

# Vocational Education in the Context of Modern Problems and Challenges

Vasyl Kovalchuk<sup>1</sup>, Svitlana Maslich<sup>2</sup>, Nataliia Tkachenko<sup>1\*</sup>, Svitlana Shevchuk<sup>2</sup> & Tetiana Shchypyska<sup>2</sup>

<sup>1</sup>Faculty of Technological and Professional Education, Oleksandr Dovzhenko Hlukhiv National Pedagogical University, Hlukhiv, Ukraine

<sup>2</sup>Education Methods, Social and Humanitarian Disciplines Department, Bila Tserkva Institute of Continuous Professional Education of State Institution of Higher Education “University of educational management”, National Academy of Educational Sciences of Ukraine, Bila Tserkva, Ukraine

\*Correspondence: Faculty of Technological and Professional Education, Oleksandr Dovzhenko Hlukhiv National Pedagogical University, 54 Kyevo Moskovska Str., 41400, Hlukhiv, Ukraine. E-mail: tknatik2014@gmail.com

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## Abstract

The article analyzes the factors caused by the threat of spreading the coronavirus infection COVID-19 and introducing the martial law in Ukraine which affect the state of the vocational education. Taking into account the modern challenges and problems based on the analysis of the legislation the main directions of the vocational education development were determined. In particular, improving qualifications and professional development of teachers' staff, enriching material and technical base of the vocational education institutions and educational programmes as well. Trendwatching of the modern labour market made it possible to single out its main trends: a change in the structure of employment, primarily an increase in the variability of employment; lifelong learning; automation and robotics; age diversity; forming hard skills, soft skills, digital skills; multipotentiality, background, interdisciplinarity. In order to solve the urgent problems and ensure the reorientation of the vocational training of qualified workers and improving its quality, special measures were suggested, including participating in the projects financed from the EU funds; developing educational modules and special courses for promoting lifelong professional development of teachers, improving educational programmes to enable improvement of the material and technical base of the vocational education institutions and professional development of teachers.

**Keywords:** vocational education, institutions of vocational education and training, professional training, skilled worker

## 1. Introduction

### 1.1 Introducing the Problem

The importance of vocational education and training (VET) for the economy of each state is extremely important, because the main task of this particular link of education system is training future workers. The level of training future skilled workers, and therefore the standard of their qualification, depends on the quality of providing educational services in the vocational (vocational and technical) education institutions. During the last decade, vocational education and training in Ukraine faced a number of challenges and problems that require immediate solutions and therefore state intervention. This is the inconsistency between the list of professions trained in the vocational (vocational and technical) education institutions and the needs of the labour market; frequent dissatisfaction of employers with the level of training future skilled workers; obsolete material and technical base of the educational institutions, etc. All this makes it impossible to provide high-quality educational services for the training of future qualified workers. The abovementioned is complicated by the circumstances that currently have a significant impact on the situation in Ukraine and, accordingly, the organization of the educational process in the education institutions, especially vocational (vocational and technical) education institutions, in particular, as since March 2020 due to the threat of the spread of the coronavirus infection COVID-19, all the education institutions of Ukraine worked in distance and mixed forms of education, and from February 24, 2022 – under martial law. The mentioned circumstances significantly complicated the process of professional training future skilled workers.

Professional training students of vocational (vocational and technical) education institutions includes

professional-theoretical and professional-practical constituents (industrial training and productive practice). Organizing them in the conditions of distance and mixed education causes great difficulties. Therefore, pedagogical staff of the vocational (vocational and technical) education institutions, authorities, management bodies urgently face the task of proper organizing the educational process in the vocational (vocational and technical) education institutions in the context of the reforms and today's challenges.

### *1.2 Literature Review*

Vocational education is one of the leading branches of education in Ukraine. It plays a significant role in the economy of the state. The Law of Ukraine “On Vocational (Vocational and Technical) Education” of 2017 states that vocational (vocational and technical) education is a component of the education system of Ukraine and, at the same time, is a complex of the “pedagogical and organizational-management measures aimed at ensuring citizens’ acquiring knowledge, abilities and skills in their chosen field of the professional activity, developing competence and professionalism, fostering their general and professional culture”.

Vocational education and training is the subject of numerous scientific researches. In particular, the issues related to improving the quality of providing educational services in the vocational (vocational and technical) education institutions are reflected in the works by H. Vasyanovych (2016), V. Kovalchuk et al. (2022), V. Kremen, (2015), A. Lytvyn (2015), N. Nychkalo (2014), M. Pryhodiyy et al. (2019), V. Radkevych (2021), V. Radkevych et al. (2021), L. Serheyeva (2021) and others. The role of the competence approach in the professional training of future skilled workers was outlined in the scientific works of L. Bazyl (2020), L. Yershova (2019), A. Kalenskyi (2017), V. Radkevych, P. Luzan & S. Kravets (2017), H. Romanova (2019) and others.

According to the European benchmarks for the organization of the educational process in the Ukrainian vocational (vocational and technical) education institutions, it is important to mention the foreign experience of vocational training future workers. This problem was reflected in the works of V. Radkevych et al. (2018), M. Pryhodiyy (2010), L. Pukhovs’ka (2020), V. Yahupov (2015) and others.

The issue of digitalization of the educational process plays an important role in today's conditions and is covered in the scientific works of O. Bazelyuk (2018), O. Humenny (2017), R. Hurevych et al. (2020; 2021), A. Kononenko & S. Maslich (2020), V. Kovalchuk & Zaika (2021), V. Kovalchuk et al. (2022), L. Lypyska (2016) and others. Despite the wide range of the presented scientific studies, the problem of quality training future skilled workers remains urgent and requires the further research.

The article is aimed at outlining the main aspects of the educational process in the institutions of the vocational education and training in the conditions of modern problems and challenges.

## **2. Methods**

To conduct the research mostly theoretical methods were used. To define the factors which affect the state of vocational education in Ukraine the analytical approach was applied. Theoretical analysis of the legislation and scientific works concerning the problem made it possible to outline the basis of the VET system development in Ukraine and study its main aspects and directions. Trendwatching the labour market allowed clarifying the trends that negatively affect its development and determine the needs and challenges of the modern society and the domestic labour market in the nearest future, which cause the main directions of VET development. The obtained scientific results gave the opportunity to develop new ways of improving professional training future qualified workers in the VET system and teaching staff development as well as the renewal and modernization of the material and technical support of VET institutions to meet the requirements of modern labour market and achieve the goal of VET. Introducing the results into the educational process of VET institutions confirmed their effectiveness and made it possible to use in the system of VET.

## **3. Results**

Vocational education and training as one of the leading branches of education in Ukraine with its significant role in the economy of the state is unfortunately not popular in Ukraine today. According to the latest data, 2/3 of school graduates choose institutions of higher education for their further education, while a third of those who have the status of unemployed are young people under 35. That is why one of the main tasks of the state educational policy should be the development and popularization of the vocational education, which is emphasized in the Strategy for the Development of Vocational (Vocational and Technical) Education for the period until 2023 (On the project of the Strategy, 2020). “The state policy in the field of the vocational (vocational and technical) education helps each

region in the effective development of the network of the vocational (vocational and technical) education institutions capable of ensuring the formation and realization of the labour potential of the region in the context of its advantages for developing the personal potential of education seekers, improving the quality of people's life, communities of the respective region, as well as developing Ukraine as an economically stable state," the document states.

The analysis of the website of the Ministry of Education and Science of Ukraine (On vocational education reform) revealed that as of September 1, 2021, there were 695 institutions of the vocational education and training subordinated to the Ministry of Education and Science of Ukraine with about 244,000 students (236,6 thousand people graduated from general secondary education institutions, 0.6 thousand unemployed people, 7.1 thousand working population). The largest license by professions are the following: 8322 "Driver of motor vehicles" (105,371 persons), 5122 "Cook" (49,488 persons), 8331 "Tractor-machinist of agricultural (forestry) production" (48,195 persons), 4112 "Computer operator" (31,397 persons), 7,231 "Locksmith repairing wheeled vehicles" (290,022 persons). At the same time, as of January 1, 2022, the most demanded professions on the labour market were the following: "Electrical fitter for repair and maintenance of electrical equipment", "Seamstress", "Driver of motor vehicles", "Turner", "Locksmith for repair of rolling stock", "Locksmith of emergency and restoration works", "Locksmith-plumber" (The current state).

As the main task of the vocational education is to supply the labour market with highly qualified workers it is necessary to highlight the trends that negatively affect the development of the domestic labour market. Ukraine is a donor of labour resources for the world labour market, and this is one of the reasons for reducing and aging of domestic labour resources (young people usually go abroad in search of work). According to different surveys at the end of 2019, about one million Ukrainians officially worked in Poland, while the total number of migrant workers abroad before the beginning of the Russian aggression was about 8 million Ukrainians. Another negative factor is intellectual migration. For example, about 30% of highly qualified Ukrainian migrants are currently employed in the field of science and technology in the USA. Such trends reduce not only the quantity of labour supply on the Ukrainian labour market, but also its quality (Kinakh, 2018).

It should also be noted that the consequences of the COVID-19 pandemic, which led to increasing unemployment (518,000 people as of July 1, 2020 versus 338,000 people as of January 1, 2020), had a negative impact on the domestic labour market, increasing demand for remote work, returning labour migrants, which increased the pressure on the labour market of Ukraine (Karina, Oriabinska & Kharytonova, 2020, p. 9-10). These and other factors should be taken into account while organizing the educational process in the institutions of VET.

Analysis revealed that the necessary condition for the development of the vocational education and training is ensuring the situation in which its content meets the needs and challenges of the modern society. It should respond to the demands of the labour market in the need for the employees for the economy and, along with this, remain an important link of the education system. Trend watching of the situation of the modern labour market allowed to highlight the main trends of the domestic labour market – 2030 (Karina, Oriabinska & Kharytonova, 2020, p. 6-8), namely:

1. Changes in the structure of the employment, first of all, increasing variability of employment (along with the traditional employment, freelancing, part-time employment, remote work, etc. are becoming more and more popular, which in its turn leads to the development of numerous forms of horizontal cooperation).
2. Life long learning (the variability of production and service technologies, working conditions creates new requirements for workers, therefore training and retraining becomes an established practice, and the ability to learn and retrain is the top skill on the labour market in 2030).
3. Automation and robotics (high expectations for reducing the traditional employment: according to forecasts by the McKinsey Global Institute, by 2030, 15% of jobs will be redundant in the world).
4. Age diversity (increased life expectancy, raising the retirement age change the age structure of the labour market: the modern labour market is becoming the one of several generations at the same time).
5. Hard skills, soft skills, digital skills (today, the employer pays more and more attention not only to the professional skills, but also to the so-called soft skills, and at the same time the development of the digital society causes an urgent need to develop digital competence).
6. Multipotentiality, background, interdisciplinarity (demand for workers who have versatile professional experience, diverse interests, a wide range of abilities and skills, usually interdisciplinary, is a driver of innovation, progress).

In this regard, higher requirements are placed for training workers, their educational level and professional skills.

Solving this problem implies the need to reform the vocational education and training system. Undoubtedly, the reconstruction of the country will require not only the reorientation of the professional direction of qualified workers, but also increasing the quality of professional training in the VET institutions, which depends on the material and technical support and professional competence of the teaching staff.

In this sense, the personal and professional development of the teacher plays an important role and must be continuous. Therefore, the Law of Ukraine “On Education” (2017) focuses on the concept of “continuous professional development”, which is interpreted as “a continuous process of learning and improving the professional competences of specialists after obtaining higher and/or postgraduate education, which enables the specialist to maintain or improve the standards of their professional activity and continues throughout the entire period of their professional activity”. In accordance with the Resolution of the Cabinet of Ministers of Ukraine (Some issues of professional development, 2019), the main areas of professional development of teaching staff today are the following:

- developing professional competences: knowledge of the subject, professional methods, technologies;
- forming skills common for key competences, defined by Article 12 of the Law of Ukraine «On Education»;
- psychological and physiological characteristics of a certain age students, the basics of Andragogy;
- creating safe and inclusive educational environment, peculiarities of inclusive education, providing additional support of children with special educational needs in the educational process;
- applying information, communication and digital technologies in the educational process, including e-learning, information and cyber security;
- speech, digital, communication, inclusive, emotional and ethical competence;
- forming the professional competences, mastering the latest production technologies, acquainting with the modern equipment, technology, state and development trends of the economic sector, enterprise, organization and institution, requirements for the level of qualification in the relevant professions (for the vocational school staff);
- developing management competence (for the authority of the educational institutions, scientific and methodical institutions and their deputies), etc.

**Table 1.** The Educational Modules and Special Courses for Attendants of Advanced Training Courses of Bila Tserkva Institute of Continuous Professional Education

Educational program	Educational modules
Developing professional competence of professional and theoretical training teachers (masters of industrial training) of vocational school	<ol style="list-style-type: none"> <li>1. Labour relations and labour protection in professional education.</li> <li>2. Pedagogical management and psychology of the professional activity.</li> <li>3. Didactics of the professional education.</li> <li>4. Educational innovations in the professional activity of the teacher of VET.</li> <li>5. Innovative technologies in the institution of vocational education and training.</li> </ol>
Developing the professional competence of senior masters of vocational school	<ol style="list-style-type: none"> <li>1. Labour relations and labour protection.</li> <li>2. Pedagogical management.</li> <li>3. Didactics of the vocational education.</li> <li>4. Educational innovations in the professional activity of the teacher of VET.</li> <li>5. Digital technologies in the institution of vocational education and training.</li> </ol>
<b>Special courses</b>	
<ul style="list-style-type: none"> <li>– “Developing teacher’s readiness for innovative activities”</li> <li>– “Time management as a component of the teacher's organizational culture”</li> <li>– “Technologies of the communicative interaction of the participants of the educational process”</li> <li>– “Quest technologies as a means of developing professional competence”</li> <li>– “Methodics of preparing and conducting integrated theoretical and practical classes”</li> <li>– “Technologies of distance learning in the conditions of schools of vocational education and training”</li> <li>– “Webinar technologies»</li> </ul>	

Source: (Yermolenko et al., 2021, p. 66)

Thus, to meet today's needs updating the content of the professional development programmes for teaching staff is of great importance today. For this purpose, educational modules and special courses for attendants of advanced training courses were developed and introduced in the educational process of Bila Tserkva Institute of Continuous Professional Education of State Institution of Higher Education "University of educational management", National Academy of Educational Sciences of Ukraine (Table 1).

As it was already noted, with the introduction of martial law in Ukraine, there were certain changes to the main approaches to organizing the educational process in the educational institutions, which is also taken into account in the educational programmes of advanced training of Bila Tserkva Institute of Continuous Professional Education. Short-term competence-oriented thematic professional development courses were developed and suggested for pedagogues. For instance, "Supporting students with special educational needs and their parents in emergency situations", "Methodology of conducting classes in crisis situations", "Developing leadership competence in the conditions of martial law and uncertainty", "Technologies of critical thinking in VET teacher's work", "Methodics of micro-learning in the vocational school", "Reflexive management: opportunities for development and protection of the participants of the educational process", etc. (Bila Tserkva Institute).

As you can see, the suggested courses and modules meet the teaching staff current needs, which can be divided into 3 categories:

- 1) the need to constantly improve the level of digital competence, since most educational classes are currently conducted online;
- 2) the use of modern pedagogical technologies, which directly affect the quality of the educational process;
- 3) the need for psychological support of all participants of the educational process, which is extremely important in the conditions of war and martial law (according to the latest data, about 66% of Ukrainians currently need psychological help because of Russian aggression).

Taking into account that the percentage of students raised in families in difficult life circumstances is usually higher in the vocational schools than in the other educational institutions, the need for psychological support is currently increasing. In this sense, the role of the practical psychologist of the educational institution is growing, their work functions, according to the professional standard, are the following:

- implementing the psychological prevention;
- ensuring psychological education regarding psychological well-being and mental health;
- carrying out psychological diagnosis;
- providing psychological assistance upon request and/or in accordance with the identified need for such assistance, etc.

Obviously, the support and help provided by the psychologist will be effective only on condition there is fruitful cooperation with the teaching staff. In this context, one can confidently emphasize the important role of team building as an efficient means of forming the collective interaction of participants in the educational space.

One more problem our research dealt with is the material and technical support of VET. For a long period of time financing of the vocational schools was quite limited, the main funds from the state budget were allocated for the payment of salaries and scholarships. At the same time, it should be noted that the clause 3.10. of "The regulation on organizing the educational and production process in the vocational (vocational and technical) education institutions" states that "Legal and private bodies, regardless of the form of ownership, shall pay for the work performed by students during their industrial training or productive practice in accordance with the agreements on educational and industrial practice signed with the Institution, for the amount of work actually performed. The funds accrued to students are transferred to the current account of the vocational (vocational and technical) education institutions in the prescribed manner in order to pay them 50% of the salary for industrial training and industrial practice. The other 50% of the salary accrued to students during industrial training and practical training is used by the educational institution to carry out its statutory activities, strengthen the educational and material base, for the social protection of students, and conducting cultural and sports activities" (On the approval of the Regulation, 2006).

Taking into account the problem of the material and technical support of VET the selection of bases (enterprises) for industrial training (industrial practice), as well as the selection of social partners, can be the important step in its solving. Thus, bilateral and tripartite contracts on the industrial training and practice should be signed to specify the procedure for the payment of wages to those obtaining education. It was proved that conducting industrial practice in summer at recreation bases of sea resorts for students of specialization "Trade and public catering" can make a

significant contribution to the development of the material and technical base of the vocational schools. For example, at the Vinnytsia Higher Vocational School of the Service Sector, this practice is used for the future qualified workers mastering the professions of Cook, Confectioner, and Restaurant Service Master. For 6 years – until 2020, when quarantine restrictions were introduced due to the danger of spreading the coronavirus infection (Covid-19) – students of these professions had industrial practice in the network of the hotel and restaurant complexes of Sunny Beach, Bulgaria. The result of the internship abroad was not only increasing the quality of professional training, but also increasing the image and popularity of the education institution and the possibility of updating the material and technical base.

One more powerful step in modernizing the material and technical base of the vocational education and training in Ukraine were suggested in the research. They are as follows: implementing the joint programme of the EU and its member states (Germany, Finland, Poland and Estonia) “EU4Skills: better skills for modern Ukraine” to support the reform of the vocational education and training in Ukraine (EU4Skills). The financing of the programme amounts to 58 million euros, of which 21 million euros is directed to the renewal of infrastructure and equipment. The pilot regions of this programme are Lviv, Vinnytsia, Zaporizhzhya, Mykolaiv, Poltava, Rivne, and Chernivtsi. In the institutions of VET of these regions the modernization and renewal of the material and technical base, as well as creating centres of the professional excellence takes place based on the competitive selection.

In particular, in the State Vocational and Technical Educational Institution “Vinnytsia Higher Vocational School of the Service Sphere”, mentioned above, measures to create the interregional training complex for the hospitality industry began as part of the “EU4Skills: the best skills for modern Ukraine” programme. The complex will include training reception, training hotel, training restaurant, interactive hub space for training chefs, confectioners, restaurant service masters. The latter is aimed at:

- introducing the latest approaches to the promotion of HORECA professions;
- implementing European standards for food safety according to the HACCP system;
- creating platform for adult education, internships, retraining;
- conducting professional master classes, webinars, online broadcasts;
- bringing the level of the educational process to the needs of the labour market;
- bringing the educational process to the new technological level (Fig. 1).



**Figure 1.** The Structure of the Interregional Educational Complex of the Hospitality Industry within the Framework of the Implementation of the Programme “EU4Skills: the best skills for modern Ukraine”

#### 4. Discussions

In our studies, we proposed the ways to solve the urgent problems of the vocational education and training institutions to ensure the reorientation of the professional training qualified workers and improving its quality as well as the professional development of teachers and enable improvement of the material and technical base of VET as well.

Suggested measures turned out to be effective not only from the point of view of renewal and modernization of the

material and technical support by means of implementing the joint programmes of the EU countries financed from the EU funds and signing the bilateral and tripartite contracts on the industrial training and practice abroad, but also from the point of view of the possibility of increasing the professional competence of the pedagogical staff. Masters of industrial training, teachers, management staff of the VET institutions, who are the participants of the «EU4Skills: the best skills for modern Ukraine» programme, had the opportunity to improve their professional competence through participating in webinars, trainings, coaching sessions with their European colleagues on the digitalization of education, its modernization, updating the content.

It should be noted that the modern equipment in the institution, the possibility of using it during the theoretical and industrial training lessons, allows changing the format of classes and moving to the qualitatively new level of students' professional training.

## 5. Conclusion

The obtained scientific results testified achieving the aim which lies in outlining the aspects of the educational process in the institutions of the vocational education and training in the conditions of modern problems and challenges and made it possible to conclude that modern educational process in Ukraine is in the crisis situation: on the one hand, caused by the threat of the spread of the COVID-19 coronavirus infection, on the other hand, by the invasion of the Russian army into the territory of Ukraine. Therefore, the forms and methods of the educational activity must take into account the situation not only of each educational institution, but also of each student. At the same time, education should remain the key link of the state policy, and the place of the vocational education and training in the general structure of education should be strengthened in the context of the growing need for qualified workers. These and other factors should be taken into account directly by teachers' staff, authorities, local management bodies. In this sense, the compliance of the regional order with the needs of the labour market, and therefore of the country's economy, becomes important. Undoubtedly, the future skilled worker must possess professional skills at the high level, be mobile, able to respond flexibly to changes in production and service, which must be taken into account during the training process at the relevant educational institutions. As a result, teachers' staff of the institutions of the vocational education and training face the need for constant self-development and self-improvement, raising the level of their pedagogical skills, forming skills of partnership interaction.

We see the prospect of the further research in the search for innovative methods of organizing the educational process in the establishments of the vocational educational and training in the crisis situations.

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