With Regard to the Means and Priorities for the Development of the Professional Education System (The Experience of the EU Countries for Ukraine)

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Abstract

The aim of the article is the analysis of means and priorities for the vocational education system development, and to comprehend the positive experience of the EU countries that can be implemented in Ukraine. For the realisation of the purpose the next methods were used: analysis, synthesis, comparison, abstraction, forecasting. In the results, it is noted that the Ukrainian structure of professional education differs from the European one in the absence of intermediary organisations that contribute to the educational process. The cooperation in establishing links between industries, firms and companies, and professional education institutions is at the level of private initiatives. It has also been found that the negative processes that hinder the development of the transformation of vocational education are uncompetitive teacher salaries and low levels of digital competence. Accordingly, this affects the low motivation to use innovative educational methods and technologies in education. The conclusions note the possibility of borrowing the French experience of the reorganisation of professional education with the formation of a structure in which students begin to receive professional education in the last grades of school.

Keywords: professional education, EU, Ukraine, transformation, educational process.

1. Introduction

1.1. Research Problem

The modern development of society dictates updated requirements for many spheres of life. The penetration of high technology into all spheres of life, the robotisation and automation of production processes, and the transition to distance education caused by the global pandemic pose new challenges to social development. It is also a question of the professional education future, which is being transformed as a result of these conditions and requires clear pointers for the future. For European countries, these transitions have become an important challenge in view of the relevance of professional education for many areas of production, agriculture, services, and information technology. First and foremost, these challenges are associated with the use of distance learning and the integration of modern technologies in the educational process. For Ukraine, these challenges are similar, although the situation is complicated by a long period of “indifferent” perception regarding the further establishment of this sector of

education. Another reason is the Russian military aggression of 2022, which dealt a tangible blow to the industrialised regions of the countries and, thus, destroyed many professional training centres. Therefore, for the Ukrainian realities, it is relevant to restore the system of professional education and partially erect it from the very "foundation," because such large-scale work on the rethinking of values requires time and resources. True, these difficulties only add to the research importance of the problem. These processes have also affected the functioning of vocational education in Ukraine. At the same time, an analysis of international experience can demonstrate certain directions for the further development of Ukrainian vocational education. It is also important to characterize the peculiarities of further transformation of vocational education in Ukraine based on the identified challenges and problems of its development.

The development of a robust professional education system is a fundamental pillar in the socio-economic advancement of any nation. In the contemporary landscape, as Ukraine seeks to align its educational infrastructure with global standards, it is imperative to draw insights and inspiration from the experiences of countries that have excelled in this domain. Among these, the countries of the European Union (EU) stand out for their exemplary professional education systems that have not only nurtured a skilled and adaptable workforce but have also fueled innovation and economic growth. This scientific paper embarks on a comprehensive exploration of the means and priorities that underpin the development of professional education systems, drawing upon the invaluable experiences of EU countries. Ukraine, in its pursuit of educational reform and modernization, stands at a crucial juncture where it can glean profound insights from the successes and challenges faced by its European counterparts.

1.2 Relevant Scholarship

The question of the key aspects of the digitalisation of professional institutions in Ukraine transformation is quiet polemic. Kovalchuk et al. (2022 a) analysed the main factors caused by the spread of COVID-19 coronavirus infection and the state of war affecting the development of education and training in Ukraine. Also, in view of the globalisation challenges, the main directions of further development of education in Ukraine are the improvement of qualification and development of motivation of the teaching staff, the material and technical base of professional education and training institutions improvement. Researchers Kovalchuk et al. (2022b) proposed special activities in order to improve the current problems: participation in international projects, development of special courses to develop lifelong learning, improving the qualifications of teachers through participation in various international and all-Ukrainian projects and conferences. Devadze et al. (2022) characterised the problem of professional education in EU countries through the prism of determining the main aspects of developing modern education. The researcher notes that the structure of professional education in the EU countries, as a result of globalisation transformations, has received characteristics that allow to rationally providing the economy with professional workers. Liubarets et al. (2022) characterised the problem of forming in-demand and relevant competencies among students. Bakhmat et al. (2022) studied a similar problematic. Radzievskaya et al. (2022) investigated the main prospects and opportunities for the development of education in Ukraine. At the same time, Bezlutska et al. (2021) characterised the features of managerial skills development in modern military students. The works of American, Australian, and European scholars are valuable for this article. The results of their research on major changes and transformations in the professional education system form the methodological basis for this paper. Particularly, Li & Pilz (2021) investigated the peculiarities of the organisation of international cooperation in professional education through the lens of a review of the current literature. Australian researcher Billett (2020) outlined key perspectives on improving the status of professional education and the professions it serves. His study is based on an analysis of education and training development practices in Norway, Denmark, Finland, and Australia. At the same time, Cormode (2021) characterizes the peculiarities of forming relevant skills and competencies. Kelly (2021) also studied a similar issue. The issue of forming the professional competence of vocational education students is described in Colley et al. (2003). Mulder et al. (2007) investigated the key aspects of the concept of vocational education competence in European countries through the prism of a critical analysis of scientific literature. Eichhorst et al. (2013) described the key aspects of vocational education development in different countries of the world.

At the same time, Deißinger (2015) described the disadvantages and advantages of the German dual system of teaching. On the other hand, similar problems were investigated by the German researchers Davoine & Deitmer (2020), who described in detail the peculiarities of the dual system of teaching in Germany. Martínez-Morales & Marhuenda-Fluixá (2020) have described the state and prospects of education in Spain. At the same time, Stalder et al. (2022) in their monographic study described the situation of education in the world and defined its importance against the background of an analysis of all educational levels. Toepper et al. (2022) identified the main concepts and strategies for the development of professional education in the world through the lens of a literary analysis. The study by Abd-Rabo & Hashaikeh (2021) characterizes the digital transformation of social spheres, including

education. Cavalcanti et al. (2021) describe the key aspects of using digital online education. At the same time, Williams et al. (2023) studied the attitudes of modern students towards the introduction of online learning. The results of these researchers demonstrate the overall positive attitude of students to online learning. The impact of artificial intelligence technologies on the education sector is identified in the study by Zhang & Aslan (2021). Tsekhmister (2023) researched the issue of effectiveness of case-based learning in medical and pharmacy education on the basis of a meta-analysis. At the same time, Tsekhmister (2022) described the effectiveness of practical experiences in using digital pedagogies in the modern Ukrainian higher education.

Many modern researchers note that effectively organised professional education in the EU countries allows rationally providing the economy with workers, promptly respond to globalisation changes, and promote the formation and development of labour potential. Consequently, further analysis of the experience of EU countries on this issue is a relevant topic of research. In addition, the issues of how to overcome the crisis in professional education in Ukraine based on an analysis of the European experience are poorly studied.

1.3 Research Aim and Research Questions

The aim of this paper is to analyse the means and priorities of professional education system development, to comprehend the positive experience of EU countries, which can be implemented in Ukraine.

Accordingly, the main research questions include:

1. Analysis of the main problems of the development of professional education in Ukraine

2. Characteristics of the main ways of solving these problems

3. Study of the peculiarities of the development of professional education in the EU countries through the prism of experience for Ukraine

2. Method

The study is theoretical in nature, so the main methods of its implementation were general scientific and special scientific methods. Among the general scientific methods, the next can be distinguished: analysis, synthesis, deduction, and induction. Thus, based on the analysis the content and system of training in professional education of the European Union countries were traced. Based on synthesis, the individual elements and common characteristics were reduced to a holistic picture, allowing us to look at the advantages of the organisation of training in Europe. Among other general scientific methods, the comparison is important. Since the main issue of the article is related to the identification of strengths and weaknesses of the Ukrainian system of education through the prism of foreign experience, the use of the comparison method was dictated from the very beginning by the logic of research. Other special methods of scientific research in writing the article are abstraction and prediction. Abstraction made it possible to address the essence of the changes that will be needed in Ukrainian educational realities to achieve acceptable indicators of development and demonstration of results. At the same time, abstraction became a necessary tool for the consideration of certain achievements of the Ukrainian side, which in the conditions of unfavourable and crisis situation still has certain achievements and achievements. The importance of forecasting is emphasised by the possibilities of developing a certain set of recommendations or paradigms to emulate, which may be needed in further reforms. It is also important to note that the study is based on the principles of objectivity and impartiality, which allowed revealing the purpose of the study with the most balanced attitude to the researchers' assessments, taking into account the positive and negative aspects of their theories and concepts.

3. Results

3.1 Problems in the Development of Professional Education in Ukraine and Ways to Overcome Them

Ukraine has had a positive experience in implementing and solving urgent problems in the development of professional education (Bondar et al., 2019; Bakhmat et al., 2022). Particularly, since 2016, 184 industry-specific educational and practical centres have been created based on the existing this field of education institutes at the expense of the state budget. However, there are still several pressing issues that need to be addressed. (See Figure 1).

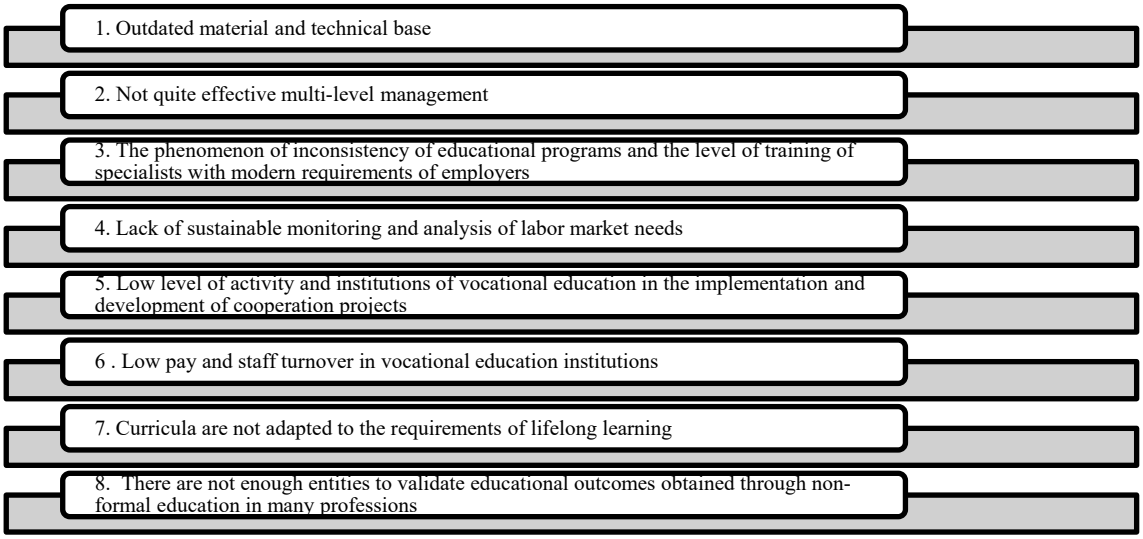

Figure 1. The Main Problems in Professional Education in Ukraine

Source: Authors' development

A separate problem is the undeveloped and imperfect mechanisms of public-private cooperation and social dialogue in the field of professional education. This fact leads to the insufficient interest of private partners in the system of managing the development of professional education and improving the overall infrastructure of professional education institutions (See Figure 2).

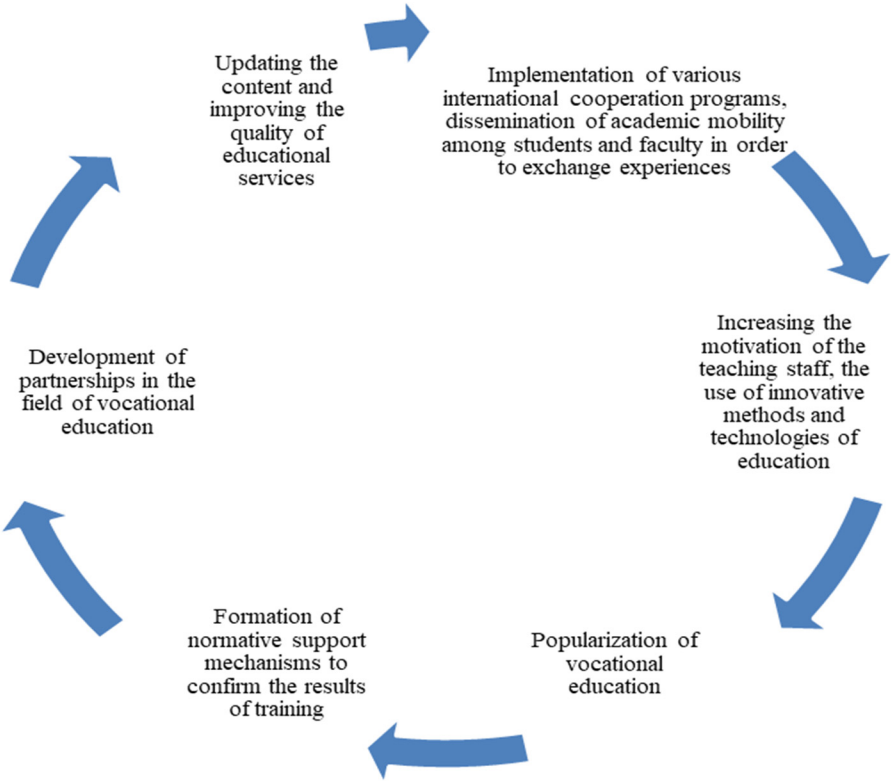

Figure 2. Ways to Solve Problems in the System of Professional Education in Ukraine

Source: Authors' development

The key element in the system of solving problems in professional education in Ukraine is the orientation on the European experience of implementing professional educational services (Gumenyuk et al., 2021). The current trends of education development in the European Union countries are aimed at meeting the individual educational needs of individuals and the needs of society in the context of the priority directions of social development.

The transformations in professional education systems are based on the processes of internationalisation, multiculturalism, providing for the introduction of an international dimension into the educational systems of educational institutions and globalisation associated with the development of the world educational services market, the formation of common values, approaches and requirements to the implementation of the educational process, focused on the development of key personal competencies (Kovalchuk et al., 2022b). At the same time, according to the key competencies approved at the World Forum and Davos, the main importance is the development of analytical thinking, creative thinking skills, originality, digital competence (understanding and navigating modern digital technologies, their use and even development), solving complex issues, endurance, tress-resistance, critical thinking, logic. Separately, an important role in EU professional education and training institutions is given to the development of language competencies, information and digital literacy, socialisation and learning competencies, civic competence, entrepreneurial skills, and cultural competence.

The cross-discipline approach to learning is based on the involvement of all possible resources in the educational process, a partnership between different levels and subjects of education (Billett et al., 2022). The phenomenon of educational institutions collaborating with employers, organisations from the arts, sports, scientific organizations, youth non-profit institutions, and institutions of higher education is of notable importance (McGrath et al., 2019). Special innovative technologies of social-emotional learning (SEL) are used to develop competence in socialisation and learning, as well as the active involvement of students in the processes of organising the educational space.

3.2 Professional Education in the EU Countries: Experience for Ukraine

Professional education differs institutionally and organisationally across Western European countries, differences in attributes and approaches to the implementation of educational programs due to existing pedagogical traditions and the peculiarities of national legislative systems (Kelly, 2021). A common element for all EU countries is that professional education in them has a distinctly practical direction, which is carried out through programs of training based on productive activities. Dual and apprenticeship systems can be considered the leaders among such programs, although models of integrating training courses into general education curricula are also popular (Demiray, 2017).

In the vast majority of European countries, professional training systems are managed by the Ministries of Education, the highest coordinating bodies that regulate the regulatory framework and are responsible for establishing partnerships between training institutions and other institutions (Kovalchuk et al., 2022a). In Austria, for example, the competencies for the management of most educational institutions belong to the Ministry of Education. The management of apprenticeships as a knowledge acquisition system is indeed the responsibility of the Ministries of Economy and Education. In addition, the Austrian Public Employment Service provides extensive support, which helps candidates to get all the necessary information about apprenticeship programs, helps to find appropriate employers who would accept them for training, provides advice, supervises the enterprises where apprentices are trained, etc. Similar is the practice in the Netherlands and Spain (Martínez-Morales & Marhuenda-Fluixá, 2020). Officially, the national government is responsible for this sector of education, but centralised education policy is combined with decentralized management at the level of professional education institutions. This means that qualification structures, examination requirements, etc. are set at the state level, while training documents, teaching methods, and didactics are developed at the institution level. Thanks to this decentralisation, professional education institutions can also cooperate with partners at the regional level (Taylor & Urwin, 2001). In the case of the Netherlands, this partner is the Organisation for Cooperation with Business, which channels requests for training and organises cooperation between business and educational institutions. Firms, companies, and industries accepting applicants for training receive limited financial compensation (up to 2,700 euros annually).

A notable transformation is taking place in the field of professional education in France, which is characterised by the predominance of the public sector, the binary nature of the education system, the predominance of free education in most public institutions. For this study, the analysis of the French experience in the development of distance learning technologies is still significant. Let us note that the main regulator in the field of distance learning in this country was established back in 1939 by the French National Center for Distance Education (CNED). This structure is an integral part of the whole system of education. The CNED is a public institution which is engaged in the coordination of the introduction of modern innovative methods of education and introduces new technologies at all levels of the education system. For example, for the implementation of more than 6,000 educational distance learning

courses in the e-learning system, CNED has a separate administrative staff of more than 1,800 employees and more than 10,000 scientific and pedagogical staff. Due to the fact that qualified teachers and scientists work here, distance learning is efficiently organised. However, we note that in France there are no strictly defined boundaries between specialised secondary and higher education. Professional education is implemented by special lyceums, where in 2-3 years you can get a job specialty and a diploma of special secondary technical education (Radziievska et al., 2022). These institutions prepare workers and employees for the service sector, industrial enterprises, etc. There is another way to get a professional education in France: after graduating from a college (upper secondary school) enrol in one of the professional training centres. Here you can get a special certificate that allows working in a certain specialty. Despite this, many such training programs usually include an internship at companies. This, in turn, affects the formation of practical skills in students. In general, the French lyceums are characterized by a person-oriented approach to each student; it determines the level of mastery of each academic discipline. In France, students have the right to choose to what degree they want to master a certain discipline. There are three levels: low, intermediate, and high. The designated lycées in France are divided into the following types: 1. Professional lycées (lycée professionnel): 2 years of training 2. Centres for training apprentices (CFA), after graduation, students receive a professional training certificate. 3. Technical schools, which are divided into the following types: service schools (STT), scientific-industrial schools (STI), laboratory-research schools (STL), and medical-social schools (SMS). General education and technological lyceums are a kind of preparatory courses for the university.

In Germany, professional education and training (historically associated with apprenticeship training) is treated as an investment in the country's future. Historical development has led to the formation of apprenticeship contracts, which are concluded individually with applicants for education (or their parents or guardians) and legally certify the obligations of the parties. The dual form of training is preferred, while at the same time, the federal governments are also responsible for the work of the craft schools. A similar system of operation exists in France, where legislative initiatives belong to the central government, while regional administrators implement these regulations, also developing their own policies in professional training, especially in the area of lifelong learning for adults. Co-funding of professional training, in which the central government, the regional governments, and the enterprises or companies in which the applicants study, is also promoted on a collaborative basis (Deißinger, 2015). At the same time, there are more than 40,000 educational institutions in France specialising in professional education. These include not only specialized training institutions but also enterprises where training takes place and centers responsible for the validation of qualifications.

A key option that European governments are trying to achieve in the development of professional education and training is the establishment of a strong partnership between all stakeholders (Liubarets et al., 2022). In Austria and Spain, for example, non-profit business organisations are legally regulated in the same way as trade unions. Their functions include establishing cooperation between market participants and educational institutions, making appropriate agreements, liberalising the regulatory framework, and representing the interests of employers in the labour market. The situation is similar in Germany, where employers also unite to defend the interests of representatives of professional education, private companies to trade unions, negotiate collective agreements, etc. More than 40% of German companies are members of such associations and actively participate in public and political life (Davoine & Deitmer, 2020). According to collective bargaining agreements, students receive wages; have compulsory insurance, which is covered by the state budget and employers in appropriate proportions.

4. Discussion

Recent studies have indicated that the structure of primary educational institutions in the field of vocational education in Ukraine and Europe exhibits notable similarities (Gumenyuk et al., 2021). For instance, in Belgium, institutions such as secondary general education schools, professional colleges and schools, centers for continuing education (or universities offering relevant educational support programs), as well as centers for retraining and career orientation, are legally recognized as educational providers. In the Netherlands, professional education and training for job seekers are conducted within specialized training centers, agricultural colleges, and dedicated vocational schools, all of which receive full funding from the state budget (Billett, 2020).

Conversely, in Germany, vocational education typically targets graduates of various school types, including main, real, combined, and secondary schools. Right from the outset, these educational institutions incorporate a degree of professional orientation, enabling young individuals to acquire the foundational skills required for their chosen profession, thereby preparing them for subsequent work or training opportunities.

In France, professional education and training occur within colleges, lycées, and professional lycées, with

contemporary legislative requirements underscoring the significance of establishing specialized campuses. These dedicated industrial, production, and social sites aim to provide students with skill development and training while acquainting them with the latest technological advancements, aligning with France's current policies for productive development.

Germany, in particular, has been identified as employing a dual system of vocational education (Davoine & Deitmer, 2020). This approach entails students initially studying theoretical concepts, research methodologies, and principles of work and labor law within an educational institution. Subsequently, students apply their acquired knowledge through practical applications (Davoine & Deitmer, 2020). Notably, one of the distinctive features of this system allows students to commence their vocational education during their final years of school. They can enroll in vocational schools within the service sector or technical schools, where they receive on-the-job training (Li & Pilz, 2021). Consequently, leveraging this valuable experience could have a positive impact on the advancement of vocational education in Ukraine.

Another important trend in the development of vocational education in Europe is digitalization, which is also being actively implemented in the Ukrainian education system. Modern studies have shown that EU countries are actively working on the introduction of digital technologies in vocational education (Devadze et al., 2022). According to Demiray (2017), digitalization helps improve access to education, provides a convenient way to learn, and improves the quality of the learning process. Projects and programs aimed at digitalization may include the introduction of online courses and webinars, the use of interactive learning platforms, and the adaptation of content to the needs of students (Billett, 2020). In addition, according to Bakhmat et al. (2022), digitalization helps prepare students for the demands of the modern labor market, where information technology skills are increasingly important. Therefore, modern scholars have shown that EU countries are focusing on developing digital skills of teachers so that they can successfully implement innovative teaching approaches (Bakhmat et al., 2022; Kelly, 2021; Gumenyuk et al. 2021). It should be noted that this approach is global in scope and is actively used not only in Europe. In particular, Palestinian researchers Abd-Rabo & Hashaikeh (2021) emphasize that the digitalization of vocational education in other regions is an important step in ensuring effective, accessible, and modern education for all. Also, Billett (2020) points out that innovative learning tools also contribute to the further development of education in Australia. This researcher also paid some attention to analyzing the importance of digital technologies in the Australian education system.

In light of the advancements made by contemporary scholars, digitalization in the realm of vocational education encompasses several critical areas. First and foremost, the adoption of interactive learning methodologies emerges as a pivotal dimension. This involves leveraging interactive platforms, video tutorials, interactive tasks, and simulations to actively engage students in the learning process, thereby enhancing their comprehension and retention of educational material (Kovalchuk et al., 2022a). Furthermore, in line with the insights presented by Cavalcanti et al. (2021), distance learning assumes paramount significance in the realm of innovative education. It is imperative to offer students who cannot attend physical educational institutions the opportunity to access high-quality education through online courses and distance programs (Garivaldis, 2020). Remarkably, as highlighted by the research conducted by Williams et al. (2023), the prevailing sentiment among most students is positive when it comes to embracing distance learning. Consequently, these key aspects of digitalization in vocational education pave the way for a more engaging, accessible, and responsive educational landscape, aligning with the evolving needs and preferences of modern learners.

At the same time, the study by Gumenyuk et al. (2021) demonstrates that the development of modern curricula that take into account the needs and interests of students, as well as the requirements of the labor market, is important to ensure relevant learning. On the other hand, many modern works emphasize that important aspects of the digitalization of vocational education are the use of technologies in assessment, which affect the increase of objectivity and speed of the learning process, effective monitoring of learning, and the development of digital skills of teachers (Kelly, 2021; Kovalchuk et al., 2022b; Wojciech et al., 2021). Therefore, an important direction for the further development of vocational education in Ukraine is to prepare teachers and educators for the successful use of digital technologies in the educational process and their implementation in pedagogical practice. This aspect was emphasized by Ridei (2021). The study by Zhang & Aslan (2021) found that the use of artificial intelligence and data analytics is an important area of development in the education of the future. In particular, it refers to the use of artificial intelligence and data analytics to identify individual student needs, improve learning efficiency, and make informed decisions. These aspects contribute to improving the quality and efficiency of vocational education, making it more accessible and simplifying the learning process for students and teachers.

5. Conclusions

In Ukraine, akin to European countries, the Ministry of Education and Science of Ukraine issues administrative and legislative regulations. Nevertheless, the structure of professional education in Ukraine diverges significantly from the European model and lacks the extensive historical tradition found in nations such as Germany. The incorporation of professional education into mainstream secondary schools is still in its nascent stages in Ukraine, and intermediary organizations to facilitate the educational process are conspicuously absent. Presently, cooperation efforts to establish connections between industries, firms, companies, and professional education institutions rely heavily on private initiatives and bilateral agreements due to the absence of an official conducive financial climate with mechanisms for compensation and mutual support to bolster such partnerships. Furthermore, the heightened interest of employers in collaborating with graduates remains limited, as their primary focus lies in recruiting competent potential employees.

Contrary to the increase in the labour market demand for professional staff in accordance with the medium-term forecast, there will be a significant reduction in the volume of regional orders in the institutions of professional education and training during 2020-2024. In the professional education system, the modernisation of the education and training space is not sufficiently active). It is about updating the content of professional education taking into account active technical transformations in economic spheres, the introduction of innovative methods and tools in the implementation of the educational process, material and technical re-equipment of professional institutions, development, formation, and implementation of flexible trajectories for mastering full or partial qualifications, competence market endurance. At the same time, the negative factors that stop the transformation of the system of professional education are the non-competitive salaries of teachers of these institutions, respectively, and weak motivation to implement innovative educational methods and teaching technologies, the lack of structured activities for the formation of a personnel reserve.

In contrast, European countries have exhibited a pronounced interest in securing skilled potential workers, and Ukrainian industrialists and entrepreneurs ought to emulate this approach. The adoption of such strategies would pave the way for productive collaborations among all stakeholders in the future. It has been evidenced that a pivotal avenue for advancing vocational education in Ukraine involves the adoption of innovative digital tools, mirroring their active utilization in EU countries. Simultaneously, this trend is of global significance, as digital learning technologies are increasingly prevalent worldwide. It has been ascertained that digital technologies should play a pivotal role in fostering integrated education, online learning, and distance learning, thereby cultivating the requisite digital and information skills in students.

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