

RPTSS2017
**International Conference on Research Paradigms Transformation
in Social Sciences**

**INNOVATIVE DEVELOPMENT STRATEGY OF HIGHER
EDUCATION SYSTEM AND FEATURES OF ITS
IMPLEMENTATION**

Vorontsov Andrey Leonidovich (a)*, Vorontsova Elena Vladimirovna (b)
*Corresponding author

(a) 2-oi Ofiterskii Lane, 10, Kursk, Russia, vorontsov.a.l@mail.ru, +79307622718
(b) 2-oi Vorotnii Lane, 21, flat 14, Kursk, Russia, proskyrinae@mail.ru, +79102163676

Abstract

The basis of the author's judgment is the thesis of a principled changing of the role of education in modern conditions. In the authors' opinion, it is education that forms the necessary qualitative characteristics of the society, enabling it to achieve successes in the social and economic sphere. However, the change in the qualitative characteristics of the society is possible only if the qualitative characteristics of the education change, which implies the introduction of innovative strategies in the educational process.

In the opinion of the authors, the wide use by the advanced countries of new technologies of scientific work, which significantly reduces the time intervals of the innovation cycles, creates competitive advantages for the economies of these countries. This does not meet the national interests of the Russian Federation, as it threatens its technological backwardness and dependence. In turn, this circumstance requires an early modernization of the Russian scientific and educational sphere on the basis of innovation, which first of all implies the creation of an innovative learning environment in the higher education system, training highly qualified personnel for all branches of science and production.

The authors also refer to the geopolitical, industrial-technological and demographic problems, which Russia is facing now, as the factors stimulating the innovative development of higher education in Russia.

The paper analyzes the main directions for the implementation of the strategy of innovative development of higher education in the Russian Federation. The peculiarities and shortcomings of the innovative modernization of higher education are also noted.

© 2018 Published by Future Academy www.FutureAcademy.org.UK

Keywords: Innovative development strategy of higher education, innovative modernization, innovative thinking, higher education, innovative development, cognitive learning technologies.



This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 Unported License, permitting all non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

1. Introduction

The development of the social component of any state is impossible without the development of the economy, which is based, as a rule, on the so-called "technological leap", which allows states to substantially increase their material capacities. In its turn, this technological leap is possible only with a change in the quality characteristics of human potential, which is known as the main capital of any society - whether it is the scientific and technical elite or a simple worker. The role of education in this process is paramount, because namely the education forms the necessary qualitative characteristics of the society, enabling it to achieve successes in the social and economic sphere.

1.1. The tasks of innovative development, facing Russia, objectively necessitate the innovative development of education as a system of knowledge forming. In turn, only knowledge can bring Russia to a new technological level and ensure the true progress of Russian society. In this connection, the knowledge acquires special significance in the higher education system, because only educational sphere is the environment that generates innovative ideas. This opinion is shared by N. Sergeev (Sergeev, 2017, p.56), who as a result of his research, concluded that «in the conditions of transition to an innovative society the role of university education in the means of transferring knowledge and skills, which are necessary for practical activities, is transformed into the Platform for Innovation». Analyzing the features of an innovative society, he found that «innovation, which is the key driving force for its development, is provided by the system of university education» (Sergeev, 2017, p. 56). One can say that the learning process in the system of higher education is the main tool for the future of innovative development of Russia.

1.2. An innovative change in human consciousness is possible only in the sphere of higher education, which is necessary for the successful development of Russian society in the new millennium. New tasks and conditions of production activity compel one to evaluate all the information that comes to one, to make one change one's perception of the world around, to look at it from fundamentally different positions of the person with a new innovative consciousness. Namely, education is called upon to make human consciousness fully manifest its ability to innovate, that is, education can properly organize the search for novelty itself. However, it is necessary to introduce innovative strategies in the education that allow it to change its qualitative characteristics, i.e. to become an education of a new type, forming a person with a different way of thinking.

1.3. The necessity of the formation and implementation of an innovative model of higher education in Russia is dictated by the peculiarities of the foreign policy situation in which Russia finds itself and which forces one to rely only on one's own forces and on one's own intellectual potential. Thus, the innovative development of the educational sector is now becoming one of the conditions for ensuring the national security of Russia, which only actualizes the need to modernize Russian education.

2. Problem Statement

2.1. At present, the solution of many problems facing humanity is possible only through innovative approaches that go beyond the usual algorithms. It is the innovative ideas that become the main engine of the development of civilization. In these conditions, the role of higher education

significantly increases, since it creates the intellectual base necessary for the birth of innovations. However, the higher education system will be able to realize this purpose only after being restructured on an innovative basis, etc. The higher education itself should become innovative. Hence, the introduction of innovative development strategies becomes the most important task for modern higher education.

2.2. As for Russia, the necessity to form and implement an innovation strategy for the development of higher education for it is dictated by a number of production, technological and geopolitical factors, which are discussed in detail in the article.

The implementation of the strategy of innovative development of the higher education system in modern Russia encounters a number of problems, the most important of which are the lack of a developed innovative infrastructure, weak innovative training of teachers (teachers), schematism in the use of foreign experience. All this leads to a lack of a full-fledged innovation environment.

3. Research Questions

3.1. Geopolitical and production-technological factors of innovative development of higher education

The perception of education as a sphere of formative knowledge (Vorontsov, Vorontsova, 2016a) and, accordingly, as a system for the formation of the nation's intellectual capital and the production of innovations (Volkov, Remorenko, Kuzminov, Rudnik, Frumin, Yakobson, 2008, p. 32) changes significantly the earlier concept of the process of education and training (this is how education is considered in Russian legislation (Federal Law No. 273-FZ, 2012)), which represent it as process of simple retransmission of accumulated human experience. In modern conditions, education plays a fundamentally different role, becoming a factor in the viability of society, its ability to develop positively and to withstand external and internal threats. This is facilitated by the global transformation of the socio-cultural, natural and industrial-technological environment, which requires the development of fundamentally different approaches to the processes of life support for humanity. In this situation, the importance of higher education especially increases, because higher education (in a broad sense) plays a key role in the processes of comprehending the changes that are taking place and developing mechanisms for adapting to them.

A special specificity of the whole situation is added by the fact that the solution of many of the tasks facing modern humanity is possible only within the framework of non-standard approaches, often lying outside the traditional concept of the worldview and based on ideas that are usually called innovative. Regarding the topic of this research, the essence of the problem lies in the fact that these ideas do not appear from scratch; in the necessary quantity they can appear only on the basis of innovative in essence education, which in turn requires radical modernization of the higher education itself through the introduction of innovative strategies for its development.

The necessity of introducing innovative development strategies in the system of higher education in modern Russia is not questioned. The overwhelming majority of the representatives of the scientific and educational community and the government have a firm conviction that it is the sphere of higher education that is the main sphere of innovation production. This position was reflected at the legislative level. The Strategy of scientific and technological development of the Russian Federation indicates that

the scientific and educational organizations are the first (The decree of the President of the Russian Federation №642, 2016) among all organizations that directly carry out innovative activities.

Thus, it can be concluded that the restructuring of Russian higher education through the implementation of innovative development strategies underlies the construction of an integrated national innovation system, which in turn is an essential element of the scientific and technological development of the Russian Federation.

To modernize the scientific and educational sphere, Russia is being forced to carry out truly revolutionary changes that have occurred in the organization of scientific and innovative activities in the most technologically advanced countries. The process of innovation research has radically changed. This was the result of a sharp increase in the volume of scientific and technological information, which in turn led to the emergence of fundamentally new forms of research and the organization of innovation cycles in general. The dilution of disciplinary and industry boundaries, the change in the hardware tools of their carrying out is typical for modern research. In addition, the time between acquiring new knowledge and creating specific technologies and products has significantly decreased. For Russia, this aspect of innovation since the Soviet era has been a weak point: there is too much time between the periods of the emergence of promising development to its entry into the market. In the current conditions of severe competition, this is an impermissible luxury, negating the efforts of scientists and developers. One should not forget that the high rate of development of new knowledge and innovations is indicated by the Strategy of scientific and technological development of the Russian Federation as a key factor in the effectiveness of national security strategies (The decree of the President of the Russian Federation №642, 2016).

As a factor stimulating the introduction of innovative strategies in the national higher education, one should also mention the globalization of the world market of innovations. This objectively leads to an increase in the role of international standards, which should be consistent with the results of innovation. Accordingly, the requirements for the qualification of researchers and developers themselves are increasing, for which such new competencies as the ability to work in the conditions of the international patent system, as well as the ability to confirm the identity of their scientific results become mandatory. The role of higher education in this case is paramount, since it is within the framework of this system that highly skilled personnel are trained, for which «there is a need for bilingual education and training and the formation of multicultural knowledge in the training of modern highly qualified specialists» (Barabanova, Shagieva, Gorokhova, Popova, Rozhnov, Popova, 2016, p. 3329). According to S. V. Barabanova, it is necessary «to solve new problems of adaptation of graduates to the conditions of training and work in a multilingual society» (Barabanova, Shagieva, Gorokhova, Popova, Rozhnov, Popova, 2016, p. 3329).

Creation of an innovative environment in the system of higher education is also necessary for the purpose of retaining talented young workers in Russia. They are the most inclined to non-standard thinking, and, consequently, to the production of innovations. However, the absence of a favorable environment in Russia forces many of them to work abroad - in countries where there is a corresponding innovative infrastructure. At the same time, the state policy of the Russian Federation in this matter has been built for a long time not in the context of ensuring national interests. The authors of this article have

already written about the negative consequences of this policy in their works earlier (Vorontsov, Vorontsova, 2016b). However, the realization of this problem at the highest political level occurred very recently, which, in the authors' view, will require tremendous efforts to solve it taking into account the current state of the problem, as well as the shortage of time available to Russia.

In addition to the need to improve the research process on the basis of modern requirements, Russia is forced to introduce innovative strategies into higher education, which are called "big challenges" in the strategic documents of the Russian state (The decree of the President of the Russian Federation №642, 2016). In essence, they are economic, resource, demographic, natural-climatic and even geopolitical. Having acquired the nature of threats over time, these problems are objectively acting as the most powerful factors in the innovative development of Russian higher education.

Among the problems mentioned above, the following should be emphasized:

The long-term industrial and technological model of Russia's economic development has exhausted its capabilities. This model was based on extensive exploitation of natural raw materials, and in modern conditions cannot ensure economic growth of the country.

The depletion of natural reserves as a result of their inefficient use, as well as the catastrophic deterioration of the ecological situation as a result of ill-conceived anthropogenic impact on the environment, sharply raised the question of the need for a transition to environmentally friendly and resource-saving production. First of all, this means for Russia, as one of the largest producers and suppliers of energy carriers, the need for a significant increase in the efficiency of extraction and deep processing of hydrocarbons, as well as the search for new, renewable energy sources and the way of its stored and transported. In addition, the availability of a large amount of easily extracted resources had a negative impact on the development of intelligent manufacturing technologies. Russia missed the transition to a digital economy, actively implemented in advanced countries. All this creates a danger of the global technological backwardness of Russia, meaning the transition to the status of a third-rate power.

2. Increasing external and internal threats to national sovereignty and security. First of all, the authors imply the threat of military expansion, attempts to destabilize the situation in the country by imposing sanctions (political and economic), cyber-attacks, ideological influence. In addition, the threat of terrorism, as well as technogenic and biogenic catastrophes, is growing. All this makes Russia improve military technology, develop new ways of agricultural production, which can ensure the country's food security and develop effective mechanisms to counter other threats.

3. Demographic problems - insufficient birth rate and aging of the population. This leads to a decrease in the number of the working population, a shortage of workers in the workplace and other social problems. All this exacerbates the need for the introduction of robotic systems, the transition to advanced digital technologies, based on artificial intelligence and capable of performing production tasks with a minimum number of employees.

Of course, these tasks can be solved only with the help of new technologies, generated by a fundamentally different interpretation of the interaction of man and nature, man and technology. Thus, there is an acute need for subjects that have the ability of unconventional positive thinking, i.e. there is a need for people with innovative consciousness. The task of modern higher education is to train such

people by activating their natural ability to innovate. This is achieved through a variety of cognitive learning technologies that involve non-traditional ways of perceiving and analyzing information, and ultimately aimed at changing the way people think.

However, the process of innovative modernization of higher education only by the application of new teaching technologies cannot be limited. A whole set of actions is needed to create an innovative environment.

3.2. The main directions of the strategy of innovative development of higher education in Russia

Innovative thinking is a continuation of creative thinking, the highest stage of the intellectual development of the individual, but already the information society (Delia, 2011). It is this kind of view on the essence of innovative thinking that was formed in the majority of representatives of the scientific and educational community in Russia. Based on this, for many universities of Russia, the task of forming a graduate with a similar type of thinking is not something from the realm of fantasy. In Russia, for many years, educational programs have been designed to develop creative thinking among learners, and its transfer to a new level is only a continuation of the long-realized task. And yet, the task of forming a person with an innovative consciousness is a fundamentally different task that requires for its solution not only the improvement of existing didactic and organizational and legal mechanisms. This task makes it necessary to change the approach to the organization of training.

The authors would like to note that, at the same time, in the context of the transformation of professions and disappearance of many of them in connection with the change in the technological components of modern productions, in the authors' opinion, the approach, which has been known since the Soviet times, is aimed at the formation of specialists of a broad profile. At the same time, in Russia, have sought a narrow specialization recent years, treating it as a guarantee of professionalism. This trend has developed under the influence of foreign models, but it is hardly worth considering as justified, and the modern development of the labor market only confirms this. In addition, a wide profile of professional training assumes a broad outlook, namely this quality can become the basis for the birth of an innovative idea. So the innovative development of education does not exclude attention to already well-known models of professional training. Moreover, it will not be technically difficult to do this: in Russia, the administrative resource in the field of education management is still strong. This fact was emphasized by Minina E.: «The representation of stakeholders in education and responsibility within the framework of a new qualitative paradigm still corresponds to the Soviet model of management and control of the Soviet era, despite the nominally proclaimed transition to the model of quality assurance of education in the field of education management» (Minina, 2017, p. 176). At the same time, of course, new educational approaches should take the main place in the process of implementing the innovation development strategy of the higher education system.

There is no officially adopted unified strategy for innovation development for higher education in Russia. It is possible that the specifics of innovative development implies a difference in the options for such strategy, taking into account the profile of the institution and other factors. Nevertheless, the practice

of innovative modernization of higher education has made it possible to identify the most characteristic directions of this process.

The first direction is the innovative preparation of the teachers themselves. Special centers are being set up in many universities, where intensive courses for upgrading their qualifications are held. As a rule, such courses are carried out in the following training cycles: the use of new teaching and methodological and technical means (special attention is given to active and interactive forms of instruction, involving students and teachers in the process of joint knowledge acquisition, the creation of integrated training courses and modules, implementing an interdisciplinary approach; the development of intelligent simulators that develop cognitive abilities). In addition, there is videoconferencing technology; development of training programs in the case-study system; experimental approbation of pedagogical innovations and their distribution in the system of higher education; new forms of research work (this work in many universities is aimed at the emergence of new knowledge in the process of academic work with students. This is due to the fact that the generation of innovations by students is the result of their creative activity. In turn, this can be learned only in the course of active scientific research work, and the joint work of teachers and students in the sections of the scientific student society. The work in these sections forces the student to show his abilities to innovative thinking, allows him to master the technology of creating new knowledge); technologies of search of partners from among representatives of business structures for the conclusion of contracts on target preparation of experts; examination of innovative projects.

The second direction is the creation at universities and institutes of special structures that activate the interaction of the vocational training system with the labour market and allow establishing a feedback mechanism between consumers of educational services and the higher education system.

The third direction is the creation of specialized innovation-educational complexes (centers), such as Skolkovo, Dubna, Vorobyovy Gory. The problem for Russia is that at present not all of these complexes are fully provided with the necessary personnel. At the same time, active attempts are being made to provide these innovative educational complexes in the future with trained applicants. For this purpose, educational centers are created for talented children of school age, similar to the "Sirius" center in Sochi.

Some researchers see great prospects for the development of Russian higher education on the basis of innovation in the processes of integrating world education. In their view, one of the main goals, which can be achieved on the path of integration, is the improvement of the quality of education, the efficient transfer of knowledge from one part of the world to another and the creation of a world educational space (MNP) (Bondareva, 2011, p.116). The whole point of the educational reforms in Russia, connected with joining the Bologna system, is seen in the creation of a single European intellectual space. At the same time, they also note the main obstacles on the way of Russian students to foreign universities – a low level of preparation in foreign languages and insufficient income (Pryadko, Lebedev, 2017).

However, one cannot ignore the fact that in modern conditions, education, among other things, is part of politics, and the need to preserve and to protect cultural identity forces Russia to be cautious about the processes of total unification of educational systems. Moreover, Russia has already had a negative experience of recklessly adopting foreign educational standards. In the authors' opinion, it would be

much more useful for Russia to use the experience of organizing innovation centres, in which a number of foreign countries have great successes. At the same time, the use of the European experience in training highly qualified personnel (training in graduate school), in the authors' opinion, could contribute to the innovative development of higher education in Russia, since the current state of Russian postgraduate studies does not conducive to it. In this sense, is indicative view of V.V. Markina and V.V. Voronov, according to which the new format of the Russian postgraduate studies pushes one to the "shoulder" of the Bologna process, once again suggests some incomprehensible "domestic product", an analogue of which is difficult to find even in a variety of European experience (Markin, Voronov, 2016, p.164).

4. Purpose of the Study

The purpose of the study is to analyze topical issues of innovative development of Russian higher education as the most important direction of its modernization.

5. Research Methods

5.1. The authors' research was based on general principles of scientific character, objectivity, method of critical comprehension of available information.

5.2. The method of analysis, subject comparison, the futurological method, the method of formal logic were used as direct methods.

6. Findings

The analysis of problems of innovative development of the system of higher education in Russia allowed the authors to draw the following conclusions:

6.1. The tasks of innovative development facing Russia objectively call for the innovative development of education as a system of knowledge forming. Of particular importance in this case is the system of higher education, since it is the one that is most capable of generating innovative ideas;

6.2. The need to formulate and implement a strategy of innovative development of the higher education systems in Russia is dictated by the peculiarities of the geopolitical situation in which Russia has found itself;

6.3. At present, modernization of higher education on the basis of epy innovation development strategy is carried out in the following main areas: 1. innovative training of teachers themselves; 2. the creation of the universities and institutes of special structures and promotion of cooperation vocational training system with the labor market and allow to establish a feedback mechanism between the consumers of educational services and the higher education system; 3. creation of specialized innovation-educational complexes (centers).

6.4. It is necessary to develop a unified strategy for the innovative development of higher education in Russia, which provides for specific step-by-step indicators of the effectiveness of its implementation,

and taking into account the differences in the Russian regions in the possibilities of forming an innovative educational environment;

6.5. The Russian Federation should abandon attempts to total unification of its educational standards with the educational standards of the EU countries. This does not make Russian higher education innovative, but can adversely affect the preservation of its cultural identity. The use of foreign models of innovation development centers could be really useful.

7. Conclusion

Modernization of the Russian system of higher education with consideration of the principles of innovative development, the transformation of this system into a platform for innovation are the only way to improve the Russian higher school, capable of making it adequate to the modern realities of scientific and technological development. However, the creation of an innovative model of higher education in Russia is complicated by a whole range of organizational, technical, legal, material and even scientific and theoretical problems. It should be noted that the Russian scientific and educational community has not yet developed an unambiguous understanding of the very concept of "innovation in education" (Vorontsov & Vorontsova, 2016a), which, together with the problems, discussed in this article, only complicates the whole situation.

The above-mentioned circumstance stimulates the need for a scientific understanding of the processes taking place in Russian higher education with a view to develop a holistic strategy for its innovative development. Unfortunately, in the processes of innovative modernization of higher education in Russia, the opinion of the representatives of the scientific and educational community remains not much needed. The introduction of innovative development technologies into the Russian system of higher education is usually carried out on the basis of subjective discretion of officials.

Acknowledgments

The authors express their gratitude to Tomsk Polytechnic University for the opportunity to participate in the 6th International Conference «International Conference on Research Paradigms Transformation in Social Sciences 2017» and wish to say a special thanks to the organizers of the conference. .

References

- Barabanova, S.V., Shagieva, R.V., Gorokhova, S.S., Popova, O.V., Rozhnov, A.A., Popova, A.V. (2016). Innovative components in the educational strategy of training the modern graduates. *Mathematics Education, 11* (9), 3329-3338.
- Bondareva, N.A. (2011). Integration as an innovative direction in education. *Modern high technology, (1)*, 115-116.
- Delia, V.P. (2011). *Innovative thinking in the XXI century*. Balashikha: Depo.
- Federal Law No. 273-FZ of December 29, 2012 (May 1, 2017) "On Education". Retrieved from http://www.consultant.ru/document/cons_doc_LAW_140174/
- Markin, V.V., Voronov, V.V. (2016). The training of highly qualified personnel in the discourse of the Bologna process: highway versus roadside. *Integration of Education, 2* (20), 164-175.

- Minina, E. (2017). 'Quality revolution' in post-Soviet education in Russia: from control to assurance? *Journal of Education Policy*, 32 (2), 176-197. DOI: 10.1080/02680939.2016.1250165
- Pryadko, I., Lebedev, I. (2017). Problems of Russian construction education in an age of innovation: Socio-cultural and legal aspects. *MATEC Web of Conferences*, 106, 09015
- Sergeev, N. (2017). High-priority directions of modernization of university education in innovational society *International Journal of Educational Management*, 31 (1), 56-61.
- The decree of the President of the Russian Federation of 01.12.2016 № 642 "About strategy of scientific and technological development of the Russian Federation". Retrieved from http://www.consultant.ru/document/cons_doc_LAW_207967/
- Volkov, A.E., Remorenko, I.M., Kuzminov, Ya.I., Rudnik B.L., Frumin I.D., Yakobson L.I. (2008). Russian education - 2020: a model for an innovative economy. *Education*, (1), 32.
- Vorontsov, A.L., Vorontsova, E.V. (2016a). Innovative development of the higher educational system in the Russian Federation *3-rd International Multidisciplinary Scientific Conferences on Social Sciences and Arts. Book 1. Psychology and psychiatry, sociology and healthcare, education* (3), (pp. 485–491).
- Vorontsov, A.L., Vorontsova, E.V. (2016b). The necessity of forming a new educational paradigm in Russia: analysis of the current state of the national educational system *3-rd International Multidisciplinary Scientific Conferences on Social Sciences and Arts. Book 1. Psychology and psychiatry, sociology and healthcare, education* (3), (pp. 1169–1176).