

**SCIENTIFIC LEADERSHIP FOR RESEARCH UNIVERSITIES
IN MODERN RUSSIA: DEVELOPMENT LIMITATIONS**

Vladimir V. Petrov^{1,2}

¹Novosibirsk State University, Novosibirsk, Russia,

²Institute of Philosophy and Law of the Siberian Branch of Russian
Academy of Sciences, Novosibirsk, Russia, e-mail: v.v.p@ngs.ru

ORCID ID: 0000-0003-0511-857X

Abstract. In conditions of system reforms in Russia significant changes happened in a structure of scientific-educational sector that are distinctly revealed in the governmental aim to transfer scientific research from a sector of science to education. The sample is the American system of science and high education organization, which is chosen for comparison appealing to international university ratings: more than a half of the first hundred universities are American, and as we know the USA have a leadership potential in a sphere of innovations.

However, attempts to adapt this model to the Russian conditions do not lead to a qualitative breakthrough in the development of the scientific leadership of Russian universities on the world scientific and educational market. The goal of the work is to identify the factors hindering the development of scientific leadership of Russian universities in changing sociocultural conditions. To achieve this goal, we turn to the implementation of the basic organizational principles of successful research universities: first, the high proportion of research expenditures in the budget of universities; and, secondly, the training of specialists with the highest scientific qualifications at the university.

For achievement this goal, the comparative analysis of the concepts of research and federal Russian universities development in the context of sociocultural transformations is carried out. The method of philosophical conceptualization allowed us to present a new level of analysis of the of science and education development and to overcome the fragmentation of approaches to its study. Socio-cultural and cultural-philosophical approaches used in the framework of the work made it possible to generalize the value character of the theoretical materials obtained.

As a result of the analysis, it is indicated that the “american” model of university development taken as a basis is fundamentally different from the Russian model of interaction between science and education. There are serious limitations that restrain the adaptation of this model and limit the scientific leadership of Russian universities in the global scientific and educational market. These restrictions include: firstly, these are conceptual

limitations – in the USA a notion “research university” has a factual and not a formal character as it is made in the Russian Federation in a way of directive assignment. Secondly, resource limitations – in Russia the leading universities that received a status of “national research” are fully governmental institutions of high education and do not have own recourses and a high grade of autonomy. Thirdly, normative limitations essentially limit the development: in the legislation of the country there is no a united clear definition of a place and a role of research universities in a national innovative system; mechanisms of their interaction with academic institutions in conditions of the Russian Academy of Science reformation are not emphasized.

It is shown that without removing these limitations the movement of the center of fundamental knowledge production from academic institutions to universities, which is a prerequisite for scientific leadership, will be highly problematic. In turn, it will lead to a situation when research universities that still follow Humboldt traditions will have a risk to become “mass universities of a modern type” that will implement absolutely another function instead of generating new knowledge – providing a management apparatus with working places with a full or partial employment of students and professorial teaching staff.

Keywords: science and education interaction, research universities

Introduction

For the science of a new type that has been formed since the middle of the XX century the following features are typical: firstly, knowledge is produced not only in the context of discovery and fundamental substantiation, but also in the context of assessed subsequences and applications; secondly, organizational variety of knowledge production that can be produced not only in laboratories but also in a whole social chain of perception, transformation, translation, knowledge application and its results' consumption in explicit and implicit forms is noted; thirdly, structure of the knowledge quality's control when scientific authenticity and consumption are re-defined by the ideas of market competitiveness, practical profit, price and quality correlations becomes more complicated. In conditions of system reforms in Russia significant changes happened in a structure of scientific-educational sector that are distinctly revealed in the governmental aim to transfer scientific research from a sector of science to education (analogically to western models of development) – during 13 years a number of scientific research organizations have decreased practically two times less, and at the same time a number of institutions of high education that conduct research have increased double in size (Petrov,

V.V., 2017: 68). In classical «western» view Universities that create ideas produce scientific knowledge, additionally the government forms a regulatory system, and business provides with resources. As a rule, a system of science and high education organization in the United States is chosen for comparison appealing to international university ratings: more than a half of the first hundred universities are American (Paytas, J., 2004). There is no doubt that the elder model of the Middle Age European University lies in a basis of an American model of a successful university, nevertheless the USA have a leadership potential in a sphere of innovations. However, attempts to adapt this model to the Russian conditions do not lead to a qualitative breakthrough in the development of the scientific leadership of Russian universities on the world scientific and educational market.

Purpose of the study

The aim of the paper is to identify the factors hindering the development of scientific leadership of Russian universities in changing sociocultural conditions. To achieve this goal, we turn to the implementation of the basic organizational principles of successful research universities.

Methodology

For achievement this goal, the comparative analysis of the concepts of research and federal Russian universities development in the context of sociocultural transformations is carried out. The method of philosophical conceptualization allowed us to present a new level of analysis of the of science and education development and to overcome the fragmentation of approaches to its study. Socio-cultural and cultural-philosophical approaches used in the framework of the work made it possible to generalize the value character of the theoretical materials obtained.

Results / Findings

As we know, despite numerous differences in approaches to the universities' comparison it is possible to mark out the general part of all formal and informal classifications of the research universities among all of them that are used in the USA where the main parameters are: firstly, a high share of expenses on scientific research in the universities budget; secondly, training the specialists with the highest scientific qualification in the university (Salmi J., 2009: 32). In the beginning such criteria were defined as the main during elaboration of the Russian conceptions of research universities in 1990-s. For instance, in 1996 a conception of "Federal Research University" appeared that had been promoted by the Head of the "Moscow State Technological University" named after N.E. Bauman – Y.B. Fedorov (Fedorov I.B., 2002: 21). Later, this conception of the Russian research university was developed as a part of the program "The State Support of High Education and Fundamental Science Integration in 1997-2000-s" and

expediency of the net of technical research universities creation in a system of High Professional Education, that became the most popular in the experts' society. Within these conceptions a research university has been defined as a complex high education institute of integration type where not only functions of knowledge translation are combined but it also has functions of research analysis in fundamental and application area. In educational aspect the research university is oriented to translation of the newest scientific, technical and technological achievements to a new generation of the specialists and is created to train and prepare the specialists of all levels on a basis of the educational process and research unity. It was emphasized that a strong humanitarian element had to be widely represented by Law, Economics and Humanities sciences in the conception. It was pointed out that the university can be defined as a research university if it has the following indications: firstly, tight integration of education and research are represented at all steps of educational process; secondly, share of students of Master's, Ph.D., and Post-Doctoral programs is higher than a share of the senior level students; thirdly, multidisciplinary programs for post-graduate studies are represented; fourthly, professor's educational assignment is lowered, so that they can do research; fifthly, major fundamental researches are necessary that are not financed only from the budget but also from other resources, including those at non-commercial basis; sixthly, there is a tight connection with business that helps to make profit from the results of the research; seventhly, the university is integrated into global educational area and interacts with the world research centers; and, eventually, the university makes a determinative impact on scientific technical and social-economic development of the region.

The other popular project for research universities development in Russia is the conception represented by the President of the Tomsk State University, Prof. G.V. Mayer, who was in the past – since 1995 until 2013 – the Head of the Tomsk State University (Mayer, G.V., 2003: 7). It is significant that as a part of the conception the author tried not only to give obligatory criteria that define the research university development but also offered a mechanism of qualitative and quantitative assessment of the university's work that has been welcomed by the Ministry for the reports formulation. As a part of this conception of a successful research university we will pay attention to the following indicators: firstly, there are leading scientific and scientific pedagogical schools that are leaders in key directions of fundamental science and technologies. It must be supported by documents – international and national awards, grants by Russian Foundation for Basic Research (RFBR) and Russian Humanities Foundation (RFH), ministries

and departments; by scientific schools that have leading positions and work in the university, by significant number of the defended doctoral and candidate dissertations; by publication of scientific monographs in central and foreign publishing houses; by accomplishment of the works ordered by not only Russian ministries and departments but also by foreign and international organizations. Besides, to realize the conception there must be a high share of doctors and candidates of sciences (a candidate of sciences is equal to Ph.D. – *author's note*) among the staff potential of the university. The question about financing is considered separately – significant size of means for NIOKR (Research and Development, R&D) realization must be attracted by exterior resources; additionally, development of patent-licensing activity is necessary. Secondly, “Tomsk conception” suggests that there must be infrastructure and material-technical basis of fundamental and application researches. Research institutes that have been established according to the resolution of the Russian Federation Government, unique scientific objects and equipment, united educational research centers that have been founded with the Russian Academy of Science; techno parks and innovative technological centers are also included in criteria of the assessment. Thirdly, to develop the research university the integration of scientific research and educational process at all steps of education (university course, Master, Ph.D., Post-doctoral, training and qualification development, exchange) and infrastructure of educating staff with a high qualification are necessary. Existence and number of doctoral and candidate councils, number of doctors and docents specialties and the number of doctoral candidates, post-graduate students, professors, and docents that have a right to coordinate post-graduate students, and also the effectiveness of doctoral and post-graduate structures are admitted as verified indicators. Fourthly, information basis of educational scientific activity and possibility for information translation to research-educational society, i.e. scientific libraries, internet-centers, computer parks, system of distance teaching, net communications, publishing centers that can publish scientific periodic, monographs and educational books are necessary. Fifthly, system of selection and scientific support of talented youth at all levels of schools, students, and post-university are necessary, and the assessment of effectiveness is suggested for the activities of pre-universities centers, specialized schools and scientific-research centers, attraction and involvement of students and young scholars into Olympiads, students, post-graduates and young researchers internships in the main scientific centers, etc. Sixthly, the research university must integrate into the world scientific-educational area and tightly collaborate with the world scientific educational centers and foundations. It can be assessed by a number of the grants given

by international organizations, by accomplishment of joint scientific educational projects and programs and by activity of joint scientific educational centers. Seventhly, according to the authors of the conception the research university must have a high level of educational process. Qualification levels of professors and teachers staff, wide range of specialties and directions of training, balance between natural-scientific and humanitarian elements, provision with the new educational technologies, attractiveness of the university (correlation of non-resident students to the general sum of students); interdisciplinary of educational process, opportunities and material basis of moral, cultural aesthetic and physical education for students can be signed as an indicator.

As a result of the analysis, it is indicated that the “american” model of university development taken as a basis is fundamentally different from the Russian model of interaction between science and education. As we can see, in general the conceptions of the research universities building coincide with each other and are founded on American experience of the scientific research creation organization. However, it is extremely important to understand that despite the type of the conception practical realization of the main programs of development of Russian universities that do fundamental research in Russian conditions a lot of restrictions in the innovative sphere development appear.

Firstly, these are conceptual limitations because the originally taken American model does not correlate with the principles of the institutions selection in Russia – in the USA a notion “research university” has a factual and not a formal character as it is made in the Russian Federation in a way of directive assignment.

Secondly, these are resource limitations that are primarily connected with a right of ownership. American universities have rich foundations of development, diversified financing, academic freedom, autonomous system of management, have land and property. In Russia the leading universities that received a status of “national research” are fully governmental institutions of high education and do not have such holdings, own recourses and a high grade of autonomy.

Thirdly, normative limitations essentially limit the development: in the legislation of the country there is no a united clear definition of a place and a role of research universities in a national innovative system; mechanisms of their interaction with academic institutions in conditions of the Russian Academy of Science reformation are not emphasized. The directions, order, the size and time of the means expense received from the budgets of different levels are administratively and strictly defined for the universities; in addition, there is a grand problem in the realization of the opportunity to

re-finance from the budgets of different levels and for attracting the means from the business-society.

Discussion

If these limitations are not unloaded the movement of the center of fundamental knowledge production from academic institutions to universities where a row of numerous reforms of science and educations spheres are directed will be highly, highly problematic. In turn, it will lead to a situation when research universities that still follow Humboldt traditions will have a risk to become “mass universities of a modern type” that will implement absolutely another function instead of generating new knowledge – providing a management apparatus with working places with a full or partial employment of students and professorial teaching staff.

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