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Assessment of the Impact of Changes in Ukraine's Vocational Education System on Graduate Employment and Professional Development

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Abstract: In the context of an unstable labour market and socio-economic challenges, this study assesses the effectiveness of changes implemented in the vocational education system of Ukraine and their impact on graduates' employment and career progression. It examines the impact of educational reforms, such as updated curricula and new teaching methods, on the employment and professional development indicators of graduates of vocational education institutions. The study uses a descriptive methodology to examine the effectiveness of improvements in different specialities, geographical regions, and types of educational institutions, as well as the relationship between these reforms and the ability of graduates to adapt to changing labour market situations. The study is based on 88 sources, including scientific works and regulatory documents for 2020-2025, which were found using Web of Science and Google Scholar. Among the methods are trend analysis, expert assessment, document analysis, and content analysis. The results show that dual education models, curriculum modernisation and creative learning formats, combined with cooperation with employers, expanded infrastructure, digital skills training and best European practices, increase graduates' employability, competitiveness and adaptability. However, different specialities, geographical regions and types of institutions have different opinions on the effectiveness of these reforms. Insufficient teacher training, a mismatch between employer requirements and training, the low status of vocational education and a lack of private sector investment in youth education are among the obstacles to progress, which are also mentioned in the article. The study highlights how significant these changes are for improving Ukraine's vocational education system and learning outcomes. Its findings guide future research on education and employment, highlighting the need for ongoing teacher training, improved monitoring of the correspondence between training and employers and initiatives to improve the status of vocational education among Ukrainians.

Keywords: educational standards, employment, graduate adaptability, labour market, professional mobility, vocational education.

Introduction

The vocational education system in Ukraine is undergoing a process of transformation, enhancement, and integration into the global educational landscape, taking into account the realities of the Russo-Ukrainian war, the aftermath of the COVID-19 pandemic, and prevailing global socio-economic trends (Radkevych&Yershova, 2022). The challenge of graduate employment, adaptation, and professional development confronts Ukrainian society and remains a pressing issue for other nations worldwide (Abuselidze&Zoidze, 2023). The current demands of the labour market and the repertoire of professional skills that workers must possess to enhance their efficiency were central topics of discussion at the annual World Economic Forum meeting in Davos in January 2025 (World Economic Forum, 2025d).

According to research, approximately 170 million new jobs are projected to be created due to technological advancements, the "green" transition, economic and demographic shifts, and transformations in the global labour market. This number corresponds to 14% of the current employment volume. Concurrently, 92 million jobs are expected to be lost due to these same trends, yielding a net increase of 78 million (World Economic Forum, 2025a).

By 2030, qualitative shifts in employment are also anticipated, including an escalation in automation and the adoption of artificial intelligence; a heightened need for upskilling workers; an increased overall demand for education specialists, as well as healthcare, construction, and agriculture; the pervasive influence of artificial intelligence, which will exacerbate the shortage of professionally critical skills among workers and diminish their well-being; rising demand for qualified professionals in

data analysis, leading to the emergence of new roles, such as a lead specialist in artificial intelligence applications; the transformation of office spaces into social environments, which will catalyse the adoption of flexible working conditions; a prioritisation of inclusivity, equality, and tolerance; and enhanced labour market mobility through the expansion of remote working opportunities (World Economic Forum, 2025a).

Ensuring sustainable economic development and social stability is contingent upon the adaptability of workers and employers to rapid labour market changes driven by technological progress (Shtunder, 2022).

It is noteworthy that reforming the vocational education system necessitates consideration of several critical factors: broadening access to vocational education for a diverse range of individuals can be achieved through the implementation of educational programmes that uphold principles of fairness, equality, inclusivity, and diversity; establishing collaboration between educational institutions and businesses ensures that curricula align with labour market demands and enhances graduate employability; improving the accessibility and effectiveness of vocational education is facilitated by the adoption of innovative educational technologies, including the effective integration of online courses and the use of virtual reality; and providing support for learners from lower socio-economic backgrounds ensures equal opportunities for professional development and career advancement, thereby contributing not only to the development of the education sector but also to the business community (World Economic Forum, 2025e).

Research indicates that key aspects of sustainable development include enhancing communication between educational service providers, employers, and graduates, ensuring alignment between the capabilities of professionals and labour market requirements, and preparing workers for future challenges. This generates benefits for educational institutions (delivering competitive training by standardised curricula), governments (implementing policies to regulate the content of educational programmes in line with labour market needs), businesses (improving workforce planning, simplifying recruitment processes, and fostering human resource development), and every member of society (accessing high-quality services from skilled professionals) (World Economic Forum, 2025b).

A significant factor in enhancing labour productivity is the priority employers place on their employees' well-being. Addressing mental health concerns is gaining particular relevance, especially in Ukraine (Tsybuliak et al., 2025). Studies highlight that an increase in quantitative indicators of professional burnout among workers correlates with rising financial losses for employers (World Economic Forum, 2025c).

The data obtained underscore a theoretical and practical need to evaluate the impact of changes in Ukraine's vocational education system on graduate employment and professional development (English et al., 2021).

Researchers argue that, firstly, this will contribute to the development of scholarly approaches to educational policy-making, taking into account the alignment between educational and economic theories and enabling the creation of predictive mechanisms. A thorough qualitative analysis of the impact of recent changes will serve as a foundation for theoretical modelling of the interrelationship between vocational education and labour market demands, contemporary approaches to labour economics and investment in human capital, social mobility, and the quality of vocational education. Based on the outcomes of such an impact assessment, it will be possible to forecast hypothetical trends in employment and formulate recommendations for improving the education sector (Fernández-Batanero et al., 2022).

Secondly, this will make it possible to examine mechanisms of graduate adaptation to the labour market and enhancement of their competitiveness, approaches to optimising resources, and opportunities for ensuring social stability. The results of the analysis of educational changes may influence graduate employment levels and facilitate the alignment of curricular content with employer needs and expectations. A qualitative evaluation of the effectiveness of implemented reforms will assist state authorities and the business sector in making informed decisions regarding the allocation of educational funding. It is expected that the increase in the employment of graduates will lead to a decrease in the unemployment rate and, as a result, will lead to the development of favourable trends in the country's economy.

Assessing the strengths and weaknesses of the education system can contribute to developing the abilities necessary to meet the demands of the modern world. To create high-quality and successful educational plans based on the labour market's needs and respond to national economic growth, current changes in vocational education require a careful review (Kuzmina et al., 2024).

Research Problem

Considering previous studies' results, it is still vital to study how changes in the vocational education and training (VET) system in Ukraine affect the employability of graduates and professional growth intending to develop society in all areas. The effectiveness of education as a lever for the country's economic development (Abiltarova et al., 2022), the need to adapt curricula to current economic challenges (Alam et al., 2024), the mismatch between the theoretical training of specialists and the practical requirements of employers (Behle, 2020), the role of vocational education in meeting labour market needs (Butt et al., 2024), and the importance of dual education in encouraging cooperation between business and educational institutions (Donohue et al., 2024) are some aspects that require detailed research.

The analysis of data on the latest innovations in the vocational education system over the past five years, the employment-unemployment ratio among Ukrainians, employment factors, and the dynamics of graduate employment levels before and after the implementation of reform changes in the vocational (vocational) education system should become the primary focus of the research. This will allow for assessing the success of the mechanisms for developing the educational system and will help identify the main problems in this regard.

Investigating the interrelationship between education and the labour market, the impact of graduates' adaptability on their career progression, the correspondence between acquired education and actual job roles, graduates' level of satisfaction with their professional advancement, and the alignment of workers' qualifications with employers' expectations will make it possible to highlight challenges concerning graduates' competitiveness and their efficiency in the labour market. A comprehensive analysis of academic sources will identify avenues for improving the vocational education system to reduce labour migration and enhance employment opportunities within Ukraine, improve the quality of vocational training for highly qualified personnel, and boost labour productivity. This research will also contribute to the academic field by generating new knowledge and analytical tools for exploring the nexus between education and employment.

Research Focus

The data obtained from a comprehensive analysis of current scholarly sources allow the research to focus on identifying contemporary trends in the reform of vocational and technical education in Ukraine and evaluating their impact on employment and the professional development of learners. The article aims to investigate the alignment between the quality of education and labour market demands,

with particular attention to the needs of the business sector and the responsiveness of educational institutions to technological changes, the identification of relevant professional skills, and the influence of dual education and cooperation with businesses on graduates' competitiveness and employment levels.

An important area of inquiry is the assessment of the flexibility of the vocational education system, specifically through the analysis of data on the alignment of curricula with current societal demands and the readiness of the vocational education sector for digital transformation. The research also focuses on studying countries' experiences with successful vocational education models and the possibilities for their integration into the Ukrainian context.

A key aspect of the investigation involves examining the impact of social and regional disparities' impact on graduates' professional development satisfaction. The study considers the effect of reforms on rural employment, identifies differences in employment levels among graduates from various regions, and establishes factors that either facilitate or hinder youth employment.

Research Aim and Research Questions

This study aims to assess the impact of changes in Ukraine's vocational and technical education system on graduates' employment rate and professional development, particularly in the context of recent educational reforms.

The research is focused on addressing the following key questions:

1. How have changes in the vocational and technical education system in Ukraine (including reforms, curriculum updates, and new learning formats) affected the employment rate of graduates across various sectors of the economy?
2. How do these changes contribute to the professional development of graduates, particularly in career advancement and adaptation to the current demands of the labour market?
3. How do different categories of graduates (based on type of educational institution, field of specialisation, and region) evaluate the effectiveness of vocational and technical education changes regarding their employment outcomes and professional development?

Literature Review

A systematic review of sources pertinent to the research problem aids in elucidating the mechanisms through which educational changes influence employment and enables their examination through diverse approaches (Rageth&Renold, 2020). One category of theories posits that educational changes impact the quality of skills an individual possesses. The nature of these skills can affect an individual's capacity to secure employment (Czarnecki& Sauer, 2025). However, other perspectives emphasise the effects of educational changes on trends and patterns within the labour market and education system (Chan & Zhang, 2021).

Changes in education typically influence employment in a complex and multifaceted manner, a phenomenon that is indeed observable when exploring various theories related to education, the labour market, and professional development (Dai & Mu, 2024).

The theory of the humanistic approach to education underscores the personal self-realisation of learners, alongside creativity and self-assertion (Corrocher et al., 2024). In this context, knowledge, skills, and attitudes towards the learning process and work assume significant importance (Scheuch et al., 2021). Changes in educational processes, with an emphasis on fostering humanistic approaches, can

create a relatively stimulating work environment, encouraging and supporting the development of communication and other soft skills (Urkiá-Basterra et al., 2025), the absence of which often poses a barrier to labour market entry (Schlögl et al., 2020).

The concept of the pragmatic orientation of education should be based on the current needs of the labour market. This gives students an advantage in developing employability skills, and changes in the curriculum aimed at developing skills to meet business needs and priorities can positively impact employment (Dai & Pham, 2024).

Supporters of the life cycle theory believe that throughout life, there is a continuous learning process that goes through different phases of development. Thanks to changes in education that promote continuous learning and acquisition of new skills and knowledge, people can find formal employment and adapt to changing labour market conditions (Corrocher et al., 2024).

The human capital theory states that a person's efficiency increases along with his education and training costs. There is an assumption that the level of educational degree obtained is directly proportional to good employment opportunities and higher income.

The need for a significant transformation of educational programs to meet market needs is a guarantee of increasing personal prospects. Education systems must respond quickly to economic changes to facilitate the dissemination of relevant information and skills. Flexible learning strategies considering new technologies and labour market demands are the basis for adaptive learning (MohdRokeman et al., 2024).

In structuring social capital, the dimension of social networks and contacts is crucial. Thanks to network connections and collaboration between business and education, changes occur that improve the employment prospects of graduates (Corrocher et al., 2024).

The diverse perspectives of educational changes affect the labour market and professional growth, which creates a theoretical basis and contributes to scientific achievements. By using existing social networks, adapting courses to market needs and encouraging lifelong learning, graduates can find real opportunities for high-paying jobs (McCowan et al., 2023).

Studies on the impact of education level on employment outcomes have found a positive relationship between the two. Thus, under normal circumstances, it is assumed that highly qualified workers should be able to obtain better working conditions than less qualified ones (Jorre de St. Jorre et al., 2021). This aspect requires a continuous readjustment of educational programs according to the dynamic needs of the labour market (Antje et al., 2021). For example, reports from official documents of several European countries show that pedagogical workers who support cooperation with the corporate sector (Sabine & Štastný, 2021) can orient student services according to real work conditions (Parutis & Howson, 2020).

Modern technologies that are introduced into the educational process make it more effective. This has been facilitated by the COVID-19 pandemic and the associated adjustments and impacts on educational accessibility (Deroncele-Acosta et al., 2023), the acceleration of the development of distance and online learning systems, which will become increasingly popular in the future (Samoliuk et al., 2021).

As a rule, those graduates who actively participate in professional networks have better employment prospects (Díaz-García et al., 2023).

Thus, the study of theories related to professional growth, the labour market, and education is essential for understanding how changes in the educational system affect employment. By pursuing the development of flexible and innovative educational approaches (Kovalchuk et al., 2023), students and workers can effectively adapt to the demands of the contemporary labour market, securing stable and fulfilling employment (Dodin et al., 2024).

The question of how changes in the vocational education system affect graduate employability and professional development remains pertinent, though its exploration, particularly within the Ukrainian context, is somewhat limited (Fitzgerald et al., 2024).

It is worth noting that international research has thoroughly elucidated the relationship between education and the labour market (Li & Pilz, 2021); the competency-based approach in vocational education is actively examined by UNESCO, the World Bank, and the OECD, notably in studies such as PISA and PIAAC (Petruzziello et al., 2024). The European Union has implemented systems monitoring graduate employment, such as the European Graduate and Tracking Initiative (Li, 2024). In developed countries, the impact of dual education on youth employment is extensively studied (Tütlys et al., 2021); numerous investigations explore the effects of digitalisation (Yershova, 2022), automation (Kovalchuk et al., 2022), and labour market transformations (Voronina-Pryhodii & Kravets, 2022) on vocational education needs. The mismatch of graduates' skills, the gap between education (Popova & Popov, 2022), and market requirements are the subject of many analytical studies in the US and the EU (Antonivska & Sarnovska, 2021).

The lack of standardised methods for monitoring graduates' career development (Kravets, 2024), the fragmentary nature of research attempts (Ghosh & Ravichandran, 2024), the existence of individual reports without a thorough analysis of the problem (Kruchek et al., 2023), the lack of empirical research using quantitative methods such as surveys and data analysis (Chiang et al., 2022), as well as the lack of research on the ability of the vocational education system to adapt to the consequences of dynamic changes in the labour market (Weijzen et al., 2023), according to researchers, are among the main problems facing the Ukrainian education system.

As a result, even if the problem is thoroughly researched internationally (Zoellner, 2020), many questions remain unanswered in Ukraine (Klassen, 2024). In particular, little empirical research has been conducted on how vocational education changes affect graduates' employment (James et al., 2021).

The transformation of the education system and the formation of qualified specialists to the needs of the labour market involves conducting additional essential and relevant research (Mende et al., 2025).

The reform of vocational education is a key element in updating the education system, adapting to the needs of the modern labour market, and activating the economic development of regions in Ukraine (Verkhovna Rada of Ukraine, 2019b). It is worth outlining the main directions of these reforms as follows:

- Decentralisation of management and funding: Transferring authority over the management of vocational-technical education institutions to the local level enables better alignment with the needs of regional labour markets and businesses, thereby facilitating more effective funding and administration of these institutions.
- Enhancement of educational content and quality: Updating curricula to reflect modern technologies and the demands of the information society enhances the competitiveness of graduates in the labour market.

- Development of public-private partnerships: Collaboration with businesses in establishing training and practical centres, as well as providing modern equipment, improves the practical training of students.
- Promotion of skilled trades: Elevating the prestige of vocational-technical education through informational campaigns and improved learning conditions, including increased student stipends.

The reform has already yielded specific outcomes, notably providing impetus for institutions' material and technical upgrading and fostering engagement with employers. However, several challenges remain, including:

- Mismatch between the network of institutions and demographic changes: The declining number of students necessitates optimising the vocational-technical education network to ensure efficient resource utilisation.
- Need for legislative updates: There is a requirement to develop modern professional standards and align legislation with contemporary labour market realities.
- Enhancing the prestige of vocational-technical education: Overcoming stereotypes surrounding vocational-technical education and increasing applicant numbers remains a priority.

The reform of vocational-technical education in Ukraine is a critical component in establishing a responsive, accessible, and productive educational system that is suitable, effective, and conducive to addressing the challenges of the country's economic development (Verkhovna Rada of Ukraine, 1998). In this regard, the reform of vocational-technical education in Ukraine undeniably represents a foundational approach to creating a flexible, inclusive, and sustainable system capable of meeting the demands of the modern labour market (Maurer, 2021).

The introduction of dual education and the relevant program updates are two main elements of vocational education reform in Ukraine (Niemann, 2022).

The combination of theory obtained in an educational institution with practice acquired at enterprises, institutions or organisations is called dual education (Sorensen et al., 2021). It is gaining popularity in Ukraine since students studying this way become more competitive, more adaptable to working conditions and gain helpful experience (Haiduk et al., 2023).

Vocational education in Ukraine is often revised, considering the achievements of science, technology and production methods (Verkhovna Rada of Ukraine, 2019a). This can be implemented by developing new unified curricula and educational programs and providing for changes to existing ones. As a rule, such updates occur at least once every five years (Pryhodii, 2024).

The direction of the updated curricula is a competency-based approach, which emphasises the formation of practical skills and abilities in students necessary for performing professional duties. This guarantees the training of specialists who can work effectively in modern conditions and quickly adapt to changes in the labour market (Zasiekina, 2024).

Several theoretical provisions are the basis for the reform of vocational (vocational and technical) education in Ukraine, outlining the ways of its modernisation and development (Popova, 2022).

The primary priority in the competency-based approach is acquiring knowledge and developing practical skills and competencies necessary for effective professional activity. This emphasises the importance of using the acquired skills in practical work situations (Chychuk, 2024).

European standards and principles of reforming vocational and technical education are considered to ensure the quality of education in Ukraine. This includes using modern teaching methods and modifying courses by the standards of the European Qualifications Framework (Radkevych, 2024c).

The quality of education can be improved by introducing information and communication technologies (ICT), as this facilitates students' access to modern learning materials and contributes to the development of their digital skills (Abd Majid et al., 2024).

The development of partnerships between the state and the private sector, for example, cooperation between employers and educational institutions, makes it possible to update the content of curricula to the requirements of the labour market, opens up access to modern equipment for students, and improves the employability of graduates (Radkevych, 2024b).

The vocational education reform in Ukraine aims to build a flexible system that can respond to today's demands and challenges (Radkevych, 2022).

The state policy in the field of vocational (vocational and technical) education is implemented through the Concept of "Modern Vocational (Vocational and Technical) Education" (Verkhovna Rada of Ukraine, 2019c). It is aimed at updating and improving the quality of vocational education in Ukraine by 2027 and provides for the implementation of several measures:

- Updating educational content: Introducing modern educational programmes that align with labour market demands and facilitate the acquisition of relevant competencies.
- Enhancing the prestige of vocational education: Cultivating a positive image of vocational-technical education through informational campaigns and collaboration with employers.
- Developing educational institutions' infrastructure: Modernising institutions' material and technical resources to ensure a high-quality educational process.
- Improving the qualifications of teaching staff: Enhancing the skills of instructors and vocational training masters in line with contemporary technologies and methodologies.
- Integration with the labour market and strengthening collaboration: Fostering partnerships between educational institutions and employers to support graduate employability and adapt educational programmes to economic needs.
- Funding and management: Optimising funding mechanisms for vocational education and implementing effective institutional management models.

The implementation of these points will help build an updated system of vocational education that will meet European standards and stimulate Ukraine's economic progress.

Materials and Methods

Research Design

This descriptive study aims to assess the impact of recent educational reforms on graduates' employment and career advancement in the vocational education system of Ukraine. Using the descriptive research methodology, it is possible to investigate and describe a phenomenon or object in detail, which is a valuable tool for scientific knowledge. It is carried out without studying cause-and-effect relationships, event changes, or intervention in processes. Through observations, surveys, document analysis or statistical data, its primary goal is to collect, systematise and present information

for a complete understanding of the research topic (Semenda, 2023). The advantages of such a study for achieving the goal lie in its ability to provide detailed analysis and identify changes in the vocational education system and their impact on graduates' employment and professional development.

This method's versatility and ease of use eliminate the need for specialised experimental facilities or significant financial costs (Lochmiller, 2021). Obtaining a significant amount of factual data makes it possible to compare indicators before and after reforms, identify their advantages and disadvantages, analyse the consequences of their implementation during changes, and determine how long the results of reforms last. Documenting the current state of the issue, identifying essential patterns, and drawing conclusions supported by factual data all make this possible thanks to this research format.

Four steps were taken during the study of the described problem. The first stage involved defining the research aim and objectives, which facilitated articulating the research problem, identifying key questions, and establishing the analysis period and graduate categories. The second stage encompassed a review of literature and regulatory-legal documents to gather, analyse, and synthesise essential information. This stage entailed evaluating prior studies, articles, and other relevant sources to identify gaps, inaccuracies, and trends in existing knowledge. Eighty-eight sources were selected and classified according to the labour market, graduate adaptation, professional mobility, educational standards, and employment. The third stage focused on data analysis and result interpretation. This phase aimed to identify changes in the vocational-technical education system and graduate employment trends, highlight key contentious issues and challenges in vocational education, delineate patterns, compare pre- and post-reform conditions, and assess the primary advantages and shortcomings of the changes in vocational education. The fourth stage involved formulating general conclusions regarding the impact of reforms to propose directions for further scientific inquiry.

Data Collection

Since the study does not involve empirical data collection, the following sources of information were analysed:

- Regulatory and legal documents, specifically Ukrainian legislation in the field of education: the Decree of the President of Ukraine "On Priority Measures for the Development of Vocational (Vocational-Technical) Education" and the Order of the Cabinet of Ministers of Ukraine "On Approval of the Concept for the Implementation of State Policy in the Field of Vocational (Vocational-Technical) Education 'Modern Vocational (Vocational-Technical) Education' for the Period up to 2027";
- Analytical studies and scientific publications (data from scholarly articles containing statistical and empirical insights into the effectiveness of reforms implemented in the vocational education system; graduate employment; youth unemployment rates and labour market dynamics; graduate satisfaction with professional development and career progression; the adaptability of learners to contemporary working conditions; the number of graduates requiring retraining or additional education; and the impact of the state of vocational education in Ukraine on the labour market).

The data collection procedure was conducted in several stages:

- Source selection: Compiling a list of key regulatory documents that define changes in vocational education; analysing open databases; selecting scientific publications and analytical reports from the past five years; and choosing relevant articles and expert materials from mass media and databases.

- Systematisation of collected data: Creating a database of regulatory acts and recording key legislative changes; processing statistical data and identifying trends in graduate employment dynamics; analysing textual materials, classifying scientific publications and reports by theme; and structuring information to highlight key trends in vocational education.

The data search was conducted using the keywords: “labour market,” “graduate adaptation,” “professional mobility,” “educational standards,” and “employment.” The search for scientific articles published between 2020 and 2025 was performed using the Google Scholar and Web of Science databases. Articles were selected based on their research type: review or empirical. In total, 88 sources, written in Ukrainian and foreign languages within education and economics, were analysed.

Data Analysis

During the execution of this descriptive study, a range of methods was employed, including: content analysis to identify key changes within the vocational training system for specialists across various fields and to determine emphases in graduate employment; document analysis to evaluate current information sources and delineate the perspectives of the state and researchers regarding changes in the vocational education system and their impact on youth employment; the expert evaluation method to analyse professional opinions in the fields of education and economics, assess the effectiveness of implemented reforms, and evaluate their influence on learners; chronological analysis to track changes in Ukraine’s vocational-technical education system over time and their implications for the labour market; comparative analysis to juxtapose domestic and international experiences in reforming vocational education; secondary data analysis to construct more substantiated conclusions based on existing research; and trend analysis to highlight patterns in graduate employment, assess reform effectiveness through changes in statistical indicators, and identify the strengths and weaknesses of reforms in vocational education.

Results

Between 2019 and 2023, with the support of several European partners—including Germany, Finland, and Poland—the EU Programme “*EU4Skills: Better Skills for Modern Ukraine*” was implemented. The initiative aimed to reform vocational and technical education to align it with labour market demands and realise learners’ potential. The core directions of implementation included the modernisation of educational infrastructure (upgrading educational institutions and supplying modern equipment); training of teachers and instructors (professional development of educators and introduction of new teaching methodologies); updating of educational standards (developing modern curricula aligned with labour market needs); and the promotion of vocational education (enhancing the prestige of vocational and technical education among young people and employers) (Sergeieva, 2021).

In 2020, the Board of the Ministry of Education and Science of Ukraine approved the *Strategy for the Development of Vocational (Vocational-Technical) Education for the Period up to 2023*, which envisaged the establishment of an effective system of governance and financing, improvement of the content and quality of vocational education, development of public-private partnerships, and the promotion of vocational education and skilled trades (Miroshnychenko&Kalinichenko, 2025).

In 2021, the President of Ukraine signed a Decree “*On Priority Measures for the Development of Vocational (Vocational-Technical) Education*”, which led to the establishment of the Council for the Development of Vocational and Technical Education as an advisory and consultative body under the President (President of Ukraine, 2021).

According to the concept of the State Target Programme for the Development of Vocational Education approved in 2020, the employment rate of graduates was anticipated to reach approximately 80% (Sytnyk&Rohutska, 2022).

In 2022, the Government approved the concept of the *State Target Social Programme for the Development of Vocational Education for 2022–2027*, which envisages the implementation of the decentralisation reform, modernisation of the content and quality of education, development of partnerships, and promotion of vocational education.

In 2024, the Ministry of Education and Science of Ukraine presented priority directions for the development of vocational education, including the establishment of a unified vocational education system that integrates vocational-technical and professional pre-tertiary education by labour market needs, improvement of the content and quality of vocational education; and enhancement of the image of vocational education as a valuable educational pathway for school graduates (Churakova&Zolotukhina, 2024).

In 2025, new vocational education standards were approved for occupations such as plumbing locksmith, manual arc welder, manicurist, food raw material and product boiler operator, bookbinder, institutional cook, milling machine operator, and crane operator (Miroshnychenko&Kalinichenko, 2025).

Overall, vocational education reforms have contributed to improving the alignment of educational programmes with labour market needs (Table 1), which has positively impacted graduate employment rates.

Table 1

Impact of Reforms on the Vocational Education System

Before reforms	After reforms
Outdated material and technical base: Most vocational education institutions had outdated equipment that did not meet modern standards.	Modernisation of institutions: improvement of the material and technical base through state and international funding.
Labour market mismatch: training programs did not always meet the real needs of employers.	Updating curricula: introducing dual education and adapting curricula to market requirements.
Low prestige of vocational education: vocational education institutions were considered less attractive than higher education institutions.	Increasing the prestige of vocational education: increasing attention to working specialities as relevant in the labour market.
Insufficient funding: State support for vocational education institutions was limited.	Cooperation with business: active involvement of employers in the educational process.
Advantages of reforms	Disadvantages of reforms
Improving the quality of education	Slow implementation of changes
Better employment of graduates	Lack of qualified teachers
Involving the private sector in education	Uneven development in regions
Modern material base	The unwillingness of employers to invest in education

Source: Authors' development.

The results of labour market studies have demonstrated positive trends in implementing the aforementioned reform initiatives compared to previous periods. In particular, in August 2023, the unemployment rate in Ukraine stood at 15.1%, the lowest figure since the beginning of the war, indicating a gradual recovery of the labour market. As of 1 August 2023, 112.3 thousand individuals

were officially unemployed, of whom 22% were under 35. Among them, 2% were recent graduates with no prior work experience. Moreover, more than half of young people are employed outside their field of study, highlighting the need for better alignment between educational programmes and actual labour market demands (Sytnyk&Rohutska, 2022).

According to data from the Ternopil Regional State Administration, in 2020, 61% of vocational education graduates were employed in their field of specialisation, while 18% continued their studies at institutions of higher education (Sytnyk&Rohutska, 2022). As of 2023, over 60% of vocational education graduates were working in their trained profession, which indicates that most educational programmes meet the demands of the contemporary labour market despite the economic challenges posed by the war (Zabiiaka, 2024).

However, in information technology, the formal employment rate among graduates remains low, raising concerns and indicating the need for further research to identify the causes and potential solutions to this issue (Kravets, 2024). In recent years, curricula have been active in modernisation in line with labour market requirements. Introducing new specialisations, particularly in the IT sector and technical fields, has increased the competitiveness of graduates. Educational reforms have contributed to the growing share of graduates obtaining their first job through internships and dual education programmes (Urkia-Basterra et al., 2025).

Nonetheless, a complete assessment of the effectiveness of the implemented changes remains difficult, as most programmes are still at an intermediate stage of implementation, and additional research is required to evaluate their outcomes (Yershova, 2022). Research findings confirm that graduates who gained practical experience during their studies have significantly higher chances of employment (Table 2).

Table 2

Graduate Employment Rate Data

Graduate category	%
Have completed an internship during their studies and found a job in their field within six months of graduation	70%
Dual form of education applicants in the first months after graduation	80-90%
Technical and engineering specialities of the dual form of education	95%
Business and management fields	75-85%

Source: Authors’ development.

Between 2020 and 2025, there has been an ongoing transformation in the context of vocational education and training (VET) curricula, alongside introducing new forms of learning, particularly dual education, aimed at improving the quality of professional training. Dual education experienced significant development during the 2020–2021 academic year, being implemented in 217 vocational institutions across Ukraine. A high level of implementation was observed in institutions located in Khmelnytskyi (78.6%), Lviv (63.6%), Kirovohrad and Chernihiv (both 50%) regions, as well as in the city of Kyiv (75%) (Pryhodii, 2024).

The introduction of new national standards by the Ministry of Education and Science of Ukraine has expanded the potential of the modular competence-based approach, enabling the development of essential skills in learners that meet the demands of the labour market. In addition to specific vocational competencies, key skills such as stress resistance, problem-solving, leadership, communication, and

critical and creative thinking remain vital. These skills contribute to more extraordinary adaptability in dynamic work environments and support the building of successful career paths.

In 2021, a joint project between Ukraine and Estonia was completed, implemented across three regions and based in 16 vocational education institutions (Ministry, 2024). As a result of the project, new formats of teaching were introduced, and modern educational programmes were developed for ten occupations: agricultural machinery operator, electric and gas welder, plasterer, cook, hairdresser, carpenter, tailor, waiter, tiler, and wheel vehicle repair locksmith. Within the framework of the project, the Ukrainian side became acquainted with new approaches to managing vocational institutions under conditions of decentralisation, learned to work with modular programmes, conducted interactive sessions for students of various ages, and developed institutional development strategies.

Institutions across Ukraine are now using the newly developed programmes. These changes have also led to the regular organisation of thematic seminars, training sessions, and methodological conferences, enabling educators to rapidly access up-to-date information on teaching technologies and methods for developing professionally significant competencies. Creating new methodological materials supports the integration of practical tasks into the learning process, thereby ensuring students' access to relevant knowledge and skills.

The analysed statistical data indicate that the proposed reforms contribute to the professional development of graduates and enhance their adaptability to the contemporary demands of the labour market. Professional training has increased by 12–17% through the implementation of dual education. Moreover, 70% of employers report improved practical skills and work-readiness among graduates, positively affecting their competitiveness in the labour market (Pryhodii, 2024). Frequently, these graduates receive higher starting salaries than their peers who completed traditional forms of education. The difference in initial earnings may reach 10–20% during the first years of employment (Yershova, 2022).

In professional sectors where modern learning technologies are applied, graduate employment rates have risen by 15% compared to traditional teaching methods (Churakova&Zolotukhina, 2024). Graduates with a high level of digital competence are 40% more likely to obtain high-paying jobs (Sysoiev, 2024). As a result of mobilisation and population migration, shifts in the employment structure have been observed. Many women have begun working in positions traditionally held by men, such as truck drivers and heavy equipment operators (Sytnyk&Rohutska, 2022). Companies have been compelled to adapt to the new circumstances by training inexperienced employees and involving youth, students, and retirees in the workforce (Churakova&Zolotukhina, 2024). Therefore, adaptability has become essential for both employers and employees.

According to Eurostat data, statistical analysis of employment dynamics shows that graduates of programmes emphasising soft skills are 25% more likely to attain managerial positions within the first five years of their careers (Urkia-Basterra et al., 2025). Approximately 23% of graduates changed their field of employment due to low competitiveness or a lack of job opportunities; meanwhile, 68% of vocational education graduates found employment within the first year after completing their studies (Tsybuliak et al., 2025). Employers report improved preparedness among young specialists; however, 30% indicate the need for additional internships to adapt to real working conditions effectively (Fitzgerald et al., 2024).

The implementation of dual education and the modernisation of educational programmes have positively impacted employment outcomes, increasing graduates' chances of securing jobs in their field of specialisation. Nevertheless, a gap remains between labour market demands and the actual graduate preparation level, particularly in information technology and engineering (Urkia-Basterra et al., 2025).

Different categories of graduates assess the effectiveness of changes in the vocational education and training (VET) system in various ways, depending on factors such as the type of educational institution, field of specialisation, and region (Table 3).

Table 3

Data on the Level of Satisfaction of Graduates with the Results of Vocational Education Reforms

Graduate category	Evaluation of reforms	Advantages	Disadvantages
Graduates of state vocational schools	Insufficient level	Improvement of curricula and teaching methods	Problems with employment due to insufficient cooperation with enterprises
Graduates of private schools	Satisfactory level	Access to modern technologies and resources More opportunities for internships and employment through business connections	Not specified
Graduates in rapidly developing fields such as information or environmental technologies	Satisfactory level	New training programs in line with modern market requirements Most receive offers while still studying	Not specified
Graduates of traditional specialties such as construction or agriculture	Insufficient level	Improvement of curricula and teaching methods	Difficulties with employment due to instability, oversaturation of the labour market
Graduates from large cities (Kyiv, Lviv, Odesa)	Satisfactory level	More opportunities to find vacancies Opportunities to search in different fields, access to internships and practices in large companies	Not specified
Graduates from rural or remote regions	Insufficient level	Improvement of curricula and teaching methods	Limited employment opportunities, looking for work in other regions or abroad

Source: Authors' development.

An analysis of data concerning the professional development of graduates reveals that 52% of learners continue their education or pursue further qualifications after graduation to enhance their career prospects. The demand for upskilling and reskilling courses has increased, particularly among those graduates who could not secure employment in their field of specialisation. A high level of job satisfaction is observed among graduates in IT and technical disciplines—70–75% in the Kyiv region and 80% in the Lviv region. In contrast, lower levels of satisfaction (60–65%) are reported by graduates of other specialisations in the central and western regions of Ukraine (Radkevych, 2024a).

Among graduates who studied under updated educational programmes, 64% believe that the knowledge and skills they acquired align with the requirements of their current employment. The proportion of graduates from public institutions in positions relevant to their field of study ranges from 60% to 70%, with the overall employment rate within the first year after graduation reaching 65–75%. Job satisfaction among this group is reported to be 55–65%. For graduates from private institutions,

employment in their field of specialisation is slightly higher, at 65–80%, with an overall first-year employment rate of 70–86%, and job satisfaction reported by 65–75% of graduates (Pryhodii, 2024).

The obtained findings suggest that contemporary trends in education exert a positive influence on graduates' competitiveness. Digitalisation, developing soft skills, flexibility in educational programmes, and integrating employers into the learning process all contribute to improved employment outcomes. Modernising educational systems remains a key factor in developing the professional environment. There is a growing need to expand further support programmes for young specialists, including internships, mentoring initiatives, competitive remuneration schemes, and the creation of new career opportunities.

Many graduates express concerns regarding the future development of education and opportunities for continuing professional development. Assessing the impact of changes in the vocational education and training system depends on a number of variables that affect the experience of each graduate.

Discussion

The regulatory and scientific literature analysis indicates a significant professional interest in assessing the impact of changes in the vocational education (VET) system in Ukraine on the employment outcomes and professional development of graduates, especially in light of recent educational reforms. It has been demonstrated that introducing innovative teaching methods, curriculum revisions, and reforms has improved the employment opportunities of vocational education and training institutions (VET) graduates, especially in the information technology sector.

First, special attention was paid to the factors affecting employment. The study results show that technological progress has increased the need for workers in industries related to technical production and services. Cooperation between academic institutions and businesses is an essential element that guarantees successful employment. Adopting practices involving employer engagement in the educational process in Ukraine and other European countries enables the education system to respond to the current demands of the economy. Foreign companies invest in youth training, reducing the need for additional post-graduation courses. As a result, graduates can transition directly into employment. For instance, approximately 70% of graduates in Switzerland follow this path (Emmenegger et al., 2020).

In contrast, in Ukraine, there is currently limited willingness from the private sector to invest in youth training, which negatively affects employment rates compared to countries where such practices are widespread (Sysoiev, 2024). The innovative development of the national economy is directly dependent on the quality of the education system, the adequacy of professional training, and the efficiency of educational institution management. High productivity, in turn, contributes to increased well-being, boosts consumer demand, generates new societal needs, stimulates more excellent production, and further promotes employment growth (Shtunder, 2022). Graduate employment levels remain comparatively lower in certain Eastern European countries where reforms have been implemented more slowly (Zabiiaka, 2024).

Implementing dual education programmes strengthens the practical component of vocational training, contributes to the intellectualisation and individualisation of education, fosters the development of social partnerships within educational institutions, enhances the quality of training under real production conditions, and creates a favourable environment for introducing innovations. This leads to greater alignment between professional training and regional infrastructure needs. The dual education system's effectiveness has been demonstrated in Ukraine and internationally. In

Switzerland, 70% of young people acquire their education through internships and workplace-based learning (Zabiiaka, 2024).

The introduction of dual education significantly reduced youth unemployment in Germany (by 5-7%), confirming the importance of practical training (Emmenegger et al., 2020). The main difference is that in Ukraine, this system is still at the initial stage of its development, while in Germany and Switzerland, it has been operating for many years.

It has been proven that systematic changes in educational programs contribute to self-improvement and continuous development of vocational education. They help model education according to the requirements of the modern labour market, create an educational and production environment in institutions and focus the educational process on acquiring professionally significant and in-demand competencies.

Adequate socialisation of students and the formation of their professional identity are a consequence of the outlined changes. The experience of introducing a flexible modular system has shown its effectiveness in Finland, Estonia, and Ukraine. Such a system allows students to choose specialisations considering the labour market's needs, retrain faster if necessary, and adapt to constantly changing employment conditions (Sysoiev, 2024). Secondly, the new study has highlighted how important it is to study how graduates' ability to adapt to the demands of the modern labour market affects their professional development and indicates how effectively educational changes are working. It has been noted that updating curricula content to align with employer expectations, adopting a practice-oriented approach to education, and creating conditions for mastering modern technologies and methods contribute to developing highly skilled professionals (Sytnyk&Rohutska, 2022). Fostering motivation for personal development enhances learners' flexibility and readiness for change, as well as their skills in teamwork, stress resilience, time management, communication, responsibility, and independent decision-making. Learning quickly helps prevent professional burnout, facilitates adaptation, broadens the range of skills and competencies, and enhances competitiveness and value as an employee (Pryhodii et al., 2022). This, in turn, supports career progression and job satisfaction. Increased adaptability among graduates of vocational institutions has been observed through adherence to the principle of lifelong learning in the United States, state-supported retraining programmes in Sweden, and comprehensive digital integration across all educational levels with accessible learning materials and online courses in Estonia (Zabiiaka, 2023). In Ukraine, the digitalisation process is ongoing, yet a significant disparity persists between urban and rural educational institutions (Sysoiev, 2024).

Thirdly, considerable attention has been directed towards assessing graduates' satisfaction with changes in the vocational-technical education system, disaggregated by field of study, geographic location, and type of educational institution. It has been indicated that the highest levels of satisfaction are reported by college graduates, attributed to better material and technical resources, opportunities for further education, and employment prospects (Hrynkevych et al., 2023). A notable barrier remains the level of competition with graduates of higher education institutions. It has been observed that professionals in fields such as information technology, programming, automotive mechanics, transport, electrical installation, energy, and construction also report high satisfaction levels (Pryhodii, 2024). It was further clarified that graduates from large cities and IT hubs are most satisfied with implemented educational changes. In contrast, satisfaction levels are lower in areas of low socio-economic development and among graduates in humanities-related fields (Sergeieva, 2021). The experience of reforming educational programmes in Poland has contributed to narrowing the gap between labour market supply and demand, expanding the network of vocational education centres, and increasing graduate employment rates. In Switzerland and Germany, vocational education enjoys a high level of

prestige, whereas in Ukraine, society tends to favour higher education (Emmenegger et al., 2020). The consequences of the war have significantly impacted employment levels, leading to increased unemployment and a professional qualification imbalance. Military actions have destroyed or damaged vocational education facilities, complicating students' access to quality education and training (Yermakova et al., 2023). According to the findings, implementing changes in the vocational education system facilitates reduced unemployment rates, improved educational quality, and a more substantial alignment between education and labour market needs.

It is pertinent to outline several limitations of this study. The analysis was confined to data from 2020 to 2025, thus excluding consideration of long-term perspectives. Some employment data may be incomplete due to limitations in open-source information. The dynamic changes occurring within the vocational education system affect the study's relevance. Graduate employment levels and satisfaction with implemented changes are influenced by their education and the country's socio-economic conditions, state policy approaches, and labour market demand, which collectively complicate the evaluation of specific educational reforms. Given the study's limited scope, the results likely do not provide exhaustive insights into the nationwide situation.

Conclusions and Implications

A systematic analysis of the data has demonstrated that implementing reforms, revising curricula, and introducing new forms of instruction constitute essential components of the development of the modern vocational education and training (VET) system in Ukraine. These factors have also been identified as key determinants influencing graduates' employability and professional development. The study confirmed that introducing dual education enables students to acquire real-world industrial experience during their training, master contemporary technologies and production standards, and develop professional skills, thereby increasing their competitiveness in the labour market.

Drawing on the experience of European countries and involving employers in the revision of curricula has ensured their alignment with current labour market demands, expanded opportunities for practical training and internships, and significantly enhanced graduates' chances of successful employment. The extent to which changes in the VET system are perceived as effective regarding employment outcomes, and professional growth varies depending on the chosen speciality, place of residence, and type of educational institution. The research revealed that students in the field of information technology, particularly those from large urban areas who studied at private institutions or state colleges, reported greater satisfaction with the reforms introduced.

It was found that improvements in the material and technical infrastructure of educational institutions, training in digital skills, and an emphasis on new technologies have substantially contributed to students' professional development — both in terms of career advancement and in facilitating graduates' adaptation to the demands of the modern labour market. The renewed VET system offers the possibility of rapid retraining and continuous professional development through short-term courses and retraining programmes, modular educational programmes that allow for step-by-step qualification acquisition, and the mastering of job-relevant knowledge, skills, and competencies. Consequently, graduates can work within their initial field of qualification and are also equipped to transition between professions in response to evolving market needs.

At the same time, the study identified several obstacles to implementing qualitative changes in education. These include the critical need for the training and upskilling of teaching staff, the necessity of ongoing monitoring of the alignment between graduates' qualifications and employers' expectations, the need to raise the social prestige of vocational education among the Ukrainian population, and the insufficient willingness of the private sector to invest in youth training. Improving the vocational

education system in Ukraine, despite the outlined difficulties, remains an important and urgent need, as it reveals new ways to improve the entire educational system.

Suggestions for Future Research

The study's results emphasise the need to study the relationship between changes in the vocational education system in Ukraine and their impact on graduates' employment, formation and professional development. Research attention should be focused on such aspects as systematic monitoring of the career path of vocational education graduates of various specialities, determining the dynamics of correspondence between the level of acquired knowledge, skills, abilities and job responsibilities, and identifying the state of employer satisfaction.

Special attention is needed to study the impact of decentralisation on the development of vocational education in Ukraine. It is worth focusing on identifying the influence of decentralisation reforms on the management and financing of vocational education institutions and the quality of education in each region. Future research should also focus on a detailed and in-depth comparative analysis of the effectiveness of the implementation of vocational education reforms in Ukraine with similar reforms in other countries, which would contribute to improving the national system.

Additional research is needed to identify priority areas for the development of vocational education and forecast the needs of the labour market in the post-war period, given the challenges Ukrainian citizens face. Attention should also be paid to assessing the quality of teacher training. Further research is needed on the accessibility of vocational education for all social groups and the development of inclusive, adapted programs for people with disabilities.

Considering technological advancements, future research should explore the ethical use of artificial intelligence for personalised learning and evaluate the effectiveness of online platforms and digital tools in vocational education and training.

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