

DOI : 10.14746/pped.2015.5.6

УДК 351:37.046.16

**Tetiana Lutsenko,
competitor of research laboratory on management
in sphere of civil protection
of National University of Civil Protection of Ukraine**

STATE MECHANISMS OF EFFICIENCY OF USE OF HIGH SCHOOL SCIENCE PERSONNEL POTENTIAL

The article deals with the state mechanisms of efficiency of use of high school science personnel potential. The author formulates the basic components of scientific potential for an estimation of employees' contribution in high school scientific potential. It will be also the basic directions of the high school worker's scientific activity. It is allocated the following components: independent research activity; scientific management of students, post-graduate students, interaction with the students' scientific organizations; administrative activity in science sphere.

The following criterions of estimation of personnel contribution in high school scientific potential are pointed out: post in a high school science control system; quantity of published scientific articles during the accounting period; scientific importance of given articles; participation in the state budgetary scientific research works, carried out on the basis of the high school; volume of financial assets spent on scientific research work by external customers (not budgetary organizations); defend of master's and doctor's theses, reception of scientific ranks and others.

Keywords: *scientific activity, state mechanisms, scientific potential high school.*

Lucenko T.O. Mechanizmy państwowe efektywnego wykorzystania potencjału naukowego personelu szkolnictwa wyższego.

W artykule analizuje się mechanizmy państwowe w celu zapewnienia efektywnego wykorzystania potencjału naukowego pracowników uczelni wyższych. Szczególną uwagę poświęcono kryteriom oceny osobistego wkładu naukowca w potencjał naukowy wyższej szkoły.

Słowa kluczowe: *nauka, mechanizmy państwowe, potencjał naukowy wyższej szkoły*

Луценко Т.О. Державні механізми ефективності використання наукового потенціалу персоналу вищої школи

Results

Today there are new problems – the optimum organization of financial interaction of the state and society subjects, first of all commercial structures, with higher school and high school science. Thus both state bodies and higher school have got some experience. The state uses new forms already: program contracts-orders, grants and so on from direct and gratuitous financing of higher school and high school science that allows transferring to new relations, including contractual. It is impossible to tell, that this interaction proceeds today optimally. It is understood, that it has an adverse effect on development of higher school and its relations with the state. In this case it is a question of the optimum organization of the state financing of higher school and high school science, which, from our point of view, is far from that condition which would promote the decision of problems of domestic education system development.

Development of large scientific programs provides the complex decision of scientific technical problems in directions on which the domestic science always took the advanced positions. Not unimportant is consecutive introduction of principles of selectivity support of scientific schools and separate scientists through system of financial assets' distribution on grant basis. Certainly priority value has formation of the higher school innovative mechanism, development of new forms of high school science organization, which are adequate to market economy, by means of high school's scientific and technical sphere transformation.

Last years the steady tendency of increasing of share of financing of the researches, which are carried out on a competitive basis under programs, projects and grants, in comparison with research development works, carried out on the thematic plan of high school was outlined. Distribution of financial assets on grant basis has taken very important place in system of the higher school scientific researches organization. However, even the fluent analysis shows that the quantity of grants obviously mismatches our scientific potential. Possibly, there are objective and subjective reasons concerning this problem. It is possible to relate to the subjective reasons certainly a weak spirit of our scientists or simply unwillingness to participate in competition.

Method of management by objectives is the basic if not unique way of optimum disposing of the richest scientific potential of high schools. It is a unique possibility of concentration of forces and means on the decision of the major problems and achievement of real results in foreseeable terms. Therefore at programs' package formation it is necessary, that interuniversity scientific technical programs played a vanguard role in creation of the newest technologies, reception of new knowledge, activation of investment activity, "crystallization" of

new manufactures' points of growth. Finally they can become a powerful source of investments for higher school development.

It is known, that not always the reasons of crisis of scientific technical and scientific pedagogical activity are the objective conditions external for it and connected with shortage of financial resources. Frequently the reasons are covered in activity of higher educational institutions, which are not accepting sufficient measures on protection and preservation of the best part of their personnel potential [3].

Exclusively important is the state role concerning financing of fundamental science and preparation of scientific staff. And state policy in the field of reproduction and updating of scientific staff is the major element of the state scientific technical policy.

At the end of nineties scientists have focused their attention on negative consequences of the state bodies passive approach to decision of scientific institutions problems. Therefore inevitable reduction of quantity of personnel occupied in science has accepted ridiculous character of economic replacement of active and, first of all, young staff from this major sphere of social life. The analysis of condition of scientific pedagogical and scientific staff preparation system allows to ascertain, that, along with considerable growth of contingent of post-graduate and doctoral students (during last ten years the contingent of post-graduate students in the state high schools and organizations has increased almost in 2–3 times), last years a number of negative tendencies is registered:

- The share of post-graduate students leaving postgraduate study before the training term ending without representation of master's thesis (up to 30 % from enrolment of post-graduate students) is high;

- Volumes and structure of scientific staff preparation do not correspond with tasks of the state policy in the field of a science, technologies and techniques.

In the current condition the system of scientific staff preparation does not manage with the basic function of personnel maintenance of current and perspective requirements of scientific technical sphere and higher school.

Distribution of post-graduate and doctoral students has considerably changed on branches of sciences for last years – the contingent on socially humanitarian disciplines grows considerably faster [1].

It is possible to ascertain, that places selected for preparation of scientific and scientific pedagogical personnel allocated at the expense of budget financial assets do not correspond with predicted requirements of scientific, innovative and educational sphere of the state submission, and also with real possibilities of graduates' employment according to the received qualification.

The state often supports imitation of scientific activity in many high schools and scientific organizations at the expense of tax bearers' financial assets through postgraduate study institute. Presence of postgraduate study becomes hardly probable not the unique factor of scientific activity demonstration for many of them. This fact in itself is not ascertaining of low or high quality of post-graduate students' preparation on not profile specialties for high school, however suggests about necessity of diagnostics and monitoring of high school scientific potential and potential of professional training of the top skills in concrete scientific directions.

The basic budget financial assets intended for preparation of scientific personnel should be given to leading research universities, scientific personnel and separate scientists by results of monitoring of scientific potential and quality of scientific staff preparation. Thus postgraduate study functioning should correspond with science financing. It will allow to get rid of ballast gradually and to concentrate resources on support of postgraduate studies in creatively active scientific personnel taking into account integration of scientific research themes.

The essential factor reducing quality of post-graduate students' preparation is decrease in level of higher school graduates' preparation, because postgraduate students fill up amount of post-graduate students. Apparently, the given problem cannot be solved only by means of reduction of budgetary places' number and strengthening of competitive selection. The problem undoubtedly is deeper and it is also connected with absence of higher school and postgraduate study educational programs continuity [2].

The overwhelming part of "scientific change" prepared in Ukraine in any way does not connect the future with science, and pursue the aims far from it. Data of sociological interrogations show, that if at the moment of postgraduate study entering at least every second student stated desire to be engaged in scientific work in the future, during training in postgraduate study and master's thesis preparation these plans vary essentially. Only every tenth student plans to connect his destiny with a scientific field after postgraduate study finishing or after some time of training expiration. Every fourth post-graduate student assumes to be engaged in teaching activity and more than thirds – to become the in profile of master's thesis (doctor, engineer, designer, agriculturist, veterinary surgeon, etc.). Every fifth post-graduate student can't define unequivocally during training in postgraduate study in what activity he will be engaged in the future. Thus more and more actual there is a problem of employment of post-graduate students of the internal form of training after master's thesis defend [5].

One of the primary goals of scientific technical and educational complex personnel potential preservation and development is creation of conditions for attraction and fixing of talented youth in sphere of science, technologies and for-

mations. Measures under decision of the given problem should be guided by elimination of the primary factors interfering inflow to science and education of young staff (and promoting outflow of youth from science and education sphere):

1. Low wages of young scientists and teachers.
2. Absence of habitation and prospects of its reception.
3. Absence of modern instrument base and conditions for researches' carrying out.
4. Absence of prospects and unpredictability of scientific career, low prestige in scientific activity society, absence of the state's real reasonable measures on situation correction [4].

Government has taken separate measures for softening of the negative phenomena and tendencies arising in sphere of personnel maintenance of science and innovative activity during last ten years. Basically these measures have been directed on support of science and higher education workers, they had isolated character and have been addressed to separate groups of scientists and experts. Therefore these measures were not capable to affect essentially the general situation in scientific technical complex.

The state policy in this area is insufficiently consecutive and effective, and taken measures have not system, isolated character and do not influence on positive change of the situation. The basic problem is absence of the uniform program supporting researches since students and finishing several years after master's thesis defend and allowing formulating requirements to the young scientist career development accurately. Objective indicators of efficiency of this policy are absent or have purely formal character not reflecting essence of the case.

There are no mechanisms of coordination of activity in the given area belonging to various departments, and also interactions of the state bodies with public organizations. The special state youth policy in science and education sphere, solving problems of young scientists and teachers, is not carried out. There is no analysis of efficiency of the state measures of support of young scientists and teachers on regions, sciences branches and organizations, including grant support efficiency analysis. Practically there is no concentration of the state financial resources on most fruitfully working high schools, scientific research works and groups of scientists [2, c.78].

The majority of researchers start with characteristics of private indicators constructed by principle of comparison of indicator's size in the analyzed period with the basic period or its normative value at formation of an indicator of complex estimation of high schools and scientific organizations activity efficiency. Then the grouping of indicators on similarity of signs and purposes on the basis of expert estimations is made.

Conclusions

Generalizing the aforesaid, it is possible to allocate the following methodical problems complicating such complex estimation.

At first, indicators of efficiency of work of scientific organizations' personnel as well as indicators of these organizations' scientific potential level frequently describe only economic part of a question. Without attention there is not economic, qualitative, and consequently difficultly mathematically calculated component of scientific research work.

Secondly, estimating activity of a worker of any scientific organization, it is necessary to divide actually research and scientifically organizational, administrative activity, which cannot always be estimated proceeding from end results.

And, at last, it is necessary to notice, that the overwhelming majority of works on the given theme has been devoted to questions of scientific potential and efficiency of scientific research institutes', design offices etc. functioning, that is to those organizations which are directly occupied in a cycle "working out - introduction". As for questions of higher school scientific potential it is necessary to notice that it was given very little attention to them. At the same time scientific potential of high school so and scientific activity of its employees have their own specificity and cannot be estimated by the same parameters as scientific potential of scientific personnel activity.

This specificity is expressed, first of all, in such a fact that scientific researches are not a unique direction of high school activity. Unlike purely scientific organizations the scientific potential of high school is formed with the help of not only personnel of the given high school, but also with the help of students and post-graduate students trained there.

It is necessary to formulate the basic components of scientific potential for an estimation of employees' contribution in high school scientific potential accurately once again. It will be also the basic directions of the high school worker's scientific activity. We allocate the following components:

- Independent research activity (preparation of articles, monographies, master's and doctor's theses etc.);
- Scientific management of students, post-graduate students, interaction with the students' scientific organizations;
- Administrative activity in science sphere (including attraction of financial assets of external customers of scientific and technical production).

Within the limits of the specified directions it is expedient to allocate the following criterions of estimation of personnel contribution in high school scientific potential:

- Post in a high school science control system;

- Quantity of published scientific articles during the accounting period;
- Scientific importance of given articles;
- Participation in the state budgetary scientific research works, carried out on the basis of the high school;
- Volume of financial assets spent on scientific research work by external customers (not budgetary organizations);
- Defend of master's and doctor's theses, reception of scientific ranks;
- Quantity of post-graduate students, doctoral students and competitors who have defended master's and doctor's theses under the guidance of the worker for scientific degrees;
- Share of post-graduate students (competitors) who have defended master's and doctor's theses under the guidance of the worker and remained to work in high school;
- Share of students who have protected final qualifying works under the guidance of the worker and have entered the postgraduate study of high school;
- Quantity of students who have prepared scientific articles and theses of reports at scientific conferences under the guidance of the worker;
- Quantity of students who have prepared scientific works, taken prize-winning places at intrahigh school, city, regional, all-Ukraine and international competitions under the guidance of the worker;
- Quantity of students who have received high school grants on carrying out of scientific research works, participating in thematic scientific research works of high school under the guidance of the employee;
- Degree of participation of the worker in activity of the students' scientific organizations of high school.

It is expedient to use mark estimation to lead all private indicators to uniform basis.

It is necessary to note, that the specified formula and set of indicators could probably be used at estimation of the contribution to high school scientific potential of not only its personnel, but also its post-graduate students and students – owing to specificity of structure of the high school scientific potential. In the same way the considerable quantity of indicators connected with scientific management of students and post-graduate students is explained.

References

1. Zhabenko O.V. The state educational policy in the conditions of the European integration. - State administration in the conditions of Ukraine's integration into the European Union [materials of scientifically practical conference], 2002, vol. 2, pp. 126–128.
2. Kobets' A.S. State policy of integration of science and education of Ukraine in system of innovative economy: principles, mechanisms of management, directions of support [monography], 2012, TOV „Yuho-Vostok” A.S. Kobets', Donetsk, p. 472.
3. Martsyn V. The higher school of Ukraine on a way of transformation to the European educational space. - High school, 2007, vol. 2, pp. 27–35.
4. Mischenko V., Naumenko S. Features of functioning of the higher school of Ukraine in market conditions: the higher school between the past and future. - High school, 2001, vol. 1, pp. 6–17.
5. Yadrans'ka O.V. Definition of structure and scales of public sector of science. - The state and regions. 2007. Series: Government, vol. 1, pp. 173–177.