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## Higher Education Reforms and Academic Community

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The paper aims at drawing academic community's and authority's attention to the systemic crisis of Russian higher education and the necessity for country-wide discussion to find rational crisis recovery. It studies the reasons and propagation of the crisis in the higher education and provides some solutions to overcome the problem. It underlines the necessity to involve wider academic community and Russian society in development of technologies to overcome crisis. The relevance of higher education institutions consolidation is put under reasonable doubt. The author highlights the necessity of balanced approach to the competition in the education system, with turning focus on comprehensive cooperation at all levels. The article suggests initial steps to ensure basic conditions for stability and further improvement of the university system efficiency. Therewith, it is crucial to ensure high standards of ethics and integrity of the academic community and management staff of the universities.

**Key words:** higher education crisis, consolidation of higher education institutions, balance between competition and cooperation, increasing university efficiency.

### Origin, causes and factors of crisis in Russian higher education

Higher education reforms are occasionally carried out in all countries, when there is a need to adjust it to economical and social changes. However, there is hardly any country except Russia with the reforms being constantly carried out for twenty five years. Although the Soviet higher school kept training at high level, by the 1970–1980, it had had some serious problems that required new solutions.

A transition from the state-controlled to market economy was a ground reason to revise and correct basic principles of the national policy and legal regulations in education. However, the on-going process of the reform leaves perplexed or even strong rejection from the academic community, which constitutes the main part of the national intellectual elite.

The conditions for the educational reform in the "wild 90s" were extremely adverse. Artificially induced bankruptcy of the national industry and agriculture, which was

caused by state-demand abandonment and tariff growth, practically stopped the whole economy development of the country. It was a good opportunity for a narrow circle of persons (some people) to plunder the national wealth. In the beginning of the 90s, there were about 500 state universities in Russia. They became bankrupts as well, since they could not pay utility bills. However, the government did not privatize them, but founded 1.5 thousand more universities and affiliated branches.

The total number of students in USSR universities at the end of the 80s was about 2.5 billion people. In early the 2000s, it reached 7.5 billion students only in Russia. Therewith, there was no lack of specialists for the new economy, since several hundred thousand highly qualified specialists had been dismissed from military and other manufacturing sectors.

The only logical explanation for this phenomenon, which seems to be strange, however, is that the authority aimed at keeping the youth busy with something, but not at introducing total higher education in

Russia. In this regard, the authorities' action at that moment can be regarded as effective. Even today that decision can be assessed as a rational one; otherwise, there might have been extensive unrest and deaths of young people. Mass unemployment would have hardly made people loyal to the authorities, and "Maidans" in all big Russian cities would have been easily predicted. To suppress the riots, the military force would have been used. "In other words, it is easier and cheaper to make a person socialize in university than in prison" [1, p. 75].

In those years the author hoped that it was universities that would be a base for revitalization of the society's moral foundation, since they had concentrated a considerable part of the nation's intelligence. The universities should have actively participated in establishing a positive value system that had been notably destroyed in the 90-s as the future of the country is highly dependent on leaders and managers of enterprises, former university graduates.

The faculty staff, for whom teaching and science were a calling, kept on working faithfully for some time as a result of inertia. The faculty's performance degraded due to some factors, the key one being extremely low salary. It led to a faculty's status decline, which had a negative impact on students' attitude to the faculty, as well as faculty's attitude to their responsibilities. When taking the position of the First Vice Rector, the author used to hear from the faculty something like: "You should be thankful for my coming to work for such a salary, how can you ask me for something more!"

Paltry salaries forced the faculty to undertake additional work, which was at the expense of educational process.

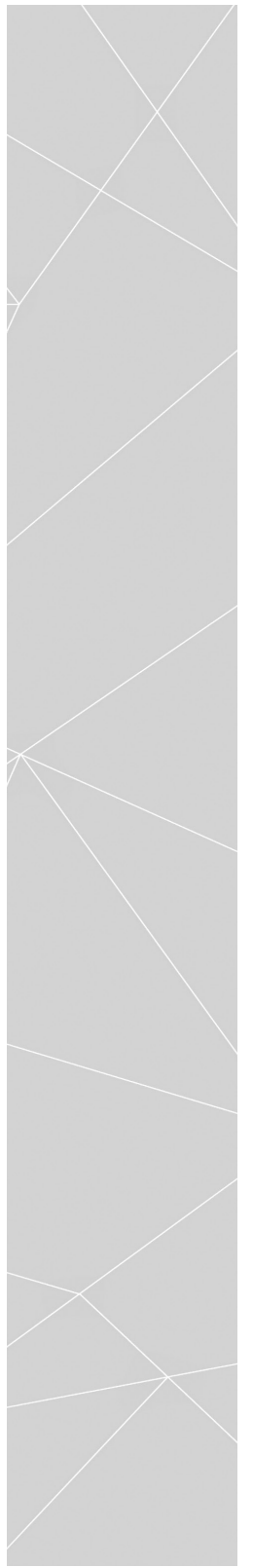
Sharp increase in the amount of students, changes in students' values and aims had a negative influence on the learning outcomes and training quality. While most of soviet students entered universities for study, in the 90-s such students were in minority. An anonymous questionnaire conducted by the author in 2001 in TPU showed that only 20% of the students were motivated to

study. The most typical reasons for entering university were "to get a diploma", "to avoid the army", "my parents' decision", "to start a family", "to avoid parental control and care", and "to be funded by parents". There was even such a unique answer as "to deal in the campus".

Under such circumstances most part of the faculty lost motivation to efficient training activity. As a result, most of the students pretended to study while many teachers pretended to teach. Thus, Ya.I. Kuz'minov et al. admit that "... there are universities in all the studied groups, except the group of research universities, where the educational process is only imitated in a considerable part of education programmes" [2, p. 53].

The transition to the Anglo-Saxon education system, the integration in the Bologna process, and continuous changes in education standards and programmes contributed more to the disorganization of the training process. The training quality kept on degrading. The article by D. Sandakov clearly describes the technology used to ruin higher education with "ex adverso" method [3]. It should be noted that it took ten years and additional funding for German universities, which are in favorable economic conditions, to transfer to two-level education system. In Russia, this transition was carried out top-bottom, within short timeframes, without appropriate funding.

The Bologna process became a logical step for the European Union with its united labour market. However, it is still disputable if this process is suitable for Russia. Nevertheless, the analysis of the primary documents of the Bologna process proves that the Bologna "programme of action" can bring a lot of benefits to the Russian higher education reform. It is quite natural that not all the goals are equally important both for Russia and for the EU. For example, in Russia it is more important to raise a citizen of Russia rather than that of Europe. The mechanism of reform implementation is a complicated issue as well, which is also noted by European experts. They underline the necessity to take into account the state's



interests (implying that state's and public interests should match) and to preserve historical, cultural and language diversity. A blatant adjustment of the national higher education system to the "Bologna frame" can result in its degradation and destruction [4].

The financial supply of the Russian higher education system has been gradually improved since the beginning of the 2000-s. However, the general condition of the education sphere in Russia is still unsatisfying. The most topical problems were clearly covered in a number of critical articles [5–7]. Some statements being disputable, however, the general situation is quite true. Although the methods suggested by D. Fomin seem to be too severe and remind the repressions of the 1930-s, we cannot pretend that everything has become better.

Unfortunately, these articles did not cause an active discussion in academic community. So far there has not been any true national debate on condition and problems of higher education system in Russia.

#### Current reforms and their contradictions

Thus, the assessments of Russian higher education in the first decade of the current century range from "has stopped existing" [6] to "a serious systemic crisis" [7]. Someone thinks that it cannot be reformed. The suggested solutions vary from destructing the existing system and establishing something absolutely new to returning back to the Soviet higher education system, the latter being a non-constructive waste of time and efforts. According to the principle of time irreversibility, a complex dynamic system cannot be stable in changing environment as well as return to the initial state [8]. However, it does not mean that we should blindly follow the Anglo-Saxon education system and ignore the positive experience of the soviet education [9].

There is some reason for being optimistic if we take into account the fact that a significant part of faculty (especially in old universities) still remains strongly committed

to the value-based approach to education. The examples are Ogarev Mordovia State University, Tyumen State Oil and Gas University [10–12]. It must be pleasure to work in such teams.

The problems of reforms in higher education are actively and in detail discussed in journals "University management" (in Russ.) [13–15], "Higher education in Russia" (in Russ.) [16], "Higher education today" (in Russ.) [17], "Education issues" (in Russ.) [2], etc. "The Strategy-2020" was published though not implemented [18]. A foresight research "The future of Russian higher school till 2030" was conducted [19]. It may seem that there is no lack of information in the discussed issue, but it is not true. Since the reforms are top-bottom and are very controversial, the academic community and Russian society have no valid information about the on-going processes, and what is more important, about their goals and methods. We can only guess about the reasons of the "hazy fog" that makes an open public discussion impossible. "It is difficult to limit pseudo-education, since direct measures (like graduates' competency assessment, the closure of universities resulted from monitoring etc.) would influence most part of the education programmes and students, which is socially unacceptable for the authorities. The indirect measures are inefficient." [2, p. 53]. In any case, the faculty and academic community have many questions and doubts.

Some authors, neglecting the socialistic ideology and soviet education system, hold up as an example the Anglo-Saxon education system and social achievements of the capitalistic world. They highlight the weaknesses of the soviet education system without mentioning its strength and positive experience. These authors don't notice that they have joined the ideology that is as doubtful as the soviet one. It has resulted in the current global problems that make concerned even such an apologist of capitalism as Albert Gore (junior) [20].

There is no doubt that it is desirable to intensify a systemic search for optimal

institutional structure of the Russian higher education system due to inner and outer changes in conditions of its functioning. However, the academic community are concerned with such "intensification", since "gurus" of Higher School of Economics declare principles of the system and dictate the Ministry of education what it should do without involving the academic community, students and national general public.

A great amount of numerical values and graphs that are compared with international data, which are provided in their articles, give appearance of profound scientific elaboration of the problem and well-founded reasons for the suggested solutions. Any doubts are rejected by "spook stories" like: "This approach can be an important base for improvement through modeling a new type of the education system suitable for the new economy and public requirements, unless we want to go back to the twentieth century" [2, p. 58].

Lately the authorities have been trying simultaneously to clean the Augean stables that they made in the 90-s and form a new education system that should match the innovative economy [17, 21]. A new structure of the Russian higher education system is being established. Federal and national research universities have been founded, a number of "anchor" universities are expected to start functioning in the regions. The total number of the universities is being reduced by joining "ineffective" universities to larger ones or by merging two or more universities.

The criteria for being "ineffective" are at least disappointing. Experts analyzed results and consequences of different university mergers, which are available in [22–25]. It is possible to agree with the authors that "the consolidation of universities does not solve any problems, but it provides the opportunities to solve them" [23, p. 18], however, a big number of terms and conditions should be complied with. It should be added that consolidation of universities (as well as any other organization) leads to some other consequences that are rarely mentioned:

managers whose status declines due to the consolidation become less initiative; the power distance grows; the power is centralized with bureaucracy increasing manifolds; the operating activity of large departments becomes more complicated; personal contacts reduce while the number of management levels increases. It results in worse communication not only between top and mid management but also between students and faculty due to a big number of teaching staff at a department.

"Administrative actions without profound systemic changes cannot overcome the crisis in the higher education system and result in growing additional "layer" of adulteration and imitation. It is an imitation of reforms and an imitation of development management: "managers pretend to manage modernization, faculty pretend to modernize educational and research processes, etc." Various "trendy" innovations are being introduced, such as a rating system, quality management, etc. They often lead to new regulations, reporting formats, etc., and do not really influence the quality of learning outcomes and training process" [19, p. 19].

Unfortunately, as Zh. Toshchenko, a corresponding member of the Russian Academy of Sciences, clearly proves [26], the imitation and adulteration do not limit to the education system, they penetrate the whole system of the state organizations from top to bottom.

Most of the low values of the indicators that are used to assess a university as "inefficient" and "degrading" are really conditioned by the economy crisis, economical policy, and specific geographical positions of the universities. There are a number of reasons for the indicators declining and they cannot be influenced by the universities. Each of 52 indicators and those 10 that are offered to be added [15] should be carefully considered and studied in terms of their benefits for the country. It should be kept in mind that they are proxy indicators, and their functional relation with the declared goals of higher education is not proved. However, it does not need to be proved that

they distract universities and faculties from the real educational goals to the “indicator-focused” activities. Some representatives of the academic community consider it to be the basic goal of certain reformers.

Some authors [23] even try to explain the difficulties in the reform implementation by the fact “that “mature” faculty negatively react to any changes”. Thus, it is “mature faculty” who are guilty in the situation, but not the “mature” reformers who conduct “immature” experiments all over the vast country.

It is undeniable that there are a lot of inefficient universities (in terms of training quality) among those established in the 90-s. They were founded to meet the demand for diplomas rather than for education, which was characteristic of the “education boom of 2000-2005” mentioned by L.M. Filatov [27, p. 70, 72]. Herewith, really mature faculty are not against changes whatsoever, but against those that imitate active management work and come into conflict with the country’s interests directly or indirectly [14, 25].

It is noteworthy that a systemic analysis of university’s goals made the authors [25] come to conclusion that two sub-objectives of the international rating are directly contrary to the super-goals of the country. This conflict might be more obvious if we took into account such goals of universities as raising patriot-citizens, general increase in cultural level of society, etc. Although the mathematical operation in the article is incorrect, the suggested method can be successfully applied to assess the ways of university development.

#### Competition vs cooperation

The basic principles of the state policy and legal regulation in the education system are set out in article 3 of the Federal law “About education in the Russian Federation” [28]. Generally, they comply with the long-term goals of the national policy. It is only necessary to start implementing them.

However, paragraph 11 of article 3 leaves perplexed. It says about “unacceptability of elimination or restriction of competition in

education”. This paragraph may have been promoted by “marketers”, as they consider the marker to be an absolute progress driver. For example, the expression “the higher education market” is used 14 times in the article by L.M. Filatova, a staff member of Higher School of Economics (HSE) [27]. However, the education system in general and higher education in particular is value-based and cannot be only profit-focused. Thus, the market elements suitable for international level cannot define the structure of Russian higher education system. Even at the international level the competition in education system should not be profit-focused but promote the country’s interests. For example, German higher education is free not only for German citizens but also for students from other countries. The Goethe Institute, which promotes the German language in the world, is 2/3 funded by the German Federal Foreign Office.

It is supposed that competition can ensure education system development, increase training quality, faculty and university efficiency. In fact, the competition fails to drive even the real economy, which is proved by the graphs of GDP growth and of wellbeing of the society that have been had different directions since the era of “reaganomics” started. Stimulated competition in universities leads to moral degradation. “Leveling of academic recognition and violation of meritocratic principles force the most talented people out of the education system by adding more values to non-academic features – obsequence, protectionism, clannishness, and, as a result, lack of professionalism. High concentration of non-academic managers in university destroys the education system and undermines its authority in the society” [14, p. 33–34]. It ensures promotion of people having low moral values, which inevitably influences students’ moral character. The process can lead to severe irreversible damage for the whole Russian society.

The danger of competition overestimation even in the market conditions is clearly presented in “Factor 4”. The authors claim that competition is a war; the political

damage of it could be coped with if we mean only abstract capital. “But people, companies, and nations are inevitably influenced by the billirgent mentality, which results in international tensions and latent danger of cold war” [29, p. 310].

To increase faculty efficiency in universities it is reasonable to develop cooperation at all levels. As for competitiveness, it can be ensured by natural vanity and aspiration for personal fulfillment of a person (on condition it is their calling). Even in real economy there are successful examples of transition from “I” to “We”, if the business is properly organized and motivated. It has led to the increase in work efficiency and cost reduction. Such approach is supposed to be more effective in the education system than competition stimulation.

#### Conclusions: to choose priorities and start acting

Reformation of any system is generally conditioned by the necessity to save and adopt the system to external and internal changes and developments. The question is how intensive and massive these reforms should be and in whose interests should they be carried out. This issue is to be discussed and must be first of all solved in the interests of multinational people of Russia (namely for Russia, not for humanity or Europe; namely for people, not only for voters, authorities, or a globally minded person). This thesis cannot be scientifically proved or grounded. It is a matter of belief, but we can presume that such base is agreeable for the vast majority of Russians.

It is of vital importance to involve enduring intellectual resources that are still persevered in the higher school and the Russian Academy of Science, as well as general public. Otherwise, if the reforms are implemented in HSE-style with belief in market omnipotence, it can result in something described by Chernomyrdin V.: “we wanted to do our best, but we’ve got what we usually have”.

The authors of the foresight research 2030 fairly state that “Specific character and scope of challenges facing the higher school

modernization do not allow implementing the reforms only by means of the state authority or university’s administrations. It is necessary to unite efforts and coordinate activities of different groups, teams, and projects who feel personal responsibility for transition to the future, for creating new reality that differs from the real one. We can claim that it is necessary to form a coalition of development, that would involve different parties, whose efforts will bring the future” [19, p. 24].

The following steps seem reasonable to be done on this way:

1. To organize all Russian debate on the crisis of higher education:

a. Television broadcasts with fair assessment of current situation from the Minister of Education and Science, the First Deputy Chairman of the Russian State Duma Committee on education, representatives of the Public Chamber, the Employers’ Confederation, representatives of employers in the defense industry, and heads of regional level of authority (two or three governors);

b. The reporters should give reasonable review on what measures are being taken, what is planned to be done to improve the situation;

c. It is also necessary to describe the technology of the reform implementation, since it influences personal trajectories of hundred thousand of faculty and millions of students;

d. It is necessary to organize public debate of the issue, similar to those organized by the President of the RF with the results published in mass media.

2. To set requirements not only for professional skills but also to moral values and quality of faculty members.

3. To dismiss the faculty members and other university staff who do not meet professional and, what is more important, moral requirements.

Keeping in mind the “purges” in the Communist party in the Soviet period, we can predict the problem that may arise when this step is implemented. It can be expressed like “who are the judges?” However, this step has to be made if we want to save

the country. The Supreme Certification Commission (VAK) has started doing it in a certain way, but from top to bottom, though it should be done from bottom to the top. Anyway, the healthy part of the university faculty is expected still to be capable of taking this decision. It is necessary to learn again how to speak the truth and listen to it, no matter how hard it might be.

4. This step should be followed by the activities to increase the work efficiency of faculty and scientists by reducing bureaucratic procedures and the corresponding staff.

The ways are well known and tested in developed countries: to reduce regulation by applying framework requirements, to delegate powers with corresponding distribution of responsibilities, to use principle of trust (after careful staff selection), to change total control by selective one (scheduled or case-by-case), etc. [30].

There are a lot of ways to increase work efficiency of the faculty, but they need personal initiative and thus, inner motivation. Currently, too many staff

involved in the higher education system are demotivated and feel inner resignation.

When interviewed for the journal "Upravleniye biznesom" (Business management), a famous Russian scientist, Doctor of technical sciences, professor of Saint Petersburg ITMO university, T. Paltashev answered the question "what should be done for Russia to reach the modern level of economy?" as follows: "We should start with a moral system, all other things will be done in the regular course of work by mutual efforts of the whole nation. A demoralized army cannot fight; it is just a gang of bandits. A demoralized society is in a state of paralysis, and cannot develop. If there is a moral system in the country, the technologies will soon appear. There are a lot of ways and methods to recover and maintain the moral system of the country. There are historical examples of armies and countries being driven out of "moral coma". Psychology of human behavior has not changed for thousands of years, thus, these methods and ways are still applicable" [31].

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## Engineering Education and Training of Young Engineers: Practice and Urgent Issues

Ural Federal University named after the first President of Russia B.N. Yeltsin  
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**The paper studies the role of education system in preparing engineering staff through developing new approaches to designing education programmes and new educational technologies. The conclusions are based on a survey conducted at big Ural industrial enterprises and multi-year engineering student monitoring.**

**Key words:** engineering education, professional pathways, prestige of an engineer, behavioral competence.

Nowadays, the Russian Federation faces a number of engineering and technical challenges. There is a change in the package of basic technologies that make the foundation of modern industrial production and economy in general. The new package of global industry technologies including alternative energy, mobile technologies, smartgrid, and etc. will have been completely developed by 2025. Engineers will obtain the leading role in the new economy. It makes it necessary to train a new generation of engineers who would be able to design engineering systems based on the new technology package. The resources of the Soviet engineering staff have been practically exhausted [1]. Although the annual number of engineering graduates reached 200 thousand by 2000-2010's in Russia, there was a constant demand for engineering staff. According to “Expert RA”, in 2014, Russian requirements for engineers were 29% [2]. In this relation, the results of the research made in Sverdlovskaya Oblast, which is of ten areas with highly concentrated industries generating 45% of all Russian industrial production, are also characteristic. In 2013-2014, only 70% of engineering positions in the region was staffed, the average age of the personnel being 53 years old [3].

One of the basic institutional factors that ensure sustainable supply of highly

qualified staff is the system of engineering (vocational) education. Scientific, education and industrial experts actively discuss the issues of STEM specialist training, and engineering training in Russia. According to Association for Engineering Education of Russia (AEER) experts, 80% of them representing education society, the quality of modern engineering training is evaluated to be satisfactory by 61.5% of the experts, good – 11.5%, and low – 23.1%. However, more than half of these experts consider the engineering in Russia to be unsatisfactory (systemic crisis, critical condition) [4]. In other words, “the engineers are trained well, but they work badly for reasons out of their control” [5, p. 18-24].

Our research showed similar results [6, p. 276-296]. Virtually all the groups within the educational process (undergraduates, post-graduates, and engineering teachers) positively assess the quality and content of education, and training methods. However, there is still a gap between the required level of graduates' competencies and the real one. A research group conducted a survey among the engineers of the leading regional enterprises (N=240) to evaluate the importance and actual development of soft skills among the engineering graduates in Sverdlovskaya Oblast. The list of competencies was formed similar to the learning outcomes that were used in the



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