



# A METHODOLOGICAL SYSTEM OF PROFESSIONAL TRAINING FOR FUTURE SKILLED WORKERS WITH ELEMENTS OF DUAL EDUCATION

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## Abstract.

*Relevance:* It is indeed essential to realize the importance of implementing strategies for sustainable development of the society, one of which is dual education. In turn, it will contribute to the effective organization of such education in professional (vocational) education schools (hereinafter “P(V)E schools”), as well as to timely development of a scientifically justified methodical system of professional training for future skilled workers with its elements.

The article *aims* 1) to consider the essence and structure of such a methodical system of professional training for future skilled workers with elements of dual education, 2) clarify the content of its components for a successful and effective implementation of this system in P(V)E schools.

*Research methods* are the following: analysis and synthesis – to identify and justify the components of the methodical system of professional training for future skilled workers with elements of dual education; generalization – to formulate conclusions; modelling – to determine the relationships between the system’s components; empirical methods, including praximetric (a study and analysis of pedagogical experience, curricula, training programmes for future skilled workers within dual education) – to describe the educational process (in the form of dual education) in P(V)E schools; interrogatory-diagnostic (interviews with the teaching staff of P(V)E schools and employers) – to clarify the content of the methodical system of professional training for future skilled workers with elements of dual education).

*Results:* the article presents the author’s methodical system of professional training for future skilled workers with elements of dual education. It is viewed as an open system that consists of certain interrelated components (students, teachers, social partners, goals, content, pedagogical interaction tools, diagnostics and assessment, promising opportunities for updates in the methodical system).

*Conclusions.* The identified structural components of the author’s methodical system enable its life cycle and further transformations. Below are the expected positive results of its implementation in P(V)E schools: the successful introduction of dual education; clear awareness of the essence, content and characteristics of professional training for skilled workers under dual education by all actors in the educational process, as well as the consistency of their actions; the enhancement of students’ professional competencies and competitiveness in the labour market; the shortening of graduates’ adaptation period in their first employment.

**Keywords:** *methodical system of professional training for future skilled workers with elements of dual education, professional (vocational) education schools, dual education, future skilled workers.*

**Introduction.** The current situation in the world requires everyone to realize the importance of implementing strategies for the sustainable development of society, one of which is dual education.

Given the reforms in the Ukrainian educational, including professional (vocational), system, certain problems are exacerbated. They are the following: lack of a decentralized and results-oriented model of professional (vocational) education management and funding; insufficient cooperation and intersectoral interaction among state authorities, local governments, P(V)E schools, the business sector, civil society institutions and other stakeholders; low quality and prestige of professional (vocational) education; its insufficient popularization among the youth and adults.

To solve these problems, one should employ a complex approach. The latter lies in coordinating and balancing the interests of all stakeholders in the system of professional (vocational) education. In this regard, one of the possible ways to solve them is the organization and development of dual education. Therefore, the National Economic Strategy 2030, approved by the Cabinet of Ministers of Ukraine as of March 3, 2021 (No 179), states about “creating conditions for developing a public-private partnership in the field of professional (vocational) education” and “improving the mechanism for obtaining professional (vocational) education under dual education” within the framework of the strategic goal “Creating an Inclusive, Innovative and Educated Society in which Citizens have Equal Rights and Opportunities to Develop Their Talent throughout Life” (Kabinet ministriv Ukrainy, 2021).

**Sources.** Quite noteworthy is a study by Swiss scholars on dual education as a narrowly specialized and student-oriented experience that leads to knowledge through subsequent reflection (Schwendimann Beat A., et al., 2015).

A detailed analysis of some other relevant studies (M. Azhazha, I. Boichevska, V. Chernichenko, Yu. Kariahin, I. Korkuna, O. Korkuna, L. Krymchak, V. Novikov, Yu. Oleksin, O. Tsilnyk, V. Shebanin, S. Yakubovska et al.) shows that Ukrainian scholars have only begun to gain practical experience in implementing dual education. Consequently, most publications justify the expediency of its introduction in Ukrainian P(V)E schools. Thus, I. Korkuna, O. Korkuna, and O. Tsilnyk (2018, p. 93) offer a visual scheme of dual education in Ukrainian universities, which, however, does not fully reflect the mechanisms of interaction between all actors in the educational process under dual education. M. Azhazha (2019, p. 16) analyzed relevant legal frameworks and

determined factors in the implementation of dual education in the professional training of future specialists in Ukrainian universities. She believes that these factors are associated with the insufficient focus of the educational system on the needs of the labour market and the interaction between their elements. V. Shebanin (2018) presents the system of training highly qualified specialists in agriculture under dual education (at Mykolaiv National Agrarian University) that adheres to the needs of the agrarian sector in Mykolaiv region. In the context of this research, one should pay particular attention to the principles determined by Yu. Oleksin and S. Yakubovska (2018, p. 103) that form the basis for the system of dual education. They are as follows: the equality of humanistic and axiological orientations; a competence-based approach; the establishment and development of professional activities and socio-professional relations. However, the organization of dual education in P(V)E schools is negatively affected by the lack of a scientifically justified methodical system and insufficient implementation of pedagogical conditions for introducing elements of dual education in the professional training of future skilled workers.

**The article aims** 1) to consider the essence and structure of the methodical system of professional training for future skilled workers with elements of dual education, 2) clarify the content of its components for a successful and effective implementation of this system in P(V)E schools.

**Research methods** are the following: analysis and synthesis - to identify and justify the components of the methodical system of professional training for future skilled workers with elements of dual education; generalization - to formulate conclusions; modelling - to determine the relationships between the system's components; empirical methods, including praximetric (a study and analysis of pedagogical experience, curricula, training programmes for future skilled workers within dual education) - to describe the educational process (in the form of dual education) in P(V)E schools; interrogatory-diagnostic (interviews with the teaching staff of P(V)E schools and employers) - to clarify the content of the methodical system of professional training for future skilled workers with elements of dual education).

**Results and discussion.** Since 2019, research officers of the Laboratory of Professional Education Technologies at the Institute of VET of the NAES of Ukraine have been conducting a study on methodical principles of implementing dual education elements in professional training of future specialists in construction, machine building, service and catering. They

have already developed the methodical system of professional training for future skilled workers with elements of dual education (see Fig. 1). This system consists of certain interrelated structural components (stu-

dents, teachers, social partners, goals, content, pedagogical interaction tools, diagnostics and assessment, promising opportunities for updates in the methodical system) (Kulalaieva, 2021, p. 88).



Fig. 1. The author's methodical system of professional training for future skilled workers with elements of dual education

Its main system-forming component is *the goal* of professional training for future skilled workers with elements of dual education. It lies in adjusting its quality to labour market requirements, competencies of graduates from P(V)E schools and personal capabilities and preferences of students (Ministerstvo osvity i nauky Ukrainy, 2018). Consequently, it requires one to consider the current and future needs of business entities and develop a public-private partnership. In turn, dual education allows graduates to quickly adapt to professional activities, gain valuable experience, combine professional training and paid practice, use the latest facilities of business entities to acquire practical skills. Besides, it coordinates employers' requirements for graduates' competences with relevant offers of P(V)E schools and involves practising specialists in the professional training process.

The *content* of such training covers a system of knowledge, skills and abilities that improves future specialists' competences under employers' require-

ments and seeks to approximate theory to practice, education to production. The system includes the theoretical and practical knowledge and skills, as well as the creative experience, that enable 1) training in real production; 2) the use of the complex approach to solving professional problems and managing educational information; 2) the development of critical thinking, teamwork skills and ability to formulate and defend one's opinion. Also, this content aims to develop professionally important qualities, corporate culture and social responsibility.

*Pedagogical interaction tools* involve forms (lessons, mini-lectures, talks, training sessions, competitions), methods (explanatory-illustrative, productive, heuristic, problem- and research-based), personality-oriented pedagogical technologies (problem-based and modular learning; critical thinking development; case studies; simulations; projects; ICT), as well as tools for monitoring teaching quality focused on a combination of theoretical and practical training.

*Diagnostics and assessment*, as a component of the author's methodical system, allows one to analyze, control and correct the acquisition of educational material by students. Types of assessment are as follows: initial (to identify levels of knowledge, skills and abilities), formative, thematic, intermediate, summative (to assess learning outcomes); forms of assessment – individual, group, frontal; methods – oral, written, practical, programme-based. A compulsory element of the diagnostics and assessment component is reflexive exercises (discussing one's actions; identifying and analyzing mistakes to prevent them in professional activities; self-control in the workplace). Such exercises are mostly offered to students at the final stage of the lesson.

*Students* (learners) are the main actors in the educational process who gain knowledge during theoretical and practical activities. Interestingly, professional training with elements of dual education combines theoretical training (30%) in P(V)E schools and practical training (70%) in the workplace. Students can choose where they wish to complete professional-practical training from the list of business entities that have concluded agreements with P(V)E schools about the provision of professional education in the context of dual education. If the student has reached the age of 18, he or she is entitled to conclude an agreement with the P(V)E school and the business entity about obtaining professional (vocational) education with elements of dual education. If not, his or her parents or other legal representatives are entitled to do so (Ministerstvo osvity i nauky Ukrainy, 2019).

In case they have concluded employment agreements while obtaining professional (vocational) education with elements of dual education, students may become employees of these business entities and receive a salary or other monetary remuneration during professional-practical training in the workplace. It is also important that students should keep journals. It is because these journals record different and valuable information (timetable details; levels of professional and key competences stated by the curriculum or professional (vocational) education standard; formative assessment results). Such information can be recorded by students themselves, masters of vocational training, mentors, dual education coordinators (if necessary). Documents on educational and/or professional qualifications are issued to students based on their results of the state certification.

*Teachers* can act as mentors, coordinators, organizers, consultants, facilitators, advisors. They encourage students to acquire professional and key

competencies, identify problems associated with the educational process and help solve them. Students' professional-theoretical training under dual education is provided under *the Regulations on the Organization of the Educational and Production Process in Professional (Vocational) Education Schools*, approved by the order of the Ministry of Education and Science of Ukraine as of May 30, 2006 (No 419) (Ministerstvo osvity i nauky Ukrainy, 2006). Masters of vocational training (or their assistants), who are assigned to P(V)E schools' students in terms of their professional-practical training at the enterprise, perform some essential functions, too. They ensure compliance with the curriculum and visit students in the workplace and/or training and production areas of the enterprise.

Research officers of the Laboratory of Professional Education Technologies at the Institute of VET of the NAES of Ukraine have prepared and conducted the training course on the organization of professional training for future skilled workers under dual education to raise teachers' awareness of such education. The course consists of the following thematic sessions: "The Legal and Pedagogical Documentation that Regulates the Planning, Organization, Implementation and Monitoring of Professional Training for Skilled Workers under Dual Education"; "Methods of Organizing Dual Education for Professional Training of Skilled Workers"; "Methods of Organizing Dual Education at Production Site"; "Technology of Social Partnership Development in Professional (Vocational) Education Schools under Dual Education. A Roadmap for Employers"; "The Foreign Experience of Professional Education and Training under the Dual System"; "Modern Models of Self-Government in Professional Training of Future Skilled Workers under Dual Education"; "Fundamentals of Professional Pedagogy"; "A Methodical System of Professional Training for Future Skilled Workers with Elements of Dual Education"; "Creating an Educational and Production Environment of the Dual System in Professional (Vocational) Education Schools".

Besides, they have developed a methodology for organizing dual education in terms of professional training for future specialists in construction, machine building, service and catering to provide relevant scientific-methodical support for such training. This methodology consists of five stages and involves certain measures combining traditional training with that in the workplace (Kulalaieva, 2020). *Social partners* of the professional (vocational) education system include employers (enterprises, organizations, institutions of various forms of ownership

and subordination, their associations; professional associations of employers); governing bodies and power structures (economic, social and employment spheres; chambers of commerce and industry); public organizations and associations (trade unions, associations of employees); individual representatives of the labour market; individual consumers of educational services (students and their parents, unemployed citizens). Furthermore, research officers of the Laboratory have developed a technology of social partnership development in P(V)E schools under dual education (Kulalaieva, & Homeniuk, 2020) and a roadmap for employers regarding the introduction of dual education (Kulalaieva, 2020) to promote cooperation among the actors in the social partnership system to enhance the quality of the professional (vocational) education system.

*Promising opportunities for updates in the methodical system* enable dynamism and modernization of the current methodical system. Indeed, its transformation largely depends on constant improvement of all its components, flexibility, consideration of societal demands and labour market needs, as well as self-development of education stakeholders.

The functional components of the mentioned system are the following: *projecting* (it determines general goals and objectives of professional training for future skilled workers with elements of dual education); *cognitive* (it coordinates employers' requirements with professional (vocational) education standards and include their proposals in the curriculum and programmes of professional training for skilled workers in P(V)E schools); *procedural* (it ensures the selection and use of forms, methods, technologies and tools of teaching and learning that are most suitable for dual education); *gnostic* (it allows teachers to study and analyze educational innovations, apply colleagues' experience, self-develop and self-improve); *reflexive* (it encourages students

to reflect on educational material, analyze their professional actions and assess their own effectiveness during theoretical and practical training); *evaluative* (it monitors the quality of dual education and students' results with the help of representatives of educational institutions and business entities); *prognostic* (it modernizes the content of professional (vocational) education taking into account dynamic technological changes in the economy and facilities of P(V)E schools, as well as enables changes to curricula and programmes of professional training for future skilled workers in P(V)E schools, given the introduction of the latest production technologies at enterprises); *communicative* (it ensures effective interaction between P(V)E schools and executive bodies, trade unions, employers' associations, business entities, employment service institutions and coordinates their common interests on development, multi-channel financing and multilevel management of the professional (vocational) education system).

**Conclusions.** The implementation of the author's methodical system of professional training for future skilled workers with elements of dual education in P(V)E schools, which consists of certain structural components (students, teachers, social partners, goals, content, pedagogical interaction tools, diagnostics and assessment, promising opportunities for updates in the methodical system) and functional components (projecting, cognitive, procedural, gnostic, reflexive, evaluative, prognostic, communicative) will contribute to the successful introduction of dual education in P(V)E schools; clear awareness of the essence, content and characteristics of professional training for skilled workers under dual education by all actors in the educational process, as well as the consistency of their actions; the enhancement of students' professional competencies and competitiveness in the labour market; the shortening of graduates' adaptation period in their first employment.

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# МЕТОДИЧНА СИСТЕМА ПРОФЕСІЙНОЇ ПІДГОТОВКИ МАЙБУТНІХ КВАЛІФІКОВАНИХ РОБІТНИКІВ З ЕЛЕМЕНТАМИ ДУАЛЬНОЇ ФОРМИ НАВЧАННЯ

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## Реферат:

*Актуальність:* необхідність усвідомлення кожним важливості реалізації стратегії збалансованого розвитку суспільства, одним із інструментів якої є дуальна форма здобуття освіти, зумовлює її цілеспрямовану організацію в закладах професійної (професійно-технічної) освіти (далі – П(ПТ)О) та доцільність і своєчасність розроблення науково обгрунтованої методичної системи професійної підготовки майбутніх кваліфікованих робітників з елементами дуальної форми навчання.

*Мета:* розгляд суті та структури методичної системи професійної підготовки майбутніх кваліфікованих робітників з елементами дуальної форми навчання, змістового наповнення її складників для успішного й ефективного впровадження цієї системи в закладах П(ПТ)О.

*Методи:* теоретичні (аналіз, синтез – для визначення та обгрунтування складників методичної системи професійної підготовки майбутніх кваліфікованих робітників з елементами дуальної форми навчання; узагальнення – для формулювання висновків дослідження; моделювання – для визначення взаємозв'язків між складниками системи); емпіричні (праксиметричні (вивчення та аналіз педагогічного досвіду, робочих планів, програм підготовки майбутніх кваліфікованих робітників за дуальною формою навчання – для виявлення особливостей освітнього процесу закладів П(ПТ)О в умовах дуальної форми навчання); опитувально-діагностичні (бесіди з педагогічними працівниками закладів професійної освіти та роботодавцями – для визначення змістового наповнення складників методичної системи професійної підготовки майбутніх кваліфікованих робітників з елементами дуальної форми навчання).

*Результати:* розроблено методичну систему професійної підготовки майбутніх кваліфікованих робітників з елементами дуальної форми навчання, що є динамічною відкритою системою й охоплює взаємопов'язані складники (учні, педагогічні працівники, соціальні партнери, цілі, зміст, засоби педагогічної взаємодії, діагностування й оцінювання, перспективні можливості для оновлення методичної системи).

*Висновки.* Визначені структурні складники запропонованої методичної системи уможливають її життєвий цикл та подальші трансформації. Упровадження розробленої методичної системи професійної підготовки майбутніх кваліфікованих робітників з елементами дуальної форми навчання в закладах П(ПТ)О сприятиме: успішному запровадженню дуальної форми навчання; чіткому усвідомленню всіма суб'єктами освітнього процесу суті, змісту та особливостей професійної підготовки кваліфікованих робітників в умовах дуальної форми навчання, а також узгодженості їхніх дій; підвищенню рівня професійних компетентностей здобувачів освіти, необхідних для діяльності за фахом, їхньої конкурентоздатності на ринку праці та скороченню періоду адаптації випускників цих закладів на першому робочому місці.

**Ключові слова:** методична система професійної підготовки майбутніх кваліфікованих робітників з елементами дуальної форми навчання, заклади професійної (професійно-технічної) освіти, дуальна форма навчання, майбутні кваліфіковані робітники.

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