

# QUESTIONNAIRE AS A PROSPECTIVE INSTRUMENT OF STUDENT INVOLVEMENT IN RESEARCH

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**The article discusses the influence of student research activities on higher professional education development. The perspective implementation of questionnaire as an instrument of student involvement in research activities is presented.**

**Key words:** *higher professional education, modernization, National Research University, development indicators, student scientific research, questionnaire, motivation.*



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Higher professional education is undergoing a process of reform. It concerns not only the transition to the two-level education system and the implementation of the 3rd generation of Federal State Educational Standard but also the modernization of higher professional establishments themselves. A sharp increase in the number of universities, from 762 in 1995 [1] up to more than 3500 in 2012 [2], is a direct consequence of these processes.

Furthermore, not all universities have necessary facilities to meet the current education requirements. In the words of Vladimir Putin: "A growing number of universities observed at the beginning of the 1990th which were focused only on diploma delivery and this fact was already discussed, is useless as it is just profanation of education" [3]. It is obvious that not each university can provide qualitative and purposeful education. This raises the question of whether it is possible to distinguish between "well-deserved" diplomas and just "wallpaper" degrees.

In order to solve the problem of decreasing the number of universities by closing the most "inapplicable", the government is trying to range them by giving different statuses.

Competitive state support of innovative educational programs of higher education institutes within the Priority National Project "Education" (2006–2008) is one of the basic mechanisms to classify a great number of universities. Based on the competition results, 57 higher education institutes were granted financial support ranging from 200 thousand up to 1 million rubles [4] which was intended for the renovation of material and technical facilities required for scientific and academic performance, improvement of computer and methodological resources and insurance of faculty professional development.

Meantime, a number of federal universities, i.e. gigantic scientific-educational centers, have been established by merging the largest universities in the regions since 2007. These federal universities get rather significant financial support from the Federal budget.

In 2009, Russian President Dmitry Medvedev signed a law granting Moscow State University and St. Petersburg State University the special status of a unique scientific and education complex that enables them to develop educational programs based on their own standards and requirements.

A pilot program to create national research universities across Russia has been launched since 2009. Being innovative scientific educational centers, these national research universities getting significant financial assistance are planned to provide Russia's economy with highly-qualified specialists and contribute to the development of Russian science and technology [5].

Thus, the current system of higher professional education is categorized as follows:

- two leaders - Moscow State University and St. Petersburg State University;
- federal universities (8 universities) – large scientific-educational centers in each federal district;
- a number of innovative universities granted the status of “national research” and developed as integrated scientific-educational centers (29 universities);
- innovative universities which have not granted yet the status of “national research” (30 universities);
- other universities which can be divided into state and private universities.

Summing up the current national policy in higher professional education, it can be stated that the development of higher education institutes, which have been granted significant financial assistance, is carried out as part of a larger national effort to modernize Russia's educational system by integrating science, education and innovations.

In addition to, one of the required conditions for the development of higher professional education stated in the Concept of Long-Term Socio-Economic Development of the Russian Federation until 2020 is the involvement of students in research activities, which will allow universities to retain existing scientific schools and raise a new generation of scientists [6].

The influence of research activity carried out by students and young scientists on the development of the universities is an unquestionable fact. To prove

this statement it is enough to examine the development program of Tomsk Polytechnic University (TPU) [7,8], specifically the part including the scientific indicators of its efficient implementation, which has been developing as a National Research University since 2009.

The indicators which are influenced by the research activity of students and young scientists are the following:

- percentage of students involved in research activity;
- number of articles on priority areas of research activity published in scientific journals indexed by Russian and foreign organizations (Web of Science, Scopus and Russian citation index);
- number of post-graduate and doctoral students as well as amount of Candidate's and Doctoral dissertations alongside with the sustainable growth;
- amount of research and development works;
- number of foreign forums, conferences, seminars, workshops and expositions with the participation of TPU faculty;
- international forums, conferences, seminars, workshops and expositions on priority areas of TPU development;
- number of students working in the students' business incubator;
- amount of post-graduate students who have undergone an advanced training in the world' leading scientific and university centers.

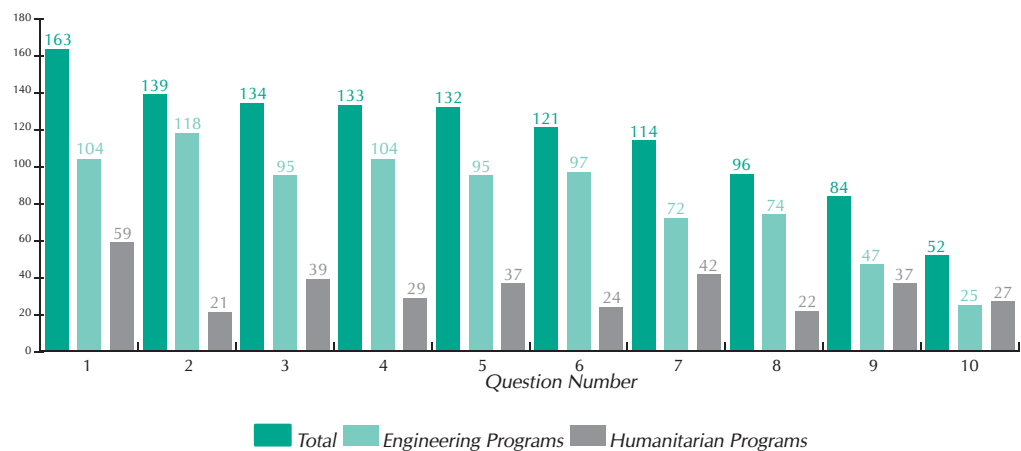
In this article, we will pay special attention to the indicator showing the number of students participating in research activity. By 2018, it is required to reach 75 %. Considering the fact that not less than 11 million of students must be enrolled by 2018 according to the university development plan, 8 thousand of students are required to be involved in scientific work.

To fulfill this plan, it is necessary to apply all possible methods, both direct and indirect, to reveal student's interest in scientific work. Questionnaire is con-

**Table 1. Questionnaire Answer Variants**

Nº nn	Answers
I category	
1	Have a possibility to participate in training, research and fellowship programs
2	Develop research skills
3	Have the proper up-to-date equipment to carry out scientific research
II category	
4	Obtain Enhanced Stipend
5	Get public recognition
6	Have a possibility to acquire and develop additional skills in your free time
7	Gain experience in public speaking
III category	
8	Participate in cultural events
9	Be involved in sport activities
10	Have additional circle of contacts

**Fig.1. Student Survey Results**



1 - additional circle of contacts; 2 - have the proper up-to-date equipment to carry out scientific research; 3 - gain experience in creative work; 4 - opportunity to participate in scientific advanced training; 5 - possibility to acquire and develop additional skills in your free time; 6 - enhanced stipend; 7 - public speaking experience; 8 - involvement in sport activities; 9 - participation in cultural events; 10 - public recognition

sidered to be one of such methods which make it possible to consider the opinions of the whole amount of students.

Therefore, the purpose of this article is to show the advantages of student survey application in order to define their interests and priorities in course of academic period. Based on the obtained results, it will be possible to develop the motivation schemes aimed at attracting students' interest to scientific work and recommendations for further actions.

The investigation was concerned with the analysis of students' motivations in various activities. The survey experiment involved 392 students of Tomsk Polytechnic University (277 first-year students, 104 second-year students, 11 third-year students) who were asked to answer the following question: "What are your priorities in university?" Answering the question it was possible to choose not more than 3 suggested answers.

The proposed questionnaire included the answers (Table 1) which were categorized as follows:

I – answers which reveal students' interest in scientific activity;

II – answers which indirectly reveal students' interest in scientific activity;

III – answers which are not related to an scientific activity – "neutral".

The survey results showing students' priorities are provided in Fig.1.

The obtained data categorized in the basis of the answers are given in Table 2.

**Table 2. Survey Data.**

№ nn	Scheme	Respondent Number	Answer Categories		
			I	II	III
1	«3-0-0»	15	3	0	0
2	«2-1-0»	64	2	1	0
3	«2-0-1»	38	2	0	1
4	«1-2-0»	43	1	2	0
5	«1-1-1»	94	1	1	1
6	«1-0-2»	20	1	0	2
7	«0-3-0»	7	0	3	0
8	«0-2-1»	55	0	2	1
9	«0-1-2»	51	0	1	2
10	«0-0-3»	5	0	0	3

Thus, respondents can be divided into ten categories.

The first category involves 15 students whose three answers reveal the motivation in research activity ("3-0-0" scheme). In this case, it is possible to assume that they are already highly-motivated and in order to attract their attention to scientific work it is enough to inform them about the basic principles of university research activity and address them to the corresponding designated persons.

The second and the third categories amount the students whose only two answers reveal the motivation in research activity. The main difference between them is that the students from the second category can be motivated by exerting influence on the third priority, which in its turn indirectly defines the interest in research activity, for example seeking for enhanced stipend. It is a well-known fact that in order to be granted this or that scholarship, a student must have significant scientific achievements (awards, publications and so on). In this case, target-focused motivation, i.e. emphasis on the corresponding scholarship rules and regulations, should be applied.

In the third category ("2-0-1" scheme), it is necessary to increase respondents' level of certainty in the importance of scientific activity through the corresponding answers. For example,

if a student has chosen the answer “have the proper up-to-date equipment to carry out scientific research”, the access to the required equipment allowing him to conduct real scientific work must be provided.

The next three categories involve the students whose only one answer reveals the motivation in research activity. The fourth category involves the students whose two answers indirectly reveal their interest in scientific work, while the students in the fifth category have chosen only one answer showing their motivation in science.

These students can be motivated by “public recognition”. For example, to become a winner in the competition “The Best Student of TPU” or receive the scholarship of the State Duma of Tomsk region it is required to have good academic and scientific achievements. As a rule, the photos of the winners of the first competition (“The Best Student of TPU”) are placed on the university Honors board, while the pictures of the State Duma Award holders are posted on the publicity board in the centre of Tomsk.

If student’s priority is somehow connected with getting experience in public speaking, he/she can be easily motivated to take part in various scientif-

ic conferences of different levels (university, regional, Russian and international) which can be held not only in Tomsk but also in other cities and even foreign countries.

Thus, it can be stated that it is possible to select a definite motivation scheme for each category of students. These motivation schemes are still being developed and can be implemented only through practical recommendations.

To sum up, a student survey (especially at the first stage of education) aimed at the analysis of students’ priorities in the course of academic period and serving as an instrument of student involvement into research activity will make it possible to:

- define student motivation in research work;
- develop the recommendations on attracting more students to scientific activity.

The next stage will be the development of action plan and practical recommendations aimed to increase contribution of students and young scientists to the development of the university itself.

**REFERENCES (ALL TITLES IN RUSSIAN)**

1. Zhdanov A.B. Perspective Methods of Higher Professional Institution Financing in Russia [Internet Resource] // Bulletin of the Tomsk State University. –2007. – № 304. – P/151 – 154. – URL: [http://www.lib.tsu.ru/mminfo/000063105/304/image/304\\_151-154.pdf](http://www.lib.tsu.ru/mminfo/000063105/304/image/304_151-154.pdf). (in Russian)
2. Sadovnichiy V. Graduates Do Not Need Uniform State Exam, While Russia Does Not Need so Many Universities [Internet Resource] // RBC: [website], 1995-2012. – URL: <http://top.rbc.ru/society/30/03/2012/644184.shtml>, free. (in Russian)
3. Borisov P.P. Specialist Training Should Be Conducted in Accordance with Labor Market Needs [Internet Resource] // website of Parliamentary Newspaper “Il Tumen”. – [Yakutsk], 2008-2012. – URL: <http://news.iltumen.ru/topic.php?id=810> free. (in Russian)
4. Innovative University Programs [Internet Resource] // the Ministry of Education and Science of the Russian Federation: website. – [M]: the Ministry of Education and Science of the Russian Federation, 2011. – URL: <http://old.mon.gov.ru/pro/pnpo/vuz> free. (in Russian)
5. National Research Universities [Internet Resource] the Ministry of Education and Science of the Russian Federation: website. – [M]: the Ministry of Education and Science of the Russian Federation, 2011. – URL: <http://минобрнауки.рф/проекты/ведущие-вузы/ниу>, free. (in Russian)
6. The Concept of Long-Term Socio-Economic Development of the Russian Federation until 2020 [Internet Resource]:[M.], 2002–2012. – URL: <http://www.ifap.ru/ofdocs/rus/rus006.pdf>, free. (in Russian)
7. Complex Development Program of National Research Tomsk Polytechnic University 2-11 – 2015 [Internet Resource] / National Research University. – Tomsk.: Publishing House of Tomsk Polytechnic University, 2011. – 61 p. URL: <http://nru.tpu.ru/files/cdp-2011-2015.pdf> free. (in Russian)
8. Development Program of National Research Tomsk Polytechnic University of Resource Effective Technologies [Internet Resource] / Tomsk Polytechnic University // Program of Development and Foundation of Federal State Educational Establishment of Higher Professional Education “Tomsk Polytechnic University” 2009-2018: website. – [Tomsk]: Tomsk Polytechnic University, 2011. – URL: <http://nru.tpu.ru/files/app-prog.pdf> free. (in Russian).