

IMPROVING THE MANAGEMENT SYSTEM OF HIGHLY QUALIFIED PERSONNEL TRAINING ON THE BASIS OF SWOT-ANALYSIS

E. I. Muratova, E. Yu. Voyakina, A. Yu. Ivanov

Tambov State Technical University, Tambov

*Reviewed by Doctor of Pedagogic Sciences,
Professor E. A. Rakitina*

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Abstract: The paper analyzes the impact of reforms in the country's system of highly qualified personnel training and attestation on the organization of postgraduate school and dissertation councils at universities. The article provides the results of the SWOT-analysis on postgraduate training and attestation processes at the regional university. It presents main activities and projects aimed at exploiting opportunities and strengths of the university in order to improve the quality of postgraduate training. Much attention is given to the mechanisms of organizational, methodological and infrastructural support for research and innovation activity of postgraduate students and young scientists. Approaches to the organization of networking between universities for highly qualified personnel training and attestation are suggested. The authors define the role of specific structural divisions at the Department of Science in management training of scientific personnel and establishment of a competitive university sector in the sphere of research work.

Objectives associated with staffing of science, education and high-tech sectors of the economy are the focus of the State as well as the scientific and educational community. Highly qualified personnel training is increasingly seen as a key platform for ensuring the development of the State on the whole and particularly the progress of priority areas and technological trends [1].

Муратова Евгения Ивановна – кандидат педагогических наук, доцент кафедры «Технологии и оборудование пищевых и химических производств», начальник Управления подготовки и аттестации кадров высшей квалификации; Войкина Елена Юрьевна – кандидат филологических наук, ассистент кафедры «Международная профессиональная и научная коммуникация», начальник отдела аттестации научно-педагогических кадров, e-mail: lenakusa2005@mail.ru; Иванов Александр Юрьевич – специалист по учебно-методической работе, ТамбГТУ, г. Тамбов.

Reforming the national institute of postgraduate and doctoral training is aimed at improving the quality of scientific staff potential; optimizing research topics in accordance with the priority areas of science, engineering and technology; improving the publication and inventive activity; correlating domestic science with the world scientific level and achieving international acknowledgment.

The Federal Law "On Education in the Russian Federation" entered into force on September 1, 2013 is the next step in reforming the system of highly qualified personnel training, the consequence of which was the abolition of postgraduate and doctoral training as a form of postgraduate professional education. According to the new law postgraduate studies become the third stage of higher professional education.

Changing the status of postgraduate programs into the third stage of higher education requires much effort from universities to align with the legal and regulatory framework and modern requirements for postgraduate students training, to develop a set of documents on the organization and admission to postgraduate studies on the basis of Federal State Educational Standards, to pass accreditation and licensing procedures for training areas of postgraduate programs in accordance with Federal State Educational Standards and the new list of training areas. The transition from Federal state requirements to Federal State Educational Standards, on the one hand, causes more stringent regulation of postgraduate programs implementation and evaluation of training results, and, on the other hand, it makes it possible to provide postgraduate students with academic leaves, networking and accelerated forms of training [2, 3].

Drastic changes occur not only in the preparation of highly qualified personnel, but also in their attestation system [4]. The process of awarding academic degrees is changing, while the requirements for dissertation councils are increasing for their optimization which leads to the reduction in their number. The current reform on the attestation system of scientific and scientific-pedagogical personnel is aimed at ensuring the transparency of dissertation defense, bringing research results to the wider public, establishing reputation responsibility of all participants of dissertation defense (applicants, supervisors, official opponents, leading organizations, council members, etc.), setting up a high scientific level of both organizations on the basis of which dissertation councils are working and their staff. All mentioned directions make it necessary to find the optimal structure for the attestation system of scientific and scientific-pedagogical personnel, to eradicate corruption components at all levels of dissertation preparation and defense, to look for a new model of postgraduate school focused on the development of young scientists including the combination of teaching and research activities through the involvement of postgraduate students (future postgraduate students, young scientists) into various research works carried out at different departments, scientific and educational centers of their own university and its partner universities.

Innovative transformations actively introduced into the preparation of scientific and scientific-pedagogical personnel require strategically verified control system at the federal, regional and university levels providing the systematic, balanced and continuous improvement of all educational programs components, resources and conditions for their realization.

The complexity of strategic planning and management processes for training and attestation of scientific-pedagogical personnel at the regional and

university levels under present conditions is connected with the constantly changing and not always clear legal framework leading to the ambiguity of documents interpretation; with the uncertain status of doctoral candidates and applicants for a scientific degree; with the lack of data on the monitoring results of dissertation councils, etc. [5]. What also complicates the work is the need for constant “split personality” when making management decisions under both the old, transitional and new formats.

In order to improve management training and attestation of postgraduate students at the regional university we conducted the SWOT-analysis on postgraduate training and attestation, the results of which are shown in the following Table.

According to the results of the SWOT-analysis we identified key activities aimed at exploiting opportunities and strengths of highly qualified personnel training under the constant supervision and strengthening of weaknesses to

The results of SWOT-analysis on postgraduate training and attestation

Opportunities	Strengths
<ul style="list-style-type: none"> – Opportunity to integrate information, methodological, logistical and staff recourses at universities and enterprises within networking system; – Possibility to participate in contests for postgraduate scholarships and grants; – Opportunity to extend the system of internships and international mobility of postgraduate students; – Ability to strengthen the material-technical base of the university sector for research and development; – Possibility to monitor the processes of highly qualified personnel training and attestation 	<ul style="list-style-type: none"> – Modern and developed infrastructure for supporting educational, research and innovation activity; – Professionalism of the teaching staff developing and implementing training programs, research supervisors of postgraduate students and employees of the Department of Science; – Scientific schools, scientists and research teams working productively; – Increased percentage of postgraduate students who have achievements in education, science and innovation and who are motivated to continue research and teaching
Threats	Weaknesses
<ul style="list-style-type: none"> – Poorly prepared documents regulating the preparation and attestation of highly qualified personnel; – Lagging behind the schedule of documents acceptance from the previously announced deadline; – Reducing the admission quotas for postgraduate school from the federal budget; – Reducing the number of dissertation councils; – Lack of integration in efforts of universities to develop training and methodological support for postgraduate educational programs 	<ul style="list-style-type: none"> – Incomplete compliance of local regulations controlling the preparation of postgraduate students with modern requirements; – Significantly increased workload on teachers in the process of transition to tiered system of education; – Priority to the development of teaching and methodological materials for bachelor and master levels; – Insufficient supply of postgraduate students with educational, methodical and information resources; – Absence of dissertation councils on postgraduate specialities opened in recent years at university

mitigate threats of the external environment. When drawing up a systematic approach expressed in the fact that training and attestation of scientific and pedagogical personnel has been viewed as a subsystem of the whole scientific and educational system of the university. Projects for improving this subsystem have a close relationship and coordination with other project blocks from the strategic development program of Tambov State Technical University for 2014 – 2018 years such as “Creating a competitive university research and development sector” and “Improvement and development of educational activity”.

For more in-depth analysis we should clarify some points of the Table.

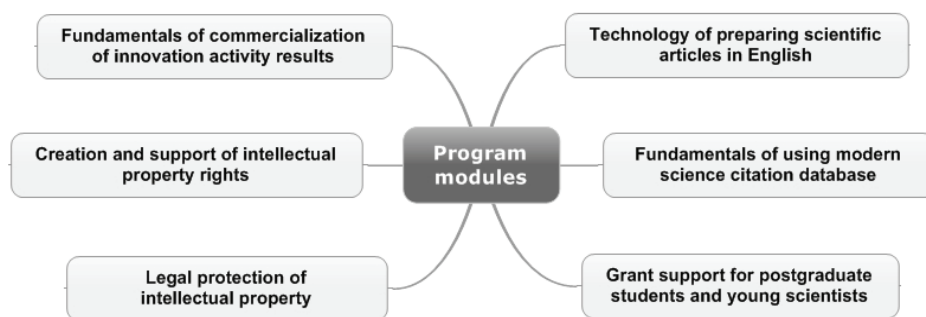
In order to ensure the efficient operation of postgraduate school and dissertation councils the university created necessary favorable conditions consisting in both curricula improvement and conducting internal audit in the process of preparation for accreditation of educational programs at postgraduate level, as well as changes in the structure of the Department of Science established at the university.

The previous work with postgraduate students was essentially a matter of their supervisors, Postgraduate and Doctorate Department, Chairs providing training for Ph.D. exams in foreign languages and the history and philosophy of science, but since 2013 the staff of the Department of fundamental and applied research and innovation gives information, analytical, consulting and methodological support to postgraduate students. Students get consultations on how to increase the effectiveness of their research, experimental, design, engineering and technological work, patent and licensing activity, to improve their citation index, to make business planning, to support innovation projects, to engage in innovative entrepreneurship, and other relevant issues.

The establishment of the Office for scientific and pedagogical personnel attestation streamlined the procedures for the preliminary examination of dissertations, their check for plagiarism, i.e. it allowed to provide methodological support of candidates for a degree at the final stage of documents preparation and to improve their disciplinary responsibility. This department played an important role in preparation of materials for monitoring of dissertation councils and selection of candidates for members of expert councils in the Higher Attestation Commission, as well as in preparation of materials for creating joint dissertation councils, adjusting local normative acts regulating the preliminary examination of dissertations, their adoption and defense in dissertation councils.

Since 2013 the university members of the Department of Science have been implementing a modular program “Modern methods of organizing research and innovation activity” consisting of 36 hours (Fig. 1).

Without going into detail on the content of each module it is important to note that in the process of mastering this program students (mainly postgraduate students of the second year) perform various practice-oriented tasks on each module of the program. For example, they are asked to register in Science Index system, form their own list of scientific publications and search citations on their work (module “Fundamentals of using modern science citation database”); to carry out expert evaluation of investment attractiveness of innovative projects on predefined criteria (module “Fundamentals of commercialization of innovation activity results”); to form an application for the grant support of their



**Fig. 1. Modules of the program
“Modern methods of organizing research and innovation activity”**

research with the description of its relevance and scientific significance, their qualification and experience in the corresponding research area (module “Grant support for postgraduate students and young scientists”). Subsequently besides the improvement of both the content modules, teaching methods and control of the results, preparation of didactic information-reference materials, expansion of the categories of trainees, it is planned to carry out monitoring of the achievements that program graduates have made in research and innovation spheres.

Thus the above mentioned examples illustrate the use of one of the university strengths, namely “Modern and developed infrastructure for supporting educational, research and innovation activity”, in order to form and develop postgraduate students’ competences in the field of scientific research and innovation.

It is also important to explain the use of another strong side of the university “Scientific schools, scientists and research teams working productively”.

At the session of the State Duma Committee for science and high technologies dated February 21, 2014 and the Plenum of the Higher Attestation Commission dated February 25, 2014, it was noted that increasing the quality of dissertation research supposes training and attestation of candidates for a scientific degree on the basis of leading scientific schools. Of course, this applies to all areas of training postgraduate students and scientific specialities, but is especially important for the processes of the highly qualified personnel preparation and attestation on priority areas of modernization and technological development of the Russian economy.

The conjugation of university activities with territorial and sectoral clusters of the region demanded restructuring of the university itself according to the cluster principle [6]. The most important distinctive features of such clusters provide a highly efficient system of continuous training and retraining of personnel, the ability to generate knowledge through a wide range of fundamental and applied research and to ensure the effective transfer of technologies in the social sphere and the economy of the region. The experience has shown that during the preparation of postgraduate students on specialities related to the cluster which has authoritative scientific schools at the federal or regional levels, scientific-educational centers, specialized small innovative enterprises, we can see the most ideal conditions for the formation and

development of postgraduate students' competences in the sphere of research and innovation through the integration of education, research and innovation activities in the development of postgraduate educational programs.

The largest number of achievements is connected with grants and scholarships of the President and the government of the Russian Federation, internships at foreign universities, winning contests on innovation projects such as “Youth Research and Innovation Competition”, “START” and others, which are mainly accounted for postgraduate students who are members of scientific schools staff. It should be noted that the identification of «growth points» allows to concentrate efforts on the support of these areas, including young scientists, which can be regulated, for example, in the process of making proposals for establishing admission quotas for postgraduate school, allocating funds for target training of postgraduate and doctoral students, stimulating research groups and particular young scientists.

Having considered the examples of the university strengths we should move to the opportunities (see the Table), one of which is “Opportunity to integrate information, methodological, logistical and staff resources at universities and enterprises within networking system”.

The practice of network interaction aimed at the development of cooperation in education, research and innovation activities is becoming more common. Various publications [7 – 12] present different approaches to the network integration, management of the network interaction and effects which universities-participants of the network structure, research organizations and enterprises-partners can get.

In the context of the article let us consider the features of the network interaction associated with the preparation and attestation of the highly qualified personnel. The main directions of work within the network cooperation are schematically represented in Fig. 2.

To make the networking process more efficient it is necessary to create a legal framework regulating the network interaction and to distribute responsibilities between all participants of the network. Thus to implement joint educational programs for postgraduate students training it is required to draft a registry of postgraduate educational programs at each university-partner and to determine the list of programs to be implemented in the network form. In addition, it is important to develop network models for separate consolidated

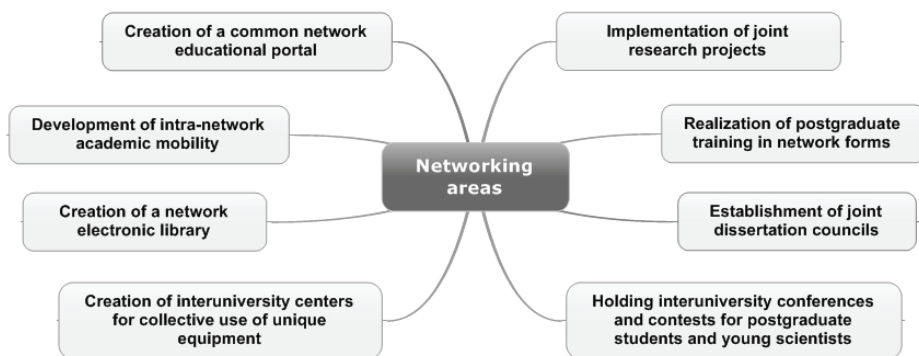


Fig. 2. Networking directions in training and attestation of highly qualified personnel

groups and training areas. It will be also relevant for the implementation of joint programs to collect necessary information and analyze necessary resources, to organize training seminars for heads of educational postgraduate programs, supervisors of postgraduate students, specialists of structural departments coordinating the preparation of highly qualified personnel, and to create a common network educational portal.

Within the regional network it is also planned to set up joint dissertation councils, especially in specialities that are in a priority for the economy of the region. This line of networking will enable all members to acknowledge the results of dissertations defense at partner universities, as well as to increase autonomy of scientific and educational organizations, their reputation and disciplinary responsibility in the attestation of highly qualified personnel. At the plenary meeting of the Higher Attestation Commission dated February 25, 2014 there was also discussed a concept of creating a network of joint dissertation councils working at the intersection of scientific fields and created on the basis of leading scientific schools taking into account the scientific activity of their members and the possibility of the staff support for priority areas of science, engineering and technology which can become one of the methods to optimize their network.

Developing the network integration between universities, research institutes and enterprises-partners in the region, creating an effective system of the network educational programs for highly qualified personnel training will allow to provide the concentration of staff and material resources on priority areas of economy sectors development, to give the competitive advantages of universities-participants of the network at the market of educational services and to accumulate research resources of the region.

The adoption of competent management decisions is impossible without the analysis of highly qualified personnel training and attestation processes, the rapid exchange of information between universities, departments of the state policy in the sphere of higher education and attestation of scientific and scientific-pedagogical personnel and the Higher Attestation Commission.

Introducing new ways of working with documentation in the process of highly qualified personnel training and attestation (using the Common portal of state and municipal services, the resources of the Federal information system of the state scientific attestation, and other information support) contributes to the availability of information for those who are interested in it. The discussion of current issues in the format of Internet-conferences, seminars, round tables will allow to raise the quality of legal documents prepared by the Ministry of education and science taking into consideration the views of the professional community, and also to generate analytical reports, statistical bulletins and other information materials which will facilitate the work of structural departments at universities and research institutes.

In conclusion we should note that during the reforming the system of scientific-pedagogical personnel training and attestation regional universities must respond to challenges of the current external environment and make correct management decisions. The most effective tool for ensuring sustainable development in the improvement of postgraduate students training and attestation at the regional university is a systematic approach to management of these processes in terms of the university strengths and opportunities presented by its closest current environment.

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Совершенствование системы управления подготовкой кадров высшей квалификации на основе SWOT-анализа

Е. И. Муратова, Е. Ю. Воякина, А. Ю. Иванов

ФГБОУ ВПО «Тамбовский государственный технический университет», г. Тамбов

Ключевые слова и фразы: аспирантура; аттестация; кадры высшей квалификации; научно-исследовательская и инновационная деятельность; сетевое взаимодействие; управление.

Аннотация: Проанализировано влияние реформ в отечественной системе подготовки и аттестации кадров высшей квалификации на организацию работы аспирантур и диссертационных советов вузов. Представлены результаты SWOT-анализа процессов подготовки и аттестации аспирантов в региональном университете. Определены основные мероприятия и проекты, направленные на использование возможностей и сильных сторон университета, для повышения качества подготовки научных кадров. Рассмотрены механизмы организационно-методической и инфраструктурной поддержки научно-исследовательской и инновационной деятельности аспирантов и молодых ученых. Приведены подходы к организации сетевого взаимодействия вузов по вопросам подготовки и аттестации кадров высшей квалификации. Показана роль отдельных структурных подразделений департамента науки в управлении подготовкой научных кадров и создания конкурентоспособного вузовского сектора научных исследований и разработок.

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