cultural capital of people associated with socio-economic status, partly explain the gap in attitude not only between people, but and between neighbors; there is a collapse of mass education in society and a differentiation mechanism based on socio-economic inequality between neighbors"[1].

According to scientists from the United Arab Emirates, "training is conceptualized in terms of knowledge, skills and competencies accumulated in accordance with an aggregate overall score"[2]. An analysis by the authors showed that "the empirical results show that demographic characteristics, such as age, nationality and gender, had a positive impact on learning." In addition, the authors found that "the initial state of the student's knowledge quality had a positive effect on student learning"[2].

The work of Irish scientists once again emphasizes, that "human capital, a set of skills, knowledge, abilities and qualities embodied in people, is crucial for the ability of firms to innovate." At the same time, scientists note that "studies of human capital are traditionally focused on education and training"[3].

In the work of Australian scientists, "the educational well-being of every child is linked to educational indicators and

achievements; since there is a direct connection between cognition and emotions»[4].

Researchers from Vietnam concluded, that "basic education is most beneficial for the rural poor and ethnic minorities in improving their living standards." At the same time, as scientists note, "remittances usually improve rural well-being, but do not reduce inequality; public policies should provide easier access to education for the rural poor and support the self-employed to increase and stabilize incomes"[5].

According to German scholars, "teaching financial literacy among adolescents is important because they are in contact with money, financial products and services earlier and earlier" [6]. Indian scientists are concerned about the problems of "empowering women in access to human and physical capital"[7]. At the same time, the authors note, that "the probability of completion of primary education in the first generation leads to improved access to bank accounts, a decrease in fertility, and the influence of the second generation on education is manifested in the use of more time on health and material wealth control." Thus, Indian scholars have concluded that "there is a significant and sustainable effect of empowering educated women".

In the work of American scientists, it is noted that "the aspirations of children to study at the age of 12 are positively correlated with a higher level of human capital reached by the age of 19; children with large gaps in the desire for learning have a lower level of human capital"[8].

According to Downes, P. (2019), "transition in the education system will become a concept that helps mask unofficial systemic difficulties»[9].

Spanish scientists write about the high importance of using electronic learning tools [10]. According to American scientists, "the importance of acquiring digital skills through the development of educational programs using the latest technological tools and resources is extremely important"[11].

A study by Turkish scholars on the impact of the use of communication technologies in teaching achievements related to global education notes that "the technology-supported training program used in the experimental group is more effective in increasing student achievement and maintaining learning compared to the learning application in the control group, which was not supported by communication technologies and where the teaching was teacher-oriented - the method of direct expression tions"[12].

According to American scientists, "the inclusion of visual methods and representations in research opens up opportunities for a deeper understanding of how people perceive higher education "[13].

According to Belgian scholars, "in digital learning, educational support consists of two factors: information support and process management." At the same time, they found that "leadership of the process positively determines social participation, and information support is negatively related to social participation"[14].

A study by Turkish scholars notes, that "mobile learning, science education, science education and e-learning were the most frequently used keywords in articles over the past six years"[15].

In our works, we have already discussed the impact of education on the incomes of the economically active population in the European Union [17] and the factors of successful adaptation of migrants to the labor market in the European Union, as well as the prospects for the development of educational migration in the Russian Federation [18]. Since we are living in a period of transformation of the education system, the multifaceted nature of the factors affecting the problem under consideration aims or helps us to further continue research in this direction.

The transition from the classical education system to digital and electronic forms, on the one hand, will help reduce the number of educational organizations and teachers, and on the other hand, it will lead to depersonalization and deterioration of the quality control system of educational potential. Because nobody knows, that, really and specific student answers the questions of the remotely exam, or is it his assistant.

## II. METHODS

In the course of the study were used general scientific research methods: monographic, economic and system analysis, abstract-logical, graphical and tabular.

## III. RESULTS

In order to assess the trends in the development of educational services in the region, we will conduct a comprehensive analysis of the state of the level of preschool and school education, as well as the level of secondary vocational and higher education. Since any Russian region cannot develop in isolation, the socio-economic well-being of a region has a direct impact on the influx of migrants, as well as their children's choice of educational institutions. Therefore, the study of labor and educational migration issues, in our opinion, is important in analyzing the state and studying the processes of transformation of educational services, as well as the formation of human capital.

Between 1990 and 2018, the country's population decreased by 0.6%, while the urban population increased by 0.6%, and the rural population decreased by 4,1%.

Consider the number of preschool educational organizations in the country for the period from 1990 to 2017 in the table I.

**TABLE I. EDUCATIONAL POTENTIAL AS A BASIS FOR INCREASING THE COUNTRY'S COMPETITIVENESS [20]**

Year	Institutions – total, thou.	including		Children – total <sup>2)</sup> , thou. persons	including	
		in cities and urban-type settlements	in rural area		in cities and urban-type settlements	in rural area
1990	87.9	47.3	40.6	9009.5	6860.5	2149.0
2000	51.3	28.6	22.7	4263.0	3408.5	854.5
2005	46.5	26.4	20.1	4530.4	3611.0	919.4
2010	45.1	26.7	18.4	5388.0	4280.6	1107.3
2011	44.9	26.9	18.0	5661.1	4502.4	1158.8
2012	44.3	26.5	17.8	5982.9	4750.6	1232.2
2013	43.2	25.7	17.5	6347.3	5037.1	1310.2
2014	51.0	27.1	23.8	6813.6	5415.6	1398.0
2015	50.1	26.6	23.5	7151.6	5693.8	1457.7
2016	49.4	26.3	23.1	7342.9	5856.3	1486.6
2017	48.6	26.2	22.5	7477.9	5976.5	1501.5
2017 y. in % to 1990 y.	55.3	55.4	55.4	83.0	87.1	69.9

From the data presented in table 1, it follows that the total number of preschool educational organizations for the period from 1990 to 2017 decreased by 44.7%. At the same time, the number of pupils in preschool educational institutions decreased by 17%, including in urban areas - by 12.9%, in rural areas - by 30%. In 2000 there were 674 places per 1000 children, in 2017 - 633 places, i.e. 6% less, including in urban areas - by 8.3%, in rural - by 4%.

Consider the dynamics of the number of general educational organizations and the number of students in them (table II).

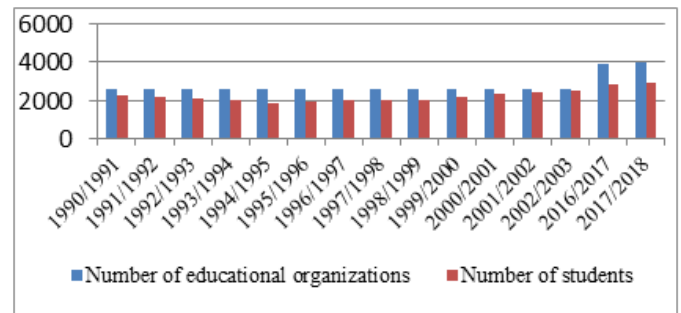
**TABLE II. PRIMARY, LOWER SECONDARY AND UPPER SECONDARY EDUCATION INSTITUTIONS BEGINNING OF ACADEMIC YEAR [20]**

Indicators	1990/1991	2000/2001	2010/2011	2015/2016	2017/2018	2018 y. in % to 1990 y.
Primary, lower secondary and upper secondary education institutions, thou.	71.7	68.8	50.8	43.4	42.0	58.6
including:						
in cities and urban-type settlements	21.5	23.3	20.2	18.1	17.9	83.3
in rural area	50.2	45.5	30.6	25.3	24.1	48.0
Pupils in primary, lower secondary, thou. persons:	20851	20550.2	13642.4	14770.4	15705.9	75.3
including:						
in cities and urban-type settlements	14948	14446.4	9834.8	11007.8	11845.5	79.2
in rural area	5903	6103.7	3807.6	3762.6	3860.4	65.4

From the data presented in table 2, it follows that the total reduction in the number of organizations of primary, basic and

secondary general education was 41.4%, including in cities - by 16.7%, in rural areas - by 52%. The number of students in organizations of primary, basic and secondary general education decreased by 24.7%, including in cities - by 20.8%, in rural areas - by 34.6%.

The total number of educational organizations providing training in secondary vocational education programs in the country for the period from 1990 to 2017 increased by 52%. At the same time, the number of students in them increased by 29.7%, including by full-time education - by 64.3%, and by full-time and part-time studies fell by 65%, by correspondence decreased by 32.6% (Figure 1).



**Fig. 1. Number of educational organizations and students of secondary vocational education [20]**

In 1990/1991, there were 872 students per secondary education program per organization, and in 2017/2018 - 744 students, i.e. 15% less. Thus, the growth rate of the number of educational organizations outstripped the growth rate of the number of students in them.

Consider the state of the personnel potential of secondary vocational schools in the table III.

**TABLE III. TEACHERS AT SECONDARY VOCATIONAL EDUCATION INSTITUTIONS BEGINNING OF ACADEMIC YEAR (THOU. PERSONS) [20]**

Indicators	1990/1991	1995/1996	2000/2001	2017/2018	2018 y. in % to 1990 y.
Total	124.4	110.7	129.5	137.8	110.8
including with higher education diploma	118.5	103.5	117.9	96.9	81.8
Share of teachers with higher education, %	95.3	93.5	91.0	70.3	-24.9

From the data presented in table 3 it follows that the total number of teachers in educational institutions engaged in educational activities in educational programs of secondary vocational education increased by 10.8%, and the number of teachers with higher education in them decreased by 18.2%.

The proportion of teachers with higher education in educational institutions engaged in educational activities on an all-Russian scale decreased from 95.3% to 70.3%, i.e. by 24.9 percentage points. By the level of 1990/1991, the number of higher education institutions in the 2017/2018 academic year increased by 49%, and by the level of the academic year

2000/2001, the number of universities decreased by 20.6% (Fig.2).

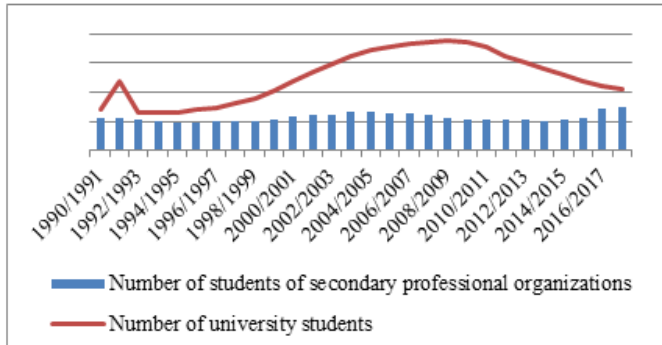


Fig. 2. Number of students in secondary and higher educational institutions in the Russian Federation for the period from 1990 to 2018 [20]

The number of university students compared to the level of the 1990/1991 academic year increased by 50.4%, and to the level of 2000/2001, decreased by 10.4%.

In 1990, an average of 428 faculty members per university, including 27 doctors and 224 candidates of sciences. At the same time, 94% of doctors of science had the academic title of professor, 63.5% of candidates of science had the academic title of associate professor.

In 2018, an average of 320 faculty members per academic institution, including 50 doctors and 185 candidates of sciences. Moreover, only 69% of doctors of science have the academic title of professor, 64.5% of candidates of science have the academic title of associate professor. The decrease in the proportion of doctors of science with the academic title of professor over the past twenty-eight years by 25 percentage points is due to the extremely stringent requirements of the Higher Attestation Commission of the Russian Federation when conferring academic ranks. So, if before a doctor of sciences, teaching at a university, it was enough to prepare two candidates of science, now this number is three people. In addition, each candidate of science must have at least one publication indexed in the Web of Science system, as well as three publications in journals recommended by the Higher Attestation Commission and the number of articles published in materials of international and all-Russian scientific and practical conferences should be at least six. The total number of publications of the applicant for the degree of candidate of sciences is at least ten.

The requirements for future doctors of science are more complicated, they now need to have at least three publications indexed in the Web of Science system, as well as at least fifteen publications in journals recommended by the Higher Attestation Commission of the Russian Federation. Complicated requirements for obtaining academic degrees and titles, the high cost of publications, lead to the fact that many graduate students and doctoral students do not achieve their goals and stop doing their research. At present, the non-degree of the faculty is an average of 26.5%. Youth is rapidly leaving science.

The internationalization of education led to an increase in the number of foreign students in Russia over the analyzed period by 4.3 times.

#### IV. DISCUSSION

Despite an active state policy to increase the level of education and interest in science, the gap in the level of remuneration of the most least paid employees of the higher education system is more than 20 times. Ordinary teachers and professors receive remuneration at the level of workers' occupations (or regional average). Highly qualified personnel, according to the May decrees, should receive twice as much as the regional average. Therefore, in fact, we all understand that the "May decrees" (decrees of the President of Russia, according to which highly qualified personnel should receive twice as much wages as average economic values) are carried out exclusively formally. The teachers' salaries are barely enough to cover household expenses, not to mention the need to participate in conferences, seminars and internships. In reality, the most professional cadres go abroad or go to work in higher paid sectors of the economy.

#### V. CONCLUSION

The total number of preschool educational organizations in the country for the period from 1990 to 2017 decreased by 44.7%. At the same time, the number of pupils in preschool educational institutions decreased by 17%, including in urban areas - by 12.9%, in rural areas - by 30%.

The total reduction in the number of organizations of primary, basic and secondary general education was 41.4%, including in cities - by 16.7%, in rural areas - by 52%. The number of students in organizations of primary, basic and secondary education decreased by 24.7%, including in cities - by 20.8%, in rural areas - by 34.6%.

The total number of educational organizations providing training in secondary vocational education programs in the country from 1990 to 2017 increased by 52%. At the same time, the number of students in them increased by 29.7%, including by full-time education - by 64.3%.

The total number of teachers in educational institutions engaged in educational programs of secondary vocational education in them increased by 10.8%, and the number of teachers with higher education decreased by 18.2%. The proportion of teachers with higher education in educational institutions engaged in educational activities on educational programs of secondary vocational education on an all-Russian scale decreased from 95.3% to 70.3%, i.e. by 24.9 percentage points. By the level of 1990/1991, the number of higher education institutions in the 2017/2018 academic year increased by 49%, and by the level of the academic year 2000/2001, the number of universities decreased by 20.6%. The number of university students increased by 50.4% to the level of the academic year 1990/1991, and decreased by 10.4% compared to the level of 2000/2001.

Thus, from 1990 to 2017, the reduction in the number of preschool educational institutions in the Russian Federation was faster (-45%) than the number of students studying there

(-17%). The number of secondary schools decreased by 41%, and children in them by 25%. In urban areas, the reduction in the number of schools was 17%, and the number of children in them was 21%. A catastrophic decrease in the number of schools in rural areas by 52% was accompanied by a decrease in the number of children in them by 35%. All this leads to a deterioration in human resources, especially in rural areas. The increase in the number of specialized secondary educational institutions for the analyzed period amounted to 52%, and higher education institutions - by 19%. The growth in the increase in the number of students in secondary specialized educational institutions was 30%, and that of university students by 50%.

The study of strengthening educational potential needs to be continued in conjunction with demographic and migration processes, as well as taking into account the socio-economic situation, the state of the level and quality of life of the population. At all times, educational potential has been the main basis for increasing the competitiveness of any country. That is why it is necessary to pay more attention to the timely identification of problems and those inconsistencies that may hamper the achievement of the key goals and objectives of the national project "Education" and the overall development of the education system in the Russian Federation.

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