

## RESEARCH TRAINING IN THE PROFESSIONAL TRAINING SYSTEM OF THE UNIVERSITY\*

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**Abstract:** *In the article, the authors consider the problems of research education of students in the professional training system of the university, which is understood as a certain set of interrelated means, methods and processes necessary to create an organized, purposeful and deliberate pedagogical influence on the formation of personality with given qualities. Research training includes the level of undergraduate, master's level, the level of training of specialists of the highest category, advanced training and retraining of teachers. The content of the formation of research skills are the control, course, final qualifying work. Forms and methods of organizing research training are research laboratories, scientific schools of doctors of science, monthly chair methodological seminars, republican experimental sites in educational organizations. Students take an active part in their activities: submit for the discussion coursework and final qualifying works, individual chapters and the full volume of dissertations for pre-defense, share experience, make a scientific report, participate in discussions.*

**Keywords:** research skills, scientific research, training, higher education institution, research activities.

The successful functioning of education is determined by professionalism, competitiveness in the labor market, personal qualities of university graduates, which are formed in the professional training system. The pedagogical system is understood as “a certain set of interrelated means, methods and processes necessary to create an organized, purposeful and deliberate pedagogical influence on the formation of a personality with given qualities”<sup>1</sup>.

The main components of the professional training of students are the goal, objectives, structure, content and result defined in the law “On Education in the Russian Federation” in Article 2, paragraphs 6, 7, 8, 12, 13, and state educational standards.

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<sup>1</sup> V. A. Mizherikov, *Dictionary of Pedagogy*, ed. P. I. Pidkasty, Moscow, TC Sfera, 2004.

“*Federal educational standard* is a set of mandatory requirements for the formation of a certain level of education and (or) to the profession, specialty and field of study, approved by the federal executive authority performing functions of public policy and legal regulation in the sphere of education (paragraph 6).

*Educational standard* is a set of mandatory requirements for higher education in the specialties and areas of training approved by organizations of higher education defined by this Federal Law or decree of the President of the Russian Federation (paragraph 7).

*Federal state requirements* are mandatory requirements for minimum content, structure of additional professional programs, conditions for their implementation and terms of training on these programs, approved in accordance with this Federal Law by authorized federal executive bodies (paragraph 8).

*Professional education* is a type of education that is aimed at acquiring knowledge and skills in a process of mastering basic professional educational programs and forming competence of a certain level and volume, allowing them to carry out professional activities in a particular area and (or) perform work in a specific profession or specialty (paragraph 12).

*Vocational training* is a type of education, which is aimed at acquiring the knowledge and skills, and forming the competence necessary to perform certain work, service activities and professions (paragraph 13).”<sup>2</sup>

### **The essence of research training**

Education in universities is carried out in accordance with this law and is implemented on the basis of adopted state educational standards. Of course, with the transition of higher education to state educational standards, many changes occurred in the system of professional training. Currently, it is based on the competence approach that requires the study of research training as one of the professional competencies.<sup>3</sup> We do not deny the fact that the formation and development of research skills have always been one of the priorities of Russian higher education. The implementation of state educational standards of higher education and

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<sup>2</sup> Federal Law of December 29, 2012 No. 273-FL (as amended on August 3, 2017) “On Education in the Russian Federation”. Available: [www.consultant.ru](http://www.consultant.ru).

<sup>3</sup> E.A. Shants, “Professional training of university students as an integral pedagogical system”, in *International Scientific Conference “Theory and Practice of Education in the Modern World”*, St. Petersburg, Renome, 2012.

their implementation in practice in Russia in the post-Soviet period set new tasks for universities. Competition in the labor market requires from university graduates not only to have knowledge and skills, but also to form research competencies<sup>4</sup>. In this connection, the task of research training of students, the creation of conditions for the development of the research potential of each student, the development of pedagogical tools becomes important.

The term “research training” has not yet been widely used in science, although some authors already use it. E.A. Shashenkova gives the following definition of this term: “research training is training in which students are put in a situation where they themselves master the concepts and approach to solving problems in the process of learning”<sup>5</sup>.

F.V. Sharipov attempted to give the following definition of this concept: “research training can be called this type of study, when the study and assimilation of knowledge and skills, the development of mental abilities are carried out in the course of a student’s research activity under the guidance of a teacher. Research training (training by organizing research activities of students) is a further development of types of training (dogmatic, explanatory, illustrative, problem-oriented and developmental)”<sup>6</sup>.

We agree with the point of view of F.V. Sharipov on this issue. However, the third generation of state standards of higher education requires us to take a different approach to understanding the essence, the content of research training and the organization of this process in a modern university. In our opinion, research training in the professional training system of a higher education institution is a type of training that is a component of the preparation process of bachelor, undergraduate and postgraduate education (graduate student, doctoral student); retraining, advanced training, forming skills to select the material for research, compile bibliography, diagnose the relevance and degree of knowledge of the problem, develop a categorical apparatus, theoretically generalize literature and advanced pedagogical experience, to organize and conduct experimental work, to draw appropriate conclusions on the results of the study.

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<sup>4</sup> E.A. Dubrovina, “Research Education as a Tool for Shaping Information Competence of Students”, in *Young Scientist*, 2010, no. 4. p. 322-326. Available at: [www.moluch.ru](http://www.moluch.ru).

<sup>5</sup> E.A. Shashenkova, *Dictionary*, Moscow, TC Perspektiva, 2010.

<sup>6</sup> F.V. Sharipov, Technology of Research Education, in *International Journal of Experimental Education*, 2016, no. 5, vol. 3, p. 371-374.

This is a huge layer of pedagogical science, which will cause students difficulty in independently mastering the educational materials. It is caused by some objective reasons:

- an increase in the volume of hours for independent work of students;
- high quality requirements for control, coursework and final qualification works;
- partial transition of universities to distance learning<sup>7</sup>;
- the need to form the research competencies of students;
- the need to develop scientific and training and methodological support of the process of research education.

Therefore, it requires special training for students to study problems related to their future profession.

Of course, the history of pedagogy knows the names of foreign and Russian scientists who have contributed to the theory of research training – J. Dewey, W. H. Kilpatrick, H. Parkhurst, G. Kerschensteiner, C. Freinet, V. I. Andreev, P. P. Blonsky, M. V. Klarin, V. V. Kraevsky, I. Ya. Lerner, A. M. Matyushkin, A. S. Obukhov, M. N. Skatkin and others. At the same time, it should be noted that to date there is no generally accepted definition of the term “research training”.

### **Levels of research training**

In modern university, research training can be conditionally distributed both vertically and horizontally. По вертикали мы выделяем следующие уровни:

–*bachelor's level*. The objects of the bachelor's graduate's activities are training, education, socialization, individual and personal development of students, psychological, pedagogical and social support of students<sup>8</sup>, teachers and parents (legal representatives) in educational organizations of various types.<sup>9</sup> The Federal State Educational Standard for bachelor

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<sup>7</sup> N.M. Pavlutsкая, L.V. Dubitskaya, L.V. Skokova, A.S. Kovalenko, “Application of distance learning elements in modern higher education”, in *Astra Salvensis*, 2018, vol. 6, p. 237-244.

<sup>8</sup> E.S. Romanova, B.M. Abushkin, L.Yu. Ovcharenko, T.A. Shilova, A.G. Akhtyan, “Socialization factors of schoolchildren: Psychological aspect”, in *Astra Salvensis*, 2018, vol. 6, p. 299-309.

<sup>9</sup> Order of the Ministry of Education and Science dated December 14, 2015 No. 1457 “On approval of the federal state educational standard of higher education in the direction of training 44.04.02 Pedagogical education (bachelor's degree level)”. Available at: [www.garant.ru](http://www.garant.ru).

degree does not directly specify research activities and research competencies. Nevertheless, the formation of such general cultural (GCC), general professional (GPC) and professional competencies (PC), such as:

–the ability to use the basics of philosophical knowledge to form ideological positions (GCC-1);

–the ability to analyze the main stages and patterns of the historical development of society for the formation of citizenship (GCC-2);

– willingness to apply qualitative and quantitative methods in psychological and pedagogical research (GPC-2);

– willingness to use methods of diagnostics of development, communication and activities of children of different ages (GPC-3);

–the ability to solve standard tasks of professional activity on the basis of information and bibliographic culture using information and communication technologies and taking into account the basic requirements of information security<sup>10</sup> (GPC-13);

– the ability to participate in the construction of an individual educational trajectory of the student (PC-9);

–ability to identify interests, difficulties, problems, conflict situations and deviations in the student's behavior (PC-16);

–the ability to draw up a program of social development and student support (PC-17) requires research training of bachelors. Their development takes place in the course of the educational process on writing control, course, final qualifying works that require research skillsperformance of tasks for independent work; preparation for seminars and laboratory classes, research activities during training, production and pre-diploma practices.

Thus, undergraduate research training is carried out in the process of educational and research activities<sup>11</sup>. It is a functional subsystem of the university professional training system.

– *master's level*, including research activities: analysis, systematization and generalization of the results of research in the field of science and education by applying a set of research methods to solve research problems; conducting and analyzing the results of scientific research in the

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<sup>10</sup> T.K. Yerjanov, Z.M. Baimagambetova, A.M. Seralieva, Z. Zhailau, Z.T. Sairambaeva, “Legal issues related to combating cybercrime: Experience of the Republic of Kazakhstan”, in *Journal of Advanced Research in Law and Economics*, 2017, vol. 8, no. 7, p. 2286-2301.

<sup>11</sup> E.N. Lekomtseva, Bachelor's Research Competences, *Yaroslavlsky Pedagogical Gazette*, 2009, no. 60, vol. 3, p. 92.

field of science and education using modern scientific methods and technologies<sup>12</sup>. In accordance with this paragraph (p.4.4) of the Federal State Educational Standard of higher education, we organized the work on the formation of the following competencies among students: the ability to analyze the results of scientific research, apply them in solving specific research problems in the field of science and education, carry out scientific research independently (PC-5); readiness to use individual creative abilities for independent solution of research tasks (PC-6)<sup>13</sup>;

—*postgraduate level* disclosed in the order of Ministry of Education of Russian federation dated July 30, 2014. The field of professional activity of graduates who have mastered the graduate school program includes the study of pedagogical processes, educational systems and their laws, development and use of pedagogical technologies for solving problems of education, science, culture and social sphere<sup>14</sup>. Postgraduate research training (full-time and distance learning) consists of three forms: individual postgraduate education by the supervisor; postgraduate group training during the postgraduate program; self-education of a graduate student in the period of study in graduate school.

In the course of writing a PhD thesis, the supervisor teaches critical analysis and evaluation of scientific achievements, generating new ideas in solving research and practical problems, including in interdisciplinary areas (UC-1 (universal competence)); design and implementation of integrated research, including interdisciplinary research, based on a holistic system of scientific worldview using knowledge in the field of history and philosophy of science (UC-2); to form readiness to participate in the work of Russian and international research teams to solve scientific and educational tasks (УК-3); научить использовать современные методы и технологии научной коммуникации на государственном и иностранном языках (UC-4); develop the ability to plan and solve tasks of their own professional and personal growth (UC-6);

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<sup>12</sup> Order of the Ministry of Education and Science of Russia dated November 21, 2014 No. 1505 “On approval of the federal state educational standard of higher education in the direction of training 44.04.01 Pedagogical education (master's degree level)”. Available at: [www.consultant.ru](http://www.consultant.ru).

<sup>13</sup> *Ibidem*.

<sup>14</sup> Order of the Ministry of Education and Science of Russia dated July 30, No. 902 “On approval of the federal state educational standard of higher education in the direction of training 44.06.01 Education and pedagogical sciences (the level of training of highly qualified personnel) with changes and additions from April 30, 2015”. Available at: [www.rg.ru](http://www.rg.ru).

–*advanced training and retraining of teachers*. University teachers engaged in research training must have a range of skills and abilities. Therefore, they need to constantly improve their qualifications through self-education, internships at the departments of other universities, improve their professional skills at trainings and refresher courses, and, if necessary, undergo retraining in the specialty required by scientific and teaching activities. For example, the teachers of our department – the Department of Psychological and Pedagogical Education, were retrained in the specialty "Teacher of Higher Education" in 2018, even those who had a doctorate in pedagogical sciences or the title of professor.

In accordance with the above-mentioned vertical levels, in the university research training is built horizontally, which reveals its content.

Research training students in writing *tests*. A test paper is an independent scientific work, which is the justification of topical issues in the field of pedagogy. The teacher advises students on its writing, either in individual or in group forms. He introduces them to the requirements for writing a test paper, gives them a logical guide scheme: the introduction, where the urgency and importance of this problem for modern pedagogy is justified, the theoretical basis of the selected problem, the practical significance of this problem for practice, attitude of the student to the solution of this problem, conclusion, bibliography. A very important element is the formatting of the test paper. Therefore, the teacher shows them a sample of the title page, a sample of the design of the control text according to GOST. Test papers are usually written by students of distance form of learning. Therefore, additional consultation and verification of work on the compliance with the requirements before the final clearance control is necessary.

Research training when writing a *course paper*. All university students write course papers throughout the entire period of study in accordance with the curriculum.

A course paper is a type of the student's educational and research work, in which there are elements of independent scientific research. When writing a course paper, a student develops such skills as justifying the choice of a relevant topic, clearly articulating it, collecting material using scientific literature and sources; systematizing and theoretical analysis of the material; writing the text in compliance with the necessary rules; formatting in accordance with the requirements.

Course work focuses on the development of research and analytical skills related to the search and understanding of the necessary information.

Course work is also one of the ways to consolidate the knowledge on the subject gained during the previous course of study through its practical application. The teacher develops the topics, a student, having chosen one of the topics, independently performs research activities.

The student's research training on this type of education consists in learning how to work with the "Methodological guidelines for written papers" developed by the teachers of the department. They contain a plan and structure of course paper for each course. The teacher pre-approves the plan, introduction, theoretical and practical parts, conclusion, bibliography and applications, makes a correction, during which explains errors, provides a sample of the formatting of formulas, diagrams, figures, tables and references according to GOST.

Verification of the course work is carried out individually in the form of a conversation. Deficiencies are indicated and, after their elimination, the work is recommended for defense. It is very important that the student not only presents written coursework, but also knows how to publicly defend it: briefly present the results of the study and answer the questions. A scientific advisor prepares the student for the course work defense<sup>15</sup>.

The next level horizontally is a *final qualifying paper*. It is the the students' final attestation paper, which they perform at the graduation course. A final qualifying paper drawn up in writing in compliance with the necessary requirements and submitted at the end of training to defense in front of the state certification commission.

According to the Regulation on final certification, final qualification papers are carried out in forms that correspond to certain levels of the highest professional level: bachelor's degree paper "for bachelor's degree", final qualifying paper (master's thesis) "for master's degree", scientific and qualification paper of graduate students (scientific report) for the qualification of "researcher", "researcher-teacher".

So, final qualifying paper is a scientific research containing an analysis on the example of a specific base of the object of study and the development of recommendations for improving the modern educational environment and improving its effectiveness.

Writing of a final qualifying paper consists of several stages:

- 1) organizational stage (approval of the supervisor, choice of topic, approval of the topic);

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<sup>15</sup> E.V. Bystritskaya, I.Y. Burkhanova, S.S. Ivanova, A.V. Stafeyeva, Y.S. Zhemchug, "Models of master's degree theoretical research in Russia and the USA", in *Astra Salvensis*, 2018, vol. 6, p. 115-124.



2) research stage (definition of the purpose and objectives of the study; drawing up the initial structure; drawing up a bibliography, familiarization with the main sources of information related to the subject of the final qualifying paper; collecting materials depending on the area of study; analysis and distribution of the collected material in accordance with the original structure of the final qualifying paper; structure adjustment; writing of the final qualifying paper; presentation of the paper by chapters or as a whole to the supervisor, elimination of comments and implementation of the recommendations;

3) expert stage (presentation of the final version of the final qualifying paper to the supervisor with a certificate of the text originality check for writing a review; getting a review; presentation of the text of the final qualifying paper with a commentary and a review to the department;

4) presentation stage (preparation of a speech; preparation of an electronic presentation and handouts for members of the attestation commission; preparation of answers to possible questions; presentation on defense).

Thus, at *the organizational stage*, the teacher poses a problem and outlines the strategy and tactics of its solution. Students with the help of a teacher find a solution to the problem.

At *the substantive stage*, the teacher poses a problem; the students find a solution method on their own. The teacher evaluates the result.

At the *control stage*, the students pose the problem on their own, search for methods for its research and develop a solution. The teacher supervises, consults, evaluates and writes a comment.

For the organization of research training at the university, we have created permanent research laboratories, scientific schools of doctors of science, monthly methodological seminars, republican experimental sites in educational organizations. Students are actively involved in their activities: submit courseworks and final qualifying papers for the discussion, individual chapters and the full scope of dissertations for pre-defense, share experience, give scientific reports, participate in discussions, etc.

We are convinced that the level of preparedness of competitive specialists depends on how their research skills are formed. The task of the higher education institution at present is to provide the graduate with a comfortable adaptation to the conditions and requirements of the labor market, the ability to apply their creative abilities in their professional activities, to use technical innovations. Systematic, continuous development of these skills is possible only with specially organized

research training, which is a tool not only of mastering knowledge, skills, abilities, competencies, but also of self-development, self-determination of the student and plays a huge role in the personal and professional development of the future specialist.