The Utilization of European Experience in the Formation of Professional Competencies of Future Specialists of the Ukrainian Vocational Education System

Mariia Bertash[1], Svitlana Polishchuk[2], Viktor Burdun[3], Nataliia Ivanyshyn[4,*] & Vadym Zhulkovskyi[5]

[1]Department of Psychology, Pedagogy and Social Disciplines, Faculty of Social and Humanitarian Technologies, Sports and Rehabilitation, State Tax University, Irpin, Ukraine

[2]Department of Pedagogy and Management of Educational Institutions, Faculty of Pedagogy, Kamianets-Podilskyi Ivan Ohiienko National University, Kamianets-Podilskyi, Ukraine

[3]Department of Professional Education, Restaurant and Tourist Business, Educational and Research Institute of Technology and Commerce, Luhansk Taras Shevchenko National University, Poltava, Ukraine

[4]Department of Foreign Languages and Translation Studies, Faculty of Psychology and Social Protection, Lviv State University of Life Safety, Lviv, Ukraine

[5]Department of Formation and Development of Professional Competence of Personnel of the State Criminal Enforcement Service of Ukraine, Penitentiary Academy of Ukraine, Chernihiv, Ukraine

*Correspondence: Department of Foreign Languages and Translation Studies, Educational and Research Institute of Psychology and Social Protection, Lviv State University of Life Safety, 79000, 35 Kleparivska Str., Lviv, Ukraine. E-mail: lozynska29@gmail.com

Received: May 17, 2024 Accepted: June 15, 2024 Online Published: July 15, 2024

doi:10.5430/jct.v13n3p147 URL: https://doi.org/10.5430/jct.v13n3p147

Abstract

The modern integration of European standards into the Ukrainian education system is a topical process that requires a detailed study due to the peculiarities of implementation against the background of extreme circumstances. The purpose of the article is to analyze the application of European experience in the formation of professional competencies of future specialists in vocational education systems in Ukraine. The realization of this goal involved the use of a system of scientific methods. In particular, using the method of content analysis, the modern and relevant scientific literature on this issue was analyzed. The coding method was used to find it, and the texts were processed using synthesis and comparison. The results show that the use of European experience in the formation of professional competencies in the system of vocational education in Ukraine has influenced the training of qualified students. The application of the leading European experience has made it possible to integrate the standards of the leading countries into the Ukrainian educational environment. Based on the analysis, it was found that the movement to update the content of the professional world in Europe began in the 1990s and accelerated as a result of the Bologna system. Ukraine joined global trends in the early 2000s, although some elements were introduced in the mid-2010s. The use of best practices has expanded the importance of the competency-based approach in Ukrainian education and allowed for a focus on training specialists in demand on the labor market. The use of European experience in vocational education has updated the mechanisms of partnership between all participants in the educational process, forming innovative and practice-oriented curricula. The conclusions indicate that in Ukraine, the use of European experience has allowed stakeholders to actively engage in the reorganization of the educational process, to focus education on the applicant and his or her requirements.

Keywords: European educational standards, qualification frameworks, competence development, knowledge integration, partnership in education, quality assurance

1. Introduction

1.1 Introduction of the Problem

The current challenges of social life require the necessary response from educational systems as a major factor in the socio-cultural system, success in the future life of a person, and its further improvement. The current needs of the state can be realized through an increased number of specialists, professionals capable of effective work in the most important areas of industrial and social development, who have a modern humanistic way of thinking and possess universal knowledge (Dluhopolskyi et al., 2023; Orhani, 2023; Sayed, 2023). This makes it possible to revise certain foundations of vocational education, which is primarily aimed at revising and updating the necessary foundations of the competence component for vocational education and further training of future professionals. The conceptual basis for the formation of a competency-based approach to vocational education, as an important methodological mechanism used in world practice and training, is the idea of combining the acquisition of key competencies that are formed as answers and the most effective solutions to overcome the contradictions existing in education and social relations (Danilyan et al., 2018). This is a problem that will require new competent professionals who are able to improve themselves and constantly update their knowledge over the years.

The necessary strengthening of the understanding of the importance of the competency-based approach in the implementation of official national and international educational documents allows reorienting traditional educational paradigms from the transmission of ready-made knowledge, the formation of regular skills and abilities to the formation of conditions in educational institutions for the subsequent acquisition of entire sets of competencies and the formation of graduates' readiness for subsequent responsible, independent and productive practical work, gaining an appropriate level of flexibility to solve work, personal and other problems.

1.2 Importance of the Problem

The current development of digital tools in the field of education indicates high prospects for the further use of distance and blended learning. Given the consequences of the global pandemic and related restrictions, the destructive impact of Russian aggression against Ukraine, the actualization of the possibilities of innovative models in teaching demonstrates some important stages in the digitalization of vocational education, including. Given that the Ukrainian experience of such borrowings is quite peculiar and needs to be analyzed, the problem of studying such processes under sustainable conditions of state development looks much more promising. Therefore, it is much more important to adopt European experience aimed at improving education and its results.

As a result, an important and urgent issue is being formed regarding the necessary professional competencies for the employees of the future, which are becoming an essential part of educational training, which will certainly affect the final result of education, the acquisition of the necessary skills and the formation of a specialist of the level required for the labor market. The application of the European experience in the coming times will also lead to an important optimization of educational systems (in particular, higher education institutions), which, given all the existing challenges it will face, can be seen as an important aspect of the evolution of educational environments.

1.3 Relevant Scholarship

To date, many researchers in the relevant professional literature consider the concept of “competence” as a characteristic of a personality, the result of a good education and other professional skills (Sofilkanych et al., 2023). From this point of view, the concept of “competence” should actually be analyzed as a complex, multifaceted integrative ability of a person to solve professional problems based on experience and competencies (Vasylchyshyn et al., 2024). The changes that often occur in the field of defining the goals and objectives of education are correlated with modern tasks of a global scale, which ensures the entry of a person into the social world, increases the productivity of his or her adaptation in these environments, and also necessitates the need to raise questions in the field of providing education with more complete, personality-oriented and socially integrated meanings. Some elements of the use of European experience in vocational education in Ukraine have been studied by scholars.

In particular, Malaniuk (2020) analyzed the changes that have taken place in the education sector in recent years under the influence of the development of digital technologies. Certain aspects of crypto technologies and their application in various spheres of public life have also been the subject of consideration (Fedorenko et al., 2020; Kozlovskyi et al., 2022). Hryhorash, Bocharov, Bondar, Zhuravka, Mordan and Teslenko (2022) noted the development of vocational education and its corresponding transformations related to the European integration of the Ukrainian education system.

In a detailed empirical study by Evans, Rennie-Salonen, Wijsman & Ackermann (2024) characterize the value of vocational programs that promote the development of practical skills in applicants. The importance of labor market orientation was traced by Zaitsev (2023). Obviously, the researchers primarily believed that the active use of digitalization is associated with European experience. Without denying this fact, it is worth noting that the

development of vocational education in Ukraine under the influence of European integration covers a much wider range of issues that require further study.

1.4 State Hypotheses and Their Correspondence to Research Design

Therefore, the purpose of the article is to analyze the application of European experience in the formation of professional competencies of future specialists of vocational education systems in Ukraine. The realization of this goal involves solving several tasks:

1. To study the current opinions of scientists on the issues of vocational education development in Ukraine and the application of European practices in it.
2. To characterize European approaches to the development of vocational education.
3. Identify important changes that have emerged in the Ukrainian vocational education system as a result of the country's European integration.

The authors of the article also identified the main hypotheses that can be either refuted or confirmed in the course of the study.

1. Ukraine uses different approaches to the development of vocational education, including those that are actively implemented in Europe
2. In the European system of vocational education, partnerships play an important role in the development of practical skills of students.
3. Vocational education in European countries is aimed at developing in-demand competencies.

2. Method

Given the purpose and hypotheses of the study, the paper uses a qualitative approach to the study of this problem, and therefore is based on a content analysis of the current literature.

2.1 Data Collection

For the purpose of qualitative data collection, modern scientific and metric databases were used: Scopus, Web of Science, Ebsco, and others. The following keywords were entered into these search databases: “vocational education”, “Europe”, “EU”, “Ukraine”, “system of training”. However, given that there are currently different national approaches to vocational education in Europe, it is worth considering the diversity of national terms for vocational education (see Table 1).

Table 1. General Terms Refer to Vocational Education

Country	A common term for vocational education	Official English translation
Austria	Berufsbildung	Vocational training
Belgium	Beroepsonderwijs	Vocational training
Denmark	Erhvervsuddannelse	Vocational education
Estonia	Kutseharidus	Vocational education/ training
Ireland	Further education	Further education and training
Spain	Starfsmenntun	Education for an occupation
Latvia	Profesionālā izglītība	Vocational training
Netherlands	Beroepsonderwijs	Vocational education
Germany	Berufsbildung	Vocational education
Poland	Kształcenie zawodowe	Vocational education
Romania	Educație și formare profesională	Proffesional education and training
France	Enseignement et formation professionnels	Vocational education
Finland	Ammatillinen koulutus	Occupational education

Source: Authors’ development

As these terms indicate, there is a variety of content in the terms used in national contexts. Therefore, this study also takes into account such terms as occupational education, professional education, vocational training.

Specific inclusion criteria were also defined for the selection of sources:

1. The publication is not older than 2017.
2. The work is related to vocational education
3. The study generally describes the education system: methods, approaches and forms of its organization
4. The study is related to Ukrainian realities
5. The article describes foreign experience
6. The paper has a clear explanation of the organization of the study (methodology)

Taking into account these criteria, 44 items of literature were selected. Based on the preliminary analysis of the topics, anatomies and results, the frequency of terms related to vocational education was determined (see Table 2).

Table 2. Frequency of Terms Related to Vocational Education Based on Selected Publications

Terms	Number of papers	%
Vocational education	12	27.27%
Professional education (training)	11	25%
Further education and training	7	15.91%
Occupational education	5	11.36%
General education	12	27.27%
Total	44	100%

Source: Authors' development.

Thus, the most common terms in modern publications are vocational education and professional education (training). Also, when selecting sources, an important criterion was their relevance, so only new works (not older than 2018) were included.

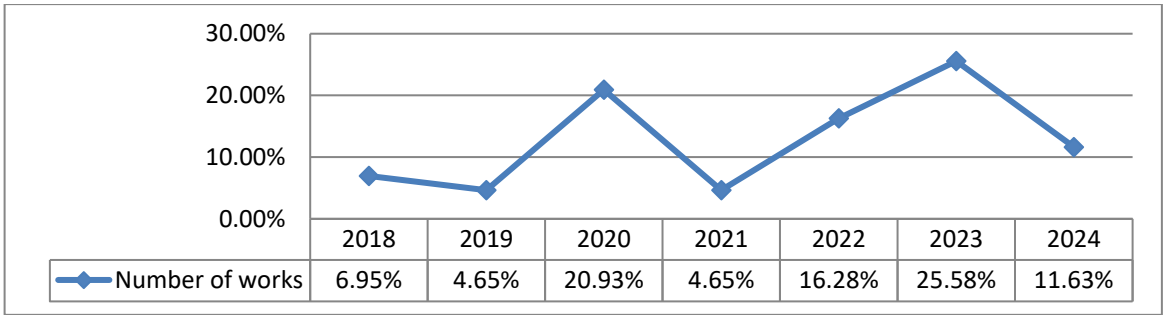

Figure 1. Number of Papers by Year (2018-2024)

Source: Authors' development

Thus, as can be seen from the diagram, the selected sources demonstrate the interest of scholars in this topic in recent years.

2.2 Data Analysis

Several research methods and approaches were used for the qualitative content analysis of the literature. In particular, coding played an important role. It was used to analyze the text for the inclusion of such concepts as occupational education, professional education, and vocational training. After that, the selected materials were analyzed using a thematic model. This made it possible to identify specific thematic patterns found in modern research. In particular,

Latent Dirichlet Allocation made it possible to automatically identify individual themes in this study. Based on the identified approaches to the organization of vocational training in the EU, a comprehensive description of this system was made.

3. Results

3.1 Key Competencies

The introduction of competency-based approaches to improve educational systems in European countries appeared in the early 1990s. First of all, their emergence was due to the formation and development of democratic processes, the formation of civil society and the widespread development of market relations. Referring to the possibilities of the method of retrospective analysis of the development of the ideas of the competence approach in education, the researchers note that UNESCO played a leading role in this process, outlining the fundamental principles of education and its place in people's lives (Martínez-Morales & Marhuenda-Fluixá, 2020). This issue has been repeatedly discussed at meetings of the Council of Europe, where a number of problems have been outlined regarding reforms in education, in particular in terms of acquiring the necessary competencies that a higher education student should master during his or her education or training. Another important element in the introduction of a competency-based approach to education was the approval of the Lisbon Convention (Salas-Velasco, 2023). This document formulated the principles of international recognition of educational outcomes and discussed the need for clear, precise and international criteria for such recognition.

The Bologna Process, which is implemented on the basis of the Bologna Declaration on the European Higher Education Area, has become important for the development of European education. Joining this process (including by Ukraine) has made the quality of education a priority element of further educational evolution (Salas-Velasco, 2023). Thanks to the Bologna process, European universities consider the competency-based approach to be a tool that ensures social dialogue between higher education institutions and employers, establishing cooperation between them, providing appropriate support and establishing mutual trust in the new realities (Tsekhmister, 2022).

The decisions related to the formation of key competencies for lifelong learning, which were approved by the European Parliament and the Council of Europe in 2005, were important for the further development of the European education system. After a thorough implementation of the Bologna Process, the Qualifications Framework for the European Higher Education Area was adopted, which became a reliable pan-European tool for comparing academic degrees and relevant educational qualifications within the EU (Radkevych et al., 2018; Plakhotniuk et al., 2021). Further development of the practical application of the competency-based approach was achieved through the identification of key markers for professional competencies in vocational education - this process started in 2009. As a result of its gradual implementation, researchers have repeatedly emphasized that there is a need for lifelong learning in order to comprehend and achieve key competencies that will not only allow students to enter adulthood, but also enable them to develop professional skills that will lead to further active self-improvement (Sánchez, 2018).

The Finnish project “The Higher Education Curricula” made a significant contribution to the development of professional competencies that are still recognized as common to all EU countries. During its implementation, the competency-based approach was seen as a mechanism for shifting the emphasis in educational paradigms, which have changed accordingly from procedural to result-based components, from an abstract to a more personalized orientation (Kapelyushna et al., 2022). The key European guidelines for the development of vocational education include the EU policy documents related to the formation of an optimized competitive “knowledge-based economy” in Europe, which should ensure sustainable development. Such a system is consistently implemented through the implementation of several strategies, including the Lisbon Strategy and Europe 2020. The latter is aimed not only at developing professional skills of students, but also at ensuring equity, developing social cohesion, and fostering creative skills, innovation, and entrepreneurship at all levels of education to shape the content of vocational education, standardized requirements for qualifications are taken into account, which are constantly changing (Spours et al., 2019; Hladoshchuk et al., 2023).

3.2 Stakeholder Participation and Partnerships in Vocational Education

Modern vocational education systems in Western Europe (in Belgium, Austria, France, Germany, Luxembourg, the Netherlands, and the United Kingdom) vary in their institutional and organizational approaches to training. However, a common feature of all systems is the practical orientation of vocational education, which is implemented through performance-based learning programs. Among such programs, the most popular are modular or dual learning systems, although the process of integrating vocational training into the curriculum is also noticeable (Grenier,

2020). At the same time, it should be emphasized that some countries choose a clear separate type of vocational training, while others may actively combine different types of practical training to meet both individual needs and develop the skills of each individual.

For the development of vocational education, partnerships between all participants and stakeholders play an important role, and stakeholder participation in curriculum development is an important area. In addition, it is also important that they contribute to the practical content of training. This approach has also recently been actively implemented in the Ukrainian vocational education system. At the same time, it is worth noting that in some European countries, such as Austria, Germany and Belgium, the activities of employers' organizations in the education system are legally regulated by the government and trade unions. In Belgium, a special body, the Federation of Enterprises, represents the interests of enterprises in all regions of the kingdom. It represents companies in important industrial and service sectors (Radkevych et al., 2018). This body aims to create favorable conditions for doing business and creating new jobs. On the other hand, the Netherlands has centers for public-private partnerships in vocational education, including the Center of Excellence in Higher Vocational Education and the Center for Innovative Excellence in Vocational Training. In such centers, researchers, teachers, students, and employers work together to improve vocational education aimed at training personnel for specific industries (Kubiv et al., 2020).

Table 3. Main areas of Partnership in Vocational Education

Country	Employers' Organization / Sector Association	Functions and Tasks
Austria	Federation of Austrian Industries	- Legislative activities alongside the Government and trade unions
		- Advocacy for labor market interests
		- Collective bargaining
Belgium	Federation of Enterprises	- Representation of businesses' interests to social partners
		- Development of sectoral policies in vocational training
		- Organization of vocational training and certification
Netherlands	Centers of Excellence in Vocational Higher Education	- Enhancement of vocational education
		- Training for key economic sectors
	Centers of Innovative Craftsmanship in Vocational Education and Training	- Organization of vocational training and certification
		- Forecasting demand for skilled workforce and coordination of vocational training
Germany	Employers' associations	- Protection of vocational institutions' and companies' interests before trade unions
		- Negotiation of collective agreements
		- Legal consultancy for companies
France	Sectoral and Territorial Organizations for Vocational Training	- Representation of sector interests to social partners
		- Development of sectoral policies and procedures in vocational training
		- Development of competence and qualification standards
		- Organization of vocational training, testing, and certification
		- Collection of taxes for vocational training from companies
		- Financing of activities and vocational training programs

Source: Authors' development based on Radkevych et al. (2018)

In Germany, special employers' associations play an important role, lobbying for the interests of individual vocational education institutions with trade unions and concluding various employment contracts with students. This principle helps students acquire important practical skills in their chosen profession. At the same time, France has a

set of sectoral and territorial organizations in the field of vocational training. The key tasks of such organizations include: formulation of sectoral policies and procedures in the field of vocational training, forecasting the demand for skilled labor, and development of basic competence standards for national qualifications (Numonjonov, 2020; Pyrohovska et al., 2024). At the same time, stakeholders make separate contributions to the financing of vocational training through the payment of an internship tax. The table 3 shows the main areas of partnership in vocational education.

Thus, although some of these principles are being implemented in Ukraine, they are not as widely used. Therefore, in accordance with the practice of European countries, Ukrainian educational institutions can take into account the experience where employers' activities in education are legally regulated. In this way, it will facilitate greater adaptation of educational programs to the modern market (Biesta, 2020). At the same time, the introduction of special centers for public-private partnerships, as in the Netherlands, could facilitate a more active exchange of experience between universities, students, and employers. Ukrainian educational institutions can take into account the experience of Germany, where special employers' associations lobby for the interests of individual vocational education institutions with trade unions and conclude various employment contracts with students (Shevchenko et al., 2021). In general, the use of such innovative approaches can contribute not only to the development of students' practical skills, but also to the formation of important competencies that are in demand in the modern market.

3.3 Integration of Competency-Based Approaches and Stakeholder Engagement in Ukrainian Vocational Education

In order to modernize the educational and scientific potential of Ukraine and to adapt the educational system to modern requirements based on European theoretical, research, empirical, and methodological principles, Ukraine has developed the National Qualifications Framework. According to the decision, the competency-based approach in the educational process was identified as the main one to be used to measure, compare and characterize educational qualities, as well as to define individual competencies for different educational levels. Active further integration of the main requirements of the Bologna Process will require the use of digital and methodological innovations, the search for effective learning mechanisms, and the implementation of international standards and fundamental principles that are widely used in vocational training in European countries.

As a result, the Ukrainian model of education will require certain transformations, especially when it comes to changes in the areas of practical application of knowledge, skills and abilities in educational activities (Yashchuk et al., 2022; Varianytsia et al., 2023). Additionally, it can be emphasized that an important (if not the key) aspect of turning to European experience is the introduction of standardized curricula based on certain methods of education. Many modern European countries have developed and implemented modern curricula based on active learning technologies, important principles of practical activity, etc. Such programs aim to develop not only the level of theoretical knowledge. They also aim to develop the appropriate levels of communication skills of students, encourage them to organize interprofessional cooperation, use ethical principles, which will enable students to realize the benefits of integrated learning content. The relevant programs also include an interdisciplinary approach, which is used in modern European programs.

Just like in Europe, Ukraine actively involves stakeholders (employers) in the process of shaping the educational process, which is a reality of global educational practices. As the results of current research have shown, stakeholder advice is extremely important to take into account when setting up the educational process, as representatives of business, private companies, and academic institutions are quite active in interacting not only with each other but also with representatives of international companies or other leading institutions. The experience gained needs to be reflected in the curriculum during professional training. Accordingly, Ukraine has an accreditation system for educational programs, during which experts can reject a program that does not take into account the requirements of employers. This area is therefore recognized as extremely important for the training of modern specialists. At the same time, taking into account the leading trends in the digitalization of education, which are quite thoroughly integrated into the European educational space, modern paradigms of innovative educational technologies and involve the use of elements of digital learning modules in the educational process. Therefore, mastering such digital skills is becoming an important part of training for future professionals.

4. Discussion

The findings demonstrated the important role of partnership and stakeholder support in vocational education in Europe. Although some aspects are still used in the Ukrainian education system, this analysis can be used to identify some important areas for the development of this system. In particular, modern educational institutions in Ukraine

can take into account the experience of countries where there are employer organizations in the education system that are legally regulated within the government (Sofilkanych et al., 2023; Vasiutiak et al., 2021). This can affect the formation of effective mechanisms of cooperation between educational institutions and employers, as emphasized by a number of modern scholars (Shen et al., 2024; Libel, 2021; Zagorodnya et al., 2020). Also, the system of introducing public-private partnership centers, as in Germany, Austria, and the Netherlands, can facilitate a more active exchange of experience between universities, students, and employers. This, in turn, would facilitate the development of practice-oriented curricula and the training of highly qualified personnel in Ukraine. This problem is also widely described in the current literature (Billett, 2020; Espino-Díaz, 2020; Maksić & Spasenović, 2018).

Also, as can be seen from the results, Ukrainian institutions can take into account the experience of Germany, where special employers' associations lobby the interests of individual vocational education institutions with trade unions and conclude various employment contracts with students. This, in turn, will help to improve the learning environment and provide students with the opportunity to gain practical skills. It is also important to create industry organizations in the field of vocational training (Tsekhmister, 2022). In particular, Ukrainian institutions should take into account the experience of France, which has a set of sectoral and territorial organizations in the field of vocational training. Implementation of such a system would facilitate the development of flexible curricula for students. In general, the integrated use of such approaches can optimize Ukraine's vocational education system.

However, as demonstrated in the results, vocational education in Ukraine is also developing in line with European requirements, in particular, various pedagogical methods are now used to help develop students' motivation and encourage them to learn. This topic is also presented in detail in modern studies. In particular, Bobro (2024) studied the peculiarities of introducing artificial intelligence into the higher education system. The author proved that AI helps to optimize learning at different levels. These conclusions also correlate with the results of Renz & Hilbig (2020), which describes the importance of AI in vocational education. Modern researchers also emphasize the role of digital tools in Ukraine's vocational education system. Kuzheliev, Zherlitsyn, Nechyporenko, Lutkovska & Mazur (2023) present the importance of distance learning for the organization of education during the war in Ukraine.

At the same time, Muliarevych, Saienko, Hurbanska, Nowak & Marushchak (2023) investigated the role of innovative educational hubs in the Ukrainian system of lifelong learning. It is worth supporting the researchers' conclusions that modern changes in labor market demand have significantly transformed the key requirements for the knowledge and skills of specialists. The results of the study confirmed the opinions of experts that several educational trends are the basis for the modern digital society, primarily lifelong learning and lifelong learning. In addition, the use of innovative digital technologies in the educational process has had a significant impact on the emergence of new educational digital mechanisms (Ozcan Edeer & Rust, 2022; Billett et al., 2020). The proposed results force us to agree with the conclusions of modern researchers, in particular, that digital tools significantly improve the quality of education, improve the interaction of teachers and students with digital technologies, Internet platforms, etc (Vasylchyshyn et al., 2024; Aljad, 2023).

Undoubtedly, it is worth listening to the conclusions of Li and Pilz (2021), who believe that the use of modern digital technologies in the organization of the educational process has a significant impact on the formation of relevant and important digital competencies in students, which in the modern world are absolutely in demand in professional environments. In addition, as the Ukrainian experience during the war has demonstrated, the use of digital technologies to form professional competence systems allows maintaining an appropriate level of quality of education and providing more effective ways to acquire knowledge even in extreme conditions (Bondar et al., 2019; Osadchyi et al., 2020). Thus, the study confirms the importance of modern European princes and approaches to vocational education in the system of Ukrainian educational institutions. The limitations of this study may be the review of only modern sources and the failure to take into account works before 2018. However, the novelty of this study is the comprehensive approach to the issue of highlighting the role of European approaches in the system of vocational education.

5. Conclusion

Therefore, the application of European experience in the formation of professional competencies of future specialists in vocational education in Ukraine has become an important vector of development of the Ukrainian education system. The focus on training qualified applicants and borrowing leading European practices has made it possible to accelerate the integration of the Ukrainian educational environment into the standards adopted by leading countries. In particular, an analysis of the legal framework for introducing innovations in European education has shown that the movement to update the content of the professional world began in the 1990s and accelerated significantly as a

result of the introduction of the Bologna system. In the early 2000s, the importance of lifelong learning was added to vocational education standards. Emphasis was placed on the acquisition of the necessary competencies by students, which would allow them not only to acquire relevant knowledge, skills, and abilities, but also the competencies to continue their studies independently after obtaining higher education. Ukraine joined the global trend later, but the use of best practices made it possible to change the emphasis in training specialists and orient them toward a competency-based approach.

Based on the experience of European countries in the field of vocational education, it can be summarized that the implementation of partnerships between all participants in the educational process contributes to the formation of innovative and practice-oriented curricula, which in turn affects the development of practical skills of students. At the same time, lobbying for students' interests with enterprises helps to improve learning conditions and organize effective practice, and the creation of sectoral or territorial professional organizations promotes flexible curricula in accordance with current changing market conditions and needs. In Ukraine, the adoption of European experience has led to the involvement of employers in shaping the educational process, focusing education on the student and his or her needs. Thanks to the student-centered approach, the existing learning paradigms have been rethought and have acquired the features of democracy, mobility, and professionalism, which also implies the availability of knowledge and skills for continuing education.

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Acknowledgments

Not applicable.

Authors contributions

Not applicable.

Funding

Not applicable.

Competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Informed consent

Obtained.

Ethics approval

The Publication Ethics Committee of the Sciedu Press.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and peer review

Not commissioned; externally double-blind peer reviewed.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.