

Combination of Federal State Educational Standards and Professional Standards, Portfolio of Students

Mariya Goryunova*

Ufa State Petroleum Technological University, Branch of the University in the City of Oktyabrsky, 54a, Devonskaya St., Oktyabrsky, Republic of Bashkortostan, 452607, Russia

Abstract. The author examines how federal state educational standards of higher education (FSES-HE) and professional standards can be combined. Methods of assessing the effectiveness of students' research activities through the electronic portfolio of students are being developed. The information about the existing forms of organization of research activities of students of bachelor's, specialist's and master's degree programs at the university, the requirements for the effectiveness of research work at each educational level were analyzed. The main result of the work is the positioning of the electronic student portfolio as a modern effective means of monitoring his educational achievements which allow assessing the acquisition of professional competencies by the student, solving the problems of organization, planning, implementation and qualitative/quantitative evaluation of his research activities implemented within the educational process. Pedagogical monitoring is characterized as a modern means of control and evaluating the effectiveness of research activities, ensuring the efficiency and availability of information. The principles of purposefulness and prognostication, objectivity, integrity and continuity, development and self-organization, systematic and consistent implementation of pedagogical monitoring are revealed. The relevance of score-rating evaluation of the effectiveness of research activities of students as the most adequate and demonstrative system for assessing the success of each student in scientific work is substantiated. It is concluded about the stimulating impact on regular pedagogical monitoring of research activities performed through the electronic portfolio of students.

1 Introduction

In the Labor Code of the Russian Federation in article 195.1 qualification of a worker is defined as "level of knowledge, abilities, professional skills and work experience" [4], and in the professional standard – as the characteristic of the qualification which is necessary for the worker for implementation of a certain type of professional activity. As of March 2019, the Russian Ministry of Labor has approved 1204 professional standards.

According to point 7 of article 11 of the Federal Law of December 29, 2012 No. 273-FZ "About education in the Russian Federation" according to which Federal state educational standards (FSES) have to be formed on the basis of professional standards (if available) in terms of requirements to professional competence of graduates [5]. For higher education, basic professional educational programs should provide that the graduate acquires the fundamental basics of professional activity that will allow him working in a wide range of tasks, including innovative and cross-sectoral, as well as continuing his education throughout his life. Also, the main task of higher education can be the satisfaction of the needs of modern society for the formation of graduates of all levels of general cultural and socio-personal features that

are not directly related to their profession. Hence, the Federal state educational standards of higher education (FSES-HE), in case of necessity of their connection with professional standards, should reflect not only the currently existing understanding about professions but also the requirements of the labor market in the future.

In order to improve the management of scientific activities at university, it is supposed to use the system of pedagogical monitoring of scientific and research activities of students, which allows not only controlling the process of their continuous professional and personal development but also coordinating the formation of their research competence.

The system of pedagogical monitoring of research activities is focused on the participation in it of all university students. To do this, its organization should use a differentiated approach based on the registration of individual characteristics of students at different levels of education (bachelors, masters, specialists), taking into account the requirements of the relevant FSES-HE. "the research activities of students according to educational standards are a mandatory component of training bachelors, specialists and masters, as the main task of higher education is to focus students on self-education, motivation to acquire knowledge on the basis of research thinking" [1].

* Corresponding author: bilka77@mail.ru

An indispensable condition for fulfilling the requirements of the FSES-HE in implementing educational programs is the availability of electronic information and educational environment. An important component of them is the electronic portfolio of students in various fields of activities, including the research sphere. There are many definitions of the word *portfolio*, let's focus on the following. A portfolio is an effective way of rational and transparent promotion of present and future professionals in the labor market, a way of assessing their key and other competencies, as well as the prospect of business, professional and creative interaction of the employer with the staff. A portfolio is a modern educational technology, which is based on the method of authentic evaluation of the results of educational and professional activities. Authentic evaluation is a type of evaluation that is applied primarily in practice-oriented activities and involves the evaluation of the formedness of skills and abilities of the individual under the conditions of its moving into a situation which is so close as possible to the requirements of real everyday or professional life. A portfolio is a report on the learning process that the student has recognized how the learning process took place, how he thinks, analyzes, synthesizes, produces, creates, etc., how he interacts on the intellectual, emotional and social levels. A portfolio is a method of recording, accumulation, and evaluation of individual achievements of the student/expert in a certain period of his educational/professional activities [9].

2 Results and discussion

Previously, it was assumed that the updating of the FSES-HE on the basis of professional standards the FSES-HE of the fourth generation (FSES-4) will appear, but as a result of the discussion, the Ministry decided to call the updated in accordance with the requirements of professional standards FSES-HE as FSES3++, which "will allow creating a uniform terminology in the documents of labor and education sphere" [2]. At the present time, a different number of professional standards have been approved in various fields, and, probably, no area of professional activity can be fully provided with professional standards. It is also assumed that the graduate can perform professional activities also in other areas and (or) in areas of professional activities, under the condition that the level of his education and received competencies correspond to requirements for the qualification of the employee [2].

Professional standards have a defined life cycle that is significantly shorter than the life cycle of FSES VO. Professional standards are expected to be updated every 3-5 years. This is associated with the emergence of new technologies, which should be reflected in professional standards, the quality of professional standards themselves and the degree of their coverage of different segments of the labor market. In this connection, the rigid relationship between the FSES-HE with the requirements of professional standards, focused on "present day" of professional activities, can lead to the

fact that "the education system will be aimed at the formation of competencies, which by the time when the student comes to graduating will not be longer relevant" [3]. In this regard, a list of professional standards on which the FSES-HE are focused is expected to be placed not in FSES-HE themselves but in exemplary educational programs.

It is not possible to prepare a graduate who will be ready for professional activities according to all professional standards potentially combined with FSES-HE [6]. Therefore, educational organizations will independently carry out the selection of professional standards corresponding to the professional activities of graduates, using the list provided in the exemplary educational program, and the register of professional standards posted on the portal profstandart.rosmintrud.ru.

The main parameters determining the choice of professional standards combined with the FSES-HE are the affiliation of the professional standard with the field of professional activities indicated in the FSES-HE, as well as in setting up a correspondence between the types of professional tasks introduced in the FSES-HE, and by the type of professional activities indicated in the professional standard. It is also necessary to take into account the qualification level established for the generalized labor functions within the framework of professional standards. The national qualification framework provides for nine qualification levels and about 6-9 of them correspond to the level of higher education. The level of bachelor degree corresponds to the sixth qualification level; the levels of specialist and master degree correspond to the seventh qualification level. Through the analysis of labor functions, labor actions, requirements to knowledge and skills each educational institution which is providing the training under this program should choose only those elements of the generalized labor function for which it is possible to prepare the graduate and on the basis of which professional competences should be formed.

In view of the fact that today the number of existing professional standards is not enough in the formation of professional competencies, it is necessary to take into account such tools as: The data of analysis on demanded competencies, development of the structure of professions in the future, analysis of the labor market, generalization of foreign experience, consultations with leading employers and their associations [1, 7, 9].

Forming an electronic portfolio is mandatory for each student and begins from the moment the student is enrolled in the educational program and ends at the end of training. The portfolio "forms more conscious and deep meanings of the learning, develops educational and professional motivation of students, achievement motivation, increases the level of formed reflection, critical thinking, creative abilities, increases awareness of the social significance of their profession, thereby creating conditions for further self-development of the individual" [10]. The electronic portfolio is a modern effective means of monitoring educational achievements of students, allowing them to assess the development of professional competencies, to solve the problems of

organization, planning, implementation and qualitative/quantitative evaluation of its research activities, implemented within the educational process and parallel with it. Collection and accumulation of information in the electronic portfolio which indicates the achievements of the student, as well as his professional becoming, is carried out in the "personal account" by the student directly.

The pedagogical monitoring of the effectiveness of students' research activities is based on an objective assessment of the success in the research activities of each student following the results of the analysis of the composition of the achievements of his electronic portfolio. Such approach allows building a rating of the most successful students, defining the degree of their participation in research work, the activities of teachers involved in the supervising of research works, the success of the departments for the organization of scientific work defining a rating of research events and interest to them from the side of students of university. The rating of the highest indicators in the research activities of the portfolio will make more appropriate to choose the composition of the active groups of student societies of departments, to implement the practice of moral and material stimulation of research activities of students.

In the rating assessment of the success of students' participation in the research work, each type of event in accordance with its status can be assigned an evaluation a score, which can be correlated with the result of participation (certificate of participation, diploma of the laureate, winner or prize-winner of the competition, reviews, letters of appreciation can be separately taken into account), the publication activity of students is evaluated. Pedagogical monitoring of the effectiveness of students research activities based on the analysis of the electronic portfolio of students provides control, diagnosis, forecasting, planning and decision-making to manage the process of organizing research activities of each student and gives the following opportunities:

a) for the student – "individual accounting of scientific achievements, objective evaluation of the results of research activities, timely delegation to receive awards, scholarships, medals, diplomas, etc., systematic consulting support of research activities" [10];

b) for the university – a systematic assessment of the achievements of students in research work.

The following conditions are the defining principles of pedagogical monitoring:

- the principle of goal orientation and prognostication. It supposes the correlation of data of pedagogical monitoring with pre-developed indicators and criteria for assessing the dynamics of development of the pedagogical process, timely coordination of activities to improve the results of educational practice;

- the principle of objectivity. It requires the maximum exclusion of subjective assessments, creating equal conditions for all students;

- the principle of integrity and continuity. It determines the necessity for receiving of complete information on the formation of research competence of students during their studies at university at all levels of

higher education, on the implementation of the continuity of the content and results of research activities of bachelors, specialists and masters;

- the principle of development and self-organization. It is aimed at the formation of students understanding of the purpose, meaning and significance of research activities in personal becoming and professional development;

- the principle of regularity and consistency. It supposes that the constant monitoring of the results promotes to watch the timely dynamics of the formation of the research competence of bachelors, specialists and masters, to identify existing problems and determine strategies for their deciding.

We assume that the score of the research results of bachelors can be ranked according to the following indicators: participation with the report at the intra-university conference (5 points); at the regional, all-Russian and international conference held in the territory of the Russian Federation (10); participation in the exhibition (5); diplomas and certificates obtained at the competitions of student works/student research projects (5); diplomas of winners and prize-winners of competitions for the best student scientific work (10); diplomas of winners of grants/competitions of prizes, scholarships for talented youth (20); publication of abstracts of the report/article in the intra-university or inter-university collection (5); peer-reviewed journal (10); participation in research work and research and development work of department (grants, contracts, etc.) (20).

The results of the research activities of specialists can be ranked according to the following performance indicators: participation with the report at the intra-university conference (5 points); at the regional, all-Russian and international conference held in the territory of the Russian Federation (10); participation in the exhibition (5); diplomas and certificates obtained at the competitions of student works/student research projects (5); diplomas of winners and prize-winners of competitions for the best student scientific work (10); diplomas of winners of grants/competitions of prizes, scholarships for talented youth (20); publication of abstracts of the report/article in the intra-university or inter-university collection (5); peer-reviewed journal (10); in the publication in journal from catalogue of Higher Attestation Commission of Russia (15); participation in research work and research and development work of department (grants, contracts, etc.) (20).

The results of the research activities of masters can be ranked according to the following performance indicators: participation with the report at the intra-university conference (5); at the regional, all-Russian and international conference held in the territory of the Russian Federation (10); at the international conference held abroad (15); diplomas and certificates obtained at the competitions of student works/student research projects (5); diplomas of winners and prize-winners of competitions for the best student scientific work (10); certificates of scientific internships (10); diplomas of winners of grants/competitions of prizes, scholarships

for talented youth (20); publication of abstracts of the report/article in the intra-university or inter-university collection (5); peer-reviewed journal (10); in the publication in journal from catalogue of Higher Attestation Commission of Russia (15); participation in research work and research and development work of department (grants, contracts, etc.) (15).

3 Conclusion

All the proposed modifications that will affect the FSES-HEaimed, on the one side, at establishing a closer link between the labor market and the education system, on the other side, – "are designed to preserve higher education as a mechanism for the promotion and development of professional qualifications that potentially change the labor markets." This will allow educational organizations and the professional community not only speaking the same language but also conducting an equal dialogue [8].

The implementation of a multi-level system of higher education creates "prerequisites for consistent differentiation of students according to their abilities, attitude to research activities and subsequent orientation of the most intellectually gifted to study in master degree and postgraduate programs". The implementation into the educational practice of the system of pedagogical monitoring of research activities of students through the electronic portfolio will make the picture of the effectiveness of students' scientific work more visible and open.

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