

The Role of Practice-Oriented Education in the Development of the Country’s Economy

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Abstract—Current economic conditions require training of highly qualified specialists. Improving the quality of higher professional education is currently one of the urgent problems not only for Russia, but also for the entire world community. The solution to this problem is connected with the modernization of education, the optimization of methods and technologies for organizing the educational process. At the present stage of modernization of vocational education, production needs independent, creative, proactive, enterprising specialists who are able to make a profit, propose and develop ideas, find innovative solutions and implement cost-effective projects.

The article discusses a practice-oriented approach to learning in an educational institution; application of practice-oriented technologies; gradual formation of professional competencies of the student’s personality in accordance with educational standards; the process of forming professional competencies among students of a technical university is analyzed.

Keywords: *education, practice, practice-oriented approach, competencies, students*

I. INTRODUCTION

Globalization leads to worldwide integration in various In almost all regions of Russia, a certain part of university graduates get jobs outside their specialty. One of the reasons is that employers need ready-made specialists with work experience, and a graduate usually does not have it. In the training of specialists of any profile, an urgent problem is the

problem of strengthening the practical part of the training of future specialists [1].

Modern employers consider the knowledge, skills and abilities of graduates in the context of abilities and willingness to effectively apply them in practice, meet the quality standards of industry and regional service markets. One way to solve this problem is to implement a practice-oriented approach. This approach to learning is aimed, firstly, to bring the educational institution closer to the real needs of practice and life. Secondly, it allows students to create conditions for the targeted formation of competitiveness of future workers and employees.

The methodological aspect of satisfying this production need and involving future specialists in the process of social transformation of society is the professional development of students [2-4]. The solution to this problem at the university level is possible by making certain changes to the curriculum and training program for future bachelors and masters. The introduction and widespread use of new forms and methods of training (trainings, a workshop, group work, design methods, case studies, etc.) is possible due to the spread of new approaches to ensuring the quality of bachelor training determined by the employer.

The application of a practice-oriented approach should begin at school and purposefully transfer to the system of higher professional education and be the main method of

training at this stage of the education system. Any educational technology is the embodiment of a certain strategy. The introduction of a practice-oriented approach in the educational process of the university is due to the need to search for adequate educational technologies, a combination of means and methods of teaching and development of students that allow them to successfully achieve goals.

The main goal of the practice-oriented approach in education is to build an optimal model (technology) that combines the application of theoretical knowledge in solving practical issues related to the formation of professional competencies of a specialist [5-8]. The model of such professional training should be closely linked with the goals of the activities of industry organizations and regional services markets, the current and future tasks of economy as a whole, ensuring high management efficiency and making the necessary profit.

II. MATERIALS AND METHODS

Provisions of the system approach acted as the fundamental methodological prerequisite in this research [5]. Within this approach the education system should be considered as opened, suffering influence of the environment (the main directions of the state and regional growth, world scientific trends, and most of all the needs of employers, as the main objective of training at the university is obtaining qualification, which allow to carry out qualitatively certain labour operations, which a person who does not have the corresponding education cannot carry out [6].

There are several approaches to practice-oriented education in the higher education system. Some authors associate a practice-oriented education with the organization of a student's educational, industrial and undergraduate practice in order to immerse him in a professional environment, correlate his idea of a profession with the requirements of a real business and recognize his own role in social work. Other authors consider the most effective implementation of professionally-oriented teaching technologies that contribute to the formation of personal qualities that are significant for future professional activities, as well as knowledge and skills that ensure high-quality performance of functional duties in the chosen specialty. Some authors associate the formation of a practice-oriented education using contextual studies of specialized and non-core disciplines.

Monitoring the effectiveness of the use of practice-oriented teaching methods in the preparation of students should be carried out according to specially designed tests and questionnaires, which allows people to evaluate the person's knowledge, skills and professional qualities. Full-fledged professional training of engineers is impossible without the provision of competent and practice-oriented approaches to training, which can be implemented with a reasonable combination of fundamental education and professional-applied training. In the process of mastering the educational program, students receiving not only theoretical knowledge, but also practical skills, are guaranteed by several components of training.

Firstly, the mandatory inclusion of practitioners in the teaching staff. Federal educational standards establish what proportion of the total number of university employees implementing the educational program should be employees of organizations whose activities are related to the profile of this program, and the requirements for the experience of such specialists. Moreover, universities, as a rule, are not limited to these minimum values now. About half of teachers in master's programs are practical scientists at many universities.

Secondly, many educational programs currently include not only a certain number of hours of practical training, but actually complete immersion in the specialty before graduation. Previously, only in the fourth year students began to engage in scientific work in organizations with which the university cooperates, now this process occurs earlier. It is necessary to introduce an energetic learning style, especially since the use of modern technologies allows students to quickly and efficiently master educational programs [7-10].

The master's program should be aimed at obtaining students' knowledge for the real needs of the practice and economy of the country, therefore, when deciding on the opening of new master's programs, universities should take this into account. In Russia, the Master of Science is a specialist with a higher professional education, who has a deep knowledge of fundamental sciences, as well as special knowledge and skills at a level sufficient for research, scientific production, scientific and pedagogical activities.

Adopting the Bologna education system, Russian higher education institutions should take into account the experience of European countries, monitor and compare the progress of educational reforms. For example, the British Master's programs, unlike the Russian ones, do not contain disciplines aimed at improving the general culture of the student, but focus exclusively on the issues of professional training of a specialist in a particular field. Feedback from students, alumni, employers and professional communities has a significant impact on the structure, content and demand for Master's programmes, is one of the most important areas of work of British universities and one of the essential factors ensuring the high quality of British Master's programmes.

In the USA, a great deal of attention is paid to higher technical education in order to provide companies with highly qualified personnel. The ideal of the multistage system of the USA, in the process of its development it has absorbed the best world experience, transformed it in relation to its social and economic conditions and has become a standard to which the countries of Western Europe and Japan aspire [11-15]. Higher professional education in the United States is two-stage: the first stage ends with a bachelor's degree and the second with a master's degree. The second level is designed for 1-2 years of study after two years of practical experience. The U.S. curriculum is designed to provide Masters with all the tools necessary to continue their successful work in the workplace, while providing Masters with an exceptional degree of professional flexibility. The training is based on the fact that the acquired knowledge is ready for practical application. The determining factor in training specialists with higher education in the USA is the employer. Higher

education institutions play a supporting role, responding flexibly to the economic situation. Every five years, training courses and programs are reviewed by independent commissions of specialists. There is an exchange of experience in programming among scientists, teachers and employers. Higher education in the USA is aimed at identifying the individual characteristics and interests of the student and aims to build a successful career [16-18].

The main advantage of the system of professional training in Germany is the orientation on the requirements of production to the level of training of engineering personnel and innovative changes in the labor market, quickly penetrating the system of education, allowing it to be flexible, innovative and recognized throughout the world. Project activities of students are widespread in Germany and are also being implemented in Russia. The educational process of the Hamburg Innovation University includes a whole block of problem-oriented education, in which students solve complex production problems. The project is understood as students working together in small groups on the tasks encountered in real work practice. In the course of these classes the necessary methods, materials, projects are developed to find a solution to the problem [19-21]. Project work of students is carried out in many universities of Germany.

III. RESULTS

The system of innovative technical education implements a competency-based approach with comprehensive preparation of future engineers for professional activities, which involves focusing on international quality standards for training specialists in the field of engineering and technology [22]. A study of Russian and international requirements for the training of a qualified engineer shows that the professional competence of engineers is currently determined not only by a high level of professional knowledge, but also by the development of such general personal competencies as:

- understanding the essence of the profession of an engineer, the duty to serve the society, the profession and awareness of responsibility for engineering decisions;
- the ability to work effectively individually and as a part of a team;
- the ability to use various methods of effective communication in a professional environment and society (writing reports, presenting materials, issuing and receiving clear and understandable instructions);
- knowledge of foreign language;
- awareness of project activities;
- creative search within the framework of the profession, awareness of the need and ability to learn throughout life.

Competencies determine the use of the personal-activity approach in education, since they relate exclusively to the individual, they are manifested and verified only in the process of a student performing a series of actions. The goal of

“action learning” is to bridge the gap between what a person knows and what he does. Therefore, an important task is to determine technology activities for the formation of each competence from the above list. Modern technology activities and teaching methods include: design methods and technologies for research activities; imitation, role-playing and expert games; trainings, laboratory workshops; different practices; group discussions, presentations, interdisciplinary seminars, etc.

Traditional and innovative technologies of educational activities should, whenever possible, use modern information and communication technologies that increase the practical orientation of the educational process, as also take into account the individual characteristics of students. The formation of competence is a process, and the level of its formation is a characteristic that varies over time. The development of the components of a separate competency usually occurs gradually [23]. For example, in junior courses at university, a student acquires knowledge and skills, and then skills in the field of the studied disciplines of the humanitarian and natural-science cycles. In senior courses, they become in demand in the course of studying general professional and special disciplines, passing the practice of training and production practices, and completing course and diploma projects.

The essence of practice-oriented teaching is the development of students' educational programs not in the audience, but in real life, the formation of students' professional competencies by performing real practical tasks during study time in leading specialized organizations. The task of the university environment should be to assist students in individual self-expression, therefore, it is necessary to provide certain opportunities for the disclosure of abilities and meet the interests of students [2]. A knowledge system is needed that promotes the development of interest in the search for that person, who will subsequently form a highly qualified competent specialist who can solve any problems associated with his professional activity.

The entire educational process can be divided into several stages associated with the gradual accumulation of professional competencies and personal qualities by a student.

The first stage (1 course) - adaptive, provides familiarity with the basics of the future profession, the specifics of the educational process. The most effective at this stage are students undergoing summer educational and practical training, during which individual interviews with students are conducted in order to identify the student's abilities and assist in choosing the direction of independent work.

The second stage (2 year) is the stage of mastering the basics of the future profession, where professional adaptation, the accumulation of educational, didactic and normative knowledge take place. By the end of the second year, students should prepare small educational projects and form a circle of their interests in future professional activities. In the second year, students take additional courses, at the end of which they receive certificates of assignment of a working profession to them. This is important at this stage, as in the future the

acquired knowledge will help him to fulfill his duties professionally.

The third stage (3, 4 courses) is the stage of the formation of professional competencies, the development of technology, in which the student acquires all of the above knowledge and skills that an engineer must possess. This can be observed when students undergo practice-oriented training throughout the semesters and production technological practices in summer. At this stage, the element of creativity is manifested in the development of projects and scientific research becomes important. The manifestation of skill acquired as a result of passing practice-oriented training is important - the ability to work in a team, make timely and competent technological decisions.

The fourth stage (5, 6 course) is innovative. This is the rationale and implementation of ideas accumulated at all stages of training. The end of all work is the defense of a graduation project on technological topics using modern technologies and elements of a research nature.

Thus, the process of formation of professional competencies, the formation of students as future specialists is focused, systemic and phased. An important role in it is played by practice-oriented training, since it significantly contributes to an earlier choice of a place for future work.

The main objectives of practice-oriented training are:

1. Social and labor adaptation of youth;
2. Studying the principles of work of enterprises, institutions, organizations and best practices of their specialists by transferring from "hand to hand" effective skills, technologies and schemes developed by them in practice;
3. Deepening and consolidating knowledge gained in the process of planned training sessions through the implementation of practical tasks compiled by teachers of the graduating department;
4. Development of practical skills among students-trainees in the preparation, adoption and implementation of decisions;
5. Desire to achieve recognition in the work through the integration of educational and practical activities;
6. Determination by employers of the potential of future employees.

There are several approaches to practice-oriented learning in the higher education system. The first approach connects him with the organization of the educational, production and undergraduate practice of the student in such way that student is immersed in a professional environment. Adherents of the second approach understand practice-oriented education as a system of professionally-oriented technologies, including context-based learning technologies.

IV. CONCLUSION

A practice-oriented approach in an educational institution should be applied by the teaching staff from the first days of training and further contribute to further phased formation of professional competencies of the student's personality. Firstly,

the student adapts to the educational process. This forms an understanding of nature and social significance of his future profession. Secondly, the student begins to strengthen and deepen his professional interests in the study of special disciplines, where the student does not consolidate the main theoretical principles, but learns to predict, plan and in dialogue to reveal his opinions and positions on the chosen method of solving the educational problem. Thirdly, the process of acquaintance with professional activities in the field of developing professional modules and training, industrial practice, readiness for a differentiated assessment of one's level of professionalism. In addition, to practical work, future specialists get acquainted with real problems of production, their formulation, solution, documentation and presentation. And at the last stage, student can independently organize his own activities, choose standard methods and techniques for performing professional tasks, evaluate their effectiveness and quality.

Creating a practice-oriented educational process will allow bringing content of academic disciplines very accurately of student's future profession, create a holistic educational process and create the conditions for targeted formation of the competitiveness of future workers. Society needs a personality capable of solving non-standard tasks in non-standard situations, is capable of self-development, self-education, is able to successfully position itself in the labor market, focusing on socially significant priorities.

The implementation of a practice-oriented approach contributes to the improvement of existing educational programs and technologies for creating conditions for the training of specialists with a qualitatively new level of professional competencies, ready for professional activities in modern conditions. The task of teachers is to form students' practical experience of professional activity on the basis of a specific organization; master professional and general competencies by type of professional activity; check the possibilities of independent work of future specialists in a specific organization.

Practice-oriented training is one of the effective tools for formation of professional competencies and personal-active training of students in technical specialties. It has a systematic effect on educational process and allows students to comprehensively implement tasks of theoretical and practical training, creative development and education of a specialist, as well as acquisition of professional skills by students.

The main way to improve the educational process in a technical university is not to increase the amount of knowledge transferred, but to develop the skills of their scientific, professional understanding. This is what contributes to the formation and development of professional competence of students' technical specialties. Practice-oriented education involves the study of fundamental disciplines traditional for Russian education in combination with applied disciplines of technological or social orientation. Renewed education should play a key role in preserving fundamental science and developing the applied sciences necessary for the sustainable development of Russian society. Without the appeal of vocational education to practice-oriented teaching

technologies, it is quite problematic to complete the tasks for development of the country's economy. Thus, practical orientation and dialogue allow students to acquire the necessary minimum professional skills, organizational experience, system of theoretical knowledge, professional mobility and competence, which meets the educational standard and makes our graduates competitive.

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