

fields. As a result, the program fosters continuous educational and career development, facilitating either entry into the labor market or further academic progression.

In addition, the introduction of this new dual education model allows participating companies to engage promising professionals with higher education qualifications at an early stage. These individuals not only acquire essential professional competences within the dual training framework but also gain practical skills tailored to the internal processes of the company. This enables businesses to develop engineering personnel in alignment with their own needs, reducing dependency on the external labor market and enhancing cost-efficiency.

Key words: *dual education, vocational training, vocational education and training, higher education, dual study program, European Union countries.*

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ORGANIZATIONAL MILESTONES IN THE FORMATION OF PROFESSIONAL COMPETENCE OF FUTURE ECONOMISTS IN PROFESSIONAL ECONOMIC COLLEGES

The study aims to analyze the methodological foundations and experimental results of forming professional competence of future economists in the educational environment of professional economic colleges. The methodology included the use of interactive, practice-oriented, content-based, individual, and digital technology-supported approaches, implemented during classroom and industrial training. Experimental work involved dividing students into control and experimental groups, ensuring the comparability of results, and applying the author's developed methodology for forming professional competence in the experimental group, while traditional training methods were used in the control group.

The scientific novelty lies in emphasizing the pedagogical possibilities of an innovative educational environment for professional competence formation, including the implementation of interdisciplinary situational tasks, role-playing games, digital visualization, dual training, and quasi-professional educational activities. The developed methodology contributed to enhancing professional motivation, systematic and fundamental knowledge acquisition, practical skills development, and economic literacy. The effectiveness of the proposed approach was confirmed through statistical analysis of experimental data, revealing significant differences in the level of formation of professional competence between experimental and control groups.

Conclusion. *The results of the study confirm that the implementation of the structural-functional model and pedagogical conditions based on an innovative educational environment positively influences the formation of professional competence of future economists. The methodology promotes integrative, interdisciplinary, and practice-oriented learning, contributing to the preparation of specialists capable of effectively performing professional functions in the context of modern socio-economic transformations and digital economy requirements.*

Key words: *professional competence, future economists, professional training, theoretical foundations, professional economic colleges, experiment.*

Problem statement. The process of training future economists in professional colleges is a pedagogical strategy for the formation of various aspects of the professional competence of specialists in the specified field. Currently, the competence approach to the formation of professional competence is gaining particular popularity, which involves the learner mastering competences in foreign language communication, digital skills, and a number of others, which are generally combined into groups of «hard» and «soft» skills.

The first group includes, in fact, professional narrow-profile competence within the limits determined by the relevant qualification requirements for studying in professional colleges. The «soft» skills include innovative time requirements – critical thinking and creativity, digital competence, cross-cultural and communication skills, adaptability and flexibility.

In view of the above, the definition of professional competence of future economists studying at professional economic colleges currently has an extended meaning as a complex integrative characteristic. The professional competence of modern economists is a system of abilities, skills and knowledge, personal values and qualities that synergistically determine the ability to effectively implement professional functionality.

The analysis of the latest research and publications emphasizes that in the conditions of a change in the education paradigm, approaches to professional training of future economists are being transformed (Novikova, Antonyuk, Lyashenko, Azmuk, Ostafiychuk, Shamileva, LPankova, Novak, Shastun & Kasperovych, 2021). In particular, O. Horytska showed interest in the issues of training future economists to automate accounting at enterprises (Horytska, 2018). In order to identify potentially effective didactic ways of updating the process of professional training of future economists in Ukraine, scientists carry out a comparative analysis of the domestic education system and, for example, the German one (G. Dzyuba (Dzyuba, 2015)); Polish (A. Zagorodnya (Zavhorodnya, 2020)); English (A. Naidyonova (Naidyonova, 2014)).

On the other hand, a significant cohort of researchers emphasize the feasibility of using modern digital technologies in the educational process. For example, Yu. Dyulicheva emphasizes the advantages of cloud technologies in the professional training of future economists (Dyulicheva, 2014). While L. Maksimova specified the principles of ensuring the quality of professional training of future economists by means of information and

communication technologies (Maksimova, 2014). In the works of V. Osadchiy analyzed the experience of using information and communication technologies in the professional training of future economists in Ukraine (Osadchiy, 2018). The importance of the introduction of gamification in technical disciplines in higher educational institutions is emphasized by N. Sashnyova (Sashnyova, 200), O. Zhernovnikova, L. Peretyaga, A. Kovtun, M. Korduban, O. Nalyvaiko, N. Nalyvaiko (Zhernovnikova, Peretyaga, Kovtun, Korduban, Nalyvaiko & Nalyvaiko, 2020) and others. At the same time, the issue of specifying the organizational foundations of the formation of professional competence of future economists in professional economic colleges was not properly reflected in modern scientific literature.

The purpose of the article it consists in the analysis of the key stages of the experimental study of the formation of professional competence of future specialists of the economic profile in the educational environment of professional economic colleges.

Presentation of the main material. Pedagogical science in the XXI century, is developing as a dynamic relationship between theoretical and empirical knowledge. In this vein, the pedagogical experiment is interpreted as a scientific experience that transforms various aspects of pedagogical reality. The boundaries of our research outline the process of forming the professional competence of future specialists in the economic profile in the educational environment of professional economic colleges with this aspect.

The complexity of studying this process is confirmed by the fact that pedagogical phenomena are ambiguous in their course and unique. The key goal of any pedagogical experiment is to prove the effectiveness of the proposed changes based on the tracking of the connection in the dynamics of qualitative change (formation or development) of the selected phenomenon/phenomenon.

They took into account the fact that pedagogical research, organized with the help of an experiment, is aimed at the implementation of two key goals:

definition, identification of new relationships, relationships, data in the process under study, which make it possible to answer a number of unresolved questions and resolve the contradictions identified;

verification and confirmation of certain facts or theoretical provisions (verification of – data is a canonical condition for the reliability and scientific validity of the results of a pedagogical experiment).

Taking into account these orientations, it was believed that pedagogical research is characterized by purposefulness, systematicity, interconnection of all elements, procedures and methods, is based on the developed theory, is built within the framework of author's logical-constructive schemes, the elements of which can be clearly interpreted and used in scientific and practical activities to further improve the selected fragment of pedagogical reality. They also took into account the opinion that pedagogical research, which concerns the problems of training future economists for professional activity, should be based on facts that involve empirical verification.

Based on taking into account the opinions of researchers about the methodology and methodology of the pedagogical experiment, it was decided to single out four stages of its implementation within the framework of our research. The milestones in question are:

theoretical and search stage (2021-2022);

inspection and ascertaining stage (consisted of two sub-stages of – diagnostic section (end of 2021-2022) and ascertaining section (beginning of 2022-2023));

formative and technological stage (2022-2024);

analytical and generalizing stage (2024-2025).

The separation and design of the content and organizational content of each stage of the pedagogical experiment within the framework of the study appealed to the generally accepted requirements in pedagogical science regarding the stages of experimental planning, namely:

- collection and analysis of up-to-date information on the object and subject under study;
- selection of input and output variables, experimentation limits;
- selection of mathematical and statistical methods by which the proposed experimental influences will be tested;
- drawing up a detailed plan-program of the experiment and choosing criteria for the optimality of its implementation;
- comprehensive analysis of the existing state of the studied phenomenon and determination of a set of methods of scientific knowledge;
- conducting the experiment without delay;
- verification of the validity of static prerequisites for the obtained experimental data;
- processing of the results obtained;

– interpretation of the obtained data and development of recommendations for extrapolation of the obtained results.

Let's consider in more detail the essence and features of the organization of each stage of experimental work. During the theoretical and research stage (2021-2022), a comprehensive analysis of the scientific literature was carried out, which concerns current visions of the development of economic activity, the implementation of business agreements in the world of economics 4.0; transformations of requirements for the personal qualities of future economists, challenges posed by socio-economic transformations to specialists in economics in the field of professional tasks; the latest directions of fundamentalization of economic education in the world educational space. Such actions were aimed at achieving the key goal of the – stage, specifying the main promising approaches to improving the educational process in professional economic colleges in order to form the professional competence of future economists. During this stage of research, the possibilities of the following methods of learning scientific-pedagogical and socio-economic reality were actively used: analysis, synthesis, generalization, summarization, systematization, comparison, hypothetical modeling, etc.

The review and construction stage of the study aimed to reveal the state of formation of professional competence of future economists who have already completed their studies at professional economic colleges and was aimed at ensuring equal conditions for the entry into the experiment of students who became its participants. Therefore, conditionally, this stage was divided into two sub-stages – diagnostic and ascertaining – for the convenience of interpreting its organizational and content-practical characteristics.

The diagnostic stage of the study provided for the identification of the current state of formation of professional competence of future economists who acquire the specialty 051 Economics in professional economic colleges. Students of the last years of study (future economists who completed their studies at professional economic colleges in 2022) were involved in the diagnostic sections in order to be able to identify the state of readiness of future economists to perform professional functions on the labor market when solving typical economic tasks. The participants in the diagnostic activities were students from five professional economic colleges. Professional economic colleges operating territorially distant from each other were chosen for the study. This geography of the study is

determined by the need to prove the need to improve the process of professional training of professional economist students.

The final stage of the research was carried out at the beginning of the 2022-2023 academic year with students of professional economic colleges who started their studies in the second year. During this milestone of the pedagogical experiment, a package of diagnostic methods was used to establish the state of formation of components and the professional competence of future economists in general, which was systematized at the diagnostic stage. Carrying out ascertaining sections made it possible to confirm the equality of entry of EG and KG participants into the experiment. After all, the results of questionnaires, testing and pedagogical observation proved almost the same quantitative expressions of the state of formation of professional competence in EG and KG students.

The analysis of the obtained results makes it possible to conclude that at the beginning of the experiment, students of control and experimental groups are at almost the same level of formation of professional competence. The homogeneity of the studied sample of students of professional economic colleges made it possible to form control (hereinafter – KG) and experimental (hereinafter – EG) groups, the representatives of which did not reliably differ from each other in the state of formation of the studied indicators of professional competence of future economists. The homogeneity of these groups was determined by the fact that in them:

- classroom and production training sessions were conducted according to the same curriculum;
- the time allotted for studying each topic was the same;
- under the same conditions, control was carried out over the change in the levels of formation of the studied phenomenon. The difference was that training in the control group was carried out according to the traditional method, and in the experimental group – by applying the developed author's method of forming the professional competence of future economists in professional economic colleges.

The purpose of the formative and technological stage of the pedagogical experiment was to test and check the effectiveness of pedagogical conditions and the structural and functional model of the innovative educational environment for the formation of professional competence of future economists in professional economic colleges. The proposed author's interventions are integrated into the methodology of

forming the professional competence of future economists in professional economic colleges, which was implemented during classroom and industrial training of students majoring in 051 Economics in professional economic colleges.

The formative and technological stage of the experiment was carried out in the natural conditions of the educational process of professional economic colleges in compliance with the basic conditions of participation of EG and KG students in the experiment: a single work curriculum, the same measuring materials for diagnosing the level of formation of professional competence. In general, in the third stage of the experiment, students who started studying in the II years in the field of training 051 Economics, who are majoring in professional economic colleges, took part. The formation of professional competence among EG students (a total of 81 students) was carried out in the conditions of the implementation of the author's methodology for classroom (during the study of courses «Accounting», «Enterprise Economics», «Financial Accounting», «Planning and organization of enterprise activities») and production (within dual training and various types of practices) classes. Education of KG students (80 students in total) was carried out using traditional methods of professional training in professional economic colleges.

The method of forming the professional competence of future economists in professional economic colleges was based on the main regularities that were taken into account when organizing the announced process, namely:

- conditioning of the process of formation of professional competence of future economists by socio-economic transformations and reform of the system of pre-higher professional education;
- dependence of the mentioned process on the specifics of future professional activity and the requirements of society and stakeholders for specialists in economics;
- conditioning of the effectiveness of the formation of professional competence of future economists by the implementation of the proposed pedagogical conditions and opportunities of professional economic colleges.

The main advantages of such a mutually complementary innovative educational environment in professional economic colleges turned out to be a high level of variability, flexibility of educational innovations, which made it possible to adapt the environment to individual needs and opportunities,

interes and aspirations of future economists. Digital platforms and applications opened up wide opportunities for visualization of educational information in the structure of the methodology for forming the professional competence of future economists in professional economic colleges. That is, they sought to ensure the activation of all channels of information perception, to achieve exceptional practice-orientation, to adhere to the ideas of content-oriented and individual approaches, to create an atmosphere of contextuality and quasi-professionalism of educational classes, to achieve integrativeness and interdisciplinarity in the educational process. The outlined principles specified the functional properties of the developed structural-functional model of the formation of professional competence of future economists in professional economic colleges, made it possible to change its structural, substantive and educational-methodical composition, were the basis of the developed methodology and were characterized by the following features:

- openness, which consists in unlimited possibilities of integrating new information about the specifics of the professional activity of future economists in the era of economy 4.0 and based on the use of digital technologies and open sources of the Internet;

- flexibility expressed in the possibilities to adapt the proposed elements of the environment to the implementation of the various educational functions;

- variability, which consists in the ability of the innovative educational environment to provide the opportunity to choose the structure and content of educational, quasi-professional and professional-production activities with a variable selection of forms, methods of education, etc.;

- integrity, characterized by the interconnection and interdependence of the components; the systemicity and interdisciplinarity of the educational and methodological materials developed;

- visibility, which is expressed in the demonstration of the essence of economic phenomena and processes by means of dual training, digital software products, etc.;

- multifunctionality, which consists in actualizing the cognitive, meta-subject and personal resources of future economists;

- interactivity, characterized by a variety of interactive methods that were used to organize educational activities of students, etc.

The outlined methodical initiatives were implemented throughout the formative and technological stage of the research and were aimed at

the formation of components of professional competence of future economists by using the pedagogical capabilities of professional economic colleges and implementing the pedagogical conditions of the research encoded in the structural and functional model of the innovative educational environment.

The fourth stage – analytical-generalizing (2024-2025) – of scientific intelligence provided for proving the effectiveness of the proposed methodology by applying the methods of mathematical statistics and comparing the state of formation of components and, in general, the professional competence of future economists at the beginning at the end of the formation and technological stage of the research.

Conclusions and prospects for further exploration of this issue. The pedagogical experiment in the context of the study covered four stages: theoretical and search stage (2021-2022); review and ascertaining stage (consisted of two sub-stages – of the diagnostic section (end of 2021-2022) and ascertaining section (beginning of 2022-2023)); forming and technological stage (2022-2024); analytical and generalizing stage (2024-2025). During the theoretical and research stage of the research (2021-2022), theoretical, methodological, methodical and scientific sources were holistically analyzed in order to establish the degree of scientific development of the problem of forming the professional competence of future economists in professional economic colleges; the key directions of innovating the training of specialists in economics in the world and domestic spaces of professional preliminary economic education are singled out; the key orientations of the research (purpose, object, subject, the task of research, etc.) and its conceptual field. The review and construction stage of the study aimed to reveal the state of formation of professional competence of future economists who have already completed their studies at professional economic colleges and was aimed at ensuring equal conditions for the entry into the experiment of students who became its participants. Therefore, this stage was conditionally divided into two sub-stages for the convenience of interpreting its organizational and substantive-practical characteristics. The diagnostic stage of the study provided for the identification of the current state of formation of professional competence of future economists who acquire the specialty 051 Economics in professional economic colleges. Students of the last years of study (MEs, who completed their studies at professional economic colleges in 2022) were involved in the diagnostic

sections. The final stage of the research was carried out at the beginning of the 2022-2023 academic year with students of professional economic colleges who started their studies in the second year. Carrying out ascertaining sections made it possible to confirm the equality of entry of EG and KG participants into the experiment.

The formative and technological stage provided for the introduction into the educational process of professional economic colleges of the author's methodology for the formation of professional competence of future economists, which appealed to the improvement of classroom (lecture, practical, laboratory classes) and extracurricular (industrial training, self-educational activity) training of students by activating all channels of information perception, achieving exceptional practical orientation, implementing ideas of content-oriented and individual approaches, creating an atmosphere of contextual and quasi-professional educational classes, integrativeness and interdisciplinarity in the educational process.

The content of the analytical and generalizing stage of the research consisted in proving the effectiveness of the proposed pedagogical conditions and the structural and functional model of the innovative pedagogical environment, which became the basis for the development of the methodology for forming the professional competence of future economists in professional economic colleges. The use of methods of metametic statistics confirmed the expediency of its implementation in order to increase the level of formation of the studied competence. Therefore, it was proved that it is advisable to implement the proposed interdisciplinary situational tasks, role-playing games, and training exercises in the process of training future economists in professional economic colleges in order to ensure professional motivation, systematization and fundamentalization of professional knowledge of applicants, development of special skills and mathematical and economic literacy.

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АНОТАЦІЯ

Ткаченко Павло. Організаційні віхи формування професійної компетентності майбутніх економістів у фахових економічних коледжах.

У статті досліджується процес формування професійної компетентності майбутніх економістів у професійних економічних коледжах з урахуванням сучасних вимог до спеціалістів економічного профілю в умовах трансформацій економіки та освіти. Розглядаються етапи педагогічного експерименту, що включали теоретико-пошуковий аналіз, діагностування та уточнення рівня сформованості професійної компетентності студентів, апробацію авторської методики навчання та аналітико-узагальнюючу оцінку її ефективності. В експерименті брали участь студенти контрольної та експериментальної груп із різних фахових економічних коледжів, що дозволило забезпечити порівнянність результатів. Методика передбачала інтеграцію інтерактивних та практико-орієнтованих завдань, рольових ігор, цифрових платформ і симуляційних елементів у навчальний процес фахових економічних коледжів. Дослідження підтвердило, що запропоновані педагогічні умови та структурно-функціональна модель, на основі яких було розроблено методику дослідження, сприяють підвищенню мотивації, формуванню системних професійних знань, розвитку практичних умінь і економічної грамотності майбутніх економістів у фахових економічних коледжах.

Ключові слова: професійна компетентність, майбутні економісти, професійна підготовка, теоретичні засади, фахові економічні коледжі, експеримент.