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**Applied Aspects of the Scientific and Methodological
Provision of Vocational Education in Ukraine Under
the Conditions of The Martial Law State**

In martial law conditions, Ukraine's labour market changed radically. That was also reflected in the national system of professional education. Ukrainian employers faced difficulties related to the attraction of young talent (44%), returning of employees to Ukraine and their working places (43%), increasing of employee productivity in conditions of constant stress (42%), managing risks associated with people (41%), creating an inclusive working environment (31%), reintegrating veterans into professional life (31%) (Facts, 2024, February 6). Among the skills demanded by employers, the following became relevant: critical thinking, the desire for improvement (36%), the ability to self-manage (35%), the ability to manage one's emotions (32%), comprehensively solve problems (32%), form one's own opinion and make decisions (25%), manage time effectively (21%) and be a digitized, diplomatic member of a professional team (18%) (UNIAN, 2023, October 18). The top sectors of the military labour market in 2023 included: industry, construction, trade, public administration and the defense sector of production, and the most scarce professions included construction workers, mining workers, drivers, technicians in the field of applied sciences and engineering, etc. From the given data, it is obvious that Ukraine has taken a course of defense and reconstruction. According to economists' conclusions, the Ukrainian labour market's need for specialists in the field of production and workers will continue to grow in the next four years, which is a signal for their training in the vocational education system of Ukraine.

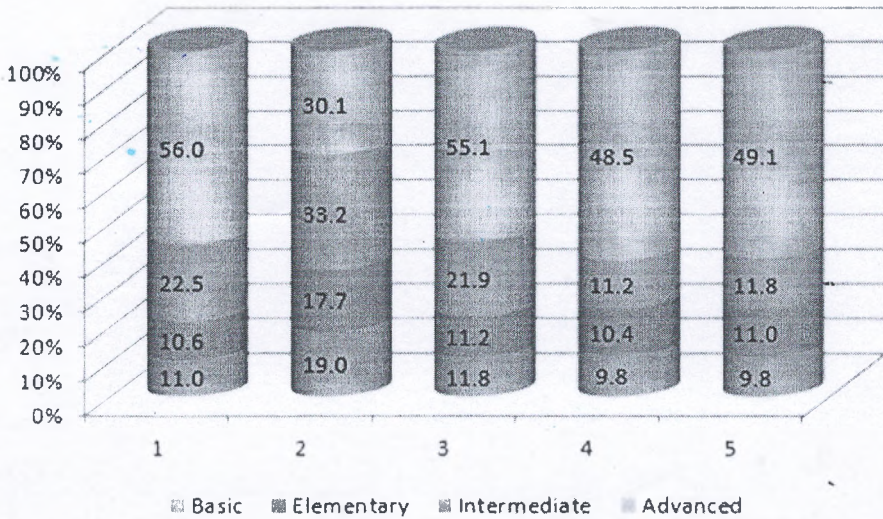
At the same time, the war caused extraordinary losses in the national system of professional education: 24 educational institutions were destroyed; the pedagogical community lost 1,256 teachers and 13,351 students for various reasons (Institute of Educational Analytics, 2024); system information regarding the development of the dual form of education, which was significantly transformed

due to the change in the architecture of the relationships between relocated educational institutions and partner enterprises, was lost. As of the end of 2023, direct infrastructural losses of the Ukrainian education system already amounted to 9.7 million dollars (Institute of Analytics and Advocacy, 2024). Educational analysts noted serious changes in the psycho-emotional state of teachers and students: 80% of teachers testify to an increase in workload, 54% need psychological help, 46% need psychological and methodological support; 75% of students have cognitive manifestations of stress, 22% have lack of motivation to study, 16% have confusion and inattention, 13% have apathy or indifference (Osvitoria, 2023). It was found that 53% of graduates of vocational education institutions had problems with employment, and 15% of those employed had only irregular part-time work (Lesnikova & Denisyuk, 2023, p. 18, 34).

In the national projects of the Recovery Plan of Ukraine (2022) highlighted the need for: formation of an effective educational network; creation of a unified system of professional education; development of mechanisms for the returning of youth to Ukraine; normalization of the individual educational trajectory of forced emigrants; legislative regulation of issues of professional education for adults; development of digital education and digital management of an educational institution; creating new educational programs on a modular basis, improving the quality of teacher training, giving them in the methods for „soft” skills forming; consideration in the content of professional and educational standards relevant for the military labour market of partial and micro-qualifications; development of financial autonomy of vocational education institutions, etc. However, the implementation of those projects, unfortunately, is being held back by the continuation of the military aggression of the Russian Federation against Ukraine. With this in mind, we highlight the priority areas for scientific and methodological support for the development of professional education to speed up the recovery of Ukraine, namely: ensuring the real connection between education and the domestic labour market in order to train competitive, mobile specialists who are able to navigate and make the right decisions in unpredictable military conditions time; the development of public-private partnership aimed at the formation of a new paradigm of management of professional education in order to ensure its compliance with the needs of the individual and the state in the conditions of war and post-war reconstruction; development of mechanisms for the development of management competence of teachers and heads of educational institutions; strengthening the environmental aspect in professional education, ensuring effective environmental training for students to overcome the devastating consequences of war and strengthening the environmental and energy security of Ukraine; development and implementation of pedagogical innovations for the development

of environmental competence of teachers and students; digitalization of professional education, students training to make a digital breakthrough in strategic sectors of the economy and social life; development of digital, information and communication competences of teachers and students of professional education; formation of a generation of self-motivated specialists to improve the efficiency of Ukrainian society, preserve its mental health and strengthen democracy; development of career, entrepreneurial, inclusive and civic competences of vocational education students.

Ensuring the constructive interaction of vocational education with the labour market is an important factor in the preparation and development of human capital as the basis for the effective functioning of the country's economy and the national security of the state. Within the framework of the tasks of the scientific research „Theoretical and methodological foundations of the development of professional competence of pedagogical workers of vocational colleges in the conditions of a pandemic, wartime and post-war times” (2023–2025), the following were determined: levels of professional competence development of teachers of vocational colleges; experimentally proved the need to substantiate pedagogical conditions for purposeful development of this competence in the special conditions of their professional activity (*Fig. 1*); a collective monograph „System of development of professional competence of teaching staff of vocational colleges in conditions of pandemic, war and post-war times” was published (Titova et al., 2023); activities related to the development of professional standards relevant for the military labour market have been strengthened; the mechanisms of improving the professional training of future specialists based on the competence approach were investigated; in cooperation with the National Qualifications Agency, the needs for new professional qualifications and training technologies have been determined.

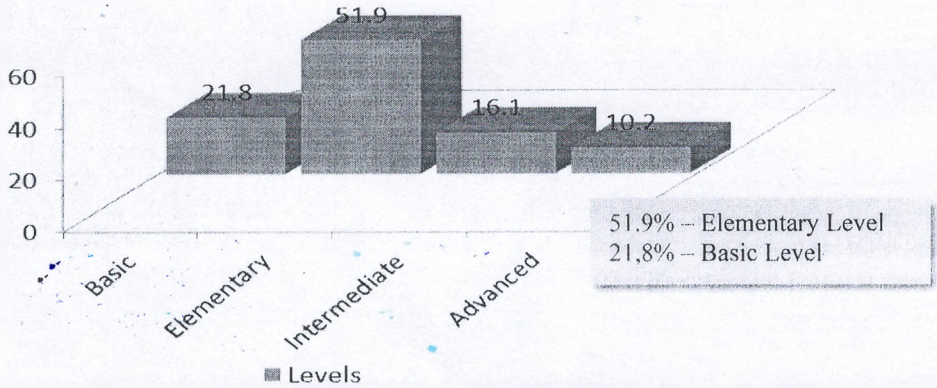


| Development Levels | Components | | | | |
|---------------------|---------------------------|-------------------------------|-----------------------------|--------------------------|---------------------------|
| | 1 Motivation and Value | 2 Cognitive-in-formational | 3 Behaviour and Activity | 4 Personal Reflection | 5 Emotion and Volition |
| Advanced | 56.0 % | 30.1 % | 55.1 % | 48.5 % | 49.1 % |
| Intermediate | 22.5 % | 33.2 % | 21.9 % | 31.3 % | 30.1 % |
| Elementary | 10.6 % | 17.7 % | 11.2 % | 10.4 % | 11.0 % |
| Basic | 11.0 % | 19.0 % | 11.8 % | 9.8 % | 9.8 % |

Fig. 1. Levels of development of college teachers' professional competence

The results of a scientific study on the topic „Trends in the development of public-private partnership in the field of vocational (vocational and technical) education” (2022–2024) are of an applied nature. The results included the mechanisms for improving the training of managers for the management of a vocational education institution in conditions of martial law, development of the institution education in the conditions of post-war reconstruction, students training adapted to the war and post-war labour markets; experimentally determined levels of managerial competence formation for heads of educational institutions, the necessity of implementing measures to increase its formation was proved (Fig. 2); developed a number of technologies for the development of managerial competence of educational institutions heads, consolidation of the competences in public-private partnership, digitalization of management, identification and classification of problems at the vocational education institution; three manuals

have been published on the analysis of domestic and foreign experience in the development of public-private partnership and modern technologies for its implementation in vocational education institutions of Ukraine (Radkevych, 2023; Radkevych et al., 2023a; Radkevych et al., 2023b; Radkevych et al., 2023; Radkevych, 2023).



| Criteria | Indicators |
|-----------------------------|---|
| Value And Motivation | Formation of values and goals of administrative activity, needs, interests, motives, attitudes |
| Cognitive | Formation of scientific and theoretical, scientific and practical knowledge regarding administrative activities |
| Personal | The formation of a set of personal qualities that must be inherent of a professionally competent manager |
| Activity | Development of the set of skills necessary for solving management tasks |
| Reflection | Development of the ability to assess yourself adequately as a personality, professional, a subject of administrative activity |

Fig. 2. Formation levels of managerial competence of an educational institution director

As part of the scientific study „Methodical bases for the development and application of eco-oriented pedagogical technologies in the vocational training of qualified workers in the construction, agricultural and restaurant industries” (2022-2024), the mechanisms of strengthening the environmentalization of vocational education, improving the training of competitive and responsible specialists with developed environmental and energy-efficient competencies for employment in eco-oriented, „green” workplaces; experimentally determined the level of readiness of teachers for the development and application of eco-oriented pedagogical technologies and proved the need to ensure systematic work on the

development of such readiness (Fig. 3); prepared methods for the development and application of eco-oriented pedagogical technologies in the vocational training of future specialists in the construction and agricultural industries, as well as in the restaurant industry, were tested; „Collection of educational cases on the physiology of nutrition and the safety of chefs” was presented (Haiduk et al., 2023); two more practical manuals on ecological technologies are being prepared for the training of future builders and farmers.

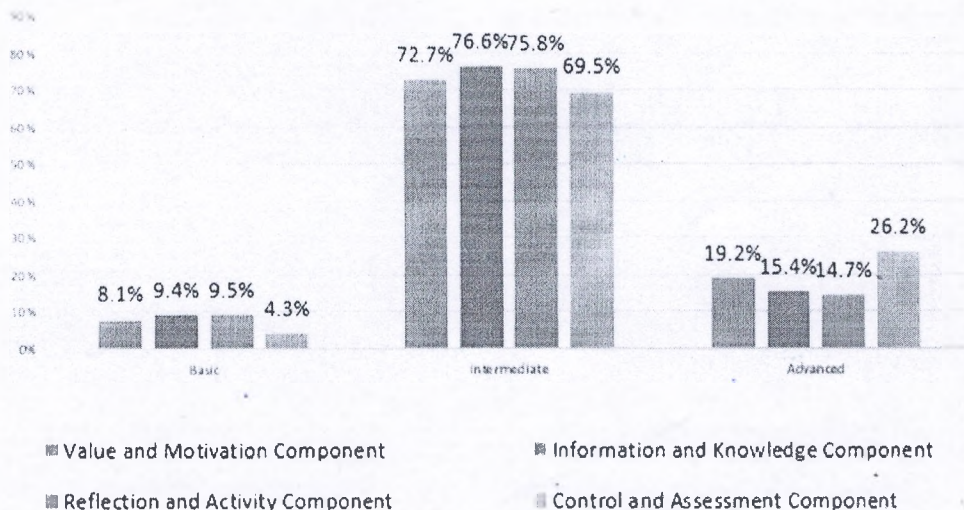


Fig. 3. Readiness levels of teachers to develop and apply eco-oriented pedagogical technologies

Ukrainian researchers paid special attention to the study of the digitization problems in domestic vocational education system and training of competitive, flexible and mobile specialists for the digital economy, responsible users of digital technologies, competent citizens of a digital society. In that aspect, the results of two scientific studies were of great importance. They are „Methodical principles of the application of digital technologies in the training of skilled workers” (2021–2023) and „Methodical principles of professional training of skilled workers in the machine-building, agricultural and service industries in conditions of mixed education” (2022–2024). Based on the results of their implementation, several methods have been developed. They were focused on the development of teachers' competencies in the field of digital technologies. Among them are the organization of training classes using video conferences, the creation of electronic applications (portfolios) for demonstrating the educational achievements of vocational education students, the use of infographics and educational video clips during theoretical and practical classes (Pryhodii et al., 2023). In addition, it has been experimentally proven that the implementation of the specified results

contributed to a significant increase in the level of competence development of teaching staff in the use of digital technologies in the training of qualified workers (Fig. 4). Appropriate pieces of training developed by scientists helped to increase the level of teachers digital competence (Pryhodii et al., 2023).

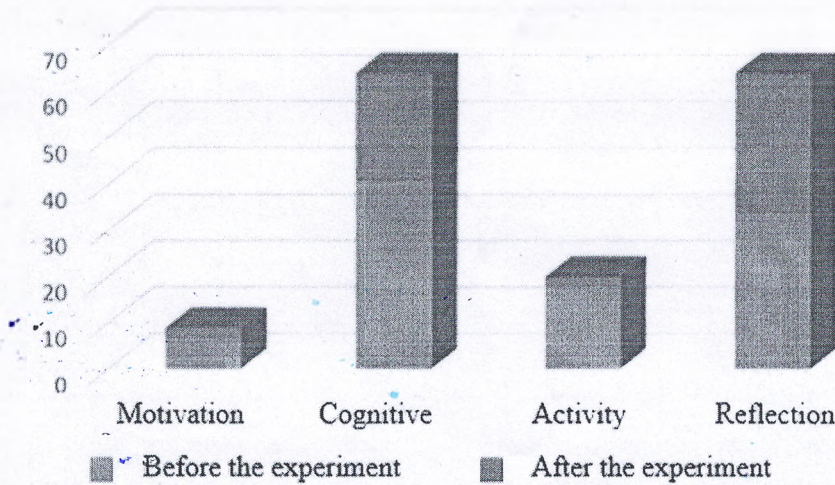
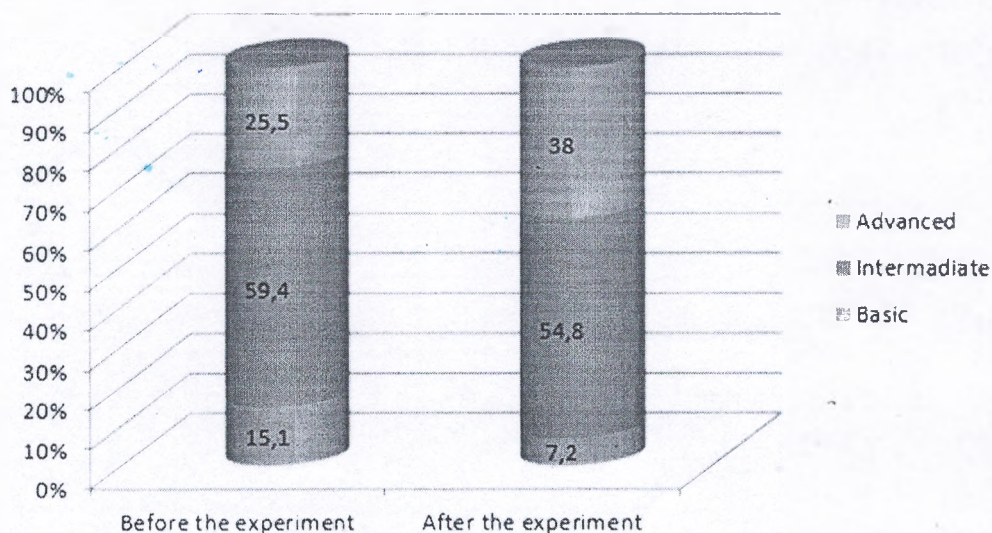


Fig. 4. Formation levels of the competence of teaching staff in the use of digital technologies in the training of qualified workers

The methodical system for the development of the professional competence of qualified workers in the conditions of mixed training was also developed. The effectiveness of the methods provided by the system was experimentally proven (preparing the teaching staff at vocational schools for mixed students' training; designing electronic training courses for the system of vocational education in war and post-war times; organization of students' self-study) (Fig. 5). The 12.5% increase in the level of professional competence development of teaching staff at experimental vocational education institutions was achieved (Kruchek et al., 2023; Yershova et al., 2023).



| Development Levels | Before the Experiment | After the Experiment | Dynamics |
|--------------------|-----------------------|----------------------|----------|
| Basic | 15,1% | 7,2% | -7,9 |
| Intermediate | 59,4 % | 54,8% | -4,6 |
| Advanced | 25,5% | 38,0% | +12,5 |

Fig. 5. Development levels of the teaching staff professional competence at experimental institutions of vocational education

One of the priority directions of scientific and methodological support for the development of vocational education is the training of socially responsible, tolerant, stress-resistant specialists, capable of developing their career and lifelong learning, ready for self-employment by starting their own business. This task was being solved during the implementation of the fundamental scientific research „Theoretical and methodological foundations of youth entrepreneurship counseling in professional (vocational and technical) education institutions” (2022–2024). Thus, for the first time, a new paradigm, concept and model of counseling on youth entrepreneurship and methods of psychological, legal and business counseling of future qualified workers on opening and running their businesses were developed. Developed pedagogical innovations were published in the methodical guide „Consulting vocational education students on youth entrepreneurship for the recovery of the economy of Ukraine” (Baidulin et al., 2023) and in the section „Preparation for entrepreneurship” of the electronic continuing edition „Innovative vocational education” (Alekseeva et al., 2023). A number of events were taken to provide psychological support to teachers in the

conditions of martial law, to preserve their mental health, to develop inclusive competence, etc.

The tasks of the Recovery Plan of Ukraine were decisive in carrying out scientific research to develop innovative methods of professional and practical training of future specialists promising for the post-war restoration of the construction industry; professional orientation and career development counseling for students to strengthen self-motivation of Ukrainian youth and Ukrainian society; training qualified workers in the construction industry to use energy-efficient technologies in their professional activities; ensuring the quality of vocational education and training for the introduction of better experience from the countries of Western and Northern Europe into the Ukrainian vocational education system.

To overcome global and national challenges that domestic education and science have not yet experienced, as well as to compensate for educational losses and gaps caused by the war, Ukrainian researchers of vocational education problems not only carry out scientific research, but also actively participate in the implementation of programs of joint activities of the National Academy of Educational Sciences of Ukraine with the Ministry of Education and Science of Ukraine, the National Academy of Sciences of Ukraine and other branch academies, are working on the implementation of numerous concepts and strategies developed at the national level to ensure the development of human capital, barrier-free space, gender equality, strengthening civic education and national patriotic upbringing of youth, self-reliance of Ukrainian youth and society as a whole, preservation of mental health of the nation, promotion of acceleration of European integration processes (Radkevich & Yershova, 2023). The participation of scientists in international project activities is important, which makes it possible to popularize scientific results at the international level actively; look for new partners ready to contribute to the development of the Ukrainian system of professional education to strengthen the national labor market and its connections with the labor markets of the European Union countries. After all, we all have a common goal – the Victory of Ukraine, the restoration of the state's economy, the protection of sovereignty and the long-awaited sustainable development in a single European family.

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