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PEDAGOGICAL CONDITIONS OF PROFESSIONAL TRAINING OF SKILLED MACHINE-BUILDING INDUSTRY WORKERS BY THE DUAL FORM OF EDUCATION

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Abstract.

The relevance of the study is determined by the need to bring the level of professional training of skilled machine-building industry workers in line with the requirements of the modern labor market.

Purpose: substantiation of pedagogical conditions of professional training of skilled machine-building industry workers by the dual form of education.

Methods: theoretical analysis of scientific sources – to determine the level of the problem research; comparison – in order to study the scientific approaches to solving the problem; systematization – to substantiate its structural components.

Results: pedagogical conditions of professional training of future skilled machine-building industry workers by the dual form of education are considered to be a set of circumstances related to the organization of the educational process in the institution of vocational education and training (VET) and the external educational environment in which cognitive, educational and production activities of applicants for education occur and which are aimed at the formation of the professional knowledge, skills and abilities and the development of professional competence; the following pedagogical conditions are determined (formation of positive motivation for practice-oriented professional training; updating the content of professional and practical training, taking into account the requirements of partner companies; use of active methods and innovative educational technologies; conducting seminars and trainings for production mentors).

Conclusions: the proposed pedagogical conditions of professional training of skilled machine-building industry workers by the dual form of education contribute to the formation of professional competence of skilled machine-building industry workers; the introduction of elements of the dual form of education in the training of future skilled workers is of strategic importance for the development of the country.

Keywords: *condition, pedagogical condition, dual form of education, professional education, competence.*

Introduction. The relevance of the study is determined by the need to bring the level of professional training of skilled machine-building industry workers in line with the requirements of the modern labor market. The best way to solve this problem is to introduce a dual form of education. Substantiation of pedagogical conditions of professional training of skilled machine-building industry workers by the dual form of education involves providing such requirements for the educational process that would promote better learning of educational material, take into account the most important didactic principles, help to harmoniously develop students' hard and soft skills demanded by the machine-building industry.

Sources: The paper took into account the ideas on the theoretical justification of organizational and pedagogical conditions for the formation of professional competence of students in institutions of vocational education and training (hereinafter – VET) (A. Aleksiuk (2001), Yu. Babanskiy (2005),

V. Semychenko (2010), V. Slastenin (2002), features of professional training of future skilled workers in various industries (E. Zeer (2000), I. Zimnyaya (2004), P. Sikorskyi (1998), D. Zakatnov (2012)), L. Petrenko (2013), O. Pometun (2004), J. Raven (2012), competence approach in vocational education and finding ways to form the professional competence of future professionals (G. Dehtiarova (2012), R. Hurevich (2009), M. Artiushyna (2000), N. Bibik (2004), A. Verbytskyi (2004), S. Lisova (2011), V. Luhovyi (2014), N. Nychkalo (2013), O. Ovcharuk (2004), V. Radkevich (2012 a; 2012 b).

The article aims to substantiate the pedagogical conditions of professional training of skilled machine-building industry workers by the dual form of education.

Methods – theoretical analysis of scientific sources – to determine the level of the problem research; comparison – in order to study the scientific approaches to solving the problem; systematization – to substantiate its structural components.

Results and discussion. Pedagogical conditions of professional training of future skilled machine-building industry workers by the dual form of education are considered to be a set of circumstances related to the organization of the educational process in the institution of vocational education and training (VET) and the external educational environment in which cognitive, educational and production activities of applicants for education occur and which are aimed at the formation of the professional knowledge, skills and abilities and the development of professional competence.

The first pedagogical condition is the formation of positive motivation for practice-oriented professional training. Practice-oriented professional education is characterized by: fulfillment of a specific goal, which is based on the preparation of the student in accordance with the requirements of a specific customer-employer; synergy of VET institutions and direct customers-employers; priority of professional and practical training.

The success of the implementation of practice-oriented professional education largely depends on the professional motivation of students as a means of forming their professional competence.

The educational process with the use of high-tech equipment, the novelty of the subjects of the professional cycle, applied professional programs, etc., help to increase the motivation of students. If the working educational program is focused on the competencies demanded by employers (the formation of which will take place during theoretical training by solving educational and professional tasks modeled with the inclusion of technological processes of enterprises) and production of the products necessary for the enterprise in a real production situation on all kinds of practice, then not only the quality of training will increase, but also the motivation of students to further employment in the acquired profession will increase.

The motivation of students is also influenced by the implementation of joint interdisciplinary practical work and a comprehensive qualification task in the workplace using the acquired professional knowledge, skills and abilities.

The second pedagogical condition is the updating of the content of educational programs of professional and practical training taking into account technical and technological changes in the machine-building industry. The implementation of this condition is carried out through the development and implementation of educational program, didactic, program-methodical and technical means of training in the profession, focused on the development of technical intelligence and the formation of professional competencies, in conditions of a dual form of education.

Activities to develop the curricula for dual education include the following steps:

1. Analysis of the list of required labor functions and their significant labor actions, additional requirements of the employer (based on the report on the results of expert assessment of qualification requirements of the employer) for their grouping into generalized labor functions;

2. Correlation of the state educational standard on the profession and the report on the results of expert assessment of qualification requirements identified by employers to determine training cycles, sections, modules in the structure of the educational plan, the curriculum to include additional educational outcomes.

3. Formation of additional educational results of mastering the educational material on the basis of qualification requirements of employers in the format of dual training.

Qualification requirements of employers must be translated into educational outcomes. The changes, additions and their substantiation made in the program can be described in the explanatory note to the educational plan and specified in the curriculum, carried out by meeting of the corresponding methodical commission.

Conceptually, the implementation of this pedagogical condition is through the active involvement of employers in the development and implementation of the educational program for training skilled

workers for their own production through motivational, technological and material support of the enterprise.

It is important to follow the algorithm: from determining the results of mastering the educational program to the evaluation procedure and the correct selection of assessment tools, and only then – to the formation of the actual content and structure of the program.

Understanding the goals and the ways to test them makes it possible to build the curriculum in an optimal way. The formation of the structure of the curriculum (composition of professional modules, disciplines) and its content is carried out on the principle of "reverse": first, determine the types of work included in the modules, the content of subjects, then the composition and content of modules / topics, and finally – composition and content of subjects.

The content of the professional module / subject should take into account the synchronization of theory and practice. It is important to take into account that the content of the program is aimed at achieving the goal of education – the development of professional and general professional competencies that determine the qualifications of graduates. Adherence to the algorithm involves the development of an educational program to discuss with a joint creative group the conditions of program implementation, the distribution of responsibilities for the implementation of the program components, which provide a reasonable construction of the educational plan and schedule of the educational process.

Priority in the construction of updated software using elements of the dual form of education is the achievement by graduates of the qualifications required by employers. This is the purpose of cooperation between the parties, to ensure which (taking into account the peculiarities of production), it is determined what pedagogical staff, equipment, infrastructure are needed for conducting the industrial training and practice in production conditions, which schedule of the educational process, educational plan and list of components of its subjects and modules should be.

The third pedagogical condition is the use of active methods and innovative educational technologies. In the formation of professional competence of the future skilled worker, the educational process should be aimed at individualization of educational interaction, integrative learning and the development of technical thinking. In the conditions of dual model of training, there is always a choice of pedagogical technologies, which (in the conditions of reduction of duration of theoretical preparation, increase of hours of professional and practical training in the conditions of production) could provide the creation of a strong basis of future professional activity and which would have innovative character. Innovative transformational approaches to learning involve the formation of a modern model of the graduate who would be ready for the requirements of production due to high professional competence and ability to communicate with other people.

Such technologies can be: design, personality development, case studies, interactive, integrated.

Project-based learning technologies involve the use of active methods of independent work of students, which stimulate their creative thinking, increase the level of mastery of research methods, the ability to work in a group and use different sources of information. The teacher (when using the project technology) determines the timing, scope of tasks, criteria for evaluating the results of work and coordinates the following stages of the project: exploratory, analytical, practical and final.

Personality-development technologies are based on the partnership between the teacher and the student, with high educational, exploratory, research activity of the latter. The peculiarity of this technology is the constant emphasis on the content of education to the requirements of modern enterprise, integrative approaches to modeling lessons, the use of activating teaching aids, including information and communication, as well as modernization of material and technical base.

Case study is a learning technology based on the analysis, solution and discussion of real or simulated professional situations. The strength of this technology is that in solving a certain production situation, the learner integrates knowledge of theory (with acquired skills) in practice, working on the predicted result, through the analysis of a specific production problem, formulating its cause and identifying ways to solve it. When solving production situations, the learner develops skills: analytical (information analysis), practical (application of theoretical knowledge in a practical situation), communicative (ability to work in a group, establish partnerships, present and argue own point of view).

The introduction of integrated learning technology is relevant because the content of vocational education in accordance with the standards of vocational (professional) education in the profession "Turner" has a subject approach. However, the

professional activity of the future skilled worker is anintegral part of the application of professional competence (subject of activity, equipment, technology, materials science, etc.).

Integrated technology is based on a metasystem combination of similar elements from different subjects through the cyclical interaction of teachers and students. The positives of this system are: the implementation of interdisciplinary links, integration of content, the formation of students' professional competencies based on the consolidation of knowledge gained through differentiated learning, the focus on the development of system thinking. In view of this, interdisciplinary connections, development and students' implementation of complex tasks and projects that require knowledge in various subjects become relevant and practically significant.

Interactive technologies provide a system of joint, controlled, active interaction of all participants in the educational process, which is designed (through individual and group activities) to develop professional competencies and soft skills of students. Built on interactive technologies, training is based on the minimum knowledge of students on the topic, their production experience, cooperation and communication, rapid systematization of knowledge and reflection.

The fourth pedagogical condition is the conducting of seminars and trainings for mentors, which are necessary in the organization of the dual form of education. With the introduction of the system of dual form of education, the main teacher in the workplace should be a mentor, and the institution of mentoring in the system of modern education, unfortunately, is almost lost. Fixed mentors have problems working with students. Mentors, mostly experienced highly qualified workers, perform high-quality technological operations, but have no training in Pedagogy and Psychology, do not always know the requirements of educational programs, the standard of vocational (professional) education when working with students who undergo industrial training and internships in the enterprise conditions. According to the results of the survey, mentors are practically not ready to implement their functions in the training of future skilled workers, including in terms of pedagogical competence.

Conclusions. The pedagogical conditions influencing the formation of the necessary professional competencies of skilled machine-building industry workers include: the formation of positive motivation for practice-oriented vocational training (training of students on high-tech equipment that allows them to perform most of practical, laboratory and diploma work in real production conditions and to form the professional competencies of the turner demanded at work on the high-tech equipment of the enterprises of machine-building industry); updating the content of professional and practical training taking into account the requirements of partner companies (adjusting the list of professional competencies by type of activity due to the active involvement of employers in the development and implementation of an educational program for training skilled workers); use of active methods and innovative educational technologies (individualization of educational interaction, integrative learning, development of technical thinking); conducting seminars and trainings for production mentors (restoration of the mentoring institute).

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ПЕДАГОГІЧНІ УМОВИ ПРОФЕСІЙНОЇ ПІДГОТОВКИ КВАЛІФІКОВАНИХ РОБІТНИКІВ МАШИНОБУДІВНОЇ ГАЛУЗІ ЗА ДУАЛЬНОЮ ФОРМОЮ ОСВІТИ

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Реферат.

Актуальність дослідження визначається необхідністю приведення рівня професійної підготовки кваліфікованих робітників машинобудівної галузі у відповідність до вимог сучасного ринку праці.

Мета: обґрунтування педагогічних умов професійної підготовки кваліфікованих робітників машинобудівної галузі за дуальною формою здобуття освіти.

Методи: теоретичний аналіз наукових джерел – для з'ясування рівня дослідженості проблеми; порівняння – з метою вивчення наукових підходів до розв'язання проблеми; систематизація – для обґрунтування його структурних компонентів.

Результати: педагогічні умови професійної підготовки майбутніх кваліфікованих робітників машинобудівної галузі за дуальною формою освіти розглядаємо як сукупність обставин, пов'язаних із організацією освітнього процесу в закладі П(ПТ)О і тим зовнішнім освітнім середовищем, у якому відбувається пізнавальна, навчальна й виробнича діяльність здобувачів освіти, спрямована на формування в них професійних знань, умінь і навичок та розвиток професійної компетентності; визначено такі педагогічні умови (формування позитивної мотивації до практико-орієнтованого професійного навчання; оновлення змісту професійно-практичної підготовки з урахуванням вимог підприємств-партнерів; використання активних методів та інноваційних освітніх технологій; проведення семінарів і тренінгів для наставників з виробництва).

Висновки: запропоновані педагогічні умови професійної підготовки кваліфікованих робітників машинобудівної галузі за дуальною формою освіти сприяють формуванню професійної компетентності кваліфікованих робітників машинобудівної галузі; впровадження елементів дуальної форми навчання у професійну підготовку майбутніх кваліфікованих робітників має стратегічне значення для розвитку країни.

Ключові слова: *умова, педагогічна умова, дуальна форма освіти, професійна освіта, компетентність.*

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