USING DISTANCE LEARNING TECHNOLOGIES FOR TRAINING FUTURE TEACHERS OF PROFESSIONAL TECHNICAL COURSES AT THE UNIVERSITIES OF THE REPUBLIC OF POLAND AND UKRAINE

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Abstract.

The relevance of the study is determined by the need of Ukrainian society to study and use the positive experience of distance learning in the training of teachers for the vocational education system in the Republic of Poland.

Aim: to identify the priorities of the European Union policy in the field of education informatization in the context of the implementation of the program 'Education and Training 2020'; to analyze the peculiarities of the application of distance learning in Polish higher education; to develop recommendations for using its experience to modernize the Ukrainian education system.

Methods: analysis of the legal framework for informatization of higher and basic secondary education in the Republic of Poland – to clarify the state of research on the problem of professional training of future teachers of vocational subjects in universities of the Republic of Poland; questionnaire of students – to identify the attitude of students of higher education institutions of Ukraine and Poland to the use of distance learning in their training.

Results: the European strategy of education informatization is characterized, the normative-legal base of informatization of higher and basic secondary education in the Republic of Poland is analyzed, the Polish experience of standardization of digital competence of future teachers of vocational subjects and development of their readiness to use distance learning technologies is considered; a comparative analysis of the survey results among Polish and Ukrainian students on their attitude to the use of distance learning technologies in training the future teachers for vocational education institutions is presented.

Conclusions: The study has identified the following priorities of the European Union policy in the field of education informatization in the context of the program 'Education and Training 2020': the formation of readiness of teachers to education informatization and standardization of their digital competence; use of digital technologies in the educational process; creation of distance learning courses for teachers; technological effectiveness and internationalization of European higher education; development of online in-service training programs for teachers in certain disciplines. The peculiarities of the application of distance learning technologies in Polish higher education, in particular, during the coronavirus pandemic, are analyzed. Recommendations for the use of Polish experience in the use of distance learning technologies in the training of future teachers of vocational subjects for the modernization of the Ukrainian education system have been developed.

Keywords: *higher education of the Republic of Poland and Ukraine, vocational education, future teachers of vocational subjects, distance learning technologies.*

Introduction. Modern Ukraine seeks integration into the EU not only in economic, political, but also in educational aspects, which, in our opinion, can be done by modernizing the content of higher education, restructuring its system as a priority condition for forming a new society, introduction of new technologies into an educational process, in particular, information and technical ones, and improvement of the learning process based on the use of the latest scientific approaches.

The agenda of Ukraine in the field of development and introduction of information and communication technologies or ICT in Ukrainian education is due to the new tasks and opportunities of these technologies to maximize the preparation of young people for life and activity in the modern world. The innovative potential of ICT cannot be overestimated, as they provide at least three functions: computer literacy, individualization and intensification of the educational process, as well as a new type of educational activity – e-learning.

The successful solution of problems of education informatization in Ukraine, in particular, vocational and higher ones, is considered in the context of realization of the European choice of our country, integration of its educational system into the European educational space. In our opinion, the biggest need of Ukrainian education in foreign experience requires an analysis of strategic guidelines for education informatization in EU countries, defined in the comprehensive strategy of its development 'Europe 2020' (Education and Training in Europe 2020: Responses from the EU Member States. Eurydice Report, 2013) and in flagship initiatives for its implementation, in particular, such as the 'Digital Agenda for Europe' etc.

Sources. The theoretical analysis of the studied problem has been carried out on the basis of scientific works of Polish scientists who studied the problems and achievements of distance education in the Republic of Poland (K. Chmelewski, M. Andrzejewska, M. Machinko-Nagrabecka, F. Zeńkowski, G. Karwasz etc.). Their works are an important source of information for comparative analysis, in order to justify the use of valuable ideas of the Polish experience of distance learning in Ukraine.

The scientific achievements of such Ukrainian scientists as: V. Bykov, V. Kukharenko, N. Morze and others, who studied the development of distance learning in Ukraine, have been also analyzed for comparative analysis. Analysis of foreign experience in distance learning is explored in the scientific studies of such Ukrainian scientists as: M. Leshchenko, O. Ovcharuk, I. Androshchuk, Ye. Gromov and others.

The article aims to get acquainted with the priorities of the European Union policy in the field of education informatization in the context of the program 'Education and Training 2020', as well as to consider the main features of distance learning in Polish higher education and use its experience to modernize Ukrainian system of education.

Methods: theoretical – analysis of scientific literature, analogy, structural, system-structural analysis, formulation of research tasks; bibliographic method of studying sources on the research problem – to clarify the state of research of the problem of professional training of future teachers of vocational subjects in the universities of the Republic of Poland; empirical: diagnostic (interview, questionnaire of students of higher education institutions of Ukraine and the Republic of Poland) – to empirically test the hypothesis about the effectiveness of professional training of future teachers of vocational subjects in universities of the Republic of Poland; comparative: translation of authentic literature, comparative analysis.

Results and discussion. Recently, distance learning has been actively used in the educational system of the Republic of Poland. Modern Polish legislation states that distance learning is a component of innovative learning technologies used in Polish higher education institutions. This is stated, in particular, in art. 164, §3 of the Higher Education Act (Prawo o szkolnictwie wyższym, Ustawa z dnia 27 lipca 2005), which states that student learning can be carried out 'using distance learning technologies'.

On 25th of September, 2007 The Resolution of the Minister of Science and Higher Education of the Republic of Poland sets out the conditions to be provided for lessons using distance learning technologies, namely: a higher education institution or HEI must provide the direct and indirect interaction of students and teacher; HEI should provide the student with the opportunity to personally consult with the teacher in the premises of the educational institution; distance learning allows the predominance of distance learning over the traditional one; the HEI should ensure continuous monitoring and verification of students' progress in education, including examinations on the premises of the educational institution; HEI should also prepare a series of training courses for students who participate in activities with the use of distance learning technologies (Rozporządzenie Ministra Nauki i Szkolnictwa Wyższego z dnia 25 września 2007 r. w sprawie warunków, jakie muszą być spełnione).

The latest resolution of the Minister of Science and Higher Education of the Republic of Poland of November 2, 2011 stipulates that the share of distance learning in the HEI may not exceed 60% of the total time specified in the curriculum. At the same time, the Minister said that laboratory studies, independent studies and workshops, that focused on practical skills, should be with the direct

participation of teachers (real conditions) (Rozporządzenie Ministra Nauki i Szkolnictwa Wyższego z dnia 2 listopada 2011 r. zmieniające rozporządzenie w sprawie warunków, jakie muszą być spełnione, aby zajęcia dydaktyczne na studiach mogły być prowadzone z wykorzystaniem metod i technik kształcenia na odległość).

In turn, distance learning has recently become popular due to the epidemiological situation that occurred in the first half of 2020 due to the worldwide spread of the coronavirus pandemic. Therefore, on March 2, 2020, the Sejm of the Republic of Poland adopted the Act 'On Specific Decisions Related to the Prevention, Prophylactic measures and Control of COVID-19, Other Infectious Diseases and Crisis Situations Caused by Them', which amended the article 51a of the Higher Education Act, which states that: 'in cases justified by extraordinary circumstances threatening the life or health of members of the university community, the Minister or the Commissioner for Higher Education and Science, through regulations, may temporarily limit or temporarily suspend the operation of the university within the country or part of it, taking into account the degree of danger in the region, due to which students were actually forced to study at home (remotely) (Ustawa z dnia 2 marca 2020 r. o szczególnych rozwiązaniach związanych z zapobieganiem, przeciwdziałaniem i zwalczaniem COVID-19, innych chorób zakaźnych oraz wywołanych nimi sytuacji kryzysowych).

Specialized e-learning (distance) centers in technical universities play a special role in the development of distance education and training and, in particular, its introduction into the higher education system of the Republic of Poland. Some of them train future teachers of vocational subjects with the use of such distance learning technologies as: e-Learning Center of the Silesian University of Technology, Center for Continuing Education and Training of the Kielce University of Technology, Center of Informal Education of Gdańsk University of Technology, e-Learning Center of Jagiellonian University, Virtual University of the Institute of Vocational Education and Training in Warsaw, e- Learning Center of the Warsaw University of Technology, e-Learning Center of the AGH University of Science and Technology in Krakow, the Higher School of Vocational Training in Przemyśl and the e-Learning Center of the Pawel Wlodkowic University College in Plock.

The most famous universities in Ukraine, which train future teachers of technical disciplines with the use of distance learning technologies are:

Laboratory of Distance Learning of Sumy State University, Center for Distance Learning of Vinnytsia M. Kotsiubynskyi State Pedagogical University, Regional Scientific and Methodological Center for Distance Learning NAES of Ukraine of O. Honchar Dnipro National University, P. Tychyna Uman State Pedagogical University and the training center for distance learning of Khmelnytskyi National University. According to the ranking of countries in the world by the level of development of information and communication technologies, which are structurally related to distance learning technologies (index of information and communication technologies in the world or ICT Development Index), our country ranks 79th among 176 countries as of 2017 (ICT Development Index 2017. World ranking).

The experience of Central European countries, in particular, the Republic of Poland, which ranks much higher than 49th in this ranking, can be quite useful for Ukraine. Poland demonstrates a positive example of European integration, because, at the legislative level, it is engaged in the development of the information society, in particular the spread of ICT in education.

To find out the attitude of students of pedagogical and technical faculties of five Polish and six Ukrainian higher education institutions to the use of distance learning technologies in their training in November 2019 – February 2020, we have made a survey among students of higher education institutions of the Republic of Poland (Pawel Wlodkowic University College in Plock, Cracow University of Economics, Pedagogical University of Cracow, Tadeusz Kościuszko University of Technology and University of Rzeszów) and Ukraine (National Technical University of Ukraine 'Igor Sikorsky Kyiv Polytechnic Institute' (NTUU KPI), National University of Life and Environmental Sciences of Ukraine, Dnipro Polytechnic National Technical University, Kremenchuk Mykhailo Ostrohradskyi National University, Ivano-Frankivsk National Technical University of Oil and Gas and The National Pedagogical Dragomanov University). Each of the above educational institutions has its own distance learning courses, which are used in the educational process, in particular, among part-time students.

468 students of Polish higher education institutions and 347 students of domestic universities took part in the survey. All respondents were asked several questions with answer options. In some of the questions it was possible to choose several options at once, in others – only one, but there were also questions where it was necessary to estimate

this or that criterion on a scale from 1 to 10 points, where 1 – I do not agree at all (absolutely negatively), 10 – I completely agree (quite positively).

Students of Polish and Ukrainian higher education institutions gave similar answers to a number of questions. For example, the overwhelming majority of students of HEIs from both countries answered that they used only distance online courses (Polish students – 376 respondents (80% of the total number of respondents), Ukrainian students – 273 (79%). Most of the surveyed Polish and Ukrainian students also recognize the importance of use of distance learning in modern higher education (students of Polish higher education institutions – 135 (29%), students of Ukrainian higher education institutions – 138 (40%). In addition, they agree that distance learning is important not only for part-time education, but also for full-time education (students of Polish higher education institutions – 126 (27 %), students of Ukrainian higher education institution – 127 (37%). Students also unanimously recognize the blended learning to be the best form of organization of the educational process (students of Polish higher education institutions – 125 (27%), students of Ukrainian higher education institutions – 134 (39%). In addition, 18% of students Polish higher education institutions and 19% of Ukrainian ones admit that educational resources posted on the online platforms of their educational institutions influence the interest of young students in learning.

At the same time, students of Ukrainian and Polish higher education institutions gave somewhat different answers to other questions. For example, the majority of students of Polish higher education institutions (144, or 31%) chose 10 out of 10 points to the question 'How much do you think it helps to acquire the necessary knowledge and facilitate access to them using distance learning in your institution?'. At the same time, the majority of students of Ukrainian HEIs (65, or 19%) gave a score of 8. To the question 'Do the educational resources posted on the online platform of your university influence your interest in learning?' the majority of students of Polish HEIs (84 or 18%) gave a grade of 8 and 10,

while students of Ukrainian universities – 8 (66 or 19%). To the question 'How do you assess the organization of e-learning and the development of appropriate online learning platforms in your HEIs?' the majority of students of Polish HEIs (102 or 22%) gave a grade of 8, while Ukrainian students gave a grade of 7 (54 or 16%). Assessing the organization of distance learning and the development of appropriate online learning platforms in their educational institutions, Ukrainian students gave a more positive assessment of the process of its organization (Fig. 1) (131 or 38%), than the Polish students (131 or 28%). This may be due to the greater experience of the distance learning system in Poland and the more familiar and, consequently, the more critical attitude of Polish students towards it.

It has also been found that students of Ukrainian universities prefer mainly online lessons, where they demonstrate photo and video materials (221 respondents), and students of Polish universities – theoretical online lessons (279). The effectiveness of distance learning, according to most students of Polish HEIs, depends (Fig. 2) on: the quality of the materials used, in particular, teaching materials, manuals, etc. (309); student motivation (282); skills of teachers, tutors who participate in the educational process (263).

At the same time, the students of Ukrainian universities put the motivation of the student (224) and the skill of teachers, tutors who participate in the educational process (220) (in the first place), and indicate the quality of used materials (206) only in the third place.

Finally, when asked to determine the importance of the characteristics of distance learning by students of Polish universities, the following ones were noted in the vast majority: flexibility (422 respondents), time savings (338), modularity (137) and positive impact on the student (121). The following properties were noted by students of Ukrainian universities: flexibility (280), technological effectiveness (202), positive influence on pupil / student (144) and parallelism (141).
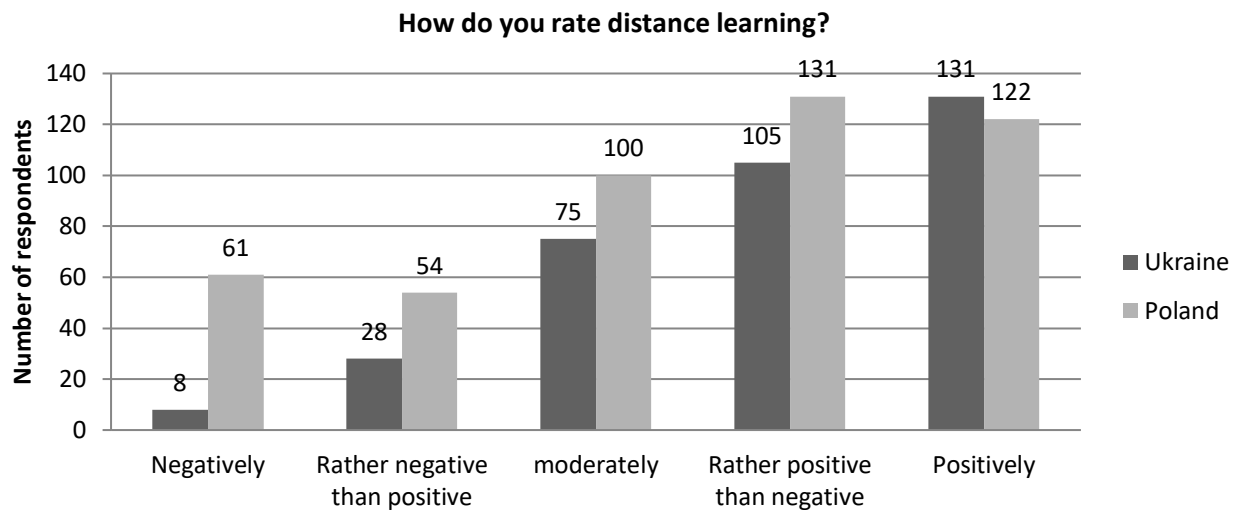
How do you rate distance learning?

Fig. 1. Assessment of distance learning by students of Ukrainian and Polish higher education institutions

What do you think about the effectiveness of distance learning depends on?
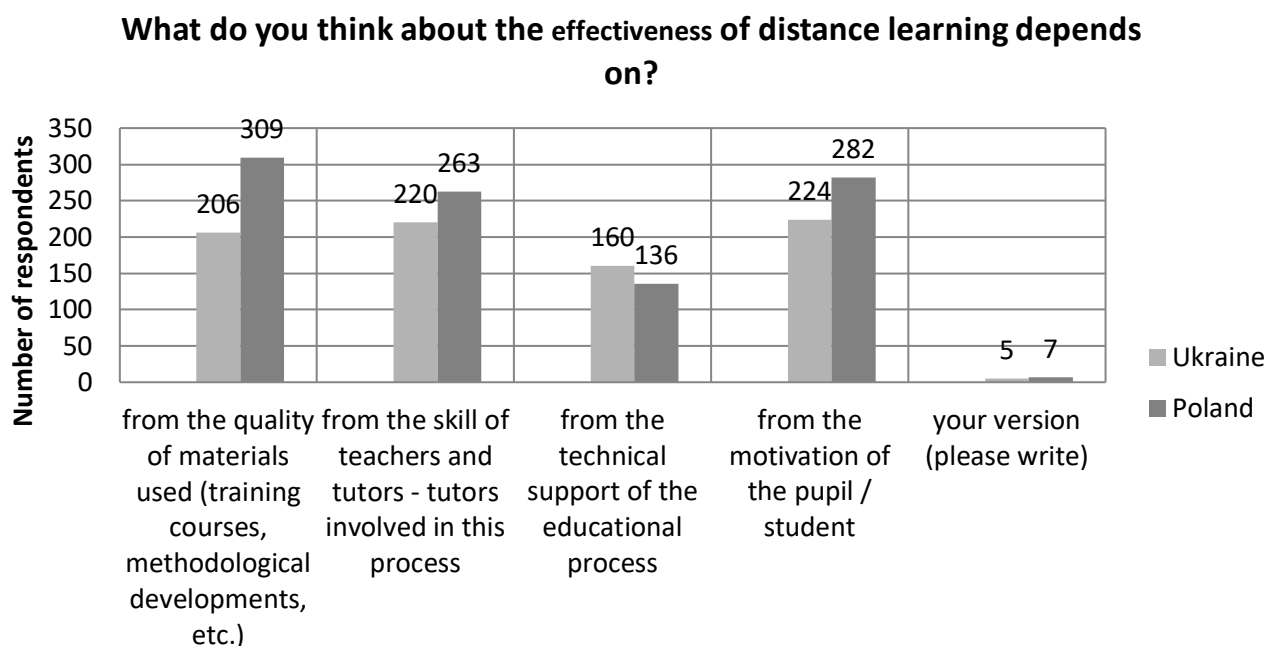

Fig. 2. Opinion of students of Ukrainian and Polish higher education institutions about the effectiveness of distance learning

Despite the positive qualities of distance education, as well as any other form of education, it has certain shortcomings, in particular – difficult identification of distance learning students, because at the current stage of technology development it can be difficult to check the person who passes the exam. To solve this problem in Polish higher education institutions, which provide the opportunity to study at distance courses, the student must be present in person at the exam. It is mandatory to provide documents proving the identity of students.

The experience of the Republic of Poland shows that the introduction of new educational methods with the active use of information and communication technologies will modernize the Ukrainian system of training the qualified teachers of general technical disciplines and positively affect its reform in accordance with the needs of citizens in higher and vocational education.

Conclusions. The study has identified the following priorities of the European Union policy in the field of education informatization in the context of the program 'Education and Training 2020': the formation of readiness of teachers to education informatization and standardization of their digital competence; use of digital technologies in the educational process; creation of distance learning courses for teachers; technological effectiveness and internationalization of European higher education; development of online in-service training pro-

grams for teachers in certain disciplines. The peculiarities of the application of distance learning technologies in Polish higher education, in particular, during the coronavirus pandemic, are analyzed. Recommendations for the use of Polish experience in the use of distance learning technologies in the training of future teachers of vocational subjects for the modernization of the Ukrainian education system have been developed.

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Використання технологій дистанційного навчання у підготовці майбутніх учителів професійних технічних предметів в університетах Республіки Польща та України

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Реферат.

Актуальність дослідження визначається потребою українського суспільства у вивченні та використанні позитивного досвіду застосування дистанційного навчання у процесі підготовки педагогічних кадрів для системи професійної освіти у Республіці Польща.

Мета – виявити пріоритети політики Європейського Союзу у сфері інформатизації освіти в контексті реалізації програми "Освіта та професійна підготовка 2020"; проаналізувати особливості застосування дистанційного навчання у польській вищій школі; розробити рекомендації щодо використання її досвіду для модернізації української системи освіти.

Методи: аналіз нормативно-правової бази інформатизації вищої і базової середньої освіти у Республіці Польща – для з'ясування стану дослідженості проблеми професійної підготовки майбутніх учителів професійних технічних предметів в університетах Республіки Польща; анкетування студентів – для виявлення ставлення студентів закладів вищої освіти України та Польщі до використання дистанційного навчання у їхній професійній підготовці.

Результати: характеризується Європейська стратегія інформатизації освіти, аналізується нормативно-правова база інформатизації вищої і базової середньої освіти у Республіці Польща, розглядається польський досвід стандартизації цифрової компетентності майбутніх учителів професійних технічних предметів і розвитку

їх готовності до використання технологій дистанційного навчання; здійснено порівняльний аналіз результатів опитування польських і українських студентів щодо їх ставлення до використання технологій дистанційного навчання в професійній підготовці майбутніх педагогічних кадрів для закладів професійної освіти.

Висновки. У результаті дослідження були виявлені такі пріоритети політики Європейського Союзу у сфері інформатизації освіти в контексті реалізації програми "Освіта та професійна підготовка 2020": формування готовності вчителів і викладачів до інформатизації освіти та стандартизації їхньої цифрової компетентності; використання цифрових технологій в освітньому процесі; створення курсів дистанційного навчання для викладачів; технологізація та інтернаціоналізація європейської вищої освіти; розвиток онлайн-програм підвищення кваліфікації викладачів з окремих дисциплін. Проаналізовано особливості застосування технологій дистанційного навчання у польській вищій школі, зокрема під час пандемії коронавірусу. Розроблено рекомендації щодо використання польського досвіду застосування технологій дистанційного навчання у підготовці майбутніх учителів професійних технічних предметів для модернізації української системи освіти.