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PEDAGOGICAL CULTURE OF TEACHERS AT TECHNICAL UNIVERSITIES FOR SAFE EDUCATIONAL PROCESS DURING THE WAR IN UKRAINE

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ABSTRACT

The entire education system is currently undergoing structural changes, which are reflected in the increased use of digital and distance learning technologies. Pedagogical culture as a personal characteristic of a teacher acts as a means of implementing professional activities in the unity of goals, objectives, as well as means and results. Simultaneously, different types of pedagogical activity form the functional structure of culture. The main features of pedagogical activity should be its complexity and integrity, creative nature, a combination of collective activity and individual creativity of teachers, because the process of solving pedagogical goals and objectives is a technology of pedagogical activity that characterizes the mode of existence and functioning of the teacher's pedagogical culture.

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Teaching in the context of the war in Ukraine involves the use of various forms of education with the introduction of digital technologies and tools to ensure the safety of all participants in the educational process and flexibility in time and space. This approach allows you to adapt educational content to the needs of students and the requirements of the curriculum. At the same time, it becomes important to choose an individual educational trajectory in which students can change and adapt their educational process.

*The **purpose** of this article is to analyze the content of the concept of pedagogical culture of teachers of technical universities in modern conditions, to determine the most convenient format of university education to ensure the safety of all participants in the educational process in a war in Ukraine.*

*The **methodology** on which this article relies includes empirical methods (observation, conversation, dialogue), which are used in full-time and distance learning, and theoretical methods (analysis, synthesis, generalization, explanation, classification). Based on them, we will formulate practical recommendations for the introduction of digital technologies and tools to ensure high-quality education for students of technical universities in the modern conditions of Ukrainian society.*

*The following **results** are achieved within the framework of our research: the analysis of the essence of the concept of "pedagogical culture" was carried out, the main features and criteria for its formation were identified, the conditions for the formation of the pedagogical culture of teachers of technical universities in war conditions were outlined and analyzed, a study was conducted to identify the most convenient form of university education using digital technologies and tools to ensure the safety of all participants in the learning process in modern conditions.*

*The **conclusions** make it possible to state that, despite the difficult situation in the country, it is necessary to prepare students of technical universities for their further professional and personal careers, accompanied by lifelong learning. The combination of digital tools is often a successful response to rapidly changing environments and results in a flexible teaching and learning system. This requires mandatory interaction between students and teachers who act as mentors.*

KEYWORDS: *Education, Pedagogical Culture, Digital Technologies, Teacher of a Technical University, Pedagogical Activities.*

INTRODUCTION

In the current conditions of the war in Ukraine, the importance of universities as integrators of scientific, educational, business and production areas is growing (Opanasenko, & Novikova, 2022). (Kostikova et al., 2023). Today, security in the education system is of particular

importance. Dynamic and ambiguous events taking place recently, rapid unpredictable changes in society, give rise to many personal problems and affect primarily mental health, mental state and life satisfaction (Yevtushenko, Tverdokhliebova, & Mezentseva, 2022;

Lebedeva, & Norik, Lebedev, 2022; Nalyvaiko, & Lykshosvai, 2021).

The priority goal of education at the present stage of development of society remains the development of general cultural components in the content of education. Among the requirements for a modern teacher, there is a high level of pedagogical culture, which is expressed in the current system of personal values, professional education, mastery of pedagogical theory and practice, as well as the embodiment of experience in various types of pedagogical activity and communication. A high level of pedagogical culture is a necessary condition and guarantee of successful pedagogical activity of a modern teacher.

Forms of pedagogical work in which students, through independent activity under the guidance of a teacher, acquire technology-related knowledge and skills (Holubnycha et al., 2021) and train in their practical application are of particular importance for polytechnic education. Teachers of technical universities possess a system of special and subject knowledge at a fairly high level. As for pedagogical knowledge, in particular, the subject teaching methods, they represent a weak link in this system. The vast majority of teachers at technical universities do not have special pedagogical training, they are poorly aware of the pedagogical tasks of their activities; do not have a clear idea of its structure; they do not think about what depends on the success of students learning and the success of their own pedagogical activities.

The **purpose** of the article is the analysis of the content of pedagogical culture concepts of teachers at technical universities in today's conditions, determination of the most convenient format of university education to ensure the safety of all participants in the

educational process in the conditions of war in Ukraine.

THEORETICAL FRAMEWORK

The analysis of philosophical, historical-pedagogical and psychological-pedagogical literature, as well as theoretical generalizations, allow us to conclude that pedagogical culture is an essential characteristic of a teacher's personality, the measure and method of his creative self-realization in various types and methods of pedagogical activity and communication aimed at creation and assimilation of pedagogical values and technologies.

Some experts identify the main features of pedagogical culture that characterize the teacher's creative activity and are a qualitative indicator of the teacher's pedagogical activity; secondly, it influences the process of formation of the teacher's thinking; thirdly, it is not only the result, but also the very process of transforming both the teacher and his students in the course of the educational process (Batrun, 2022). We share this position because the values and achievements of pedagogical culture are mastered and created by the individual in the process of activity, which confirms the fact of the inextricable connection between culture and activity.

There is an approach that the pedagogical culture of teachers is specified in the concepts of "culture of pedagogical activity", "culture of pedagogical communication" and "culture of the teacher's personality" (Bilonozhko, 2022). This is the creative self-realization of the teacher's personality in various types of pedagogical activity and communication aimed at the implementation of in-depth programs of professional education, at the creation and assimilation of pedagogical values and technologies. In order to

understand the essence of professional and pedagogical culture, the authors of this approach singled out provisions that reveal the connection between general and professional culture and their specific features. The theoretical model of professional-pedagogical culture is substantiated, the components of which are axiological, activity and personal. In our opinion, each of the presented components is important for understanding the essence of pedagogical culture.

The pedagogical culture is represented as a system and at the same time as an element of the pedagogical system in the unity of its structural (knowledge system, skill system, and value system) and functional (cognitive, didactic-professional, educational, diagnostic-organizational, communicative, normative, protective) components. The author singles out the subsystems of the named systems of components, which "...are interconnected and interdependent and form an integral property that characterizes one or another level of pedagogical culture". We share the author's opinion about the need to consider pedagogical culture as a whole system. It should also be noted that the functional purpose of pedagogical culture is expressed in the formed moral readiness of teachers for professional and pedagogical activity and its structural components. Moreover, the specialty of a teacher's professional activity requires a formed emotional culture, necessary for him to regulate relations with colleagues, students, and parents (Grinyova, 2000).

The criteria is identified for the formation of pedagogical culture, namely: the formation of knowledge, pedagogical thinking, the formation of skills and abilities; value attitude, use of knowledge

and skills; the manifestation of individuality (Grinyova, 2000).

It should be noted that, like any culture, pedagogical culture does not arise spontaneously, it must be formed. In modern conditions, this is a whole technological process that cannot be ensured without special scientific foundations. Pedagogical studies of various directions are devoted to this problem, namely: the formation of the pedagogical culture of the future teacher; teachers, pedagogues, educators; teachers of the higher school; parents. Summarizing the views of scientists on this problem, we can conclude that the object, goal and result of pedagogical culture is a person (his education, upbringing, formation and development of his personality). This makes pedagogical culture not only a part, but also an important mechanism of reproduction of society's culture in all its spheres.

In general, the humanistic paradigm of education brings the process of researching pedagogical culture to the personal level. However, in our opinion, the concept of pedagogical culture has not fully become the property of pedagogy.

It is necessary to take into account that the variety of activities in the system complex of the teacher's interaction with information is quite large and relies on organizational, intellectual, sensory, sociocultural and other capabilities of both the individual and the information (Richter, Kunter, Klusmann, Lüdtke, & Baumert, 2011). Pedagogical activity has a creative nature, therefore there is also experience in performing this activity. Therefore, the foundations of a teacher's creative potential are laid, formed in the process of his professional training and further developed in pedagogical activity (Rahman, Tambi, & Anny, 2020).

Pedagogical culture is a qualitative characteristic not only of the personalities of individual teachers, parents and other people who are engaged in education and upbringing throughout life, but also of the life activities and educational relations of society as a whole.

METHODOLOGY

Empirical methods (observation, interview, questionnaire), which are widely used in face-to-face, mixed and distance learning, and theoretical methods (analysis, synthesis, generalization, explanation, classification) were used to achieve the goal. Based on them, we conducted a study to determine the most convenient training format for students of the “Occupational and Environmental Safety” department of the National Technical University “Kharkiv Polytechnic Institute”, formulated practical recommendations for the implementation of digital technologies and tools to ensure the safety of all participants in the educational process in modern conditions.

RESULTS

In technical universities, the content of the basics of science, which includes elements of polytechnic education, is learned by students in the process of lectures, seminars, during the application of various forms of practical and laboratory work, which are filled with general pedagogical content determined by curricula and programs.

It is known that in education there should be a special system of educational tasks that meets the specified requirements both in terms of quality characteristics and properties (abroad for this they use the term problems sequence – a sequence of tasks), which allows you to operate with all knowledge. However, this is practically not the case in real education at technical

universities. The main content of educational systems remains knowledge, and the activity of processing this knowledge is given a secondary role, often illustrative. Under these conditions, it is rare for anyone to be guided by their own values, to form their goals of educational activity, to plan and independently monitor the achievements of science.

Meanwhile, if the personality of a professional teacher is considered as the desired result of education, then the most important components of his pedagogical culture should be the following skills: setting a goal and planning strategies for its achievement; selection and creation of means and methods of activity that would correspond to the chosen goal; monitoring (reflection) of one’s own actions, adjusting them according to the planned result, etc. Such skills and personal qualities that support them are important especially for teachers of technical educational institutions as a mechanism for mastering the basics of education and professional activity.

In the course of research and experimental works, pedagogical conditions for the development of the professional and pedagogical culture of a higher school teacher were identified and substantiated: the integrity of the structure of pedagogical activity, the innovative direction of the development of professional and pedagogical culture; individualization and differentiation of the formation of professional and pedagogical culture.

Let’s consider these conditions from the point of view of the formation of pedagogical culture of teachers of technical universities. The integrity of the structure of the pedagogical activity of a teacher of a technical higher educational institution means, in our opinion, the level of development of its system, internal

connection, harmonious interaction and development of the components of this system. This condition confirms the unity of the teacher's personality and activity in the pedagogical culture; contributes to the development of a systematic, holistic vision of the pedagogical process.

It is advisable to analyze the integrity of the pedagogical activity of a teacher of a technical institution according to the level of formation of professional and pedagogical skills, because they are not only the most important condition for the choice of actions, but are also a generalized, universal characteristic of the activity and the degree of its mastery by the individual. In the context of the innovative strategy of the educational process, the role of the teacher of a higher technical institution as a direct bearer of innovative processes that contribute to mastering the experience of creative pedagogical activity is significantly increasing.

Here, the processes of integration of pedagogical science and practice play a decisive role: research and experimental implementation, compatible socio-pedagogical creativity, cooperation of scientists and practitioners in the development of curricula, programs, preparation of textbooks, methodological guides, technical teaching aids, etc. With all the variety of learning technologies (dialogic, computer, problem-based, modular), the implementation of pedagogical functions remains with the teacher. With the introduction of modern information and communication technologies into the educational process, a teacher of a higher technical school should master the functions of a consultant, advisor, and educator. This requires special pedagogical training, implementation of pedagogical innovations (Dron, 2022).

Differentiation and individualization as conditions for the development of the pedagogical culture of a teacher of a higher technical institution are dictated by a number of socio-pedagogical features. First, the characteristics of the teacher's personality with his formed individual system of life and professional attitudes, value orientation, experience and professionalism, which puts subject-subject relations in priority positions. Establishing a partnership system of relations in the process of pedagogical training is the task of both the teacher-teacher and the student-teacher. However, the transition of teachers of a higher technical school to the position of a listener is often accompanied by strong emotional and mental stress. They, moving from the position of "the one who teaches" to the position of "the one who is taught", can react very subtly, often painfully, to various factors related to the qualifications of lecturers, the content, forms and methods of teaching, the quality of the educational process, relationships, consisting between "students" and "teachers" (Nind, & Lewthwaite, 2018).

Secondly, the peculiarities of the educational motivation of teachers, their needs in the assimilation of new pedagogical knowledge and technologies. The motives for including a teacher in cognitive activities depend on the general level of his pedagogical culture, the direction of professional activity, and the initiation of individual professional qualities. Thirdly, the peculiarities of teachers' pedagogical reflection aimed at the analysis and evaluation of their new position, the new status of a "student", evaluation of self-perception by teachers and fellow students, evaluation of their level of professional training compared to others, etc. (Wayne, & Youngs, 2003).

Fourthly, due to the limitation of study time, the intensity of classes, when it is necessary to master a large amount of new pedagogical knowledge in a short period of time, to complete the educational and research tasks provided for by the program, and the graduation work.

Thus, differentiation and individualization are socially and pedagogically determined, their purpose is mediated by the goals and tasks facing teachers, aimed at forming the foundations of pedagogical culture.

In the process of forming the pedagogical culture of teachers of technical universities, it is necessary to take into account the following patterns:

- the teacher's understanding of the content of pedagogical culture as a way of developing and transforming his personal and professional growth;
- sequences in directions: formation of motivation, inclusion of the teacher in educational activities, selection of content, methods and forms of pedagogical activity;
- the integrity of the development of pedagogical culture while relying on universal, national, regional values as guidelines for the choice of the professional "I" in interaction with teachers.

In the conditions of war, it is important for a person to be in a safe and stable environment for the development of personal potential and abilities. A safe environment around a person is the most important condition for his development. The institute of education is a psychological-pedagogical environment where specially organized conditions are built for the development of a person included in the spatial-objective and social environment, the essence of which is a set

of communicative actions and relationships of participants in the educational process (Tverdokhliebova, & Yevtushenko, 2022).

At the National Technical University "Kharkiv Polytechnic Institute", Office-365 is a platform for interaction between teaching staff and students at all levels of the organization of the educational process. The "Occupational and Environmental Safety" department of the National Technical University "Kharkiv Polytechnic Institute" trains occupational safety specialists (bachelor's and master's degrees in specialty 263 – "Civil Safety").

The educational and professional program of the specialty "Civil Security" involves the formation of general and special professional competencies of future labor protection engineers. Classes are held according to the schedule live in Teams, while it is possible to view the recording of lectures by those students who could not attend the classes. Educational presentations are available both in the online conference and in the Office-365 storage. Weekly messages from the dean's office and department through social media channels provide students with information throughout the semester. Regular communication of the teaching staff in social networking channels and in Teams turned out to be very important for planning, organizing and regulating the educational process in groups of different courses and specialties.

An important point in the organization of the educational process is the use of digital tools for transferring knowledge, developing new content for academic disciplines and testing the acquired knowledge. An explanatory video with a live demonstration of experiments and experiments has proven itself well. Many examples can be found on open platforms (YouTube, etc.).

Digital tools range from preparatory materials and videos, online tests and questionnaires, to experiments with online support or remote analysis and reporting of results. Practical exercises in digital format contribute to the formation of the necessary skills and control of their implementation. During the semester, students can receive bonus points in academic disciplines and receive a final grade in the rating.

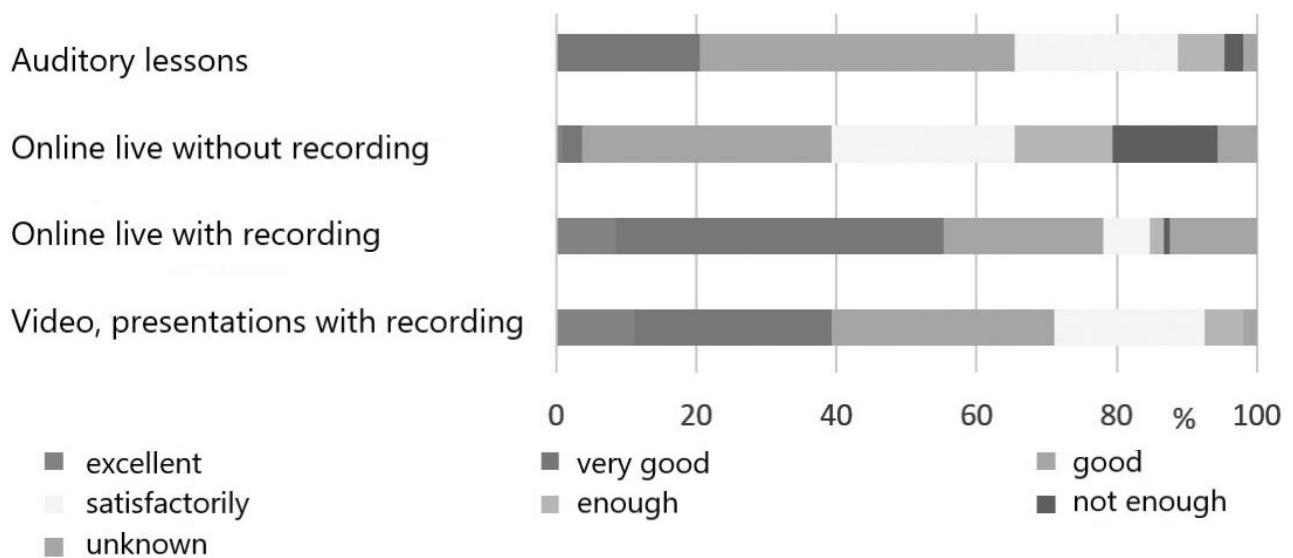
Validation of the learned material includes the application of knowledge and its interpretation in models and in practical systems. This can be the case in various problem situations when modeling a manufacturing process. A variety of testing modes range from simple answering questions to establishing

correspondence between events / phenomena, evaluation and process analysis. Online exams allow students to be assessed and assess their level of academic achievement. Online exams follow a specific procedure, which includes controlling the student's screen while answering and controlling behavior while answering questions.

We conducted an online survey for students about the implemented forms of education using digital technologies in the current conditions to ensure maximum safety for all participants in the educational process. A total of 112 responses were collected and evaluated. Figure 1 presents the main results where students compared face-to-face learning with three digital learning formats.

Figure 1

The Most Convenient Learning Format for Students in War Conditions



For more than 70% of students, the format of video lectures is attractive. 12% of students say that video lectures are better than face-to-face classes. Almost 80% of students attend online live classes. In their opinion, this format of classes is preferable, lectures should be recorded and available. Almost 90% of students watch online

recorded lectures and are satisfied with their content. Most of the time, the teacher and students work with the "screen sharing" function. For almost 80% of students, the ability to ask questions offline or live is important, especially in complex disciplines.

For students who make a living or have other daily responsibilities, flexible learning formats are very attractive. Learning with recorded videos or slides with sound is considered supportive and adapted to the respective learning progress. In the event of an unstable internet connection for data transfer during online training, recorded files are an alternative. Students summarize that from a technical point of view, they are better at online classes, especially videos or Power Point presentations, compared to face-to-face learning.

Almost every lecture is accompanied by exercises to illustrate the content and prepare for the exam. The advantage of video lectures is that students have the opportunity to increase or decrease the playback speed for a comfortable perception of educational information. In general, interpersonal interaction between teachers and students is an important aspect and should be adapted to the respective discipline. The technical quality of digital tools is also important for the learning process. Good sound quality is the main condition along with a stable Internet connection. What format of education (full-time, mixed, online lectures live with and without recording) for lectures and practical classes is most convenient for students? According to the survey, live online lectures with recordings are the most popular.

Practice/labs are best done in a mixed format to ensure close interaction in small groups and direct exchange of information with supporting tools of the recorded content. The role of the teacher is changing to that of a mentor. At the same time, mentoring becomes a key success factor in building a research career for students in study groups.

DISCUSSION

We agree with the opinion of scientists S. I. Aimah, & D. A. Bharati (2017) that it is desirable to consider pedagogical activity not only as the organization and conduct of the educational process by the teacher, but also as the process of his communication with colleagues, students, information, because the teacher's communication culture occupies a significant place in the structure of his pedagogical culture. The culture of communication presupposes the manifestation of moral qualities and abilities for mutual understanding, sympathy, empathy. The culture of communication is especially important for the professional activity of a teacher, because it is in communication that the inner culture of a person is revealed.

It is also worth paying attention to the fact that recently, in connection with the change of the role of the individual in the information society to a subject-active one, communication is increasingly considered as an activity of partnership, cooperation, based on the mutual informational addition of participants.

It should be noted that today there is not a sufficient number of practical developments aimed at creating safe conditions for the implementation of educational activities by all participants of the educational process in higher education in conditions of war.

CONCLUSIONS

Therefore, the formation of the pedagogical culture of teachers of technical universities in the conditions of deepening the actions of new trends in the socio-cultural development of the country can be considered as a multifaceted problem of urgent social and scientific importance. It must resolve the contradiction between the anticipatory

growth of requirements for the formation of a highly cultured personality and the real military conditions, the objective difficulties of achieving this goal.

The future of teaching at universities is based on digital formats for organizing the educational process. As learning platforms develop, higher education becomes more accessible. At the same time, in the conditions of war, in order to ensure safe conditions for all participants in the educational process, it becomes more and more individual.

In general, personal contact, feedback of online learning is important. Students can attend online classes and participate in academic discussions or study material in the form of live recorded lectures. For large groups in practical / laboratory work, the alternative would be to form subgroups.

The specification of course accessibility already requires the implementation of various digital tools with the availability of comprehensive lecture and practical materials.

Mixed format learning formats with a face-to-face learning structure are promising. At the same time, digital formats provide a better overview, as well as more detail and flexibility in the delivery of educational material using applications for new content and pedagogical methods and techniques.

The design of the future education, of course, depends on the further development of events in Ukraine, depending on which various scenarios have to be considered. The online format will be the result of the ongoing war in the country.

CONFLICT OF INTERESTS

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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АНОТАЦІЯ / ABSTRACT [in Ukrainian]:

**ПЕДАГОГІЧНА КУЛЬТУРА ВИКЛАДАЧІВ ТЕХНІЧНИХ УНІВЕРСИТЕТІВ
ЯК ЗАПОРУКА БЕЗПЕЧНОГО НАВЧАЛЬНОГО ПРОЦЕСУ
В УМОВАХ ВІЙНИ В УКРАЇНІ**

Вся система освіти нині зазнає структурних змін, які знаходять свій відбиток у більш широкому використанні цифрових та дистанційних технологій навчання. Педагогічна культура як особистісна характеристика педагога виступає засобом реалізації професійної діяльності в єдності цілей, задач, а також засобів і результатів. Одночасно різноманітні види педагогічної діяльності утворюють функціональну структуру культури. Основними особливостями педагогічної діяльності повинні виступати її комплексність і цілісність, творчий характер, сполучення колективної діяльності й індивідуальної творчості педагогів, тому що процес рішення педагогічних цілей і задач являє собою технологію педагогічної діяльності, що характеризує спосіб існування й функціонування педагогічної культури викладача.

Викладання в умовах війни в Україні передбачає використання різних форм навчання з впровадженням цифрових технологій та інструментів для забезпечення безпеки всіх учасників навчального процесу та гнучкості у часі та просторі. Такий підхід дозволяє адаптувати навчальний контент під потреби студентів та під вимоги навчальної програми. При цьому стає важливим вибір індивідуальної освітньої траєкторії, в якій студенти можуть змінити та адаптувати свій освітній процес.

Метою даної статті є аналіз змісту поняття педагогічної культури викладачів технічних університетів в умовах сьогодення, визначення найбільш зручного формату університетського навчання для забезпечення безпеки усіх учасників навчального процесу в умовах війни в Україні.

Методологія, на яку спирається ця стаття, включає емпіричні методи (спостереження, бесіда, діалог), які зараз використовуються в очній та дистанційній формах навчання, та теоретичні методи (аналіз, синтез, узагальнення, пояснення, класифікація). Спираючись на них, ми сформулюємо практичні рекомендації щодо впровадження цифрових технологій та інструментів для забезпечення якісного навчання студентів вищих навчальних закладів технічного профілю в сучасних умовах життя українського суспільства.

У рамках нашого дослідження досягнуто наступних **результатів**: проведено аналіз сутності поняття «педагогічна культура», виділено основні ознаки та критерії її сформованості, викладено та проаналізовано умови формування педагогічної культури викладачів технічних університетів в умовах війни, проведено дослідження щодо виявлення найбільш зручної форми університетського навчання із застосуванням цифрових технологій та інструментів для забезпечення безпеки всіх учасників навчального процесу у сучасних умовах.

Висновки дозволяють стверджувати, що, незважаючи на складну ситуацію в країні, необхідно готувати студентів технічних університетів до їхньої подальшої професійної та особистої кар'єри, що супроводжується навчанням протягом усього життя. Поєднання цифрових інструментів є успішною відповіддю на умови, що швидко змінюються, і призводить до гнучкої системи викладання та навчання. При цьому необхідно створити умови для обов'язкової взаємодії між студентами та викладачами, які виступають у ролі наставників.

КЛЮЧОВІ СЛОВА: освіта, педагогічна культура, цифрові технології, викладач технічного університету, педагогічна діяльність.

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