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Ukrainian education system: war challenges

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Abstract The challenges posed by war have had a significant impact on the Ukrainian education system. This article aims to provide an overview of the current stage of training specialists in higher education institutions, highlighting the development trends of specific professions. Attention is drawn to the crucial role of teachers in fostering educational competencies in students, thereby enhancing their competitiveness in the job market, particularly in the context of war. The article analyses the key components of the educational process, emphasizing the need for teachers to boost student motivation for learning. In the present circumstances, Ukraine requires professionals who can effectively adapt to changing situations, discern between true and false information, and maintain resilience in the face of stress. These specialists should not only possess knowledge acquired during their university studies but also demonstrate proficiency in applying relevant skills and competences in their professional endeavors. Notably, effective communication assumes paramount importance during times of war, serving as a powerful tool against the enemy. Consequently, integrating a communicative component into classes is of utmost significance.

Keywords: education, adaptation, Russian-Ukrainian war, manipulation, online platforms

1. Introduction

On February 24, 2022, as a result of the invasion of the Russian Federation into the territory of Ukraine, the educational sphere was under a huge threat. Millions of citizens were deprived of the right to education in safe conditions. The international community is putting much effort into developing mechanisms to protect education in emergency situations and military operations. Developments on this issue today are valuable for Ukraine, which actualizes the analysis of effective international documents and practices.

Higher education in today's war and postwar society has an extremely important mission: to form a responsible and self-sufficient individual who possesses critical thinking and knows how to resist planted myths and objectively perceive and analyse information. A thorough study of the didactic possibilities of using information networks (search, processing, transmission and storage of information) in educational and educational processes in institutions of higher education is an urgent and important task.

In the conditions of the war, globalization and modernization had an even more intense impact on the dynamic development of modern society. This especially applies to young people who are active users of the Internet, in particular social networks. Students actively search for information, communicate, and widely use educational Internet resources. However, it is in information networks that young people often come across unreliable facts and falsified information.

This is especially noticeable in wartime, as manipulators create doubts and provoke conflicts. They are trying to create an atmosphere of negative attitude towards cultural heritage and encourage cooperation with the enemy. Youth is the main target of the enemy's attention, which tries to fill the gaps in the knowledge of young people with false, falsified information. The teacher's task is to identify these gaps and fill them with true information to encourage the student to think and analyse information.

1.1. Aim and tasks

The aim of the article is to summarize the experience of training Bachelors and Master in war conditions and the influence of public educational organizations at the current stage to describe the trends in the development of the educational process.

The main research tasks are to describe the priority areas of lecture work to obtain quality knowledge, to correct new educational plans and programs, to understand the positive and negative aspects of innovative educational technologies and to conduct a survey among students to identify their needs.

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2. Research methods

The following methods have been used to solve certain tasks in research: descriptive, comparative-historical, and structural with the use of the method of component analysis, elements of statistical analysis, and the method of associative experiment.

3. Discussion

In the XXI century, information and communication technologies began to develop intensively in Ukraine, which helped to continue the educational process in the conditions of war. Currently, the level of requirements for professional training of specialists has become higher, particularly for programmers, doctors, youth workers, architects, psychologists, document experts, etc. Every day, Ukraine suffers great losses, so a personnel crisis is brewing in many areas.

The digital transformation of education and pedagogy in times of military aggression are actions devoted, in essence, to the distance learning format but in extremely pragmatic and operational aspects. The effectiveness of a successfully selected distance platform by the educator affects the quality of education from kindergarten to higher education. In this context, the educator must address a number of organizational issues, students' capabilities and martial law conditions (Bakhmat 2022; Ščerbinskis 2020).

In the era of informatization, there is a need for specialists who not only know how to work with various types of documentation but also orient themselves in the information, management, and marketing spheres, which has become especially relevant now (Lytvynska 2019). Modern specialists in various fields must quickly adapt to new needs, orient themselves to the requirements of the labor market and constantly improve their skills and abilities to remain competitive, taking into account modern realities. We would like to pay special attention to the training of specialists.

The development of professional training in institutions of higher education is a multifaceted problem. Among the leading Ukrainian researchers who study the specifics of education, in particular in the conditions of war, we can mention S.O. Terepyshchy, M. Horikhovskyi, S. Donchenko, etc. A. Peleshchyshyn, N. Vovk 2017 A. Solyanyk 2017, I. Dovzhuk 2018, S. Lytvynska 2017 and 2019, N. Masi 2017 and others write about increasing the requirements for the training of specialists and the use of modern information technologies in the process of their training. Informatization of society increases the need for specialists in the intellectual sphere, which is why the continuous functioning of educational institutions is an extremely important task for modern Ukraine.

The Law of Ukraine "On Higher Education" states that the main task of higher education institutions is the formation of students' competencies in the learning process, namely, "competence is the ability of a person to successfully socialize, study, and conduct professional activities, which arises on the basis of a dynamic combination of knowledge, skills, skills, ways of thinking, views, values, other personal qualities" (Zakon 2014). Information has become an important element of modernity, and there is a need for such professionals who know how to work with it professionally with the help of new Internet technologies, banks and databases. Therefore, during training, students should distance themselves from mechanical memorization and move to active mastery of the competence system. In the educational process, it is important to introduce innovative technologies that are based on the practical results of the informatization of society. It is necessary to teach students working with information on modern media with cloud technologies. They should want to implement the educational experience of advanced countries in Europe, America, and Asia. Therefore, one of the main places in training curricula is occupied by the block of computer disciplines. This significantly increases the level of training of Ukrainian graduates of various specialties.

In universities, graduates are provided with general specialist training. When a young specialist gets to work in a certain institution, organization or enterprise, his work may have certain features depending on the activity profile. A young specialist must immediately demonstrate his knowledge, abilities and skills. Express interest and demonstrate a desire for additional training at the workplace if there is such an opportunity (special training systems, trainings for improving the qualifications of employees).

Possession of professional competences by a young specialist will allow him to independently master certain skills and abilities. You can determine about such requirements of employers after analysing vacancies on websites. This will allow you to prepare for the possible requirements of employers during your studies and master them even before applying for a job.

Let us consider the specialty of document scientists as an example. After analysing the vacancies announced on the websites "Work.ua" and "Rabota.ua" for which a document scientist can apply (for example, a document scientist, a document management specialist, a clerk, a librarian, an archivist, an information analyst), a list of competencies that an applicant must possess for position. To work as a document management specialist or clerk, you need to know: principles of traditional and electronic record keeping; MS Office package; different types of documents, to be able to create them; working with a PC; clerical terminology; business correspondence; features of telephone communication; the specifics of working with a large amount of information; work with 1C and CRM. As we can see, such requirements have a technical direction. If necessary, applicants for various positions can deepen their knowledge, abilities, and skills on their own or master them at the workplace.

The opportunity to obtain a job in a specialty in a timely manner after taking a diploma is very important for every young specialist. He can practically apply the theoretical knowledge acquired at the educational institution and acquire new ones, improving his skills. This forms his professionalism and promotes career growth. The versatility of the profession, knowledge and work skills enable graduates to find employment in various institutions, organizations and enterprises, as well as to hold various positions.

In its development, Ukraine as a state is oriented on the experience of the world's leading countries. This applies to politics, science, education, economy, industry, etc. Currently, the National Aviation University has established cooperation with educational and scientific institutions. Conditions have been created for effective cooperation, exchange of scientific achievements and practical developments, development of joint projects, and development of successful partnership relations. Using Internet technologies, platforms, programs, social networks, scientists and specialists from different countries hold conferences, seminars, meetings, meetings, etc. Partnership cooperation between countries is promising for the development of the professional abilities of a young specialist and provides experience and practical skills (International academic mobility 2020). Students and Ph.D.s of National Aviation University actively participate in the international exchange programs Erasmus+ and Mevlana. Even with the beginning of a full-scale war, representatives of our university's present scientific achievements on the international stage.

Programs for international internships and exchanges of students and lecturers have become effective. To expand the boundaries of scientific and educational communication, it is necessary to harmonize domestic standards with international and Western European standards, to harmonize national education systems, and to regulate discrepancies in educational programs and qualifications obtained by graduates. Currently, leading institutions of higher education already issue international diplomas to their graduates. This is proof of the improvement of the level of education, the competitiveness of Ukrainian specialists on the world labor market, and the opportunity to continue studying at the most powerful universities in the world. Of course, this is facilitated by the path to European integration chosen by Ukraine. Therefore, it is important to finalize the Qualifications Framework of Ukraine in accordance with the experience of the European Qualifications Framework.

Global civilizational changes, the unpredictability and expansion of the labor market, large-scale population migration, and the development of innovative technologies constantly change the requirements for the professional training of graduates of higher education institutions, increase the scope of their knowledge and expand their competencies. Currently, the knowledge needed by professional employees is constantly changing at a crazy speed. In addition, there is an ultrafast aging of information. Therefore, it is irrelevant to force students to simply accumulate, memorize certain knowledge, develop subject skills and abilities. It is important that the organizer of the educational process implements such training methods, thanks to which students receive certain professional experience, confidence in their abilities, and readiness to take responsibility.

A specialist who knows how to combine theoretical knowledge and practical application will always be competitive and competitive not only on the Ukrainian labor market but also on the international one, since he is fluent in his specialty, oriented in related fields of activity, prepared for training, improving his qualifications, professionally mobile, etc. The modern modernization of higher education in Ukraine is aimed at this, shifting the emphasis from the learning process to its content and result, ensuring a competency-based approach and finding mechanisms for its implementation.

To prepare a competent specialist, a flexible educational system is implemented in higher education institutions, the forms of interaction between teachers and students change from passive to active, and the latest teaching methods and multimedia technologies are widely used.

In the conditions of war, most universities of Ukraine work online. The National Aviation University (Kyiv, Ukraine) uses the Google Meet platform for training. To improve the educational process for students, a survey was conducted. The priorities of students could change in the conditions of the war.

Students from various faculties of National Aviation University participated in the query: Aerospace Faculty (ASF), Faculty of Air Navigation, Electronics and Telecommunications (FAET), Faculty of Ground Structures and Airfields (FGSA), Faculty of Environmental Safety, Engineering and Technologies (FESET), Faculty of Economics and Business Administration (FEBA), Faculty of Cybersecurity, Computer and Software Engineering (FCCSE), Faculty of Linguistics and Social Communications (FLSC), Faculty of Transport, Management and Logistic (FTML), and Faculty of Law (FL).

The total number of respondents was 520 students of the 1st and 2nd courses of study, students studying under the conditions of Russia's invasion of Ukraine after February 24, 2022.

Distribution of respondents by faculty.

It was important for the researchers to determine the opinion of the students regarding the focus of the discipline on the specialty of the students of education. Survey statistics are shown in Figure 1.

Our course covers several important blocks, so we asked students which material was the most important to them. As a result, we obtained the following statistics.

The syllabus of the discipline "Business Ukrainian Language" is oriented in such a way as to cover all forms of classes: lectures, practical, consultations, independent work, webinars, discussions, roundtables, tests, etc. In previous articles, we had similar results; the study revealed an average level of inclusion of teacher training components for blended learning (50.5%) and training components for ICT use in student learning (48.4%). A significant level of teachers' professional development of

ICT skills was also revealed (44% take courses). As a consequence, an average level of unpreparedness of teachers for both blended learning (28.9% are not ready, 36.6% are little prepared) and the use of ICT in practice (30.3% are almost not ready, 34.25 are little prepared) was revealed 11.

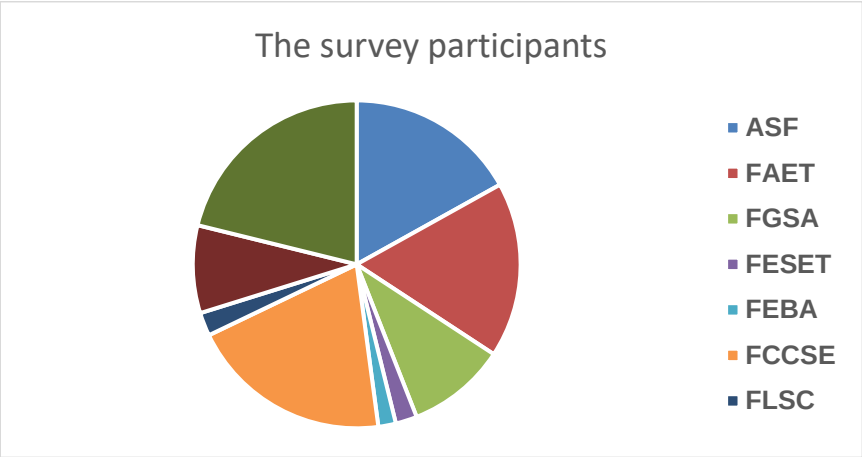


Figure 1 Distribution of participants by faculty.



Figure 2 Focusing on the specialty.

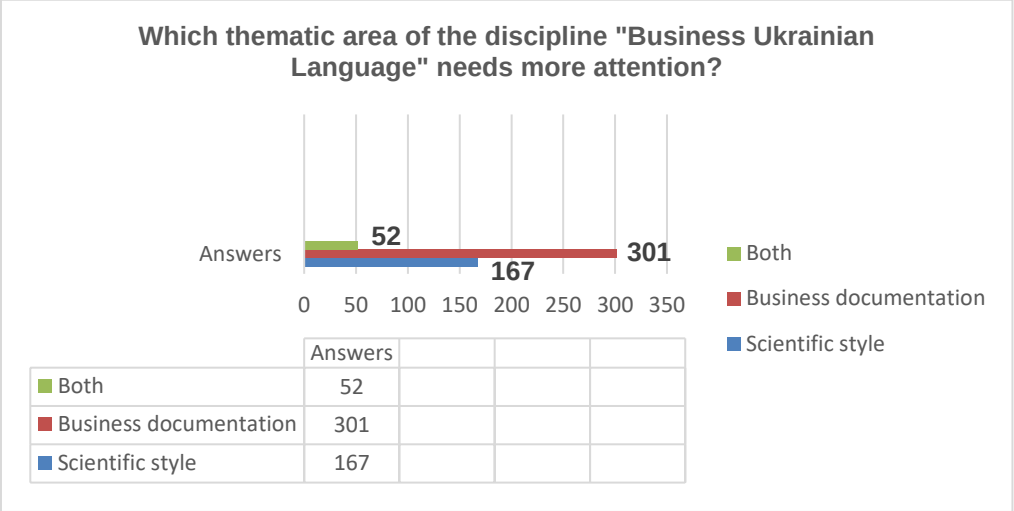


Figure 3 Subjects of the discipline.

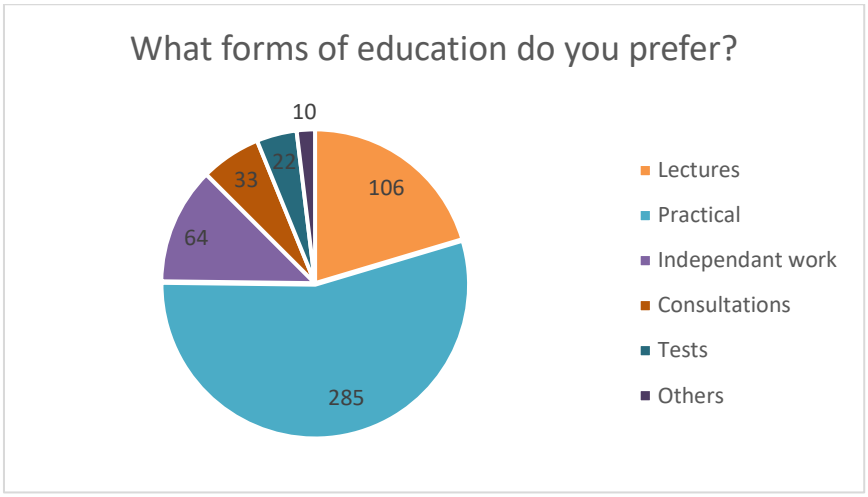


Figure 4 Education forms.

In the conditions of war, patriotic education is of great importance. Therefore, this question was also asked of students. The main question was as follows: Do you participate in educational (literary and musical evenings, days of Ukrainian writing, Shevchenko days) and scientific (seminars, round tables, conferences, work of scientific circles) events of the Department of Ukrainian Language and Culture?

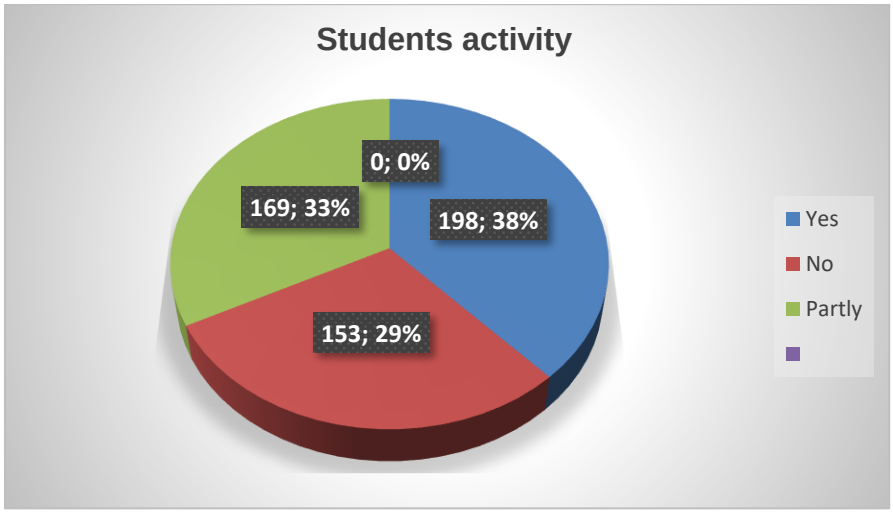


Figure 5 Students' activity.

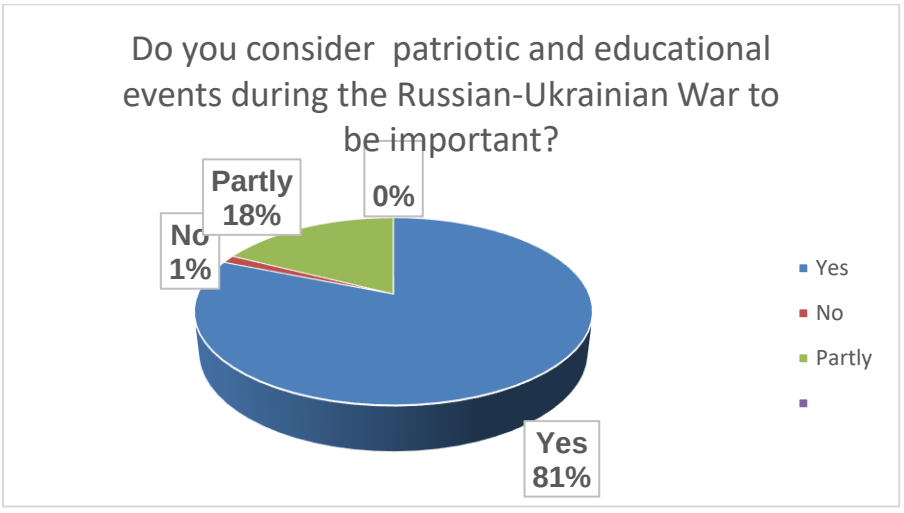


Figure 6 The part of patriotic events in the educational process.

The researchers were satisfied with the results, as the students understand the importance of patriotic education in modern conditions.

The use of information and communication technologies in the educational process forms the motivation of learning and cognitive activity of students of the National Aviation University, affects the development of critical thinking, and deepens their level of scientific knowledge. Students developing information at the level of the test synthesis system prompts the formation of a new information field. The process stimulates students in 1–2 courses to develop communication skills, use information and communication technologies in training, and ensure the actualization of educational, cognitive, scientific, technical, and linguistic competence. It promotes the acquisition and practical application of professional knowledge and the crystallization of the conscious civil position of a participant in the development of the Ukrainian state on the principles of European and Euro-Atlantic integration (Uliana 2021).

N. Melnyk described modern trends of pedagogical education in Ukrainian and European universities and concluded that Ukrainian pedagogical education in universities was well integrated into the European educational system and scientific space, taking into account trends and best practices universities of leading European universities (Melnyk 2022).

With the beginning of the full-scale invasion, the language issue became quite acute, and hundreds of thousands of people switched to the Ukrainian language in everyday private life. The Ukrainian language has become the main identifier of national belonging. In Russian-speaking regions, people are also trying to switch to the state language so that they can be identified as Ukrainians. The situation is the same with the military and with volunteers... Therefore, it is extremely important to pay attention to the language used by Internet users: in what language is the Internet query created in the search engine and what information does the user receive as a result.

Lecturers should try to explain to students and graduates of Ukrainian higher education institutions how powerful the influence of the information space is on the individual to teach them how to work with information and communication technologies. This will reduce the vulnerability of the young generation to informational aggression.

The need to keep the educational process going under martial law determines the search for effective ways to provide education to students with different social and living conditions. For some students, the educational process under martial law is possible only with the use of information technology in a remote format (Hanna 2022).

Warfare and rapid political change created preconditions for a continuous process of

change in higher education (Ščerbinskis 2020). In the 2022–2023 academic year, educational and pedagogical staff offered students the opportunity to independently choose educational resources to deepen their knowledge of the Ukrainian language that they liked the most. A total of 120 first-year students of various fields of study were selected for the study. First, students had to choose those resources for learning the Ukrainian language online that they know about. Forty-three students among the respondents said that they could not do so. In the process of communicating with the respondents, those resources that were named by the students during the survey were selected. There are eleven of them.

1. "E-mova" is an educational platform of the public organization "Ukrainian World", and its goal is to create a Ukrainian-speaking cultural space. The program meets the requirements of the All-European recommendations for language education, which are based on communicative principles in all types of speech activities (listening, reading, speaking).

2. "Ukrainian language: life hacks" - a course in the form of useful advice on linguistics: from phonetics to stylistics. Mnemonic techniques are used. The course consists of 16 lectures (5 weeks of 4 hours). Additionally, there is an interactive synopsis.

3. "Language marathon" is a project aimed at popularizing the Ukrainian language by inviting participants to participate in the challenge: to speak the state language for 25 days and to complete various tasks online or offline.

4. "Language unites" - the official page of the Law of Ukraine "On Ensuring the Functioning of the Ukrainian Language as the State", which tracks the main events related to the implementation of the law's norms in life.

5. "Pure language" is a web page that contains the most current publications and media products on language topics. Helps to keep up with the latest news on language issues.

6. "Switch to Ukrainian" - the project talks about people who have switched to the Ukrainian language and have been communicating in it since then, their motivation, difficulties and successes. Materials and tips are provided for faster mastering and improvement of Ukrainian.

7. "Language policy portal". The main tasks of the project are to establish the Ukrainian language as the only dominant language in society, discuss thoughts, ideas, concepts, and coordinate actions for the direct popularization of the language.

8. "Words that enrich us." Images with rarely used Ukrainian words, phraseological units and substitutes for Russian words are published on the page. The page will help to enrich the vocabulary and avoid surzhik.

9. Linguistic portal "Mova.info". Among other things, the portal offers spelling rules and dictionary collections. For example, an open dictionary of the latest terms. The help desk has answers to frequently asked questions.

10. Website of Oleksandr Avramenko, a teacher at Kyiv University named after Borys Grinchenko and the author of textbooks on the Ukrainian language.

11. Official website of the Ukrainian language. On this site, you can find all the rules of the Ukrainian language, the history of Ukraine as a state, presentations, etc.

An additional task was to explain the motivation for choosing an educational resource. Most students expressed their trust only in official resources, as they often check their spelling knowledge there. A separate group of students explained that during preparation for the external independent assessment, they used the educational resource "Site of Oleksandr Avramenko" and continued to use the linguist's advice. The fact that most students had not heard anything about the E-mova platform turned out to be interesting, but during the experiment, they chose it precisely because of the interesting form of information presentation. Therefore, during preparation for classes, students additionally use information from the educational resources "E-Mova", "Life Hacks from the Ukrainian Language", "Language Marathon", "Portal of Language Policy", "Mova.info", "Site of Oleksandr Avramenko", and "The official site of the Ukrainian language".

The students agreed to further deepen their knowledge of the Ukrainian language with the help of social networks and informational Internet resources. This stimulates the cognitive activity of students, develops critical thinking, contributes to the development of learning motivation, and deepens the level of their scientific knowledge. They acquire the skills to find, analyse, process, store, and create new information.

Students in the 1st-2nd years have already begun to actively develop educational-cognitive, linguistic, scientific, technical competence, communication skills, and the ability to use information and communication technologies. This gave them the opportunity to acquire solid knowledge and use it for their own development and professional development. As active members of the Ukrainian community communicating in social networks, young people with such knowledge will be able to resist influential manipulators, categorically refute false information, and be active participants in the development of the Ukrainian state on the basis of European and Euro-Atlantic integration.

Public organizations also play an important educational role. It is worth noting that since 2014, the problem of adaptation of combatants to civilian life has become acute in Ukraine. With the beginning of a full-scale invasion, this situation increased exponentially. It is clear that posttraumatic stress disorders negatively affect the communicative activity of veterans of the Russian-Ukrainian war. The participants in hostilities have a hard time adapting to peaceful life, and their family members, especially the members of the families of the dead, have similar problems. People who have been under occupation for a long time also have a hard time adapting. Such persons need rehabilitation measures. In addition to financial assistance, people need social and psychological support.

I would like to focus special attention on the activities of one such institution, which was founded in 2019 in Kyiv by the efforts of veterans and volunteers – the Center for Rehabilitation and Adaptation of ATO Participants and JFO "YARMIZ". The title of this Center "YARMIZ" comes from the ancient Ukrainian word "yarmis", which means "way, means, exit". Employees of this center try to cover all important aspects.

Specialists provide psychological and sports rehabilitation, educational and social assistance, business consulting, etc. They take care of victims of hostilities and provide assistance to persons who, due to their own physical and psychological injuries, are limited in exercising their rights. They contribute to the social rehabilitation of low-income and unemployed persons with disabilities among the participants of the ATO. The center also conducts classes for children and teenagers from affected families and organizes interesting excursions, tourist trips, and rehabilitation.

The rehabilitation team includes veterans and family members of combatants, volunteers, and military psychologists who have been working with the target audience since 2014. The premises of the center have a convenient structure - educational studios-transformers, exercise and dance halls, a kitchen, a cafe, a changing room, shower rooms, etc. There is always enough space for the nature of the center's activities to help create an atmosphere of family cohesion, understanding and mutual support.

In 2021, with the support of the European Union in Ukraine and the International Renaissance Foundation, the Veteran Language Center "Dialogue" was founded in YARMIZ as a place for the presentation of cultures, where a space was created for getting to know the culture and traditions of different peoples of the world, learning English and Ukrainian languages, and annual ethno-festivals. On a volunteer basis, teachers of the Department of Ukrainian Language and Culture of the National Aviation University held 64 hours of lectures based on a specially developed curriculum. They taught visitors to the Center how to pronounce and write down words of the Ukrainian language correctly, to construct sentences logically, explained the new rules of the latest edition of spelling, and conducted trainings on drafting business documents.

The next stage of the work was the creation of a conversation club, where the listeners practiced active speaking, constructed dialogues, held discussions, and learned about interesting facts from Ukrainian history, culture, and literature. In addition, guest lectures were held on cultural topics: "Aspects of German ethnology" and "Aspects of French ethnology".

Rehabilitation work with veterans and their family members can have different directions and forms. It is important for the victims to come out of a depressed state, regain the skills to create positive contacts, master the ability to communicate freely in the official Ukrainian and English languages, and deepen their knowledge of the history and culture of their native people and peoples of the world. (наша публікація THE ROLE OF SOCIAL COMMUNICATIONS IN THE CONDITIONS OF THE RUSSIAN-UKRAINIAN WAR)

4. Conclusions

The use of information and communication technologies in the educational sphere is an important tool in the educational processes of specialists, particularly in conditions of war. This stimulates the cognitive activity of students and increases the quality of education.

Thus, in the conditions of distance learning and full-scale war, it is extremely necessary to pay special attention to the study of basic humanitarian disciplines in Ukrainian higher education institutions, particularly technical ones. This contributes to the training of real specialists who know the history, language and traditions of their own people. To understand and select true information, you need to orient yourself in the material. For example, on the Internet, we can read many propaganda materials about the absence of the Ukrainian state tradition, denial of the Ukrainian state in its modern borders, etc.

However, only an ignorant person who has no other information can be manipulated. These problems became the basis for the use of manipulative technologies to initiate a conflict zone in the information space, which led to a full-scale invasion. Teachers always paid great attention to humanitarian training: students attended lectures and practical classes, workshops, webinars, discussion clubs, meetings of scientific student groups, conferences, meetings, excursions, etc.

Department of Ukrainian language and culture propose increasing attention to students' study of business documentation, reviewing the content of the lecture material for relevance, and continuing to popularize educational and educational and national-patriotic activities among students.

To improve the educational process, we suggest increasing the number of communicative and situational tasks of an interactive nature, which will bring them closer to professional activities in the future. Performing situational exercises is aimed at forming the ability to solve complex professional tasks of an interactive nature. This contributes to the development of the ability to use the theoretical knowledge obtained at lectures when solving practical tasks and morally and psychologically prepare students for future professional activities.

The possibility of using educational Internet services, Internet resources and social networks during the study of humanitarian disciplines in technical institutions of higher education has advantages and disadvantages. Working with educational Internet services (in particular, Google Classroom), students receive information systematically, mobile, conveniently, using innovative technologies. The advantages of interactive didactic materials are their clarity, creativity, and accessibility. The content, forms, and teaching methods are dynamically updated, particularly the individualization of the educational process. The teacher's role is marked by constant interaction with students.

As an additional tool in the educational process, it is convenient to use social networks because it does not require students time to adapt and gives them the opportunity to use free educational online resources, deepen their knowledge of the Ukrainian language, culture, history, etc., and diversify the educational material with multimedia means. Students can independently study the educational material in an extended format, participate in the joint creation of educational material in groups, participate in the discussion of problematic issues on various forums, receive prompt consultations from teachers and expert students, etc.

When using social networks in the educational process, it is also necessary to take into account certain shortcomings - a poorly functional information search system, low structure, dispersal of information, imperfect security of user protection, the presence of unverified information and nonnormative content, etc.

Therefore, the teacher should control the use of social networks by students only for educational purposes. The application of the possibilities of social networks in the educational process involves three directions: an additional opportunity for independent work of students; deepening of the classroom learning material and opportunities of an educational nature; use of Internet materials by teachers to diversify text and visual material for conducting classes, writing plans, lecture notes, scientific articles, and organizing educational events.

Ethical considerations

Not applicable.

Conflict of Interest

The authors declare no conflicts of interest.

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