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INFLUENCE OF ASPECTS OF DISTANCE LEARNING ON THE QUALITY OF TRAINING OF INFORMATION TECHNOLOGY SPECIALISTS IN MARTIAL LAW CONDITIONS

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The purpose of this research is to establish the preconditions for the effective use of distance education elements to provide high-quality educational services for the development of general and specific professional competencies among future specialists in information technologies. In this article, various methods of scientific research are used; however, the main one is the statistical method of processing quantitative data obtained with an anonymous questionnaire survey of 85 applicants of higher education studying the "information systems and technologies" speciality in the Western region of Ukraine. The reliability of the obtained results has been checked by applying the regression analysis method. The study demonstrated that incorporating elements of the distance education process organization is a practical approach for ensuring the quality of education by fostering the development of appropriate general and professional competencies in future information technology specialists. The share of these elements can be 30–60 % of the educational time and depends on various aspects of the training. One of the main aspects that affects the value of this indicator during the training of information technology specialists is the affiliation of individual educational components to scientific areas: humanitarian or physical and mathematical. The obtained results provide a basis for further research on the influence of specific aspects of the organization of the distance educational process. The results of this study fill a gap in the current literature, providing empirical data for further research into the application of remote education organizational elements to ensure the quality of education during the training of specialists in various fields of knowledge.

Keywords: higher education; quality of education; mixed (hybrid) learning; information technology; educational competences; elements of distance learning.

Statement of the problem. The development of public relations in the field of education has led to a shift in approaches over the last five years to ensure the quality of higher education on a global scale. This necessity was primarily due to the long-term pandemic caused by the COVID-19 coronavirus. A brief event analysis of international publications that publish the research results of the quality of the educational services provision showed that the study of distance or mixed (hybrid) learning as a form of organization of the educational process was carried out as a non-systematic rule before the start of the coronavirus pandemic, and were mainly devoted

to the study of some of these individual aspects: the use of digital technologies for education [1]; monitoring and evaluating knowledge online [2, 3]; identifying individual advantages and disadvantages [4, 5]; understanding the prospects for implementation [6] etc. However, despite the non-systematic nature, the research data created the basis for further research on remote and mixed learning as a form of organizing the educational process, due to the presence of the COVID-19 coronavirus pandemic and the mandatory transition of higher education institutions to this form of education.

At the time of the military invasion, institutions of higher education capable of providing educational services already had a specific experience, expertise, vision, and scientific justification for organizing the educational process in the form of remote and mixed learning. However, the war also raised other questions: the security of providing quality educational services; the choice of forms and methods of education in the conditions of martial law in different regions of the country; and the influence of the academic form on the professional competencies of specialists from certain specialities.

As a result, the issue of ensuring the quality of educational services became necessary for further, more detailed research. Therefore, it became clear, based on the event analysis of previous studies, that the use of distance education as a form of the educational process organization by using information and communication systems will be relevant not only until the end of hostilities, but also in the future educational activities of higher education institutions as in Ukraine, as well as in other countries of the world. This issue is evident because most educational institutions utilize a substantial number of information systems for both managing the institution and delivering educational services at present. At the same time, information systems for providing educational services are constantly used during the full-time training of higher education students. As a conclusion, the issue of continuing research into the problems of ensuring the quality of the provision of educational services with the use of distance learning systems (elements) and their impact on the formation of general and professional (special) competencies during the training of specialists in various fields of knowledge and specialities remains relevant in the current conditions.

The purpose of this research is to establish the preconditions for the effective use of distance education elements to provide high-quality educational services for the development of general and specific professional competencies among future specialists in information technologies.

Materials and research methods. One of the most critical aspects of research is the choice of methodological approaches for its conduct, because the selection of the correct methodology is a guarantee that affects the reliability of the research results. To solve these problems, the following methods of scientific research were used:

– dialectical – to determine the mutual influence of forms, methods, approaches, and other components of the provision of educational services, assimilation of knowledge by students of higher education.

– inductive and deductive – based on the share of knowledge obtained in the field of ensuring the quality of educational activity, a general conclusion is made about the results of the study.

– analysis and synthesis – aimed at studying the main advantages and disadvantages of the distance learning system using information and communication technologies (based on the results of the analysis and synthesis of the received empirical materials, including the data collected by other scientists, a general idea of the current state of analytics in the investigated problems was obtained organization of the educational process in remote form, as a means of ensuring the quality of educational services);

– statistical – to obtain empirical data on the studied issues. The statistical method is applied at the initial stage of the research to receive and process empirical data, which is necessary for describing and interpreting the problem. During the study, two types of initial data collection were used: qualitative and quantitative. To obtain quantitative data, the questionnaire survey method is chosen.

The results of the study are presented in quantitative and percentage formats in tables and graphs (histograms). Based on the processed data, the justification of the proposed proposals was carried out.

Analysis of recent research and publications. Over the last five years, numerous studies have been devoted to organizing distance form educational process technologies using information and communication systems. They were conducted by specialists from various fields of knowledge in many countries worldwide. Some aspects of the application of distance or mixed learning technologies were investigated in the first place, such as:

– the main tasks of distance learning management in higher education during pandemic restrictions [7, 8];

– problems of digital technologies possession for scientific and pedagogical workers and their use during online classes [9, 10];

– analysis of information and telecommunication technologies (platforms) for providing online training and their development [11, 12];

– studying the advantages and disadvantages of the distance form of the educational process organization [13, 14];

– certain aspects of ensuring the quality of education [15, 16].

During the same period, issues related to the provision of quality educational services through distance learning, particularly in the context of studying individual educational components, are also investigated. They include mathematical disciplines [17], foreign languages [18], and informational technologies [19].

The conducted research review is far from exhaustive. There are still many unnamed published results of scientific research devoted to this issue. However, the

mentioned studies, along with the other related studies, have created a powerful scientific and practical basis for determining the place and role of distance and mixed learning. As well as separate elements in the formation of general and professional competences among specialists of various fields of knowledge. Along with socio-political changes, the development of forms and methods of distance learning, including its individual elements, technical and software tools, and the mental peculiarities of training specialists in different countries, has given rise to new problems that require further scientific research in this field. The aspects listed above often limit the applicability of the results from earlier studies.

One of the problems that prompts further research in this field in Ukraine is the introduction of long-term martial law. Such a situation encourages the search for and determination of new optimal approaches to ensuring the quality of education through the development of general and professional competencies during the training of specialists in various fields of knowledge. Some of these studies have already been conducted in Ukraine [20]. However, an essential aspect for using a distance or mixed form of organization of the educational process is the search for optimal ways to ensure the appropriate quality of education for specialists in a particular field of knowledge.

Given that the authors of this study are the teachers in the educational institutions, have experience in developing separate methods of using elements of distance learning that were used during the pandemic in academic institutions where this study was conducted, and provide training for specialists in the field 12 – information technologies (according to the Ukrainian classifier), then this publication is devoted to the problem of ensuring the quality of the educational process using remote learning systems for the training of specialists in this field.

Based on the generalized results of previous studies, we have formulated the aim and objectives of the study. The goal is to establish prerequisites for the effective use of remote education elements in the process of providing quality educational services by forming general and professional competencies of future information technology specialists during martial law.

To achieve the specified goal, the following main tasks must be solved:

1. To establish and generalize the main advantages and disadvantages of the organization of the remote learning (or its elements) educational process during the formation of general and professional competencies in future information technology specialists, including during martial law.

2. To form recommendations for the introduction and use of elements of the remote form of the organization of the educational process, permanently using information and communication technologies, while making appropriate changes to academic and professional, training, and work programs for training specialists in the field of information technologies.

Presentation of the primary material. The research was conducted at two institutions of higher education in the Western region of Ukraine: Lviv State

University of Internal Affairs and Lviv Polytechnic National University, during the training of specialists in the speciality of "information systems and technologies".

The survey involved third-year graduates of the first (bachelor's) level of higher education at Lviv Polytechnic National University (NULP) and Lviv State University of Internal Affairs (LvSUIA).

To ensure an unambiguous interpretation of the received empirical data, only educational disciplines with the same name in the academic and professional programs of both institutions of higher education are considered.

To increase the reliability of the quantitative data obtained from the questionnaire survey results, the survey was conducted anonymously.

38 students of higher education at Lviv State University of Internal Affairs participated in the survey (92% of third-year full-time students), in addition to 47 students from Lviv Polytechnic National University (67 % of the total). Higher education applicants had the opportunity to choose several answer options for individual questions.

During the survey, applicants for higher education were asked the following list of questions:

1. Which of the forms of training, in your opinion, does not affect or contribute to the quality of training (assimilation of knowledge, acquisition of necessary competencies)?
2. How does distance learning affect knowledge compared to traditional learning?
3. How does distance learning affect your daily routine (study-related)?
4. Is it appropriate to divide educational disciplines into those that can be mastered using distance learning only and those that should be conducted only in a traditional format?
5. If you answered "yes" to the fourth question, then indicate one to four disciplines that should (can) be taught in a distance format only.
6. If you answered "yes" to the fourth question, then indicate one to four disciplines that should (could) be taught traditionally.
7. If you answered "yes" to the fourth question, then indicate one to four subjects that should (could) be taught in a mixed format.
8. Are you satisfied with the platforms that are used for distance learning?
9. Determine the main advantages of distance learning from the proposed list.
10. Identify the main disadvantages of distance learning from the proposed list.

The survey results were processed in both absolute and relative value formats. To process the results, the regression analysis technique was used. The main results of the survey, on which the key conclusions of the work are based, are presented in tables and histograms. Part of the survey results is presented in a generalized form and, if necessary, can be provided by the authors for further use in subsequent studies.

The results obtained from the questionnaire survey, along with their analysis using statistical methods, are presented below.

Question 1 (Which of the forms of training, in your opinion, does not affect or contribute to the quality of training?) has received 58,82 % respondents' answers for the "mixed form" variant (60,53 % LvSUIA students; 57,45 % – LPNU). Other options: traditional – 21,1 %; remote – 18,4 %. The Pearson correlation coefficient between the responses of higher education applicants of both educational institutions is 0,9894 (the highest during the entire survey)

The results related to the second question: "How does distance learning affect knowledge compared to traditional learning?" – are presented in Fig. 1.

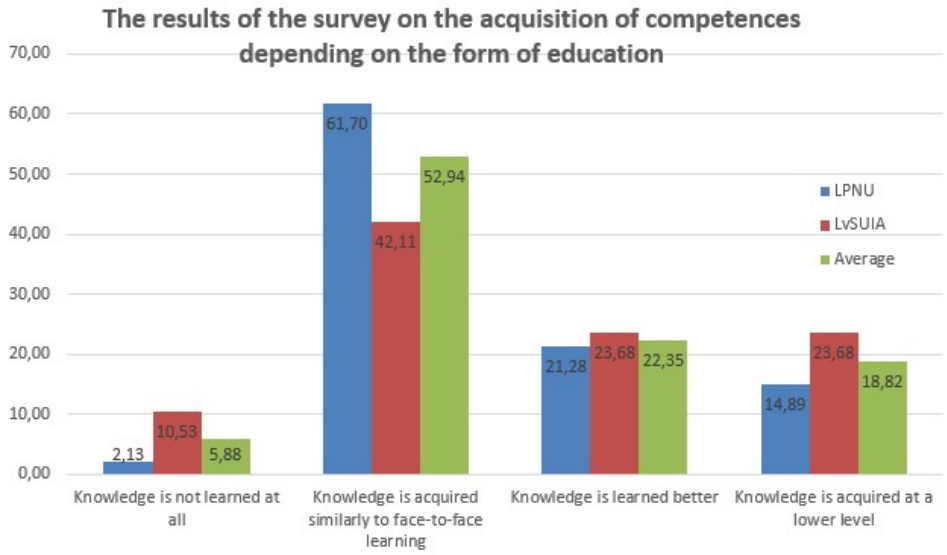

Fig. 1. The results of the survey on the acquisition of competencies depending on the form of education

Survey results for the third question: "How does distance learning affect your daily routine (study-related)?" – are set out in Table 1.

To the next, fourth question: "Is it appropriate to divide educational disciplines into those that can be mastered using distance learning only, and those that should be conducted only in a traditional format?" Twenty % of respondents answered "no" (8 – LPNU; 9 – LvSUIA), which roughly corresponds to the number of higher education seekers who believe that only traditional education practices can ensure the assimilation of knowledge at the required level.

Table 1

Results of the survey on the question "How does distance learning affect your daily routine (study-related)?"

Institution of higher education	Unit of measurement	I spend more time studying academic subjects	I spend less time studying academic subjects	I devote approximately the same amount of time to studying disciplines compared to traditional studies	In addition, I am studying new professional disciplines	Correlation coefficient
LPNU	Abs	10	4	23	10	0,776
	%	21,28	8,51	48,94	21,28	
LvSUIA	Abs	14	3	15	6	
	%	36,84	7,89	39,47	15,79	
Total	Abs	24	7	38	16	
	%	28,24	8,24	44,71	18,82	

The following three questions were answered by respondents who supported the use of elements of the distance form of the educational process: LPNU–39; LvSUIA–29. In these questions, it was proposed to choose academic disciplines that should be taught in traditional format, remote learning, or mixed formats. The list includes eleven academic disciplines that are common in the educational and professional programs of both institutions of higher education. While answering these questions, respondents could select multiple answers simultaneously. The survey results are presented in Table 2.

For the ease of analyzing the survey results, the educational disciplines are grouped into two main directions: humanitarian and computer-mathematical.

The answer to the eighth question ("Are you satisfied with the platforms that are used for distance learning?") was expected: considering the specifics of the speciality, none of the respondents answered "No". Only 7 % (6 students) could not answer the given question in the affirmative, choosing the answer "I cannot answer".

The following two questions were devoted to determining the advantages and disadvantages of using distance education. This question is fascinating in light of the speciality's specific details. Although the often-proposed list of advantages and disadvantages includes not only factors that directly affect the quality of acquiring professional competences by future specialists, but also social, economic, and psychological ones, it was interesting to gather results from future specialists in information technology.

The list of advantages and disadvantages includes options for answers obtained by summarizing the research of various authors and author groups presented in this work. The questions were answered by all respondents who took part in the survey.

Respondents had the opportunity to choose several answer options. The results of the survey are presented in Fig. 2 and Fig. 3.

Table 2

Results of the survey regarding the teaching of individual academic disciplines in traditional, distance, and mixed formats

Form of education		Unit of measurement	Foreign language of professional direction	Ukrainian as the professional language	Philosophy/ Political science	History of statehood and culture of Ukraine	Occupational health and safety	Math analysis	Discrete Math	Basics of information technologies	Algorithmization and programming	Object-oriented programming	Databases	Correlation coefficient
Traditional	LPNU	Abs	7	1	0	0	1	19	16	8	14	22	26	0,8956
		%	17,95	2,56	0,00	0,00	2,56	48,72	41,03	20,51	35,90	56,41	66,67	
	LvSUIA	Abs	3	2	2	2	2	24	10	4	13	15	18	
		%	10,34	6,90	6,90	6,90	6,90	82,76	34,48	13,79	44,83	51,72	62,07	
	Total	Abs	10	3	2	2	3	43	26	12	27	37	44	
		%	14,71	4,41	2,94	2,94	4,41	63,24	38,24	17,65	39,71	54,41	64,71	
Remote	LPNU	Abs	22	19	34	35	12	3	2	8	3	4	4	0,9261
		%	56,41	48,72	87,18	89,74	30,77	7,69	5,13	20,51	7,69	10,26	10,26	
	LvSUIA	Abs	17	10	19	15	8	4	3	6	5	8	5	
		%	58,62	34,48	65,52	51,72	27,59	13,79	10,34	20,69	17,24	27,59	17,24	
	Total	Abs	39	29	48	43	20	7	5	14	8	12	9	
		%	57,35	42,65	77,94	73,53	29,41	10,29	7,35	20,59	11,76	17,65	13,24	
Mixed	LPNU	Abs	11	9	6	7	16	9	11	8	7	8	10	0,8676
		%	28,21	23,08	15,38	17,95	41,03	23,08	28,21	20,51	17,95	20,51	25,64	
	LvSUIA	Abs	8	7	5	5	12	7	7	7	5	9	8	
		%	27,59	24,14	17,24	17,24	41,38	24,14	24,14	24,14	17,24	31,03	27,59	
	Total	Abs	19	16	11	12	28	16	18	15	12	17	18	
		%	27,94	23,53	16,18	17,65	41,18	23,53	26,47	22,06	17,65	25,00	26,47	

The predictive power of the tested parameters was evaluated using regression analysis. At the same time, the Pearson correlation coefficient was used to establish a linear relationship between the answers of respondents from different institutions of higher education. This coefficient, obtained during the processing of the questionnaire results, ranged from 0.776 to 0.989, indicating a high linear dependence between the answers of students from higher education institutions and confirming the following conclusions.

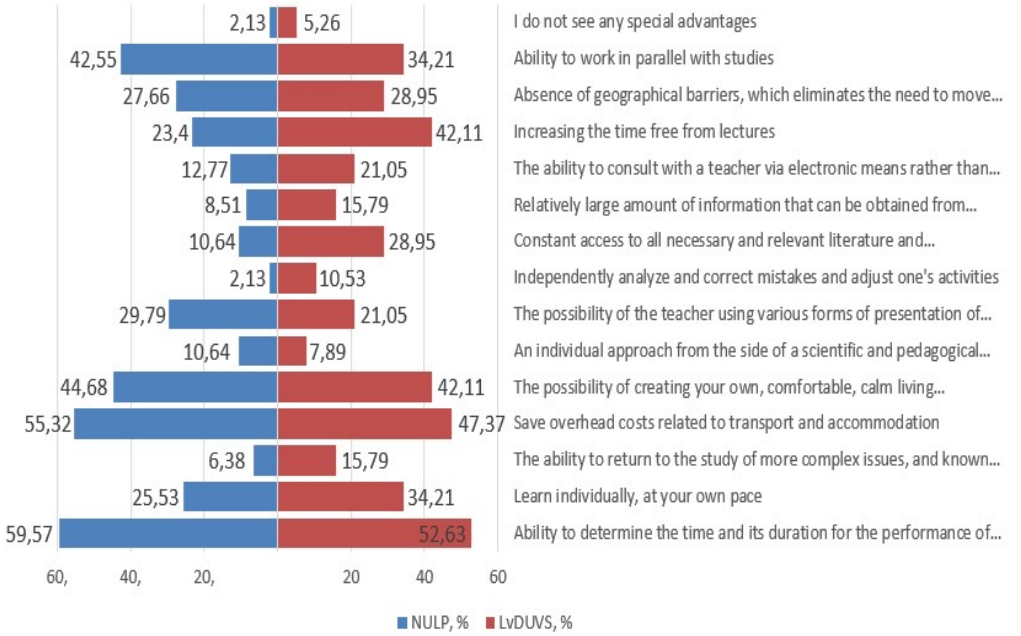

Fig. 2. Results of the survey on determining the advantages of distance learning

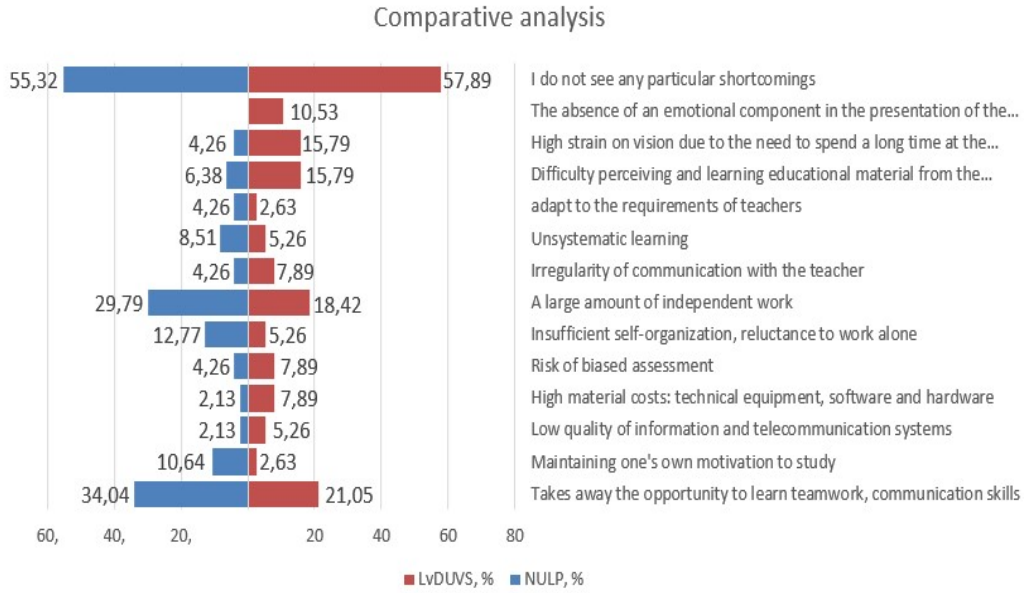

Fig. 3. Results of the survey regarding the identification of the disadvantages of distance learning

Based on the results of the analysis of the answers to the first and second questions, three main conclusions may be drawn:

– The answers of the students of higher education to the second question indicate that ¾ of the respondents (75,29 %) do not note the deterioration of the assimilation of educational components due to the use of distance education.

– Comparing the answers to the second and first question, where 77,22 % of the respondents essentially support the use of forms of distance and mixed learning, we state that ¾ of higher education seekers see the prospects of improving the assimilation of general and professional competencies in the distance or mixed form of the educational process.

– The high correlation coefficient between the answers of respondents from different institutions of higher education does not indicate that the obtained data have a common trend, are trustworthy, and should be considered during further analysis and justification of conclusions.

The general conclusion that emerges from the analysis of answers to question 3 indicates that 91,76 % of higher education applicants spend more or the same amount of time studying academic disciplines. At the same time, almost 19 % also study educational disciplines related to their professional direction, which has a positive effect on the acquisition of professional competences. Only 8,2 % of respondents spend less time studying academic subjects.

Analysis of survey results for questions 4–6 makes it possible to formulate the following considerations:

– The respondents mentioned each academic discipline (as a result) as one that can be taught only traditionally or only remotely. If we analyze the data according to the established areas of disciplines, it should be noted that 9,6 % of the academic disciplines offered for full-time study are components of the humanitarian direction, and accordingly, 90,4 % of the computer-mathematical direction.

– regarding the choice of disciplines that should be taught in a distance format, the expected result was the opposite: 77,6 % of respondents support conducting classes in this form for humanitarian disciplines;

– analyzing the results of the answers regarding the use of a mixed form of education, the total spread of values between the mentioned directions is not as large as in the first or second case and is only 5,5 % (47,25 % for the disciplines of the humanitarian direction and 52,75 % for the computer-mathematical direction);

– The Pearson correlation coefficient between the data, obtained because of the survey of respondents from two institutions of higher education, is 0,87–0,93. This assertion is made possible by the research's adaptability to all institutions of higher education located in the Western region of Ukraine that train specialists in the field of "information technologies" during the martial law regime.

Summarizing the obtained results, shown in Table III, it can be claimed that higher education students support the use of distance learning elements to improve the quality of learning professional competencies during the teaching of all educational

components. Therefore, the obtained results enable the determination of the share of distance learning elements used in each discipline. According to the received data, a larger share of the allocated study time in the traditional format should be used for teaching professional (computer-mathematical) disciplines, while less should be allocated for teaching humanitarian disciplines.

According to the results of the survey on questions 9 and 10, a note can be made that the main advantages of distance learning during the training of information technology specialists were identified by the respondents of both institutions of higher education as follows: the ability to determine for themselves the time and duration for performing practical tasks (57,47b %); saving overhead costs related to transport and accommodation (51,76b %); the possibility of creating one's own, comfortable, calm living environment for studying (43,53 %); opportunity to work in parallel with studies (38,82 %). Such results indicate that higher education seekers first focus not on the advantages that ensure the acquisition of professional competences and increase the quality of education, but on socio-economic factors that ensure the improvement of financial and household conditions for obtaining a professional education. Such a situation is understandable for Ukraine, considering the socio-political and economic conditions that developed during the study period. At the same time, researchers support the opinion that the availability of appropriate social and economic conditions for higher education students has a positive effect on the quality of learning general and professional competencies.

It should be noted as a disadvantage that the respondents consider the most significant disadvantage of the distance form of organization of the educational process is that it takes away the opportunity to learn teamwork and sociability (28,24 %). Additionally, a significant factor is the large volume of independent work (24,71 %). Additionally, 56,47 % of higher education students at this stage of educational technology development do not perceive any major disadvantages in the remote form of organizing the educational process.

The statistical processing of the obtained data gives reason to unequivocally assert that the most effective method of ensuring the quality-of-service provision through the formation of general and professional competencies is the use of a mixed form of the educational process (the introduction of separate elements of distance learning into the educational process, which is conducted in a traditional format). Distance learning, as an element of the mixed form of the educational process, has several advantages over the face-to-face form of education for students of higher education and should be used in the future for continuous application to improve the quality of education. However, implementing the concept of providing quality educational services through a mixed form of organizing the educational process during the training of specialists in information technologies, as well as in other fields of knowledge, is not an easy task.

In Ukraine, this is primarily due to the ambiguity of the interpretation of the term "blended learning". This definition is currently not fixed at the legislative level,

but it also causes discussions among various scientists [21, 22]. Research indicates that a key aspect of blended learning is the integration of different pedagogical methods used in both online and face-to-face settings to achieve better outcomes for higher education students.

Each separate form of the educational process (face-to-face or distance learning) has its advantages and disadvantages. These advantages and disadvantages, their specific influence, depend on many factors, especially during martial law. Such factor examples are listed below:

- the region where training is conducted (security situation, quality of the Internet);
- general level of school training of students of higher education;
- the specialty for which training of future specialists is carried out;
- the level of training of scientific and pedagogical personnel;
- the level of provision of information and technical support by the institution of higher education;
- cultural traditions of the region.

The use of a mixed form of the educational process will enable the mitigation of the shortcomings of each form of education to some degree and allow for the selection of the best option for their combination.

The next aspect that currently affects the introduction of a mixed form of organization of the educational process is the lack of developed and implemented educational and professional programs in the specialty “information systems and technologies”, which define the procedure for the formation of general or professional competencies using various forms of organization of the educational process. To minimize the shortcomings of each form of education, considering their specific needs, it is not possible to clearly determine what percentage of the training of information technology specialists should be conducted in a distance form, and which in face-to-face form. However, today, higher education institutions have various options for structuring a mixed program. Based on the results of the conducted statistical analysis, the educational and professional program for future specialists in “information systems and technologies” should contain 30–60 % of the program content (depending on the academic components), which is provided in an online format.

In addition, to introduce a mixed form of the educational process in this specialty, it is necessary to ensure the coordination of academic and professional programs with the Standard of Higher Education of Ukraine. It is essential to implement the required changes in the regulatory and legal support of the educational process in institutions of higher education, conduct appropriate retraining of scientific and pedagogical staff, enhance their qualifications, and modernize the material and technical support, as well as other organizational measures.

Taking into account the above conclusions, the study's results can be applied to some degree to all regions of Ukraine where the educational process is carried out,

with the factors described above, particularly the security situation, being the primary consideration.

Conclusions and prospects for further research. Providing quality educational services is crucial in the social sector of any country. Modern achievements in the field of information and communication technologies have led to the development of new forms of educational process organization, known as "distance" and "mixed" learning, which have been studied in the context of the development of hardware and software for their implementation. The coronavirus pandemic, which began in December 2019, led to the accelerated growth of research in this field due to the sudden transition to distance learning of the educational process worldwide. These studies have shown that certain aspects of the remote format of the educational process have a positive influence on its quality. Thus, after the end of pandemic restrictions, some higher education institutions in many countries worldwide continue to incorporate separate elements of distance learning into the training of specialists in various fields of knowledge. At the time of writing this article, problems related to studying the influence of certain aspects of the distance form of the educational process on learning outcomes are emerging.

Regarding Ukraine, it is worth noting that the development of modern methods for ensuring the quality of educational services, which was accelerated by the Covid-19 pandemic in combination with a prolonged state of war, necessitates the introduction of new approaches to the formation of professional competencies and their assimilation by higher education students. Undoubtedly, one such approach can be the use of a method known as "blended learning". There's an opinion that, at this stage of Ukrainian society's development, the blended learning method should become one of the main directions for ensuring the quality of educational services.

Therefore, we believe that the results displayed above and the corresponding conclusions will contribute to further scientific research in the field of application of elements of the remote form of organization of the educational process to ensure the provision of quality educational services through the formation of general and professional competencies of specialists in information technologies, other fields of knowledge, and specialties.

The results of this study are recommended to be used to make the necessary changes to educational and professional programs, initial (work) programs for individual academic disciplines, and syllabi. The developed methodology is recommended for research with similar hypotheses in the process of training specialists in other fields of knowledge, in different states and mental groups.

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ВПЛИВ АСПЕКТІВ ДИСТАНЦІЙНОГО НАВЧАННЯ НА ЯКІСТЬ ПІДГОТОВКИ ФАХІВЦІВ З ІНФОРМАЦІЙНИХ ТЕХНОЛОГІЙ В УМОВАХ ВОЄННОГО СТАНУ

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Метою цього дослідження є створення передумов для ефективного використання елементів дистанційного навчання у процесі надання якісних освітніх послуг шляхом формування професійних компетентностей у фахівців з інформаційних технологій. Використано різні методи наукового пізнання, однак основним є статистичний метод опрацювання кількісних даних, отриманих за результатами опитування 85 здобувачів вищої освіти спеціальності "інформаційні системи та технології" у Західному регіоні України (у Львівському державному університеті внутрішніх справ та в Національному університеті "Львівська політехніка"). Дослідження підтвердило, що застосування організації освітнього процесу із застосуванням елементів дистанційного навчання є ефективним підходом для забезпечення якості освіти через формування професійних компетентностей майбутніх фахівців у галузі інформаційних технологій. Частка цих елементів може становити 30–60 % навчального часу і залежить від різних аспектів освітнього процесу. Одним із головних аспектів, який впливає на величину зазначеного показника під час підготовки фахівців з інформаційних технологій, є належність окремих освітніх компонент до наукових напрямів: гуманітарних чи фізико-математичних. Отримані результати закладають підґрунтя для подальших досліджень впливу окремих аспектів дистанційного навчання на формування професійних компетентностей фахівців у галузі інформаційних технологій, інших галузей знань та до внесення відповідних змін у освітньо-професійні програми підготовки фахівців у галузі інформаційних технологій. Результати цього дослідження заповнюють прогалину в сучасній літературі, надаючи емпіричні дані для подальших досліджень проблеми застосування елементів організації освітнього процесу у дистанційному форматі з метою забезпечення якості освіти під час підготовки фахівців різних галузей знань.

Ключові слова: вища освіта, якість освіти, змішане (гібридне) навчання, інформаційні технології, освітні компетентності, елементи дистанційного навчання.