

Plenary report

Strategic Development of Higher Education in Russia

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The idea of cooperation between education and economy, education and science has been quite popular recently. The Department of Strategic Development (the Russian Federation Ministry of Science and Education) was founded in July 2010 to solve the problems of integration of education and science, education and the real sector of economy. In Russia (unlike Brazil) up to 80 % of young people enter universities but the employers state that the quality of such higher education is rather poor.

The subject-matter of the problem is that young people experience difficulties in researching and acquiring new technologies in universities because traditionally Russian universities were not deeply engaged in scientific work. The main scientific sector was constituted by special scientific-research institutes of the Academies of Sciences. But the business sector has the demand for university alumni prepared for the work with new technologies, able to foresee their development. Thus the problem of integration of science and education became rather acute and when the government has reserved a large amount of money to overcome the economical crisis a part of that sum was targeted at the projects on integration of science, industry and education. The holistic program was development that cost approximately 3 milliards USD.

First, we have renovated and **changed the chain of universities through the country**. Eight large universities were created and made responsible for support of large investment projects throughout the country. They are big universities with 20 – 30 thousands of students, and we try to **prepare them as the potential staff for the largest investment projects**: projects in the sphere of oil and gas mining, development of business at the South of Russia, alternative sources of energy research. A range of large investment programs can use the resources of so-called **federal universities**. There is also the chain of national research universities – 29 universities that have developed significant scientific schools; they can operate globally, including active participation in international projects.

The second program is **support of collaboration between universities and business enterprises**. We started to fund universities' applied research in case a commercial company gives its equal part of money. There was a tender on this program recently: about 700 universities applied for funding, about one hundred received it. They are universities that have contracts with companies and perform some research, but they received the state funding only when the partner company provides the same sum to comprise the total grant.

As a rule, in each university there are groups of professors with several assistant professors and Ph.D students as well as undergraduate students who work on the funded research. We hope that it will help to improve students' preparation and develop scientific schools ready for active dialog with the business. Among the topics our universities work on energy and energy saving is the most popular one, then there are: transport, aviation and astronautic systems, environmental management, information and telecommunication systems, nano-materials. In Russia we have a nanotechnological corporation that runs its own programs of support of university research in nano-technologies that is why in the described program this branch of work is not at the first place. Some universities also work on biological and ecological systems and safety issues.

The third aim of our work is **support of small innovative business**, created by universities. We empower the universities that started a small business on their own. Recently there has been the

change in legislation that provided universities with such an option and at the moment there are about 600 such enterprises. They are small organizations with approximately 5 – 20 people of staff. Professors, Ph.D and undergraduate students create technologies in different spheres and learn how to promote them at the market. 80 universities participate in this programs; some of them participate in the program for invitation of foreign leading scientists, including those of Russian origin at the same time. Thus of 600 state universities 82 participate in all the three projects. They are not numerous and we expect that in the nearest future Russia will have less universities but of much better quality.

Besides, there is a range of programs implemented by the Ministry of Economy. They are projects for development of state enterprises and creation of their technological platforms. Universities also participate in this activity. In the frames of these programs we expect increase in the number of professors whose income depends not only on teaching but on project and research work by 2012. We also expect increase in the amount of patents, proliferation of new technologies and changes at the managerial level. Representatives of business enterprises will enter universities' managing boards and **universities will also participate in business companies' projects.**

Changes in the contents and process of education are expected in the period of 2012 – 2015. We will get more students engaged in practical work at companies. Unfortunately, at the moment traineeship is rather a formal process when students just provide a document proving his / her participation but it is not a kind of real work. We plan students' traineeship to be more attractive and include the most successful companies as its basis. We also expect to implement **students' professional certification** – employers will issue certificated proving their trainee's level of preparation. We develop more Bachelor's and Master's programs that is quite new approach to higher education organization in Russia. We hope to increase academic and study mobility, chances to attend different courses in different institutions.

General education should be regarded through the prism of this program. There are at least 4 points worth discussing and elaborating into special programs. Firstly, we need a special chain of schools, able to work with universities according to the new traditions. Unfortunately, at the moment schools that collaborate with universities are connected with them in a rigid manner so that pupils of grades 10-11 cannot choose different educational programs. Professionally-targeted education is aimed at successful entry into a certain university, not at providing chances to try oneself in one's future profession. Now there practices are being reformed; a new chain of university-based schools is developed that will actually let adolescents to make sense of their professional choices.

The second problem is the idea of **successive competences**, such aspects of education that are important at school as well as at a university and later on. They are, for example, tolerance, ability to learn and to cooperate etc. We consider these competences significant at any age and educational stage.

We emphasize the demand for innovative development but it is a mistake to think that innovative economy may be created with the hand of 2-5 % of the most talented people. There is a need for general creative environment, possibilities to reveal one's interests and talents. That requires **school education that will do its best to promote creative environment among the schoolchildren** and thus give them opportunity to realize their abilities in the future.

Finally, **coherent systems of quality evaluation and assessment.** Russia participates in international comparative research such as PISA, PRSL, and the other OECD indexes, and tries

to renovate its internal system of assessment. They also should be successive in general and professional education.