

# Assessment of the Results from Mastering of Educational Programs in the Context of Reforming the System of Teacher Education in Russia

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**Abstract**—The article deals with the assessment of educational results during the final state certification in the context of reforming the system of teacher education in Russia. Indicators of universal, general professional and professional competence and their assessment in the process of preparation and defense of final qualifying paper are described.

**Keywords**—*educational result, competence, final qualifying paper*

## I. INTRODUCTION

In the context of reforming the system of teacher education in Russia and the transition to new federal state educational standards, the methodological support of the educational process at university requires updating, including the evaluation of the results of mastering educational programs.

Educational results, in particular, are the competence of students. According to the requirements of the federal educational standards of higher education, such competence is universal, general professional and professional competence.

The assessment of educational results is carried out at the level of assessment of the achievements of a particular academic discipline, training module and educational program in general, using the procedures of continuous, formative and final assessment.

Despite numerous studies in the field of evaluating the results of mastering educational programs (educational results, competence), the problem of organizing final certification remains relevant.

There are several approaches to solving this problem:

1. In the program of the final state certification, an educational organization includes passing the state exam and preparation and defense of final qualifying paper. The state

exam is based on an integrated approach, focusing on the practical component of the future teacher's activities according to the labor activities and labor functions of the professional standard, as well as taking into account the requirements of the World Skills standards in terms of “teacher, educator” competence. In this case, the formation of a part of the competence, as educational results, is carried out during the state exam; the assessment of another part of the competence is implemented in the process of preparing and defending the final qualifying paper.

2. The program of the final state certification includes only the preparation and defense of final qualifying paper. In this case, the assessment of the formation of all competence is implemented in the process of preparation and defense of final qualifying paper.

In our work, we summarized a description of the possibilities of organizing and conducting an assessment of the results of mastering educational programs using an example of preparation and defense of final qualifying paper in academic major 44.03.04 “Vocational training (by industries)”.

## II. METHODS AND MATERIALS

In the course of our work, the following research methods were used: analysis of the scientific literature, analysis of the existing experience in evaluating the results of mastering educational programs, comparison, classification, generalization. The framework for research is the federal state budgetary educational institution of higher education “Shadrinsk State Pedagogical University”.

The research is based on the analysis of the regulatory instruments of the organization of final certification for higher education programs, theoretical studies of the problem of assessing the results of mastering educational programs, methodological developments and experience in conducting

state final certification of students at Shadrinsk State Pedagogical University.

Many studies are devoted to the problem of evaluating educational results. Foreign scientific literature stresses the need to improve the procedures for preparation and defense of final qualifying paper (thesis). In particular, the studies are devoted to the issues of changing the role of the supervisor of the thesis [1], procedures for graduation assessment of undergraduate and master's examinations in the defense of qualifying papers of undergraduate students [2], focusing on research skills, new requirements for final certification and procedures for ensuring the quality of education [3].

Russian studies are devoted to the issues of updating the system for evaluating the results of the development of educational programs in connection with the transition to new federal state educational standards. In particular, the studies emphasize the need to evaluate the graduate's activity, not just monitoring the learning results [4, 5], describe the process of designing educational results [6–9], present an experience of using the technology of project training in organizing students' work on final qualification paper [10], discuss the types, formats and methods of preparation of final qualifying papers [11, 12].

Based on the theoretical analysis of research in the field of educational results evaluation, we set the following research objectives:

1. To establish the correspondence between the types, formats and areas of final qualifying paper in accordance with regulatory instruments and experience in the supervising of educational and research papers of university graduates.
2. To determine how the evaluation of graduates' educational results in the process of preparation and defense of final qualification paper can be organized.
3. To determine the indicators for assessing competence as educational results in the process of preparation and defense of final qualifying paper.
4. To design the stages of the procedure for the defense of final qualifying paper, which would allow evaluating all the results of the development of the educational program.

### III. RESULTS

In accordance with the approximate core curricula, final qualification paper of a bachelor must comply with the activity or activity elements of the associated professional standard. We have identified the following areas in which final qualifying papers in the academic major 44.03.04 "Vocational training (by industries)" can be performed:

1. Psychological and pedagogical fields of papers - design of methods of training and education based on modern pedagogical technologies. Final qualification papers in this field correspond to the labor functions of the professional standard of a vocational teacher, "Organization of educational activities of students in the development of subjects, courses, disciplines (modules) of vocational training programs, secondary vocational education and (or) additional professional training",

"Pedagogical assessment of the development of the educational program of vocational training, secondary vocational education and (or) comprehensive training in the process of formative and final assessment" [13]. Examples of final qualifying papers in this field can be methodological developments of a fragment of the educational process on an academic discipline (module) using teaching and education methods based on modern pedagogical technologies, identifying and justifying a set of methods (tools, forms, technologies) of an organization (management, implementation) educational process in secondary vocational education and (or) additional education.

2. Methodological field - development of methodological and didactic support for the training of students. Final qualification papers in this field correspond to the labor function of the professional standard of a vocational teacher "Development of program-methodical support for school subjects, courses, disciplines (modules) of vocational training programs, secondary vocational education and (or) additional professional training" [13]. Examples of final qualifying papers in this field can be the development of work programs, teaching aids, electronic educational resources, workbooks, a complex of didactic visualization, etc., and a description of the method of their use in the educational process of secondary vocational education and (or) additional professional training.

3. Design and technology field - implementation of engineering and technological projects and the rationale for the implementation of design results in the educational process. The final qualification papers of this major correspond to the generalized labor function of the professional standard of the teacher of vocational training "Organization and conduct of the training and production process during the implementation of educational programs of various levels and orientation", in particular to the labor action "Formation in the training and production workshop (on a testing ground, in laboratories, other place of employment) of the educational and production environment, development of measures for the modernization of their equipment" [13]. Examples of final qualifying papers in this field can be design developments of equipment, devices, models, stands, programs, etc., and a description of the possibilities of their use in the educational process of training in the working profession.

The final qualifying papers of the first type can be theoretical in nature and be carried out in the format of research work. Research papers of the second type may be of practical or practical-experimental nature and be carried out as project paper. Final qualifying papers of the third type are of a design nature [14].

Evaluation of the results of the development of the educational program in academic major 44.3.04 "Vocational training (by industries)" graduates can be carried out in the process of preparing the final qualifying paper and passing the procedure of its defense.

The following criteria for evaluating final qualifying papers were mentioned in a number of different studies:

- relevance of the topic for future professional activities, compliance with the content of the topic, completeness of its disclosure;

- level of understanding of theoretical issues and generalization of the collected material, the validity and clarity of the formulated conclusions;

- clarity of the structure of work and consistency of presentation of the material, methodological soundness of the research;

- complexity of research methods, the use of modern technologies (including informational), their adequacy to the objectives of the study;

- possession of the scientific presentation style, professional terminology, spelling and punctuation literacy;

- validity and value (innovation) of the research results and conclusions, the possibility of their use in the graduate's professional activities;

- compliance of the presentation of the final qualifying paper with all the requirements for the design of the papers;

- the quality of the oral report, full understanding of the material of final qualifying paper;

- the detailed and accurate answers to questions, comments and recommendations during the defense of final qualifying paper.

These criteria do not fully provide an opportunity to evaluate all educational results.

In the process of writing the final qualifying paper, the research supervisor fills in the matrix of assessment of the level of the educational result of the graduate, which includes a description of competence, indicators of competence and levels of formation of competence. As indicators for assessing learning results, we choose the component "to own". For each indicator, the supervisor of the final qualifying paper in the process of interaction with the student during working on paper notes the level of formation of the educational result as "increased, sufficient, threshold, zero", which is reflected in the report on paper.

For a complete and objective assessment of the results of mastering an educational program for the defense of final qualifying paper, the following steps are proposed:

1. Scientific report of the student, which would include a description of the relevance of the work, its goals and objectives, practical relevance, methods and framework of the research, report of the findings arising from the paper (5-7 minutes).

2. Presentation of student's practical development (5-7 minutes). This may be an imitation of a fragment of theoretical or practical training, a demonstration of the work of the designed installation, program; presentation of the possibilities of using the developed methodological or didactic software, or showing a fragment of the application of methods (forms, means) of teaching.

3. Answers to the questions of commission members (5-10 minutes). It allows performing a general assessment of the graduate's readiness for future professional activities.

On the basis of the approximate basic educational programs and the requirements of the federal state educational standards, we have identified competence indicators by which it is possible to evaluate educational results during the preparation of final qualifying paper and at the stage of its defense.

Educational results and competence indicators are:

1) universal competence:

- systemic and critical thinking (at the stage of working on paper - applies logical forms and procedures, demonstrates ability to reflect, analyzes sources of information, compares various sources of information, convincingly forms his/her own judgment and assessment of information, makes an informed decision; at the stage of defending the paper uses solid arguments while answering the questions);

- development and implementation of projects (at the stage of working on paper, defines research objectives, draws up a work plan, selects the best ways to solve problems, develops a solution; at the stage of defending the paper, demonstrates the ability to implement developments);

- teamwork and leadership (at the stage of working on paper, demonstrates the ability to work in a team with the leader and other students, shows leadership qualities and skills; at the stage of defending the paper - demonstrates the ability to manage the team of students based on leadership skills);

- communication (at the stage of working on paper - demonstrates possession of oral communication, has a good command of a written speech when outlining the main principles of the paper, has a good command of creating texts, has a good command of the rules of paperwork; has a good command of oral communication while answering the questions of commission members);

- intercultural interaction (at the stage of working on paper demonstrates understanding and critical awareness of social processes and situations; at the stage of defending the paper - reasonably discusses and solves problems of ideological, social and personal nature);

- self-organization and self-development (at the stage of working on paper has a good command of methods of planning, organization, self-control and self-assessment of activities; at the stage of defending the paper demonstrates proficiency in methods of planning activities, carries out self-assessment);

- life safety (at the stage of working on paper, develops training sessions based on student safety rules, at the stage of defending the paper - demonstrates the ability to ensure personal safety and the safety of others when demonstrating the operation of equipment, machinery, etc.);

2) general professional competence:

- legal and ethical foundations of professional activity (at the stage of working on paper – works according to the regulatory and legal acts in the field of education and standards of professional ethics; at the stage of defending the paper demonstrates norms of professional ethics);

- development of basic and additional educational programs (at the stage of working on paper - performs the development

of components of educational programs; at the stage of defending the paper - demonstrates a good command of the development tools of components of educational programs);

- joint and individual educational activities of students (at the stage of working on paper - works in accordance with the methods of organizing educational activities, managing educational groups, providing pedagogical assistance and support; at the stage of defending the paper - demonstrates proficiency in methods of organizing educational activities, classroom management, pedagogical assistance and support);

- building an upbringing educational environment (at the stage of working on paper - works in accordance with the methods of forming spiritual and moral values in students; at the stage of defending the paper - demonstrates the ability to develop components of educational activities);

- monitoring and evaluation of the formation of educational results (at the stage of working on paper - develops measurement and control and evaluation tools, develops the organization of monitoring and evaluating educational achievements, interpreting the results of monitoring and evaluating educational results, uses in the development methods for correcting learning difficulties; at the stage of defending the paper - demonstrates the ability to monitor and evaluate the formation of learning results);

- psychological and pedagogical technologies in professional activity (at the stage of working on paper - selects and applies psychological and pedagogical technologies (including inclusive ones) taking into account the different contingent of students; at the stage of defending the paper - demonstrates the use of psychological and pedagogical technologies);

- interaction with participants of educational relations (at the stage of working on paper - works using techniques and methods of interaction with participants of educational relations; at the stage of defending the paper - demonstrates the use of technology and techniques);

- scientific foundations of pedagogical activity (at the stage of working on paper - performs an analysis of scientific and pedagogical studies, designs an educational process based on the knowledge of scientifically grounded principles of organization of the educational process; at the stage of defending the paper - demonstrates proficiency in scientific and pedagogical terminology);

### 3) professional competence:

- implementation of vocational training programs, secondary vocational education (at the stage of working on paper - develops training sessions for vocational training programs, secondary vocational education; at the stage of defending the paper - demonstrates proficiency in teaching methods);

- development and updating of software and educational support of school subjects, lesson planning (at the stage of working on paper - develops and updates elements of program and educational methodical support of lessons, does lesson planning; at the stage of defending the paper - demonstrates the skills of doing lesson planning);

- solving problems of education, development and motivation of students in educational, educational, professional, project, scientific and other activities (at the stage of working on paper - performs the development of classes using methods for solving problems of education, development and motivation of students; at the stage of defending the paper - demonstrates the use of methods of education, development and motivation of students);

- use of pedagogically informed forms, methods and means of assessment in the process of formative and final assessment (at the stage of working on paper - plans training sessions taking into account the methods of conducting continuous assessment, assessing the dynamics of preparedness and motivation of students; at the stage of defending the paper - demonstrates the use of methods of continuous assessment, assessment of the dynamics of preparedness and motivation of students);

- pedagogical support of professional self-determination, professional development and professional adaptation of students (at the stage of working on paper - plans classes using methods of pedagogical support; at the stage of defending the paper - demonstrates the use of methods of pedagogical support);

- modernization and use of the educational environment to achieve personal, educational and professional learning results and quality assurance of the educational process (at the stage of working on paper - plans classes using the methods of designing of educational environment, ensuring the development of the subject; at the stage of defending the paper - demonstrates methods of designing of educational environment);

- use of modern professional pedagogical technologies, forms, means and methods of vocational training and diagnostics in the process of organizing the study of subjects (at the stage of working on paper - plans classes using modern professional pedagogical technologies, forms, means and methods of vocational training and diagnostics; at the stage of defending the paper - demonstrates the possession of modern professional-pedagogical technologies, forms, means and methods of vocational training and diagnostics);

- carrying out activities or demonstrating the elements of the activity mastered by the students, envisaged by the curriculum (at the stage of working on paper - plans classes with demonstration elements of the activities mastered by the students; at the stage of defending the paper - performs the elements of the activities mastered by the students) [15].

The final assessment of the final qualifying paper consists of the assessment of the supervisor and members of the commission. In this case, it is possible to use at least two options for the transfer to an academic evaluation:

1. The system of determining the level of formation of the educational result is applied:

- “excellent” grade is given if 90% of the components have received the “elevated level” value, while the “threshold level” and “zero level” values are absent;

- “good” grade is given if 80% of the components have received the value “elevated level” and “sufficient level”, while the value “zero level” is absent;



- “satisfactory” grade is given if 70% of the components have received the value “increased level” and “sufficient level”, while the value “zero level” is absent;

- “unsatisfactory” grade is given if less than 70% of the components have received an “elevated level” and a sufficient level, or “zero level” values are present.

2. A scoring system is used. The increased level of formation of results corresponds to a score of 5, sufficient – to a score of 4, the threshold - to a score of 3, zero - to a score of 2. Evaluation of universal competence is carried out with the use of seven components, general professional - with the use of eight components, professional - with the use of eight components. The resulting score for the individual component is given as the arithmetic average of the components estimated for each indicator. The maximum number of points for all components is 155 points. The transfer of points into the final score is carried out according to the principle of compliance with the compliance ratio:

- “Excellent” mark (increased level of formation of educational results) corresponds to 140-155 points (90 - 100%);

- “Good” mark (sufficient level of educational results) corresponds to 124-139 points (89 - 80%);

- “Satisfactory” mark (threshold level of formation of educational results) corresponds to 109-123 points (79 70%);

- "Unsatisfactory" mark (zero level of formation of educational results corresponds to 0-108 points (below 70%).

#### IV. CONCLUSION

Thus, having considered the theoretical basis for evaluating the results of mastering educational programs, we came to the following conclusions:

The results of the development of educational programs of higher education (learning results) are universal, general professional and professional competence, the final assessment of the level of formation of which is carried out in the process of working on qualifying paper and its defense.

Final qualifying papers in academic major of bachelors 44.03.04 “Vocational training (by industries)” can be performed in a number of majors, among which we have singled out design-technological, methodological and psychological-pedagogical, corresponding to the labor functions of a teacher of vocational training and additional education.

Final qualifying papers are carried out in the following formats: theoretical (research work), practical (experimental) character (design work) and final qualifying papers in the form of projects.

Evaluation of mastering of educational programs is carried out in the course of working on final qualifying paper by research supervisors and in the process of defending paper by commission members in accordance with the competence assessment matrix, which includes a description of competence, competence indicators and levels of competence formation.

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