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CHAPTER 1

GENERAL PEDAGOGY AND HISTORY OF PEDAGOGY

ACQUISITION OF ACADEMIC INTEGRITY COMPETENCIES BY POSTGRADUATE STUDENTS AND THEIR IMPACT ON THEIR SCIENTIFIC ACTIVITY

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Abstract. Academic integrity plays an important role in everyone's research, especially for graduate students who are in the early stages of their careers. The purpose of the article is to establish the basic competencies in the field of academic integrity that postgraduate students should possess. The main methods that were used in the research are analysis and synthesis, methods of comparative analysis, generalization, which made it possible to achieve the set goal. The methodological basis of the study was a survey of postgraduate students of Ukrainian universities. Based on the results of the literature review, the authors systematized the main forms of violations of academic integrity that graduate students may encounter during their studies. Based on the results of a survey of postgraduate students, the main issues of compliance with academic integrity were investigated: compliance with the code of academic integrity of the university; availability of persons responsible for familiarizing postgraduate students with issues of academic integrity; the main forms of violations of academic integrity that postgraduate students may encounter during their studies; the main decisions made as a result of the detection of cases of violation of academic integrity; core competencies that graduate students would like to possess to prevent academic integrity violations. The main measures to inform postgraduate students about the observance of academic integrity have been proposed.

Keywords: postgraduate student, academic integrity, breach of academic integrity, competencies, research.

JEL Classification: A23, A29, I28

Formulas: 0; **fig.:** 5; **tabl.:** 1; **bibl.:** 8

Introduction. The scientific activity of any researcher is impossible without compliance with the code of ethics and norms of academic integrity. Postgraduate students, as early-career researchers, need to understand the importance of the impact of academic integrity on their future scientific careers and the formation of a positive image of their research results.

Studying the basics of academic integrity and understanding the consequences of its violation is an integral part of the training of postgraduate students.

Most universities in their activities use the general norms of academic integrity, as well as their own codes approved by the decisions of the Academic Council.

Literature review. In article “An Academic Integrity Approach to Learning and Assessment Design”, Hamilton, M.; Richardson, J. (2007) discussed the role of the educator in terms of designing a learning environment for the student which encourages the student to develop their own academic integrity. In such an environment, there is no need for the student to resort to plagiarism, as the learning and assessment tasks are not conducive to cheating, being unique and challenging for each student, regardless of the number of students enrolled in the particular course. They consider the learning design approach to assessment in the context of high-level vocational education. Educational resources are designed to support work-based knowledge and personal development capabilities. Educators assess to provide for professions, work contexts and individual learning needs. The major focus of this paper is discussion of the design of learning approaches and assessment tasks that disenable plagiarism and cheating, and promote problem-solving skills, academic integrity and creativity.

The conceptual review “Academic integrity at doctoral level: the influence of the imposter phenomenon and cultural differences on academic writing” seeks to reframe the view of academic integrity as something to be enforced to an academic skill that needs to be developed (Jennifer Cutri, Amarpreet Abraham, Yeni Karlina, Sweta Vijaykumar Patel, Mehdi Moharami, Shaoru Zeng, Elham Manzari, Lynette Pretorius, 2021). The authors highlight how practices within academia create an environment where feelings of inadequacy thrive, leading to behaviours of unintentional academic misconduct. Importantly, this review includes practical suggestions to help educators and higher education institutions support doctoral students’ academic integrity skills. In particular, the authors highlight the importance of explicit academic integrity instruction, support for the development of academic literacy skills, and changes in supervisory practices that encourage student and supervisor reflexivity. Therefore, this review argues that, through the use of these practical strategies, academia can become a space where a culture of academic integrity can flourish.

In 1999, the Committee on Publication Ethics (COPE) defined plagiarism as “Plagiarism ranges from the unreferenced use of others’ published and unpublished ideas including research grant applications to submission under new authorship of a complex paper, sometimes in a different language. It may occur at any stage of planning, research, writing or publication; it applies to print and electronic versions.”

Taking into account the main practices of publishing activity, we systematized the main forms of plagiarism (Table 1).

1. Academic plagiarism
2. Self-plagiarism
3. Fabrication
4. Falsification
5. Deception
6. Non-objective assessment

Table 1. The main forms of academic integrity violations

Forms	Description
1. Academic plagiarism	plagiarism of fragments of written works and full texts;
	plagiarism of ideas, data, models, illustrations, etc.;
	lack of proper references in the absence of attribution of authorship;
	citation errors
2. Self-plagiarism	duplication of publications — publication of the same scientific work (completely or with minor changes) in several editions, as well as re-publication (completely or with minor changes) of previously published articles, monographs, other scientific works as new scientific works;
	duplication of scientific results — publication in full or in part of the same scientific results in various articles, monographs, other scientific works as new results that are published for the first time;
	presentation in the reports on the implementation of various scientific projects of the same results as those obtained during the implementation of the corresponding project
	re-submission by students of written works, which were already submitted as reports from other disciplines, without the teacher's permission;
	aggregation or addition of data — combining previously published and new data without dividing them with relevant references to the previous publication;
	re-analysis of previously published data without reference to the previous publication of these data and their previously performed analysis
3. Fabrication	citation of fictional or unverified data, in particular statistical data, results of experiments, calculations or empirical studies, photographs, audio and video materials, etc., in written works of applicants and in scientific works;
	reference to fictitious sources of information or intentional reference to a non-genuine source;
	attributing to others texts, opinions or ideas that they did not express or publish
4. Falsification	unjustified correction of the results of one's own scientific research or performance of educational tasks (one that is not based on repeated or additional research, measurements or calculations, correction of identified errors, etc.);
	citation in written works of applicants and in scientific works of deliberately changed literary data and data obtained from other sources; in particular, statistical data, results of experiments, calculations or empirical studies, photographs, audio and video materials, etc. without proper substantiation of the reasons and indication of the method of their correction;
	providing incomplete or distorted information about the approval of research and development results
5. Deception	inclusion of persons who did not take qualified participation ⁶ in their preparation as co-authors of scientific publications;
	non-inclusion in co-authors of scientific publications of persons who took qualified participation in their preparation;
	submitting as the results of one's own work works commissioned by other persons, or works for which the real authors have given consent for such use;
	submission or presentation by different persons of works with the same content as a result of their own educational activity;
	writing other people's versions of tasks at control events;
	use of a system of hidden signals (sound, gestures, etc.) when performing group control measures with the same options;
	non-independent performance of tasks in cases where receiving assistance is not allowed, or failure to specify information about received assistance, consultations, cooperation;

Forms	Description
6. Non-objective assessment	passing knowledge control procedures by fake persons;
	simulation of deterioration of the state of health, illness in order to avoid control measures;
	providing feedback or reviews on scientific or educational works without proper examination of them
	deliberate overestimation or underestimation of the learning outcomes of education seekers;
	untimely notification of education seekers about the system of evaluation of learning results;
	application of an evaluation system that does not correspond to the declared goals and objectives of the topic, discipline, practice, educational program, etc.;
	lack of objective evaluation criteria

Source: developed by the authors based on []

Aims. The purpose of the article is to establish the basic competencies in the field of academic integrity that postgraduate students should possess.

Methods. The main methods that were used in the research are analysis and synthesis, methods of comparative analysis, generalization, which made it possible to achieve the set goal.

The methodological basis of the study was a survey of postgraduate students of Ukrainian universities, which was conducted online using a Google form in the period from September 1 to November 1, 2022. The 1,347 graduate students of various specialties, including humanitarian, social, technical and natural sciences, took part in the survey. The 63% of respondents were women and 37% were men.

Results. During the survey, postgraduate students were asked about their awareness of the existence and text of a Code of Academic Integrity or a similar document at their university (Figure 1).

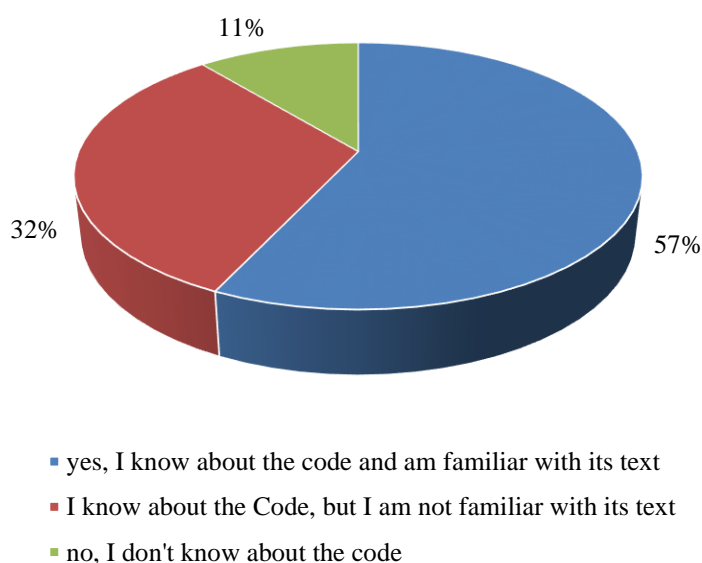


Figure 1. Postgraduate students' awareness of the existence and text of the Code of Academic Integrity or a similar document at their university

Source: developed by the authors based on the results of a survey

Postgraduate students were asked who exactly informed them about the need to read and comply with the Code of Academic Integrity or a similar document (Figure 2).

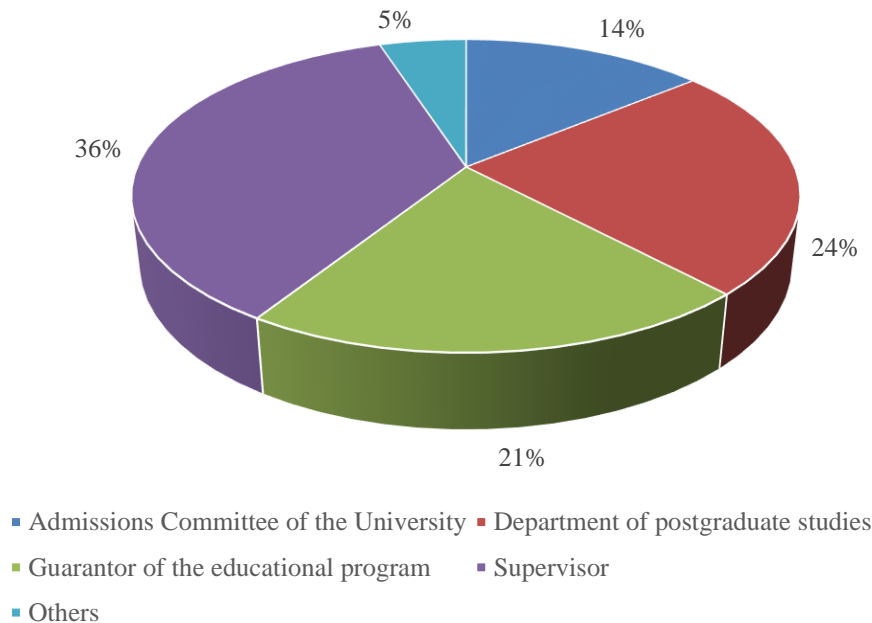


Figure 2. The main persons who informed postgraduate students about the need to familiarize themselves with and observe the norms of the Code of Academic Integrity or a similar document

Source: developed by the authors based on the results of a survey

As can be seen from the answers, in most cases, it is the academic supervisor of postgraduate students and the guarantor of the educational program who are given the main role in teaching postgraduate students to observe academic integrity.

Postgraduate students were asked what forms of academic integrity violations they encountered during their studies (Figure 3).

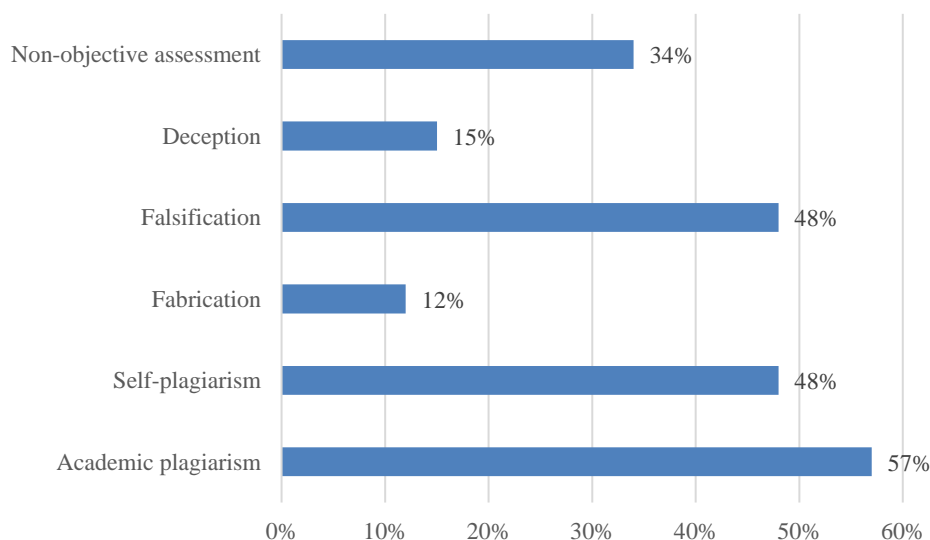


Figure 3. The main forms of violations of academic integrity encountered by postgraduate students during their studies

Source: developed by the authors based on the results of a survey

As can be seen from the answers, academic plagiarism (57%), self-plagiarism (48%) and falsification (48%) are the most common.

Postgraduate students were asked whether action had been taken to prosecute those who breached academic integrity (Figure 4).

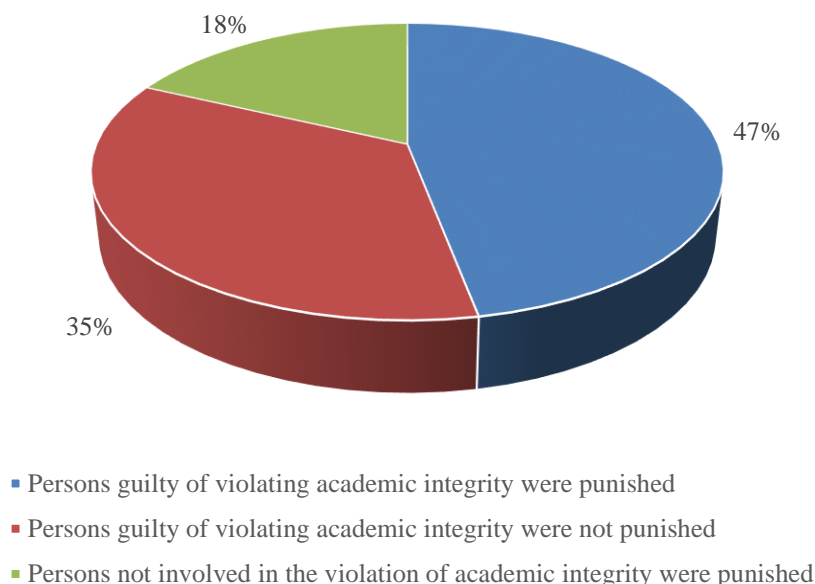


Figure 4. Answers of graduate students regarding cases of prosecution of persons who violated academic integrity

Source: developed by the authors based on the results of a survey

The received answers indicate a low level of punishment of persons guilty of violating academic integrity, which indicates ineffective communication between graduate students and university management regarding issues of academic integrity.

The degree of seriousness of violations may differ according to the types of violations, their repetition, types of works (current written tasks, final certification in the discipline, final certification at a certain level of education, dissertations, monographs, scientific publications, scientific reports, etc.) etc.

The main types of liability of postgraduate students for violation of academic integrity can be:

- repeated assessment (test, exam, credit, etc.);
- repeating the relevant educational component of the educational program;
- deductions from the educational institution (except for persons who obtain general secondary education);
- deprivation of an academic scholarship;
- deprivation of tuition benefits provided by the educational institution.

In addition to the legally defined forms of academic responsibility, universities may apply:

a verbal remark from a teacher or an authorized representative of the administration (head of the department, faculty, etc.);

- warning about the possibility of being brought to academic responsibility;
- referral to additional training on issues of academic integrity;
- repeating the task;

- reducing the grade for the task;
- making a permanent or temporary entry in the register of violations of academic integrity (this entry may be available to potential employers, higher education institutions upon admission to study or work, as well as in other cases determined by internal regulatory documents);
- verbal or written notification of a legal or physical entity paying for education about the fact of violation;
- exclusion from the rating of applicants for receiving an academic scholarship or the calculation of penalty points in such a rating;
- deprivation of honorary titles, awards, scholarships, etc., awarded by a higher education institution;
- deprivation of the right to vote in the collegial management bodies of the institution of higher education or limitation of the right to participate in the work of such bodies for a certain period;
- deprivation of the right to participate in competitions for obtaining funding for scientific research, scholarships, grants, etc.;
- deduction or dismissal.

At the same time, it should be taken into account that certain types of responsibility can simultaneously be types of disciplinary or administrative responsibility. In this case, they can be applied only in the cases and in the order defined by the laws.

Postgraduate students were asked about competencies that would help them not violate academic integrity (Figure 5).

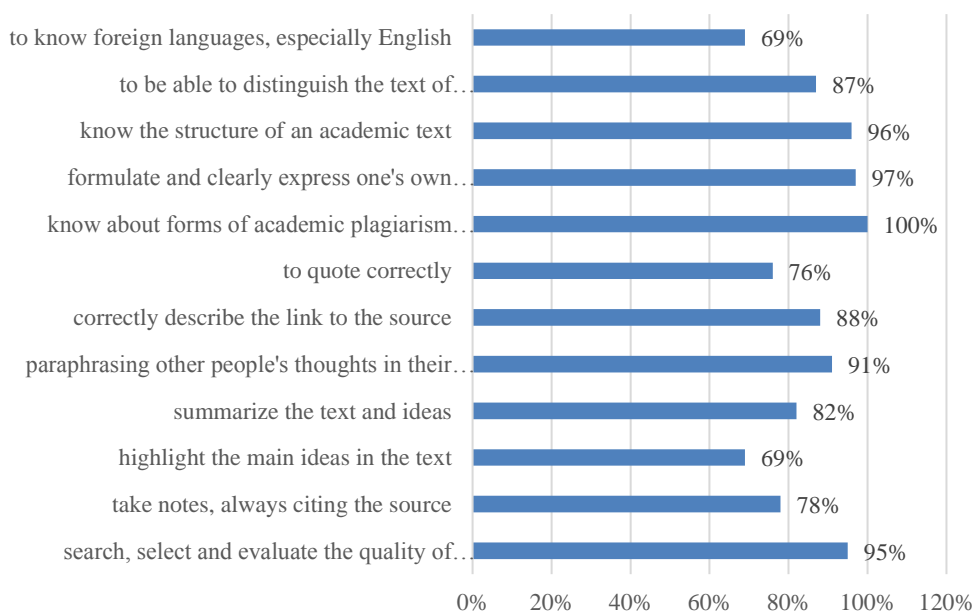


Figure 5. Basic competencies needed by graduate students to prevent violations of academic integrity

Source: developed by the authors based on the results of a survey

The results of the survey indicate a high level of understanding by postgraduate students of the need to observe academic integrity and the competencies they need for this.

As the results of the survey showed, graduate students need separate awareness measures on all issues of academic integrity.

Discussion. In our opinion, the results of the conducted survey of postgraduate students indicate the need to carry out explanatory activities in order to increase awareness and observe academic integrity. The main such measures can be:

- explain the requirements related to the written task, as well as the essence, features and reasons for the inadmissibility of academic plagiarism as early as possible, at the beginning of each discipline;
- explain to postgraduate students the value of acquiring new knowledge, academic norms that must be followed, why they are important, what academic integrity is, what its values are, what it serves, how students can contribute to it by their actions development;
- provide postgraduate students with clear information about the rules of academic writing;
- prescribe a policy on academic plagiarism in the course syllabus;
- formulate the tasks in such a way that they cannot be plagiarized (analytical, not reproducible formulation of the task; high specification of the task; processing of specific sources and data);
- make sure that the requirements for the task and the criteria for its assessment have been properly explained. The requirements for written works (volume, style of citation, permissible number of citations, design rules, etc.) should be clearly prescribed in methodological materials for students;
- develop non-standard, creative tasks, update them annually;
- give postgraduate students examples of finished works;
- discuss with postgraduate students the examples of high-quality and low-quality academic writing;
- during the postgraduate student's work on the text, conduct at least one intermediate check of the draft version of the written work, provide feedback and recommendations to
- text or structure the execution of the work in time with intermediate checks of each stage of its preparation;
- postgraduate students can review each other's work: provide them with evaluation criteria for this.

Conclusion. Based on the results of the research, it is appropriate to draw the following conclusions. Based on the results of the literature review, the authors systematized the main forms of violations of academic integrity that graduate students may encounter during their studies.

Based on the results of a survey of postgraduate students, the main issues of compliance with academic integrity were investigated: compliance with the code of academic integrity of the university; availability of persons responsible for familiarizing postgraduate students with issues of academic integrity; the main forms of violations of academic integrity that postgraduate students may encounter during their studies; the main decisions made as a result of the detection of cases of violation of academic integrity; core competencies that graduate students would like to possess

to prevent academic integrity violations. The main measures to inform postgraduate students about the observance of academic integrity have been proposed.

Author contributions. The authors contributed equally.

Disclosure statement. The authors do not have any conflict of interest.

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CHAPTER 2

INNOVATIONS IN THE MANAGEMENT OF EDUCATIONAL INSTITUTIONS

CONCEPTUAL FOUNDATIONS FOR PREPARING MATHEMATICS AND COMPUTER SCIENCE TEACHERS FOR THE USE OF VIRTUAL CLARITY MEANS

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Abstract. In the article, the authors touch on the problem of professional training of teachers of mathematics and computer science in the context of the development of digital technologies and the demand of society for visual support of training. The generalization of scientific and pedagogical research on the training of teachers of mathematics and informatics is presented. The conceptual contradictions of the educational sector, which are proposed to be resolved through the implementation of the author's concept of preparing future teachers of mathematics and computer science for the use of virtual clarity in professional activities, are singled out. Based on the results of the analysis and systematization of scientific sources and own experience of teaching, the requirements for the training of teachers of mathematics and computer science were clarified, taking into account the requests of stakeholders for the effective implementation of professional pedagogical activity. The leading ideas of the concept of professional training of future teachers of mathematics and computer science for the use of virtual clarity in professional activities are revealed. The implementation of the concept is described on the methodological (the provisions of philosophy regarding the development, self-realization, self-improvement of the individual and the unity of the theory and practice of conscious human activity as a subject of cognitive activity, as well as systemic, acmeological, cognitive-visual, synergistic, reflexive-activity, BYOD-approach, made-self-approach), theoretical (based on the formation of teachers' readiness to use virtual clarity as a complex personal education) and practical (characterizes the practical aspects of the implementation of the concept) levels. It is expected that the developed concept will determine the fundamental positions of designing a pedagogical system of professional training of future teachers of mathematics and computer science for the use of virtual clarity tools in professional activities at the level of higher education institutions.

Keywords: professional training of the teacher, concept, conceptual foundations, future mathematics and computer science teachers, virtual clarity means, professional activity of the teacher.

JEL Classification: I23, I26, I29

Formulas: 0; **fig.:** 0; **tabl.:** 0; **bibl.:** 40

Introduction. Professional training of future mathematics and computer science teachers in the context of the development of the educational sphere, its modernization increasingly depends on the formation of professionally significant qualities necessary for the creative performance of future professional duties. At the same time, the educational process is still focused on traditional classical education rather than on the logic of digital innovation in education. First, it provides actions on the introduction of digital technologies, motivating their use to solve the problems of professional training of future teachers and their further professional activities. Therefore, we see the making of the concept of the professional training of teachers of mathematics and computer science, focused on the introduction of digital technologies both in the training itself and the readiness to use digital technologies in professional activities, as relevant.

Literature review. Analysis of scientific works related to the training of a teacher of mathematics and computer science revealed the following areas of research:

- *computer science and mathematics* – fundamental ideas and assessments of trends and prospects of modern computer science and mathematics education [10; 21; 40] and the use of IT in vocational education [33; 34];
- *theoretical and methodological* – the theory of teacher training in the conditions of informatization of education [12; 31; 37], theoretical foundations of the formation of professional [27], information [32], methodological [25], visual and informational [19] culture of teachers, conceptual research in the field of theory and methodology of teaching mathematics and computer science [23; 28; 35];
- *psychological and pedagogical* – neurophysiological foundations of the theory of visual perception, theoretical and practical aspects of visual thinking [7; 26; 38], theoretical and methodological foundations of cognitive visualization in teaching mathematics [15; 36].

Along with significant theoretical and methodological developments in the field of training teachers of mathematics and computer science, including technologies for the formation of professional competencies, their methodological training, and preparation for the use of specialized software, we recorded fragmentation of developments on the use of computer visualization tools, in particular, virtual visualization tools in the educational process and appropriate teacher training to use it in professional activities. This is confirmed by several contradictions at the conceptual level of modern education:

- between the active consumption of information content by young people through visual channels of perception and the insufficient use of this activity in the conditions of schools;
- between the potential of higher education institutions for high-quality training of teachers of mathematics and computer science and the insufficient realization of such potential due to moderate updating of the material base and the lack of teachers prepared for the use of virtual visibility;

Potential solutions to these contradictions are:

- development of motivation of future teachers of mathematics and computer science to use the virtual clarity means in professional activities;
- introduction of innovative teaching methods and technologies;
- pedagogical skills of teachers;
- creating an appropriate educational environment using IT technologies;
- organization of educational and industrial practices of students in the workplace of teachers of mathematics and computer science;
- formation of skills of future teachers of mathematics and computer science on the use of virtual clarity in professional activities;
- updating the content of the educational program for the preparation of future teachers of mathematics and computer science;
- control of educational achievements of future teachers of mathematics and computer science;
- development of reflection of students and teachers on readiness for the implementation of modern concepts and innovative teaching technologies.

The search for the most effective of them requires comprehension of the experience gained at different levels of pedagogical education, the development and consideration of methodological approaches to the use of educational technologies in preparing future teachers of mathematics and computer science for the use of virtual clarity, that is, the development of conceptual foundations for preparing future teachers for the use of virtual clarity in professional activities.

Aims. The purpose of the article: to develop conceptual foundations for preparing future teachers for the use of virtual clarity in professional activities

Methods. To achieve the goal, the analysis of scientific works, comparison of results, and generalization of approaches to the preparation of future teachers of mathematics and computer science were used.

Results. The concept is understood as a system of our views on this problem, the author's vision, understanding, and interpretation of the training of future teachers of mathematics and computer science in the system of vocational secondary education.

Theoretical analysis of literature and experience of teaching allowed to list the requirements for teachers of mathematics and computer science, taking into account the requests of stakeholders for the effective implementation of professional pedagogical activity:

- informatics, mathematical, psychological, and pedagogical knowledge;
- mastering modern methods of teaching mathematics and computer science;
- ability to create a digital educational environment with virtual visual aids;
- readiness for professional activities on the use of virtual clarity;
- the ability to observe and then analyze specific learning situations, set tasks for turning these situations into effective ones, and choose possible options that will contribute to achieving this goal;
- the ability to navigate sources of visual content, the means of its creation and distribution, the ability to use author's and borrowed didactic visual materials in the educational process;

- the reflection on the implementation of professional and pedagogical activities.

Based on the current trends in the development of education and its methodology, the principles of competency-based learning, and the process of professional training of future teachers of mathematics and computer science as a social phenomenon aimed at solving certain problems of society, it is advisable to direct to the harmonious development of the individual, capable of creativity and continuous self-improvement. Taking into account these leading ideas and positions of preparing future teachers of mathematics and computer science for the use of virtual clarity tools in professional activities to reveal the content of the concept, we have identified several psychological and pedagogical provisions.

Professional training of future teachers of mathematics and computer science is a process that reflects the scientifically and methodically based measures of higher education institutions aimed at forming the necessary level of professional competence of the graduate during the training. At the present stage of development of higher education, we note the importance of shifting the emphasis from memory development to the development of mental abilities of the personality of the future teacher and his visual thinking.

Therefore, the leading *ideas* of the concept of professional training of future teachers of mathematics and computer science for the use of virtual clarity in professional activities are:

- recognition of the value for the society of professional training of future teachers of mathematics and computer science for the use of virtual clarity in professional activities;
- formation of the readiness of future teachers of mathematics and computer science to use the virtual clarity means in professional activities through the development of the educational industry and digital technologies, as well as taking into account the peculiarities of young people's perception of visual content;
- modernization of the process of professional training of teachers with an emphasis on visual technologies, materials, and means in the information and educational environment of higher education institutions;
- acquisition in the process of professional training of primary experience in the use of virtual visualization tools in the educational process (organization of the digital space for teaching mathematics and computer science; development of accompanying didactic interactive materials in teaching mathematics and computer science; use of Internet technologies and social networks for the organization of informal learning; creation of popular science visual content, etc.);
- taking into account the trends in the transformation of vocational education in the direction of improving the professionalism of future teachers of mathematics and computer science, humanization of higher education, and creating an information and digital environment of an educational institution;
- ensuring personal professional development, self-development, and self-improvement of teachers of mathematics and computer science throughout their lives, forms their positive motivation and ability to achieve a high level of readiness of

future teachers of mathematics and computer science to use virtual clarity in professional activities;

- introduction of new forms of organization of the educational process, in particular, in the application of innovative educational ones, which ensure the effectiveness of educational, methodological, and organizational support.

- creative and creative activity of teachers of higher education institutions, which is aimed at expanding the subject functions of future teachers of mathematics and computer science to form their skills to generate new knowledge and technologies, develop innovative professional and pedagogical products (services, methods, etc.), creatively approach their pedagogical activities.

The concept of the study is revealed at the methodological, theoretical, and practical levels.

The methodological level characterizes the concept from the standpoint of philosophy and general methodology. The first uses the provisions of philosophy regarding the development, self-realization, and self-improvement of the individual and the unity of the theory and practice of the conscious activity of a person as a subject of cognitive activity. The second uses the conceptual provisions of pedagogical education, as well as systemic, acmeological, cognitive-visual, synergistic, reflexive-activity, BYOD-approach, and made-self-approach to the professional training of future teachers of mathematics and computer science to the use of virtual clarity in professional activities.

Let us dwell in more detail on these positions.

At the philosophical level, we base the study on a dialectical approach that allows: to study processes and phenomena in their interrelationships, dynamics, and development; to observe the transition of quantitative changes into qualitative ones; to identify internal contradictions, the unity of opposites, based on this, to determine the driving forces of knowledge; be guided by the law of the negation of objections, analyzing in unity the theory and practice of the phenomena studied.

Adhering to the dialectical basis in solving the problem of our research, the laws of dialectics, which are closely interrelated with each other, acquire methodological significance – the law of unity and struggle of opposites, the law of transition of quantitative changes into qualitative ones, the law of negation.

By the law of unity and struggle of opposites, the essence of which is to determine the driving forces of development, we had the opportunity to identify contradictions as an incentive for changes in the professional training of future teachers of mathematics and computer science to use the virtual clarity means in professional activities. This became the basis for the development of an appropriate pedagogical system, the implementation of which is aimed at overcoming these contradictions.

According to the law of transition of quantitative changes into qualitative ones, which reveals the mechanisms for transforming some material formations into others, we had the opportunity to demonstrate the dynamics of the process of forming the professional readiness of future teachers of mathematics and computer science to use virtual clarity in professional activities, determining qualitative and quantitative

changes (criteria and indicators) for assessing the levels of this readiness, as well as to predict its further improvement, taking into account obtained statistical data. By this law, the readiness of future teachers of mathematics and computer science to use the virtual clarity means in professional activity is considered by us as the personal state of the subject, encouraging them to productively use the means of virtual clarity, and the degree of detection of which can be indicated by three levels by the qualitative characteristics of its components: high, medium, low.

Taking into account the provisions of the law of negation, which reflects continuity as a feature of the development process, consisting in preserving and improving in the new object all that is progressive that was achieved at the previous stages of its development, orients us to the importance of familiarizing ourselves with the best foreign and domestic experience of professional training of future teachers of mathematics and computer science for the use of virtual clarity in professional activities and its consideration in the process of creating an appropriate pedagogical system.

With the laws of dialectics, paired categories are closely interrelated, such as necessity and chance, possibility and reality, single and general, part and whole, cause and effect, essence and phenomenon, and content and form. In our study in these categories, it is possible to purposefully investigate objective regular connections and attitudes in the process of forming the professional readiness of future teachers of mathematics and computer science to use virtual clarity in professional activities, to objectively evaluate the results obtained during the study.

So, at a philosophical level, the validity of our research strategy rests on the laws and principles of materialistic dialectics, which are more related to the purpose of the research work, its tasks, and logic.

The interrelation of various approaches of the general scientific and specific scientific methodology of the system of professional training of future teachers of mathematics and computer science to the use of virtual clarity tools in professional activities allows us to present methodological approaches to teacher training:

- system approach [8; 9; 22] means the disclosure of the integrity of the pedagogical system, its assessment, the object of study (professional training of future teachers of mathematics and computer science), the identification of the relationship and functional relationships between its structural components with the definition of the main factors influencing the system and the ability to manage the system for the mandatory implementation of the results obtained in the practice of professional training of future teachers of mathematics and computer science;

- meta subjects' approach [13; 20]) involves the connection with real life and professional situations by using virtual clarity, constant appeal to the personal experience of future teachers of mathematics and computer science, and projection of educational situations for future professional activities;

- reflexive-activity approach [17; 29] involves the formation and improvement of professional knowledge and skills through specific actions in the process of professional training with ensuring the effective implementation of a person-specialist in key areas of his life in the interests of both himself and society;

- the acmeological approach [16; 39] includes the self-realization of future teachers of mathematics and computer science in professional activities through self-reflection, self-education, and self-development;

- synergistic approach [11; 24; 30] provides optimization of the educational process through the implementation of interdisciplinarity and transdisciplinarity, which makes it possible to expand the boundaries of mastering academic disciplines, use cognitive schemes of one industry in another, create a digital environment for communication between participants in the educational process;

- cognitive-visual approach [5;14] is the basis for the formation of future teachers of mathematics and computer science knowledge, skills, and abilities to use the virtual clarity means in future professional activities;

- "Self-made-man"-approach [1;2;3]. involves the identification, consideration, and development of the individual characteristics of future teachers of mathematics and computer science based on self-improvement to develop personality;

- BYOD-approach [4; 6; 18] was used to intensify the educational process using mobile technologies and solve the problem of constant access to educational resources during the preparation of future teachers of mathematics and

Summing up, we note that the combination of these approaches as our methodological concept makes it possible to theoretically consider the ways and methods of solving the problem under study and makes it possible to model the system of professional training of teachers for the use of virtual clarity tools in professional activities.

The professional readiness of future teachers of mathematics and computer science to use the virtual clarity means in professional activities, in our opinion, is a construct of five interdependent components:

- motivational (motivation for the use of virtual clarity in professional activities);
- cognitive (knowledge of the virtual clarity means and their application in professional activities);

- instrumental (ability to work with a means of virtual clarity);

- methodical (possession of methods of using virtual clarity in teaching mathematics);

- reflexive (ability to improve and develop in the field of digital technologies for professional activity and personal development).

Based on it, we characterize the theoretical level of the concept through several theoretical provisions:

- "readiness of future teachers of mathematics and computer science to use the virtual clarity means in professional activities" is a personal education that has a complex structure, and therefore is formed through its components;

- the readiness of future teachers of mathematics and computer science to use the virtual clarity means in their professional activities is one of the results of their professional training, and therefore should be formed under the influence of the pedagogical system, which is connected and implemented within the educational and professional training program for teachers (mathematics and/or computer science), which is offered/developed by the university;

– the process of forming the readiness of future teachers of mathematics and computer science to use the virtual clarity means in professional activities requires the creation of an information and digital educational environment of higher education institutions in which subjects (teachers, students) and objects interact (an educational program, discipline program, digital tools to support the educational process, specialized software in the field (mathematics, computer science), services/programs for creating virtual clarity, didactic materials).

The practical level of the concept is expressed by the practice-oriented aspects of the professional training of future teachers of mathematics and computer science:

– technologization of professional training of future teachers of mathematics and informatics;

– creation of an information and educational environment for professional training of future mathematics and computer science teachers through informatization of the educational process and creation of an information and educational environment in higher pedagogical education institutions;

– practice-oriented professional training of future teachers of mathematics and computer science;

– research work of future teachers of mathematics and computer science;

– pedagogical integration (general scientific interdisciplinary and internal disciplinary areas);

– updating the standards of pedagogical education.

The most effective methods include:

– formation of the experience of subject-subject interaction (conversation, discussion – debate, forum, round table, decision tree);

– stimulation to interact (creating situations of interest, the method of relying on life experience, the method of creating a sense of success);

– solving specific pedagogical and technological situations (design method, method of business games, method of analysis of educational situations, method of group consultations);

– diagnostics of the results of interaction (method of mutual learning, mutual control, and mutual evaluation).

Therefore, the practical level of the concept testifies that it is the formation of the readiness of future mathematics and computer science teachers to use the virtual clarity means in professional activities:

– occurs through the pedagogical system, the implementation of which is based on the information environment of the university;

– requires consideration of the development of information technologies in the field of education and digital technologies in the field of teaching material (mathematics/ computer science);

– requires the formation of knowledge about modern approaches to the visualization of knowledge and the available digital tools for visualizing educational material (mathematics/computer science);

– requires the formation of skills in critical analysis, comparison, and evaluation of means of virtual clarity;

- requires the formation of methodological skills to use the virtual clarity means in professional activities;
- requires *compliance with organizational* (1 – organization of information and digital educational environment of universities; 2 – organization of quasi-professional activities using virtual clearance; 3 – organization of constant communication with stakeholders; 4 – involvement of students in non-formal education (participation in web-quests, in scientific events, mastering courses on open educational resources) and *pedagogical* (1 – strengthening the motivation to use the means of virtual clarity; 2 – the active use of computer visualization tools in the process of studying professionally oriented disciplines; 3 – encouraging non-formal education to credit the results of students' independent work) conditions.

Conclusions. The leading ideas and levels of implementation of the concept of preparing future mathematics and computer science teachers for the use of virtual clarity tools in professional activities are listed and characterized by the fundamental positions of designing the pedagogical system of their professional training. In this context, the developed concept is aimed at modernizing the content of education according to the requirements of educational standards, introducing innovative educational technologies in the conditions of creation of information and educational environment of higher pedagogical education institutions, organization of productive mastery by future mathematics and computer science teachers of knowledge about the use of virtual clarity means in professional activities.

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CHAPTER 3

THEORY AND METHODS OF VOCATIONAL EDUCATION

CHARACTERISTICS OF THE MAIN COMPONENTS AND CRITERIA OF THE FORMATION OF THE ECOLOGICAL CULTURE OF FUTURE SCIENCE TEACHERS

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Abstract. Nowadays, the problem of optimizing the interaction between man and nature by increasing the level of environmental culture of young people is relevant. The views of scientists on the specifics of the formation of environmental culture of higher education students are analyzed. Five interrelated components of the readiness of students of higher education for the formation of an ecological culture of students are characterized: motivational and valuable (deep interest of students in studying the ecological state of the environment, their conviction in the education of moral and ecological qualities in schoolchildren), cognitive (the formation of a certain system of psychological pedagogical, chemical, geographical, ecological, biological knowledge, which ensures the development of ecological thinking), procedural (formation of ecological and professional skills, skills and experience necessary for the implementation of environmentally safe activities with students), reflective and personal (formation in higher education students of the skills to realize the results of their ecologically oriented activities, to objectively evaluate them and determine one's attitude towards them). According to the components, the criteria for the formation of the ecological culture of future teachers of natural sciences are defined: value-orientational, cognitive, practical-active, reflective-evaluative. Value-orientational (the formation of the ecological and professional orientation and personal motivation of the future teacher of natural sciences in the process of professional training); knowledge (availability of a certain amount of knowledge from professional disciplines, understanding of the content, essence, signs and stages of ecological and pedagogical activities aimed at the formation of ecological culture in students); practical and active (availability of skills to use typical forms, methods and means of teaching students of natural sciences in educational work; skills of applying pedagogical innovations, the latest technologies, active methods and techniques in one's environmental and professional activities); reflexive-evaluative (formation of environmental-professional reflection in the future teacher of natural sciences; ability to diagnose his environmental-professional activity with the aim

of its further modeling). According to the selected criteria and indicators, three levels of the formation of ecological culture of future teachers of natural sciences in the process of professional training are defined: low, medium, and high. It has been established that a teacher of natural sciences with a high level of ecological culture formation plays a decisive role in the implementation of ecological education of children and youth. Pedagogical conditions that contribute to the formation of the ecological culture of future teachers of natural sciences are also defined and substantiated.

Keywords: *ecological culture of specialists, ecological knowledge, indicators and criteria of the formation of ecological culture, future teachers of natural sciences, pedagogical conditions, environment.*

JEL Classification: A23, A29, I28

Formulas: 0; **fig.:** 1; **tabl.:** 0; **bibl.:** 21

Introduction. Preparing modern specialists for ecologically justified activities in the professional sphere, forming an ecological culture in them is one of the priorities of professional education and one of the ways of implementing the provisions of the National Doctrine of the Development of Education of Ukraine in the 21st Century, the Law of Ukraine «On Education», the Concept of Environmental Education of Ukraine and the Concept sustainable development of Ukraine.

The professional activity of a teacher of natural sciences is aimed at the continuity and humanization of education, at the formation of ecological culture, at the development of creative abilities and at the expansion of the worldview of students. The significance of the problem of the formation of ecological culture is connected, first of all, with the search for effective ways to overcome the ecological crisis, which has reached a global level and threatens the existence of higher forms of life, including humans.

Literature Review. Considerable attention in pedagogical science is paid to the formation of the ecological culture of the individual, starting from early childhood. In particular, methodological approaches based on the principles of philosophy and conceptual provisions of environmental education and upbringing are reflected in the works of H. Bilyavskiy, V. Brovdiy, M. Drobnohod, O. Zakhlebny, I. Zverev, M. Kiselev, H. Pustovit and others.

Various aspects of the formation of the ecological culture of future teachers, in particular, a responsible attitude to the natural environment, the study of ecological and ecological-pedagogical problems, were considered by such scientists as: O. Bazaluk, M. Berbets, O. Vernik, E. Girusov, O. Golovko. The analysis of studies devoted to the problem of the formation of the ecological culture of future teachers of natural sciences showed that the theoretical and methodological foundations (components, criteria, levels) of the formation of an ecological culture in them are insufficiently researched.

Aims. The aim of the article is to reveal in a complex the components, criteria and defined pedagogical conditions that would contribute to the effective formation of the ecological culture of future teachers of natural sciences.

Methods. To realize the goal, the following methods were used: theoretical – analysis of scientific literature, synthesis, comparison, generalization and systematization of the obtained data to compare the different views of scientists on

the problem of forming the ecological culture of the future teacher of natural sciences, distinguishing the structural components of the ecological culture of the future natural science teacher, clarifying peculiarities of the organization of training of future teachers of natural sciences at higher education institutions; empirical – pedagogical observation, questionnaires, testing, conversation.

Results. Ecological culture, like all culture as a whole, is dialectically interconnected with social processes taking place and determined by the laws of their development. As a social phenomenon, the ecological culture of a teacher is directly dependent on those social relations in which an individual enters. On the basis of the theoretical analysis of psychological and pedagogical literature, the study of advanced pedagogical experience, we define the environmental culture of a student of higher education as an integrative quality of the individual, which corresponds to the level of his development in the field of environmental activities.

The state of environmental education and upbringing of students directly proportionally depends on the level of formation of the environmental culture of the teacher and his professional readiness for the specified direction of pedagogical activity. S. Sovgira rightly noted that the formation of the ecological culture of the future teacher of natural sciences should go through: acquisition of ecological knowledge, formation of ecological thinking, worldview, ethical principles of behavior in nature; conducting local history excursions, expeditions, trips, developing an active nature conservation position, forming the necessary qualities of an educator, organizer [1].

In the study of E. Fleshar, environmental education is considered as a process, as a result of which relevant knowledge and skills of theoretical and practical work in the field of environmental protection are formed [2].

L. Nikitchenko identified the following pedagogical conditions for the successful formation of a teacher's professional competence: ensuring the combination of theoretical material with practical activities; activation of students' independent cognitive and research activities; providing the goals of professional training in the process of learning personal meaning [3].

According to L. Fenchak, the main pedagogical conditions for the formation of ecological culture are: implementation of the continuity of environmental education in the process of training specialists by taking into account the specifics and requirements of the educational and qualification characteristics of the specialty; reflection in the content of ecological and educational work of regional ecological problems; environmentalization of educational work based on taking into account folk customs; implementation of an activity approach to the formation of environmental knowledge, beliefs, norms of behavior, etc. [4].

Based on the analysis of the scientific literature, the following components of the formation of the ecological culture of future teachers of natural sciences in the process of their professional training were identified: motivational-value, cognitive, procedural and reflective-personal.

The motivational-value component involves higher education students' awareness of nature as an independent value, the deep interest of future teachers of

natural sciences in studying the ecological state of the environment, conviction in the education of moral and ecological qualities necessary for the active development of methods of cultural assimilation and cultural creation. This component includes an understanding of the need to have ecologically professional motives, beliefs and to define ecologically valuable orientations, as well as awareness of the need to carry out ecologically oriented professional activities.

The indicators of this component are: 1) the presence of natural science students' interest in studying the state of the environment and in solving environmental problems; 2) their awareness of the specifics of their future ecological and professional activity, the desire to carry it out; 3) the presence of a dominant type of motivation for professional activity aimed at the formation of environmental culture in students; 4) the existence of permanent motivational instructions for achieving the set environmental and professional goals [2].

2. The cognitive component includes the formation of a certain system of psychological-pedagogical, chemical, geographical, ecological, biological knowledge, which will ultimately ensure the development of ecological thinking. This system consists of: a) knowledge, on the basis of which certain beliefs, ecological value orientations are formed and ideals are nurtured; b) knowledge that affects the formation of skills to carry out ecologically safe professional activity; c) knowledge, which is the basis for the development of a personal and valuable attitude to the results of ecologically oriented professional activity.

The indicators of this component are: 1) the presence of a certain amount of knowledge in such disciplines as: «Fundamentals of ecology», «Ecology», «Human ecology», «Ecology of plants and animals», «Methodology of teaching biology and natural science», «Methodology of teaching ecology»; 2) the ability of future teachers to operate in their ecological and professional activities with appropriate terms, concepts, categories, rules, formulas; 3) understanding the content, essence, signs and stages of teaching and pedagogical work aimed at forming an ecological culture in students; 4) constant independent work on expanding and deepening one's knowledge of natural sciences, improving environmental professional skills and abilities.

3. The procedural component provides for the formation of environmental professional skills, skills and experience necessary for the implementation of environmentally safe activities with students of general secondary education institutions. In this component, the leading place belongs to the level of mastery of methods and technologies for the development of the cognitive, emotional, volitional and motivational spheres of the personality of the future teacher, forms of his activity aimed at preserving and restoring the environment [5]. The success of the future teacher's ecological professional activity depends on raising his individual cultural level and enriching the experience of applying the system of ecological knowledge to the ability to use typical forms, methods and means of teaching students of natural sciences in educational work; skills to apply pedagogical innovations, the latest technologies, active methods and techniques in one's environmental professional activity; the ability to conduct search and research and scientific expedition work in an ecological direction; the formation of the necessary level of professionalism, the

ability to professional self-improvement throughout life; the ability to apply environmental assessment technologies and develop a clear program of environmental protection measures; the ability to solve various environmental situations, find ways to solve complex environmental problems.

4. The reflective-personal component involves the presence of cognitive qualities, norms of ecological behavior, communication, ecological reflection; certifies the formation of ecological professional reflection in the future teacher, which involves self-assessment and self-correction of his environmental professional activity. The composition of such reflection includes the ability to realize the attitude of higher education students towards them, as well as the ability to diagnose and model their future professional activity taking into account the results of reflection [6].

Indicators of this component are: 1) future teachers' awareness of the need to achieve specific results of ecological-pedagogical and ecological activities; 2) the ability to carry out self-assessment and self-monitoring of the work carried out aimed at the formation of environmental activities at the appropriate level; 3) the ability to diagnose one's environmental professional activity with the aim of further modeling it, taking into account the admitted shortcomings and miscalculations; 4) constant enrichment of the experience of ecological and pedagogical self-expression and ecological and creative self-realization of ecological culture during professional training.

Higher education teachers should use distance education technologies in the process of training future teachers, which will allow more effective formation of the above-mentioned components of the ecological culture of future teachers of natural sciences in the process of their professional training [7].

Value-orientational, knowledge-based, practical-active and reflective-evaluative criteria were determined to assess the levels of ecological culture formation of future teachers of natural sciences in the process of professional training. We present their characteristics.

1. The value-orientational criterion is the formation of the ecological and professional orientation and personal motivation of the future teacher of natural sciences in the process of professional training; the presence of students of higher education in natural sciences interested in studying the state of the environment and in solving environmental problems; their awareness of the specifics of their future ecological and professional activity, the desire to carry it out; the presence of a dominant type of motivation for professional activity aimed at the formation of environmental culture in students; the existence of permanent motivational instructions for achieving environmental professional goals [8].

2. Knowledge criterion – formation of a certain system of knowledge in future teachers of natural sciences for the implementation of environmental professional activities in general educational institutions; the presence of a certain amount of knowledge in such disciplines as: «Fundamentals of ecology», «Ecology», «Human ecology», «Ecology of plants and animals», «Nature protection», «Methodology of teaching biology and natural science», «Methodology of teaching ecology»; the

ability of future teachers to operate in their ecological and professional activities with appropriate terms, concepts, categories, rules, formulas; understanding the content, essence, signs and stages of teaching and pedagogical work aimed at forming an ecological culture in students; constant independent work on expanding and deepening one's knowledge of natural sciences, improving environmental professional skills and abilities.

3. The practical and operational criterion is the formation of future teachers of natural sciences, a set of abilities, skills, and experience in conducting eco-cultural work in institutions of general secondary education, in the process of which the formation of ecological culture in students will be carried out; having the ability to use typical forms, methods and means of teaching students of natural sciences in educational work; skills in applying pedagogical innovations, the latest technologies, active methods and techniques in one's environmental and professional activities; the ability to conduct exploratory research and scientific-expedition work in an ecological direction; the formation of the necessary level of professionalism, the ability to professional self-improvement throughout life; the ability to apply environmental assessment technologies and develop a clear program of environmental protection measures; the ability to solve various environmental situations, find ways to solve complex environmental problems.

4. Reflective and evaluative criterion – formation of environmental and professional reflection in the future teacher of natural sciences; awareness by future teachers of the need to achieve specific results of ecological-pedagogical and environmental activities; the ability to self-assess and self-monitor the work performed at an appropriate level, aimed at forming the environmental culture of students; the ability to diagnose one's environmental professional activity with the aim of further modeling it, taking into account the admitted shortcomings and miscalculations; constant enrichment of the experience of ecological and pedagogical self-expression and ecological and creative self-realization of ecological culture during professional training. The selection of criteria and their indicators made it possible to determine the levels of environmental culture formation of future teachers of natural sciences: low, medium and high. A low level is characterized by a lack of motivation to study the state of the environment and to solve environmental problems; low level of professional and ecological and cultural knowledge, insufficient environmental literacy; lack of awareness of the specifics of their future professional activity; the lack of ability to assess the state of the environment, to influence the solution of environmental problems; lack of ability to assess one's level of achievement, their independence and activity; inability to self-improvement, self-development, self-regulation, quick and effective independent decision-making. The average level is characterized by insufficient motivation for professional growth and the formation of environmental culture; possessing an insufficient amount of knowledge of ecological culture; the presence of certain difficulties in the practical and operational application of knowledge in the process of solving specific professional tasks; with an average level of formation, the ability to solve environmental problems; insufficient motivation for self-improvement and self-

development, speed and efficiency of independent decision-making. A high level is characterized by high motivation for professional improvement in the formation of environmental culture in students; formation. So, we identified four main components of the formation of the ecological culture of future teachers of natural sciences in the process of their professional training: motivational and valuable (deep interest of students in studying the ecological state of the environment, their belief in the education of moral and ecological qualities in schoolchildren), cognitive (the formation of a certain system of psychological-pedagogical, chemical, geographical, ecological, biological knowledge that ensures the development of ecological thinking), procedural (the formation of environmental and professional skills, skills and experience necessary for the implementation of environmentally safe activities with students of general educational institutions), reflectively personal (the formation of students' abilities to realize the results of their environmentally-oriented activities, objectively evaluate them and determine their attitude towards them, as well as the ability to diagnose and model their future professional activity taking into account the obtained results of reflection) [8].

Discussion. The effectiveness of the formation of the ecological culture of future teachers of natural sciences will depend on the implementation of the pedagogical conditions defined by us during their professional training at the institution of higher education. Before considering them, let's define the concept of «pedagogical condition». In the explanatory dictionary of the Ukrainian language, it is noted that a condition is «a necessary circumstance that makes possible the implementation, creation, formation of something or contributes to something» [9, c. 632]. The «Philosophical Encyclopedic Dictionary» provides the following definition: «a condition is a philosophical category that reflects the universal relations of a thing to those factors due to which it arises and exists. Thanks to the presence of appropriate conditions, the properties of things change from possibility to reality» [10, p. 482]. In the philosophical sense, conditions determine the external circumstances that determine the occurrence of a certain phenomenon, the result of purposeful activity [10, p. 482].

Therefore, without the presence of such circumstances, the desired phenomenon cannot occur. Since we reveal the meaning of the concept of «pedagogical conditions», it is logical to say that we are talking about the circumstances related to the organization of the educational process in a higher education institution, with the external educational environment in which cognitive, scientific and research and educational activities of higher education students, aimed at forming their professional knowledge, abilities and skills, development of their worldview culture, professional competence, etc. M. Malkova offers us the following definition of this concept: it is «a set of external and internal circumstances (objective measures) of the educational process», the implementation of which depends on the achievement of the set didactic goals [11, p. 98]. T. Kaminina (2006) clarifies that pedagogical conditions include only those that are specially created in the pedagogical process and the implementation of which ensures the most effective course of it [12]. There is also the following definition: «Pedagogical conditions are a category that is defined

as a system of certain forms, methods, material conditions, real situations, objectively formed or subjectively created, necessary to achieve a specific pedagogical goal» [13, p. 113]. Scientists divide pedagogical conditions into: a) external: positive relations between teacher and student; objectivity of assessment of the educational process; place of study, premises, climate, etc.; b) internal (individual): individual properties of students (state of health, character traits, experience, abilities, skills, motivation, etc.) [14, p. 15]. Summarizing the above definitions, we present our own definition of the pedagogical conditions for the formation of the ecological culture of future teachers of natural sciences in the process of professional training: this is a set of interrelated circumstances that contribute to the organization and implementation of the educational process in a higher education institution, taking into account the needs, interests, and opportunities of students of higher education education, which involves the preparation of a harmoniously developed personality with formed ecological knowledge, abilities and skills, personal and value attitudes regarding nature protection, an ecological worldview, an ecological style of thinking, which enable carrying out ecological activities aimed at modeling and forecasting an ecologically safe environment, solving ecological problems Ukraine and the world.

We have determined the following main pedagogical conditions for the formation of the ecological culture of future teachers of natural sciences in the process of professional training: 1. Targeted design of the informational and ecological educational environment in higher education institutions. 2. Ensuring the motivational and value attitude of future teachers of natural sciences towards professional activities aimed at environmental education of schoolchildren. 3. Greening of the content of education on the basis of interdisciplinary integration. 4. Use of innovative forms, methods and technologies of learning to activate educational and cognitive activities. 5. Introduction of interactive interaction in the «teacher-student-teacher-pupil-nature» format to improve the practical skills of higher education students.

We will characterize the identified pedagogical conditions and reveal the possibilities of their implementation in the educational process of the higher education institution. The first pedagogical condition is the purposeful design of the informational and ecological educational environment in higher education institutions. Summarizing the existing scientific definitions of the concept of «educational environment», we can state that the majority of scientists consider the educational environment as a multi-level system of conditions (circumstances, factors, opportunities) that provides optimal parameters of the educational activity of a certain educational subject in all aspects – target, content, procedural, effective, resource. In the modern world, there is a dependence between the professional success of specialists and the quality of their training in information technologies, which is mostly determined not by the amount of knowledge they have acquired, which changes rapidly, especially in the field of information technologies, but by the level of development of thinking, the ability to learn independently throughout life, to continuously improve oneself. The increase in requirements for the information activity of specialists necessitates the introduction of information technologies in

order to increase the effectiveness, intensity and instrumentality of their professional activity. The use of information resources allows you to get rid of routine work, thereby increasing the quality of professional activity. Traditional didactic requirements characterize such properties of informational educational resources as scientificity, accessibility, problematic, visibility, activation of activity, adaptability, interactivity. Therefore, specialists working in the education system must not only know where and how to find the necessary educational materials in telecommunication networks, but also be able to use similar networks in various educational situations, know how to conduct classes using multimedia technologies, how to apply multimedia learning tools [15]. According to V. Yefimenko (2002) [16], the creation of an information environment for any subject activity as a result of the development of informatization, information and especially telecommunication technologies leads to a radical rethinking of the goals, content, forms and methods of training specialists at a new modern level. At the same time, the main principles underlying the development of information environments are as follows: the open nature of the information system; organization, self-organization and development; the multivariate nature of the development of the information environment; creation of an educational environment as a favorable social environment that actualizes the intellectual, moral and communicative capabilities of the individual, which ensure comfortable integration in society and culture. According to the researcher, these components are: subject-object, functional-target, technological, diagnostic-resultative. The current stage of the development of the Ukrainian educational space is characterized by its systematic reformation, modernization, support for innovative development, transition to multifacetedness not only as a promising direction, but also as a completely new quality. The main condition for the success of informatization of education is a new position of the teacher (knowledge of techniques for working with new computer technology and the ability to effectively use this knowledge to solve pedagogical tasks).

One of the necessary conditions for the successful implementation of the modernization of education at the current stage is the formation of a single informational educational environment at all levels with the provision of their integration. The creation of a single informational educational environment in each educational institution is of primary importance in this process.

The creation of such an environment contributes to the development of educational, pedagogical, managerial and service activities of an educational institution, where information and communication technologies play a leading role, allowing to improve the quality and accessibility of the educational process. It is the teacher who decides how, to what extent and for what purposes information and communication technologies can be used in the educational process. That is, the teacher is one of the most active participants in the creation of a single informational educational space of the educational institution. The introduction of information and communication technologies into the teaching process of all subjects requires the improvement of the teacher's information culture, the introduction of new teaching methods using computer technologies. The formation of information and

communication competence of the teacher and student requires special attention. Without this, it is impossible to carry out the educational process in a single informational and educational space.

The informational educational environment should perform the following functions (Figure 1) [15].

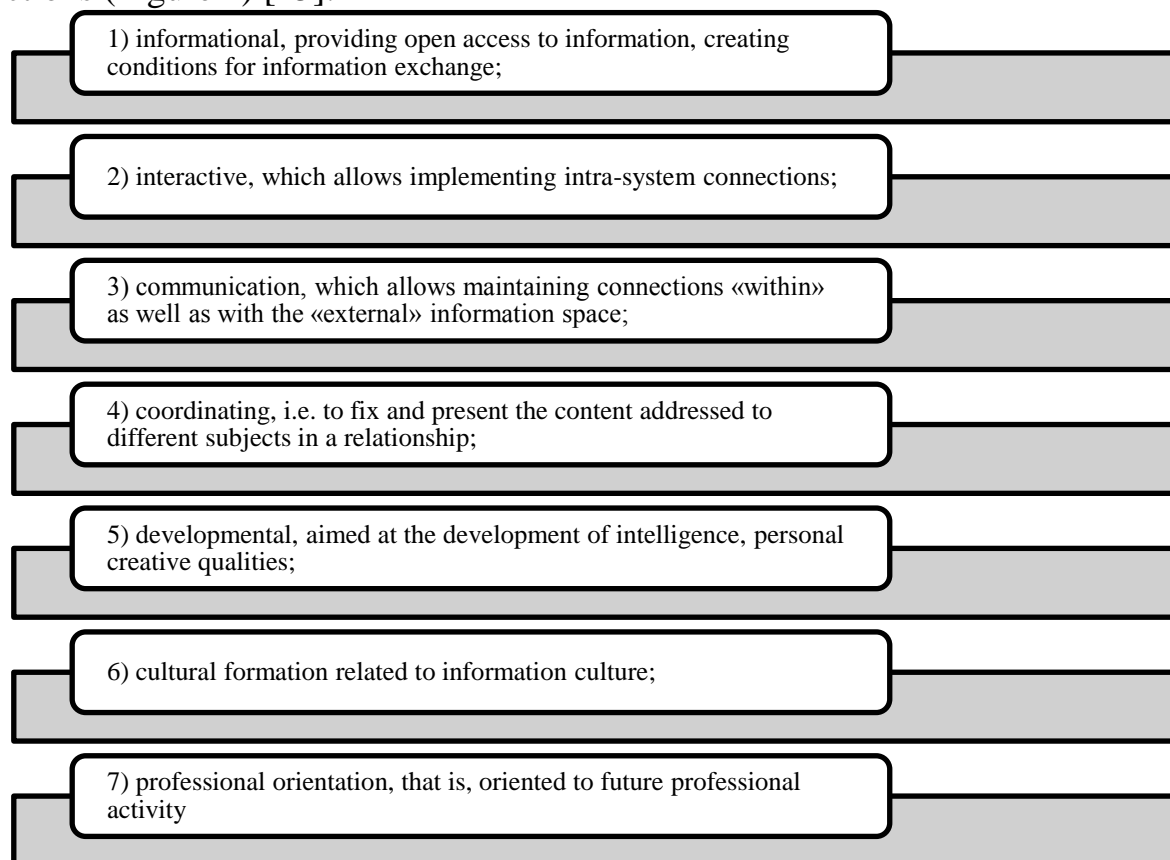


Figure 1. The functions of informational educational environment

Source: developed by the authors

Graduates of a higher education institution in such an informational and educational environment are able to: use computer technologies to prepare for classes; use Internet technologies in the organization of additional education; apply training testing; participate in Internet contests and Olympiads; discuss current issues on the forum, in Skype, on the website of the higher education institution; learn to work with information presented in various forms, select and systematize scientific material, create messages, reports on a given topic, draw up a plan, etc.; participate in telecommunication projects.

The educational environment of a higher education institution is a multi-subject and multi-subject systemic formation that purposefully influences the professional and personal development of a future specialist, ensuring his readiness for professional activity and / or continuing education, successful performance of social roles and self-realization of life activities [17]. The above-mentioned page contains all the information necessary for a student of higher education: lecture texts, plans for practical classes, topics and tasks, additional material for independent and individual work, methodological recommendations for its implementation, a manual, test tasks

for final control, questions for credit (exam). The information-ecological educational environment in this form ensures: satisfaction of the needs of students of higher education in the prompt acquisition of environmental information, which is provided by the training programs of professional disciplines; development of the need for students of higher education to constantly update their environmental knowledge, to form ecological thinking and expand the ecological outlook; the use of computer information technologies during the teaching of professional disciplines and conducting extracurricular environmental activities; creation of electronic catalogs of educational informational environmental materials and regulatory and legal documents on environmental protection; higher education students use the information network – the Internet – to perform independent and individual educational and research tasks on environmental topics; the ability to monitor your rating points, correct your mistakes and increase your rating within a certain period of time. The future teacher of natural sciences must first of all possess a certain amount of knowledge of the academic disciplines that he will teach. Knowledge as an element of environmental education of a student of higher education combines cognitive and active components of education. Cognitive components include not only the volume of ecological knowledge, but also determine the student's internal ecological culture, form in him readiness for active conscious activity to harmonize relations in the "Man-society-nature" system. Therefore, the preparation of students of higher education to carry out ecological and professional activities in the institution of general secondary education should take place on the basis of the synthesis of three main modern trends: 1) trends in the formation of modern ecological concepts; 2) formation of a new attitude towards nature; 3) formation of new strategies and technologies of interaction with nature.

The basic components of the ecological knowledge of a student of higher education are: the concept of the biosphere and biocenoses; circulation of matter, energy and information; Earth in the Solar System and in Space; system man-society-biosphere-space, direct and reverse connections; basic concepts, terms and laws of ecology; main types of regional problems; the basics of environmental economics; environmental audit and control; basics of environmental law; basics of environmental ethics and culture; the basics of environmental management [18]. During the study of the discipline «General Ecology» we consider such topics as: «Ecological culture», «The role of environmental legislation in the stabilization and improvement of the environment, protection and preservation of the natural environment, species diversity», «Participation of Ukraine in international cooperation in the field of environmental protection», «Ecological factors, their influence on the existence and development of organisms in the biosphere», «Anthropogenic degradation of the biosphere». As a result of studying the specified discipline, students of higher education acquire a set of knowledge about the role of interrelationships of all natural processes and phenomena; causes and consequences of local, regional, global environmental crises; about ways to improve the environmental situation. Learning outcomes of this discipline: students of higher education should conduct environmental protection work among the population and

draw conclusions about specific environmental situations. The amount of knowledge acquired and the competences obtained during the study of the course contribute to the formation of higher education students' personal attitude to the environmental problems of Ukraine and the world, their native land, and the field of future activity. This discipline will serve as a basis for the further study by students of higher education of the following natural sciences, it must be clearly consistent with them by establishing inter-subject connections, promote the assimilation and deep understanding of the physico-chemical essence of natural phenomena.

As a result of the study of ecology, students of higher education should develop the ability to evaluate objects, processes, phenomena from the point of view of ecology, orient themselves in modern ecological concepts, carry out effective practical activities for nature protection, and solve various socio-economic tasks and environmental problems. We used this form of education in classes on studying the role of man in the development of the biosphere and its impact on the environment; effects of radiation on plants, animals, and humans; the main sources of environmental pollution in their locality; land reclamation measures; nature protection and ecological problems in agriculture. For such a lecture, we prepared a series of consecutive questions, starting with the exact formulation of the problem itself, and then – questions on individual parts of the still unsolved general problem. The teacher had to be well aware of which of the possible options for solving the problem is optimal, and most importantly, what educational material should be learned in the process of solving a certain problem. In this way, during a problem lecture, the teacher manages the process of solving the problem, helps students of higher education in analyzing conditions and choosing a plan, provides consultations, activates their search and research activities, helps them find means of self-control, considers mistakes with those who admitted, organizes a collective discussion [20].

The formation of regional knowledge competence among future teachers of natural sciences is an important educational task [21]. The future teacher should himself notice the changes in the nature of his region that occur as a result of human activities, record them, analyze and draw appropriate conclusions, observe the environmental protection measures of both the state and individual communities, the activities of individual people to improve the ecological situation in the country, and involve before conducting observations of his students.

Conclusion. So, it has been found that the ecological culture of future teachers of natural sciences as an integrative personal characteristic is a collective unity of motivational and value (interests, desires, aspirations, value orientations, motives for choosing a profession, the need to acquire a system of knowledge and skills for carrying out ecological-pedagogical activities), cognitive (a system of natural-scientific and psychological-pedagogical knowledge that ensures the formation of an ecological worldview and thinking, and also determines methodical strategies and tactics for their formation in students), procedural (a system of ecological-pedagogical skills and abilities necessary for environmental education and upbringing of students), reflective and personal (norms of ecological behavior, communication, ecological reflection, the ability to self-educate and self-improve one's own

ecological and pedagogical activities, self-correction and self-analysis of behavior in an ecological situation, professionally important personal qualities for diagnosing and modeling future professional activity taking into account the obtained results of reflection) components, the presence and degree of formation of which enable the effectiveness of ecological and pedagogical activities. According to the components, the criteria (value-orientational, cognitive, practical-active, reflective-evaluative) and levels (low, medium, high) of the formation of ecological culture of future teachers of natural sciences are determined. Based on the analysis of scientific literature and practical experience, the pedagogical conditions that contribute to the formation of the ecological culture of future teachers of natural sciences are identified and substantiated, and their characteristics are presented. The directions of further scientific research include the following: elucidation of the peculiarities of the professional training of teachers of natural sciences in the leading countries of the world; formation of scientific and research culture of teachers of natural sciences, etc.

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SOCIAL AND PEDAGOGICAL ASPECTS OF OCCUPATIONAL HEALTH OF SPECIALISTS

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Abstract. Social aspects in the modern world play a very important role as factors directly and indirectly shaping the sphere of personal health. At the same time, most of the parameters of quality of life and health are correlated with psychological variables that reveal an uneven distribution between members of different social groups. All this makes the differentiated approaches to the organization of programs of primary prevention of diseases and the support of the treatment and rehabilitation process relevant. The purpose of the article is to identify socio-pedagogical aspects of labor protection of specialists. The methodological basis of the research is the theoretical analysis, comparison and generalization of scientific literature on research problems. Thus, the analysis of the influence of social conditions on the formation of the health sphere of a specialist can be carried out only in the context of interaction, that is, taking into account the individual's ability to actively create the social environment in accordance with individual needs and values, and on the other hand, taking into account social and cultural mediation personality, its basic attitudes and behavior patterns, including in the case of occupational health.

Keywords: occupational health, specialists, social aspects, chronic stress, social support, social and pedagogical aspects.

JEL Classification: A23, A29, I28

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Introduction. Currently, there is a change in the public status of health as a social phenomenon. This change is expressed both in individual understanding and in the assessment of all mankind. The social fabric can tear further or begin to recover.

Health retains its significance for the individual as a certain value and an appropriate state (absence of pain, illness), which provides the opportunity to work. And also it acquires new dimensions: a new attitude towards it as a special social phenomenon is being formed.

Health (as a special social relationship) is increasingly becoming a structure-forming factor of social life, realized in the subjective life of specific individuals.

The socio-pedagogical aspects of personal health in the modern world play a very important role, as factors that directly and indirectly form the sphere of personal health. More often, the quality of life and the level of mental adaptation are more dependent on the social characteristics of the individual than on clinical ones. At the same time, most of the parameters of the quality of life and health correlate with psychological variables that reveal an uneven distribution between representatives of different social groups.

All this makes relevant differentiated approaches in organizing programs for primary prevention of diseases and supporting the preventive and rehabilitation process of forming the occupational health of specialists, taking into account socio-pedagogical aspects.

Literature review. An analysis of publications on the problems of assessing the state of health of the population testifies to the steady interest of the psychological sciences in the study of health as a social phenomenon, the consideration of issues of the social conditionality of health. The manifestation of individual health as an aggregated result of social processes is considered by M. Weber, E. Durkheim, E. Fromm, the assessment of health as an aspect of the socio-ecological quality of life is presented in the works of F.I. Kalyu, V.A. Yadova, V.N. Ivanova, S.I. Boyarkina, etc. In the works of I.A. Gundareva, N.Kh. Gafiatullina, the dynamics of the level of human health is associated with the functioning of social structures, the regularities of the system of interaction between members of society are studied, when the performance of an individual is a component of the synergistic result of the group, individual health acts as a factor in the well-being of society (2,7).

Aim. The purpose of the article is to identify socio-pedagogical aspects of labor protection of specialists.

Methods. The methodological basis of the research is the theoretical analysis, comparison and generalization of scientific literature on research problems.

Results. Since a significant factor in the socialization of occupational health is the nature of the content of work and the structure of life. However, among the unfavorable factors affecting the health of specialists, it is necessary to single out - physical inactivity, failure to comply with hygiene requirements, the inability to withstand academic loads, poor nutrition, sleep and rest disturbance, lack of basic knowledge about health, a healthy way of life and lifestyle (4,5).

Consequently, these factors accompany the daily life of a person and are perceived by him as ordinary and ordinary. Thus, an unhealthy lifestyle is formed, which becomes the norm. In addition, according to doctors, sociologists, educators, psychologists, scientists, there is a catastrophic deterioration in the physical, mental and moral health of specialists. That is, the traditional workflow is not health-saving.

- workflow-related risk factors include:
- stress tactics (fear of losing a job);
- intensification of working loading;

- inconsistency of the leadership style with the age and functional capabilities of specialists;
- irrational organization of work activities;
- lack of a system for strengthening and maintaining health in the workplace (2,3,6,7).

A significant factor in the decline in health indicators is the unwillingness of specialists to worry about their own health, trampling on a healthy lifestyle. Unfortunately, in the course of life, a person is not taught how to take care of their own health, they do not form a culture of health, within which a value attitude towards oneself, one's own health and others is formed. Consequently, conditions are not created for the formation of a sense of responsibility for one's own behavior and its consequences, and the setting for a healthy lifestyle is not implemented.

The structure of socio-pedagogical factors of occupational health is based on the concept of «relationship psychology» by V.N. Myasishchev (1), who defines the attitude to health as a reflection of a person's individual experience and at the same time as a factor that has a significant impact on his behavior. «A person's attitude to his health is not limited to taking care of health or neglecting it. Here, at the same time, we are talking about a higher level of ideological relations of the individual.

A significant place in hygiene and occupational health prevention is occupied by the issue of somatic condition. This is due to the important role of the psyche and personality traits in preventing somatic diseases and strengthening physical health» (Myasishchev, 2011). This approach allows us to consider the attitude to health as one of the main elements, which can be directed by the regulatory impact.

The three-component structure makes it possible to holistically reveal the socio-pedagogical aspects of the occupational health of specialists, to reflect the whole variety of connections between structural elements (modules).

Table 1. Factors determining the occupational health of a specialist

№ n/s	Factors	Content	Personal position
1.	Emotional	various emotional stress factors affecting occupational health	a person's ability to resist stress, show and manage his emotions, adequately assess the emotions of others, which characterizes his emotional stability
2	Cognitive	knowledge about occupational health, about the main factors that strengthen and damage health, about its roles in life	a person's ability to make adequate decisions, highlight the most important things, find missing information, the ability to think, stability and concentration of attention, critical thinking, professional memory, professional observation, decision-making speed, their scope and correctness, the ability to think critically and positively
3.	Behavioral	choosing a certain behavior strategy in a stressful situation	the ability to quickly adapt to the demands of the situation by mastering, softening or weakening these demands

Sources: developed by authors

The cognitive module provides an adequate representation of the specialist about his level of health, which is based on knowledge about health and a healthy lifestyle, including in the performance of professional duties, awareness of the role of health and its impact on life in general, and as well as success and efficiency of professional activity, in particular, understanding of the main risk factors of the profession and ways of preserving and strengthening health.

The emotional module includes the whole range of experiences of the state of "health / illness" that arise in a specialist involved in a particular professional situation, an adequate emotional response (from «outburst of emotions» to restraining them in situations when necessary).

The behavior module displays the characteristics of a specialist's behavior that contribute to adaptation to changing environmental conditions and professional activity, as well as behavior/communication strategies caused by changes in health, a healthy lifestyle and work.

Domestic and foreign sociological studies allow us to reasonably state that among specialists with a low level of education and income, the unemployed, who live in difficult material conditions, alone, the level of morbidity and mortality is significantly higher than in socially more «prosperous» population groups (2,3,4,7).

At the same time, the position is becoming more and more widespread, according to which there is both a direct influence of social conditions on the quality of life and health of a specialist, and an influence that is a mediated complex of psychological factors, which in some cases are not only a consequence of the influence of the environment on the specialist, but also the reason for being fixed at a low socio-economic level. Such mediated factors include social stress, experiencing social frustration, a number of cognitive-behavioral characteristics, and the level of social support.

Social processes at the micro- and macro-level create conditions that contribute to the satisfaction of the individual's actual needs, or prevent it. In the event that the source of stress caused by the blocking of significant needs is macrosocial phenomena, we speak of sociogenic (social) stress and disruption of the specialist's adaptation system.

Therefore, the socio-pedagogical aspects that contribute to changing the system of views of specialists on the relationship between the processes of physical activity (physical culture, sports, physical labor), spiritual and moral and normative beliefs (respectful attitude towards universal human values - love, beauty, health, good), using a comprehensive assessment of their impact on the individual: biological (health), moral (value orientations, attitude to norms), psychological and pedagogical (determination of priorities, restructuring of upbringing and education programs).

It is worth noting that the strategy of treating diseases, which is now dominant, must give way to the strategy of preserving and developing health, where an important role belongs to education in physical culture (psychosomatics), as a component of general and professional culture.

We also include stress factors of professional activity (manifestations of the external environment in which human activity takes place) and individual

psychological features of the professional's personality (manifestations of the internal environment that determine cognitive, emotional and behavioral modules) as factors of occupational health of specialists. The main stressors that affect the activities of specialists are the following: content of professional activity, its organization; professional career; corporate relations; non-organizational sources of stress.

Discussion. It follows from the above that social support is a complex phenomenon that occurs during human interaction, which has quantitative and qualitative characteristics, the ratio of which determines its satisfaction or dissatisfaction depending on its individual needs and expectations. Moreover, it is necessary to take into account that a specialist is an active participant in social interaction, and therefore the level and quality of support from others largely depends on his behavior and emotional and personal characteristics (1,6,7).

Thus, the analysis of the influence of socio-pedagogical aspects on the formation of the specialist's health sphere can be carried out only in the context of interaction, that is, when taking into account the ability of an individual to actively create a social environment in accordance with individual needs and values, and on the other hand - taking into account socio-cultural indirectness the formation of personality, its basic attitudes and patterns of behavior, including in the case of occupational health. Understanding the mechanisms of such interaction is a necessary condition for ensuring the effectiveness of any health promotion programs.

We believe that for socio-pedagogical support of the occupational health of specialists it is desirable to carry out the following aspects: creation of a bank of socio-psychological, diagnostic methods for identifying various types of predispositions of specialists; organization of theoretical and methodical training (education) of specialists; creation of a psychophysiological diagnostic complex for monitoring social health criteria in aspects of significance for the mental, psychological and social health of specialists; substantiation of working time regimes spent on studying the invariant and variable component, taking into account the age, gender, and individual characteristics of specialists; creation of a model of coordination of joint activities of psychological competence centers in organizations.

Conclusion. Thus, the analysis of the influence of socio-pedagogical aspects on the occupational health of specialists can be carried out only in the context of interaction, that is, taking into account the ability of a specialist to actively create a social environment in accordance with individual needs and values, and on the other hand - taking into account the socio-cultural indirectness of the formation personality, its basic attitudes and behavior patterns, including in the case of maintaining health.

A holistic and consistent internal picture of a specialist's health (cognitive module) contributes to the development of behavioral strategies that contribute to a healthy lifestyle and work (behavioral module), accompanied by adequate emotional reactions and experiences (emotional module).

Understanding the mechanisms of such interaction is a necessary condition for ensuring the effectiveness of programs to strengthen the occupational health of specialists in the future, and is a prerequisite for further research in this area.

A comprehensive approach to the formation of conditions for the socialization of occupational health makes it possible to implement a healthy lifestyle in the professional's life-creating practice, to strengthen and preserve his health.

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OPTIMIZATION OF THE PRACTICAL TRAINING OF TOURISM SPECIALISTS IN THE CONDITIONS OF EXTERNAL CHALLENGES

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Abstract. *The modern requirements of employers for university graduates in tourism are constantly changing, but the requirements for the practical orientation of their education remain unchanged. That is why the purpose of the article was to substantiate the ways of optimizing the practical training of tourism specialists in the conditions of external challenges. In the process of the research, the authors used such scientific methods as the analysis of the theoretical foundations and the current state of practical training of students of higher education, the generalization and systematization of the authors' practical experience in the organization of educational and industrial practices in the online format, substantiating the optimal ways of practical training of students in conditions of external threats, as well as the method of pedagogical observation. The study identified and analyzed the problems of practical training of future tourism specialists in Ukraine at the current stage. Ways to optimize practical training in modern conditions of external threats are proposed and substantiated. A system of online events for various types of practices is proposed, examples are given. The conditions for the successful completion of practical training in the process of external threats are identified and argued.*

Keywords: *optimization of practical training, tourism specialists, educational practice, production practice, online events.*

JEL Classification: *A23, A29, I28*

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Introduction. Practical training of tourism specialists plays a significant role in the formation of professional competencies and program learning outcomes. External challenges caused by the pandemic, which affected the global tourism industry, and the war on the territory of Ukraine, eliminated the possibility for students to undergo traditional practice on the basis of relevant enterprises and organizations. There was a need to find alternative opportunities for organizing and conducting practice in the form of distance and mixed learning.

Literature review. The issues of practical training of tourism specialists are highlighted in the publications of L. Bezkorovaina, N. Wolfson-Garshina, O. Konoh, O. Malinovska, L. Poleva, V. Stafiychuk, L. Chornaya, I. Shchogoleva, H. Shchuka and other scientists.

The problems of practical training of students in higher education in the conditions of the introduction of martial law are revealed in the study of K. Ilnitska and V. Mykolayko [1].

The issue of practical training of higher education seekers is in the field of view of scientists, because it is an important component of the training of specialists in the field of tourism.

L. Bezkorovaina analyzed the system of professional training of future specialists in tourism studies of European countries and provided suggestions for domestic training, including practical training [8]. Domestic and foreign experience regarding the organization of practice is presented in the study of L. Chornaya [9].

O. Konoh gives the most effective forms of organizing the practice of future specialists in active tourism in a higher educational institution, emphasizes the positive influence of practice on the quality of study programs [10].

L. Melko, G. Uvarova, T. Sokol, O. Mikho consider practical training as a component of the practice-oriented education system [2].

Based on a systemic approach, G. Shchuka and Yu. Bezruchenkov developed recommendations for reorganizing the tourism education system in accordance with today's challenges, taking into account the pandemic [11].

Currently, the urgent issue is the development of recommendations for the training of specialists in the field of tourism, including practical training, taking into account modern external threats.

Aims. The purpose of the study is to substantiate the ways of optimizing the practical training of tourism specialists in the conditions of external challenges.

Methods. In the process of the research, the authors used such scientific methods as the analysis of the theoretical foundations and the current state of practical training of students of higher education, the generalization and systematization of the authors' practical experience in the organization of educational and industrial practices in the online format, substantiating the optimal ways of practical training of students in conditions of external threats, as well as the method of pedagogical observation.

Results. The training of competitive specialists in the tourism sector requires practical training throughout the entire period of study. External threats at the current stage level this important stage of the educational activity of future specialists and require the search for alternative solutions, improvement of training forms and methods.

Tourism education is one of the most practically oriented in the training of future specialists in higher education. Practice is a component of practice-oriented training, which consists in the organization of practice-oriented activities throughout the entire period of training [2].

As a result of practical training, appropriate professional competences are formed ("ability to apply knowledge in practical situations; ability to analyze the recreational and touristic potential of territories; ability to analyze the activities of tourism industry subjects at all levels of management; ability to monitor, interpret, analyze and systematize tourist information, the ability to present tourist information material; the ability to develop, promote, implement and organize the consumption of a tourist product" etc.) [3, p. 7-8] and program learning outcomes, including: "analyze the recreational and touristic potential of the territory; apply principles and methods of organization and technologies of tourist service in practical activities; to develop, promote and implement a tourist product; to organize the process of serving consumers of tourist services based on the use of modern information,

communication and service technologies and compliance with quality standards and safety norms, etc. [3, pp. 8-9].

Based on the practical experience of the authors, practical training of tourism specialists should take place every year, both educational and industrial, depending on the course of study.

Today, taking into account external challenges, there are problems of organizing and conducting practice both in general and on the basis of enterprises and organizations in the tourism sector. Among them: threat to health and life in connection with possible shelling; transition of a significant number of tourist enterprises to the format of online activity due to a significant decrease in demand for tourist services, evacuation, outflow of potential customers to other countries, etc. As a result - refusal to rent the premises; tense moral and psychological state of the applicants; stay of some of them in evacuation; communication via remote format, etc.

The tourism business suffers from problems, and the issue of organizing and conducting internships, selecting enterprises for industrial internships is difficult.

We suggest considering ways to optimize practical training in modern conditions of external challenges, including:

- 1) improvement of forms and methods of online education;
- 2) development of an individual trajectory of practical training of applicants;
- 3) use of elements of informal education;
- 4) creation of online schools for young professionals, students by employers and stakeholders;
- 5) providing applicants with the opportunity to have psychological support.

Improving forms and methods of online education, finding new innovative forms is one of the most important components of successful practical training of higher education applicants. We suggest that you familiarize yourself with the online activities that can be conducted during practical training in a remote format (table 1).

The main goal of educational and familiarization, educational practice is to acquaint students of the 1st-2nd year with: features of the future profession, professional assignment, basic production functions of tourism specialists; with recreational and touristic potential, incl. countries of mass tourism, with enterprises of the tourism industry, with the specifics of their activities.

During the internship, students of higher education are offered to get acquainted with enterprises of the tourism industry on excursions and during meetings with specialists. During external threats, meetings and virtual tours can be moved online. Stakeholders, employers of tourist, hotel, and restaurant enterprises join such events. There are both thematic and general meetings. It is important to introduce future specialists to successful people, professionals, which is extremely motivating to continue their education, especially in the current dangerous time. It is especially valuable to invite graduates who are an example of professionalism and success.

Table 1. System of online events in the process of practical training of future tourism specialists

Type of practice, course	Online events
Educational and introductory, educational, 1-2 course	<ul style="list-style-type: none"> • Online meetings with tourism industry specialists (master classes, round tables, professional studios). • Online tours (familiarization with the recreational and touristic potential of the territories). • Course preparation on open online courses
Production and technological, production, 3-4 course	<ul style="list-style-type: none"> • Online school for young specialists based on tourism industry enterprises • Online meetings with tourism industry specialists (webinars-trainings, workshops) • Online study of the enterprise of the tourism industry, involvement in activities in social networks • Course preparation on open online courses

Source: formed by the authors based on [4,5] and their own practical experience.

Acquaintance with the recreational and touristic potential, as a rule, takes place in the process of visiting museums, tourist destinations, various tourism objects, including in mass tourism countries. In times of external threats, students can take virtual tours, getting to know the museum heritage, tourist resources of Ukraine and the world. It is advisable to provide students with a list of resources and suggest continuing the review list. You can provide links both to individual tourist objects (National Reserve "Sofia Kyivska", National Historical and Cultural Reserve "Kachanivka", Vatican Museums, etc.), and to platforms where thematic resources are collected (Virtual tours of museums of the world on Google Arts & Culture platform, etc.).

Course preparation on open online courses contributes to the formation of relevant skills, allows students to consolidate, deepen and test the theoretical knowledge obtained in pairs from professional disciplines. For example, it is possible to take free courses of your choice on the portal "Educational Hub of the Kyiv City " or online courses on mass tourism countries on the portal of the Ukrainian Association of Travel Agencies (UATA), with the receipt of certificates.

Also, an important component is recording practice results in a diary and periodically discussing them with practice managers, both offline and online.

The main goal of production practice (production-technological) is the generalization, consolidation and deepening of theoretical knowledge and the acquisition of necessary practical skills and competences in relation to the organization of management, marketing and economic activities at enterprises of the tourism sector of Ukraine.

During the practical training, the student should get acquainted with various aspects of the activity of the enterprise in the tourism sector, take part in the

processes of travel registration, get acquainted with the system of management, marketing, planning and economic activities.

During external threats, practice can be organized as follows: attract students to the School for young professionals working on the basis of tourism enterprises (for example, tour operator "Calypso Ukraine", travel agency "Come with us"), organize practical meetings with specialists, involve studying the activity of a tourist enterprise online, with the possibility of joining social networks, recommending training at open courses.

The *development of an individual trajectory of practical training* of applicants is an important condition for conducting practices at the current stage of aggravation of serious challenges. For this purpose, it is necessary to select enterprises for internship taking into account the places of stay of students, to individualize the schedule of visiting enterprises or to organize online meetings with their management and employees. When formulating individual tasks, attention should be paid to the region in which the acquirer is located, whether there are opportunities for their implementation. This will make it possible to develop an individual schedule of practice, including in remote format.

Considering the fact that *informal education* is a process of obtaining education that is not regulated by the place, term and form of education and does not involve obtaining documents on education of the state model, the use of elements of informal education is also relevant in the organization of practices in the conditions of modern challenges. Programs of informal tourism education can reflect both the problems of scientific research and the current directions of tourism development in the region or country where the educational institution is located. Programs related to the development of specialized tourism in a specific area (rural, gastronomic, wine, industrial, cruise, etc.), course preparation on open online courses, etc., can be especially interesting.

The creation of online schools for young professionals, students by employers and stakeholders is also one of the important conditions for optimizing the practical training of higher education seekers at the current stage of a number of force majeure circumstances that have developed in Ukraine. Practicing professionals can help graduate departments in conducting introductory seminars with students before the start of practices, trainings and master classes on the technology of tourist service, organization of managerial, economic, and marketing activities in the field of tourism. The interested participation of representatives of travel firms in the organization of practices through the involvement of students in online schools will contribute to the professional motivation of the student, the actualization of his professional abilities, the establishment of professional competitiveness at the early stage of personal professional maturity [6].

To date, the National Program of Mental Health and Psychological Support of the Population during the War has been launched in Ukraine [7]. Its purpose is to help citizens overcome extreme stress and the consequences of injuries received during the war, to prevent the development of mental disorders. Therefore, *providing applicants with the opportunity to have psychological support* is an important

condition for optimizing internships outside the educational institution. For this purpose, it is expedient to practice the use of psychological and adaptation trainings, to carry out various recreational activities, to fill students with positive emotions.

Discussion. We will single out the conditions for successfully completing practical training in the process of external threats:

- 1) safe location of applicants;
- 2) access to the Internet;
- 3) students' motivation regarding practice;
- 4) interest of stakeholders in the organization of practical training of students to involve them in tourist activities;
- 5) systematic painstaking work of practice organizers regarding its successful implementation.

Conclusion. Practical training of future tourism specialists is an important component of the educational process regarding the formation of professional competencies and program learning outcomes. During external threats, its organization and implementation requires optimization, systematic implementation of online activities. Successful implementation of practical training during external threats is possible if the appropriate conditions for its organization and implementation are met.

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PEDAGOGICAL METHODS OF SUPPORTING PSYCHOLOGICAL STABILITY OF STUDENTS DURING THE WAR

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Abstract. The article examines the problem of ensuring the psychological stability of students during the war. The level of psychological stability of the student in connection with his visit was analyzed. A study was conducted using a survey of students of several universities in Ukraine. The developed questionnaire made it possible to outline that most students feel anxiety and fear. The influence of the psycho-emotional state during the war on the educational performance of students was determined. There are ways to reduce the feeling of anxiety, tension, fear and directions of adjustment of the psychological climate in the context of resistance to stressful situations. The object of this study is the psychological stability of students during university studies and studies under martial law. The subject of the study is the peculiarities of the formation of psychological stability in students and the means of its formation. The purpose of the study is to determine the psychological conditions for the formation of students' psychological stability. Factors of stressogenicity and psychological stability of students in war conditions were studied.

The research revealed the psychological essence of stress resistance and psychological resilience. On the basis of the survey, the mental state of students of higher education institutions during the war was analyzed. The methods of increasing the level of psychological stability of students while studying during the war are considered. Practical recommendations on the formation of stress resistance and psychological stability of students of higher education institutions during the war are presented.

Keywords: stress, stress resistance, psychological stability, student youth, war, distance learning, psychological training student.

JEL Classification: H10, IO, Y8

Formulas: 0; **fig.** 11; **tabl.** 1; **bibl.** 11

Introduction. Since the full-scale invasion of Russia on the territory of Ukraine, every citizen feels fear and is under stress. Youth and young people are one of the most vulnerable population groups to stress.

In today's world, young people have many fears and stressors, but in the last six months war has been the main one of them. A large number of people simply have nowhere to leave, so they are forced to stay close to the demarcation line and constantly risk their lives. It is impossible to predict the frequency, time of shelling, and the places where they will be hit. People are in a constant tense state of waiting.

Currently, psychological resilience is a common problem, because this personality trait helps to maintain physical and mental health. A student's psychological stability is success in studies, his key to success in modern society, the opportunity to realize himself in any sphere of human life.

The purpose of our work is to study the formation of psychological resilience of students and to determine methods of improving the mental health of students during the war. To achieve the goal, in our research we considered the following questions:

1. Revealing the psychological essence of the concept of psychological stability even in youth.
2. Psychological factors of stressogenic factors of student youth;
3. Content-organizational aspects of the formation of psychological stability of students in the conditions of martial law.
4. Empirical study of factors of stressogenicity and psychological stability of students in wartime conditions. Comparison of the level of psychological stability of Ukrainian students in connection with their place of stay
5. The program for the formation of psychological stability of students in the conditions of war.
6. Practical recommendations for observing the psychological conditions for the formation of psychological stability of students of higher education institutions in the educational process.

Literature review. Throughout our lives, we repeatedly experience certain stressful situations that leave an imprint on our physical and psychological health. (Korolchuk, 2009).

The term "stress", which is found in modern literature, denotes the following concepts: a very unfavorable influence that negatively affects the body; a strong physiological or psychological reaction to the effect of a stressor that is unfavorable for the body; strong reactions of various kinds, both unfavorable and favorable for the body; non-specific features (elements) of the body's physiological and psychological reactions under strong, extreme influences for it cause intense manifestations of adaptive activity; non-specific features (elements) of the body's physiological and psychological reactions that occur during any body reactions. (Savchyn, 2020).

In psychology, stress is understood as a state of mental tension that occurs in a person under the influence of complex, difficult, unfavorable circumstances of his activity and everyday life or in special, extreme situations. Adverse physical effects of the external environment, extreme situations, physical and mental injuries, etc., can act as stressors (factors that lead both to the emergence of short-term stressful

conditions in a person and to the development of severe, long-lasting experiences). (Korolchuk, 2009).

Scientists who study the problem of stress believe that stress resistance, or as it is also called "emotional resistance", allows you to reduce the negative impact of stressful situations on the body. Stress resistance is an integrative property of the individual, characterized by such an interaction of emotional, volitional, intellectual and motivational components of the individual's mental activity, which ensures the optimal successful achievement of the goal in a difficult emotional environment. Currently, society puts too many demands on the individual and puts pressure on it. Ambitions, aspirations, disappointments, competition, certain goals, an endless series of irritants on the psychological stability of an individual. Internal crises are exacerbated by external ones: war, the economic situation in the world and in the country in general, the threat of nuclear war and many other irritants. Adolescence is a period of radical changes in a person's life, when he begins to reach for youth and maturity. New living conditions, a new position in the team, the student begins to fulfill new roles for himself as an organizer, manager, or even an educator. In modern realities, war is one of the main causes of stress (Shmargun, 2018).

War, something that causes concern only when mentioning the word in conversation, when depicting terrible events in the imagination, what we do not want to see in a terrible dream. Today, unfortunately, war is our reality, which came to our land, destroyed lives, homes, plans for the future. At this time, every Ukrainian experiences emotions of uncertainty, fear for loved ones and the country, which leads to extreme stress. In general, from a psychological point of view, the stress reaction to crisis conditions, in some cases, has a saving function for the body, however, it is important to take timely measures to get out of stress and prevent the occurrence of complex consequences (Tverdokhlebova, 2021).

One of the central problems of personality research in extreme conditions is the problem of formation and development of psychological stability. Psychological resistance (to the uncertainty of stress, risk, conflict) determines the mental and somatic health of a person, protects him from disintegration and personal disorders, and creates the basis of internal harmony (Yevdokymova, 2019).

Psychological resilience is a socio-psychological characteristic of an individual, which consists in the ability to endure the extraordinary and critical nature of the situation, without any harm to oneself, to overcome its consequences with the help of certain methods, improving the personality, increasing the level of its adaptation and social maturity. In fact, this characteristic means the presence of an individual's adaptive potential, determining his ability to overcome difficult situations (Zhyhaylo, 2008, 2021).

Critical situations are impossible situations. That is, it is a situation in which the subject is faced with the inability to satisfy the internal needs (motivations, desires, values, etc.) of his life. A critical life situation is an emotionally experienced life situation, which in its perception is a complex psychological problem that requires its own solution or overcoming. Speaking about critical situations, it should be remembered that we are not talking about usual and cyclic life situations, to

overcome which we use usual methods. We are talking about situations that, in order to overcome them, require a person to find a new way of coping, to use unusual psychological resources to solve the situation (Burlakova, 2021; Shevialov, 2022).

The primary ability to sustain difficulties depends on many factors - genes, upbringing, social opportunities, etc. Natural data vary widely: some are biologically more fortunate with self-regulation, and others have this weakness. But this does not mean that resilience cannot be developed (Maximenko, 2006, 2007).

Stability can be defined as the ability of a system to return to its initial state. For example, let the system deviate from its state for any reason. If after some time she returned to him, then this condition is considered stable. If the system is in a new state, then the state is considered unstable. Stress can manifest itself in various forms, in students it is mainly: reduced mental activity and work capacity, constant fatigue, apathy, poor concentration of attention. Young people are very prone to stressful situations: they often feel anxious, they do not always find a way out of difficult situations. In order to maintain your psychological health, you need to increase the level of psychological stability.

Aim. Our study revealed the psychological essence of stress resistance and psychological resilience. Based on the survey, we learned about the psychological state of students during the war. The methods of increasing the level of psychological stability of students while studying during the war are considered. Practical recommendations for observing the psychological conditions for the formation of stress resistance of higher education students in the educational process are also provided.

Methods. Theoretical analysis and synthesis of literary sources.

Results. The educational activity of students has always been associated with a high level of stress, and nowadays the influence of stressogenic factors is only increasing. In modern students, the emotional, cognitive, behavioral and motivational component of activity is quite often disturbed, which is associated with an increased level of stress and a decrease in psychological stability.

Therefore, in order to understand more precisely what affects the decrease of the last indicator and to draw correct conclusions, it is important to consider the psychological stress factors of youth studying at universities.

Conventionally, stressors of student youth can be divided into academic and personal. Educational stressors are those related to educational activities or directly related to them. And personal - related to the student's private life.

Educational stressors include: choosing a specialty that is not interesting to the student; misunderstandings with classmates; conflicts with teachers; low academic performance during the semester; lack of understanding or insufficient knowledge of the subject; overload or underload; the need to process huge amounts of educational information; unbalanced learning disorder and changes in it; a large number of omissions from any subject; many unpassed or unsecured engineering, laboratory works or other tasks; high pace and speed of passing individual exams and tests; lack of time; experiences due to the uncertainty of work results (examination evaluation);

conflict of roles; fear of the possibility of being expelled from a university because of low scores.

Personal stressors include: unsatisfactory and uncomfortable living or working conditions (room temperature, low lighting, noise); insufficient amount of sleep; cold/seasonal illness; responsibility to parents; undesirable to lose prestige in groups; inability to correctly allocate time; quarrels or misunderstandings with parents, relatives or other close people; psychological atmosphere at the workplace; low motivation; unstable or low self-esteem; and other private factors.

The factors listed above cause irritation, fatigue, anxiety, guilt and a number of other unpleasant feelings. We live in difficult times, so we need to realize that now there are additional negative factors in our lives that affect us and it is difficult to cope with them on our own.

Stressogenic factors, the appearance of which was caused by the war, include: increased anxiety; sleep disturbance; fear or panic during an air raid and being in a bomb shelter; fear for one's own safety; mood swings; deterioration of memory; decrease in attention and concentration levels; learning disability; decrease in the desire to communicate with people.

Also, we conducted an empirical study with the participation of 199 people studying at various universities, in various specialties. We bring to your attention the results of the survey:

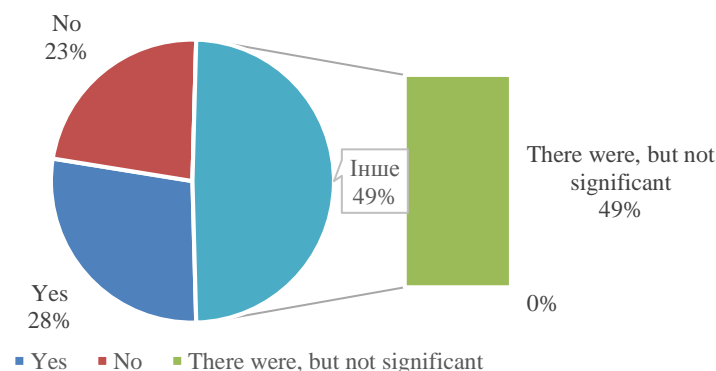


Figure 1. Did you have problems with stress resistance before the war?

Source: developed by the authors based on the results of a survey

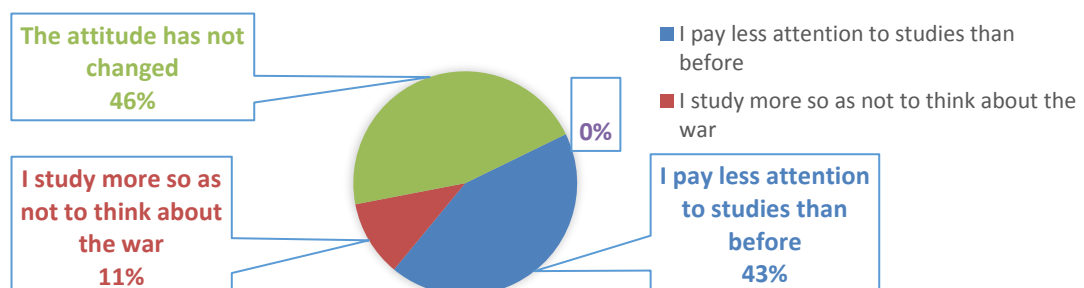


Figure 2. How did the beginning of the war change your attitude to education?

Source: developed by the authors based on the results of a survey

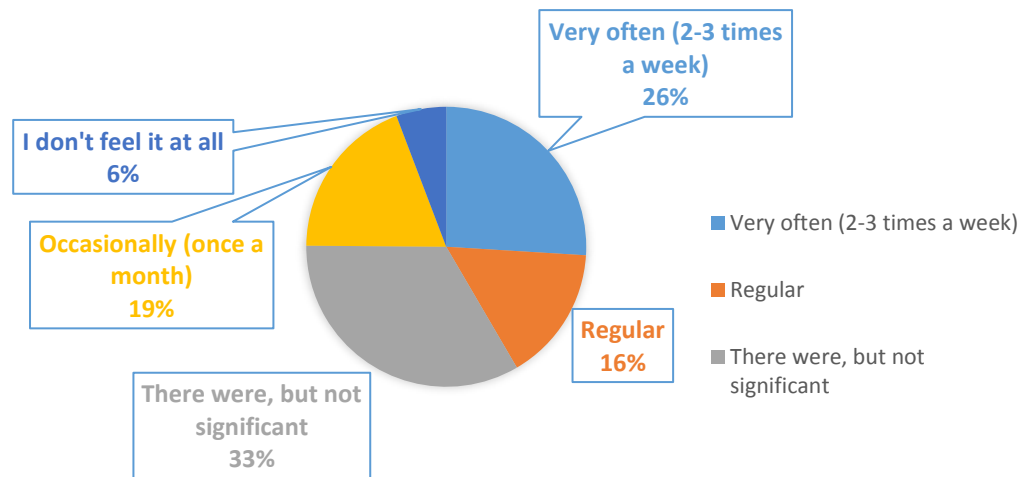


Figure 3. How often do you experience problems with memory, a decrease in the level of attention, a decrease in the speed of mental processes?

Source: developed by the authors based on the results of a survey

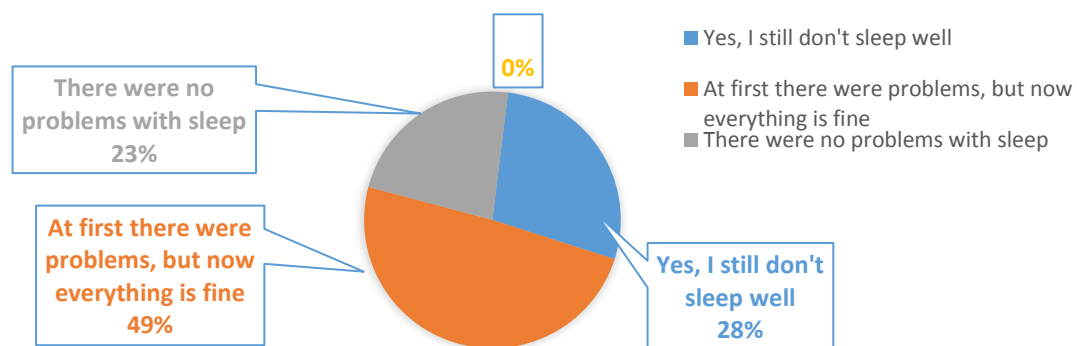


Figure 4. Have you had trouble sleeping since the start of a full-scale war?

Source: developed by the authors based on the results of a survey

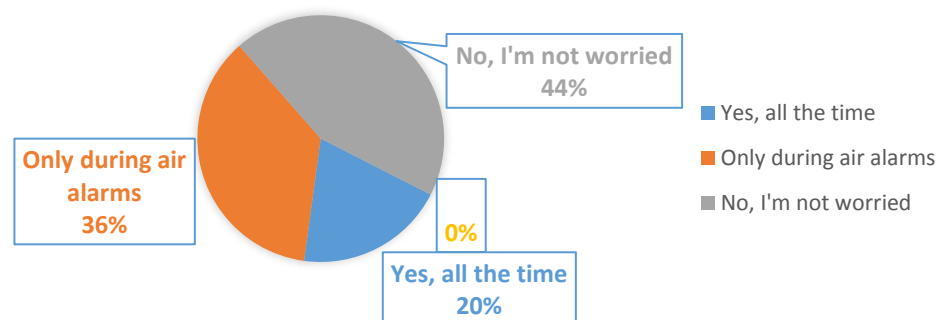


Figure 5. Are you worried about your own safety?

Source: developed by the authors based on the results of a survey

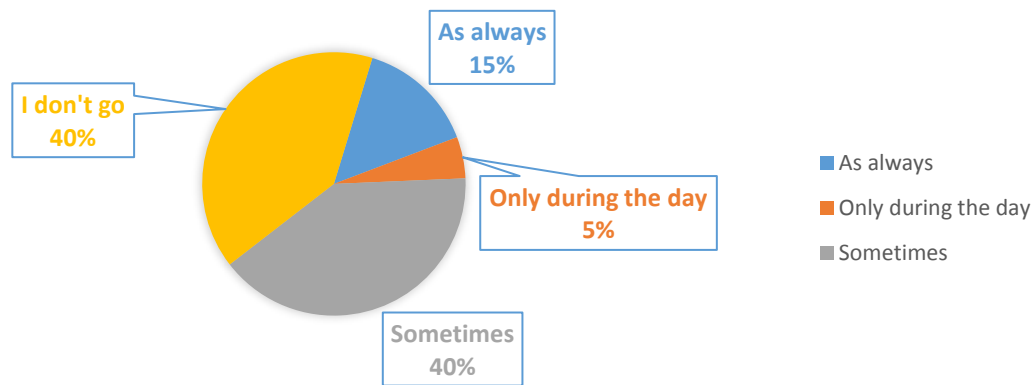


Figure 6. Are you going to the bomb shelter?

Source: developed by the authors based on the results of a survey

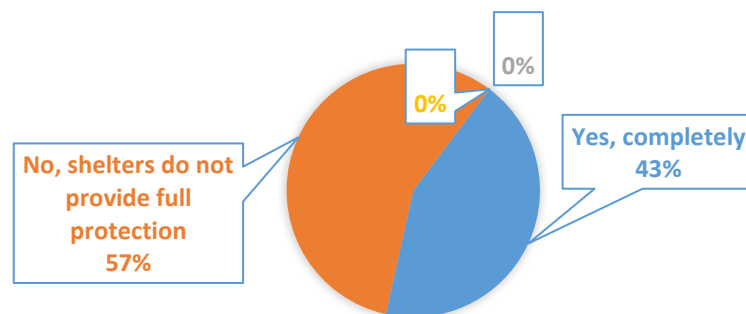


Figure 7. Do you feel safe at university?

Source: developed by the authors based on the results of a survey

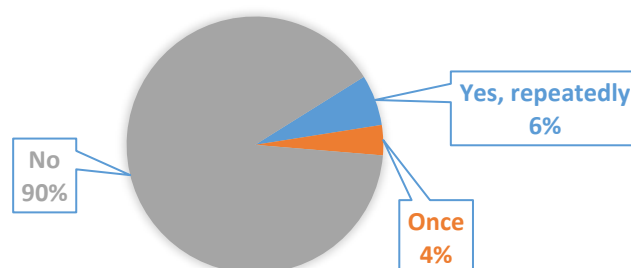


Figure 8. Did you consult a psychologist during a full-scale invasion?

Source: developed by the authors based on the results of a survey

Discussion. Many stressogenic factors affect the psychological stability of student youth, as proven by an empirical study. But it is also important to remember that the psychological stability of an individual is formed on the basis of multiple repetitions of the individual's encounter with stressful factors. This clash manifests

itself in a complex process that includes: assessment of a stressful situation, regulation of activity in stressful conditions, coping with stress, impact of traumatic events on the personality, and processing of traumatic experiences.

According to I. Burlakova, student life is full of extraordinary and stressful situations, so students often experience stress and nervous and mental strain. The intensity and tension of modern life act as stress factors at the psychological level of the occurrence of negative emotional experiences and stress reactions, which can lead to the formation of pronounced and long-lasting stress states.

Having studied the theoretical aspects of the formation of psychological resilience of students of higher educational institutions to the negative factors of the environment in which they are, we conclude that the main aspects of the formation of psychological resilience of students are: Social support; Psychological competence of the individual; Resources (personal, instrumental, informational, physical, material); Methods of psychological training; Simulation modeling methods.

On February 24, 2022, when active hostilities began, every Ukrainian felt that he could not be safe anywhere on the territory of Ukraine. Anxiety, uncertainty about the future, worries about relatives and friends keep people in a state of constant stress during the entire period of hostilities on the territory of our country. And not everyone can cope with this stress. According to the Ministry of Health, the psychological consequences of the war, including post-traumatic stress disorder, will affect our mental state for at least 7-10 years after the end of the war.

In times of war, motivation and effective methods of dealing with stress play very important roles. The educational policy of higher education institutions should be focused on creating a psychologically comfortable educational environment by increasing the competence of all subjects of the educational process, minimizing the stressful effects of the educational space by studying stress factors, creating conditions for conflict-free interpersonal interaction, developing subjective mechanisms of psychological stability of students in the process study of academic disciplines by arming them with basic stress management strategies.

That is, stress in the educational process should be regulated. Both students and teachers, psychologists, and social pedagogues should be engaged in this. However, as we know from practice, not everything happens as it should. In order to increase or maintain psychological stability, we need to find certain resources that will help us cope in various difficult situations. By resources, we mean internal and external variables that contribute to psychological stability in stressful situations. Since a person is a social being, one of the most important resources for preserving the psychological stability of an individual in stressful situations is social support. Undoubtedly, a good social environment helps a person better tolerate certain difficult situations. And this helps to increase psychological stability also during martial law. The next resource of psychological stability is the psychological competence of the individual. This includes the level of psychological awareness and culture. Another important resources are physical. They include the state of health and the attitude towards it as a value.

Material resources also have a strong influence on the development of psychological stability. For example, a person with a high level of material income and material conditions will feel better because he will be sure that he can provide for himself at the moment. The last type of resources is informational. They include the ability to use various methods in order to achieve the set goals.

Therefore, the formation of psychological stability is actually an important factor in the life of students today. That is why we look at aspects of building psychological resilience, as well as the resources that may be needed for this. The main aspects of the formation of students' psychological resistance to the negative factors of the external environment in the conditions of martial law are: all types of resources (personal, physical, informational and other), psychological competence of the individual, social support, as well as methods of mental training and methods of simulation modeling. So, based on the survey, we learned about the psychological state of students who are temporarily abroad for various reasons, but continue their studies in Ukrainian higher education institutions. We found out in more detail whether they manage to adapt in a new environment, what obstacles they face on a daily basis, and whether the university promotes learning. Also described are some tips that can improve the condition of individuals

We also decided that the fact that we are continuing our studies at the university that we chose earlier only confirms our desire to return to Ukraine, to obtain higher education in our country and to rebuild it after our victory together with citizens working in various fields and with colleagues-economists. The future of the country is in our hands. Let the process of recovery and reconstruction definitely be difficult, but I believe that we will achieve prosperity.

Emotional stability is one of the dynamic properties of emotionality. This is one of the temperamental personality traits that characterizes the speed of transition from one emotional state to another. The problem of studying individual, typological, group differences in the emotional response of an individual to various life events remains important and relevant.

The tragic events that took place after February 24 greatly affected the mental state of every Ukrainian. Those eight years of living in a military conflict for a separate part of people turned into everyday life in an emergency situation of millions of ordinary citizens. Each of us is trying to get used to the pain that we experience every day, but this is impossible. People have been under stress for a long time, which manifests itself through fear, anxiety, depression or apathy (in someone to a greater extent, and someone in a smaller one). Stress is a protective reaction of the body to external stimuli. Of course, it affects not only the psychological, but also the physical condition of a person: as a result of exposure to extreme environmental conditions, it can cause various kinds of diseases. Unfortunately, it is not in our power to get rid of negative emotions, but it is quite possible to change the attitude towards them. Everyone has their own ways of responding and the ability to withstand tension. It is only important to understand, control and try to recover them.

So, we offer a list of the most effective exercises that can help relieve nervous tension: Breathing squared; Exercise "Rhythmic breathing"; I'm safe; Grounding; Stress relief through movement; Smells; Mutual support.

To find out how effective the above exercises are, we invited students of the specialty Management of the Faculty of Economics of Ivan Franko National University of Lviv to take part in the study. Respondents had to choose one or more of the exercises they liked the most and perform them regularly for two weeks. To conduct this study, we conducted a survey in Google forms with an emphasis on the emotions/symptoms that students most often noticed in themselves during the period of full-scale invasion. They took the same test twice: the first time – in order to record the current state of the respondents; the second time – in order to track the changes that occur with them after the constant use of the proposed stress reduction exercises. As we noted earlier, each organism reacts differently to external stimuli, but still we can see some kind of trend. The diagram shows that most often students experience increased levels of anxiety (18%), sleep disturbances (63%) and mood swings (63%).

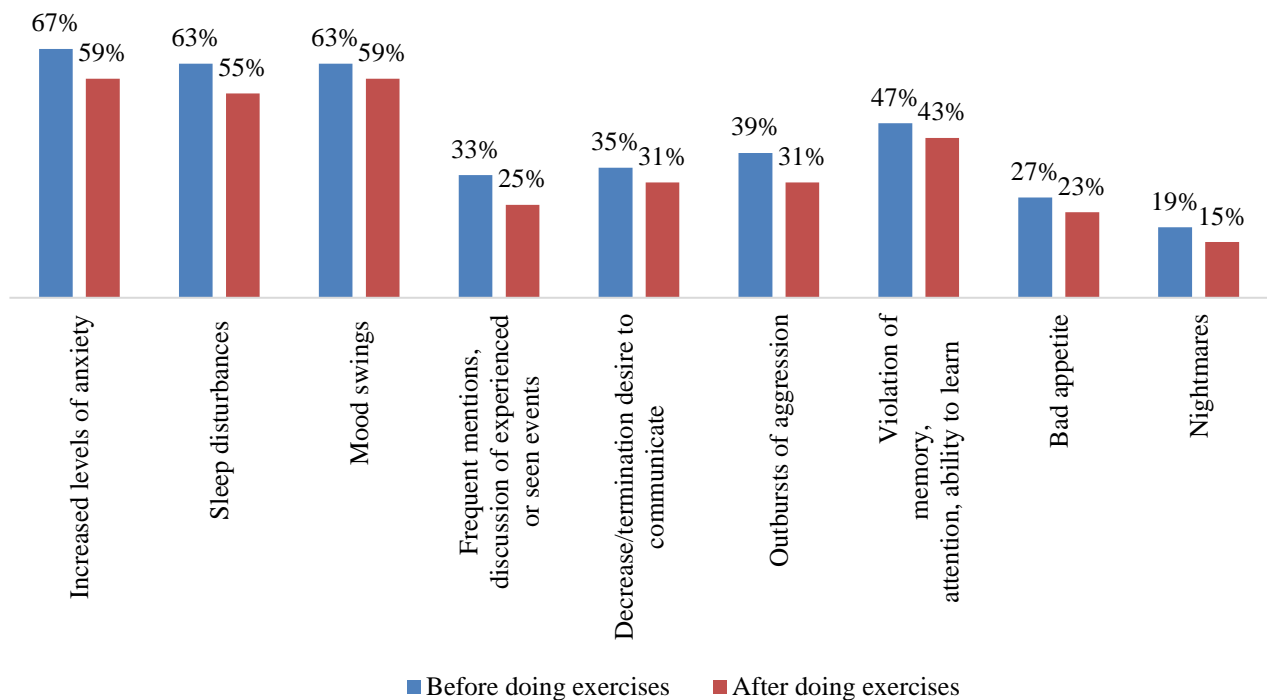


Figure 9. Symptoms that respondents most often noticed in themselves over the past 6 months

Source: developed by the authors based on the results of a survey

After two weeks of performing the recommended exercises, we see that the indicators decreased by 4-8%, that is, 1-2 people after regular use of exercise became more resilient to stress. So, stress reduction recommendations show positive results.

In the conditions of war, it is very important to take care of your psychological health, and therefore it is important to devote time to the formation of psychological

stability. First of all, you need to realize that any reactions to modern realities are completely normal and natural. But in order to become more resistant to change, you need to choose an effective method of forming psychological stability that suits you personally and work it out, because without regular repetitions there will be no result.

General methods of formation of psychological stability: (Fig. 10)

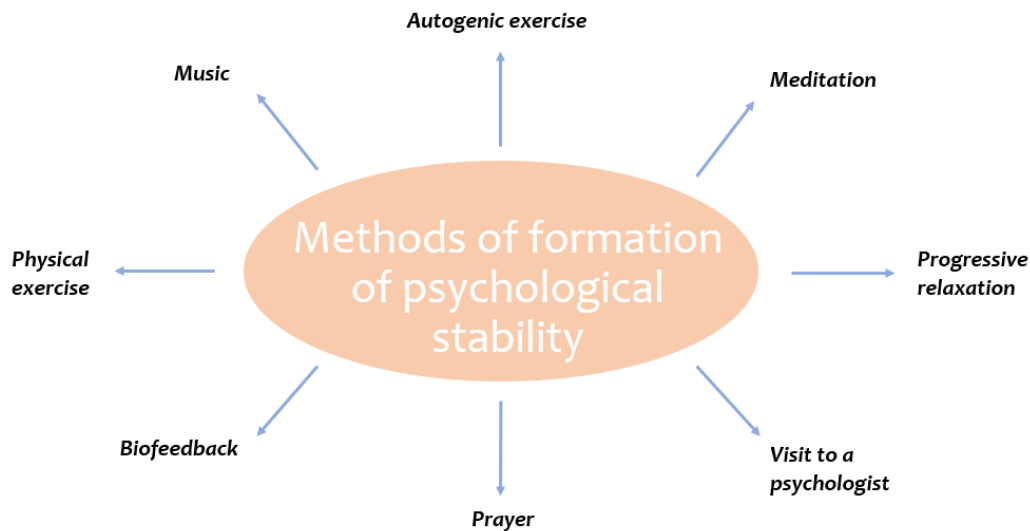


Figure 10. Methods of formation of psychological stability

Autogenic exercise; Meditation; Progressive relaxation; Biofeedback; Music; Physical exercise; Prayer; Visit to a psychologist.

In modern times, we have faced great challenges for ourselves. Due to the war and the pandemic, a simple life and study turned into a complete emotional challenge. During pandemics, we were at home all the time and we missed live communication. It is because of this that many people had signs of depression, apathy, etc. Conflicts with relatives have become commonplace, because it is difficult to be in the same room with people for a long time. The Ministry of Health gave many recommendations, not only how to protect yourself from the disease, but also how not to succumb to emotional stress.

Certain streaming services for watching movies and series have made free access, in order to distract from the fear and stress that is happening outside the window of the house.

Learning has become remote. We could communicate and see our peers, if only through the monitor screen. It helped quite a lot to relax and forget about limitations. There were fitness programs on television: the same exercise. All these factors helped us maintain emotional balance in a difficult period. But soon the war broke out. At such a time as now, it is very difficult to keep oneself in one's hands. Every day is an incredibly big emotional swing. It's hard to realize that none of us are safe at the moment. And in such a time, students of higher educational institutions and institutions of school education have to live and study. It is necessary to follow certain recommendations in formation stress resistance, for normal learning and understanding of scientific material, which in turn will be useful to students and

pupils, to create a stable state in our country and its economy, after the end of the war.

In the conditions of a pandemic, war and distance education, schoolchildren, students, and teachers may have mental health problems: increased anxiety, depression, stress, fear. In order to cope with stressful situations during the period of quarantine and war, you need to adapt to the new academic reality, observe the psychological conditions for the formation of stress resistance: Emotional intelligence; Prosperity here and now; Mutual support; Information purity; Keeping a diary; Reading; Faith; Communication; Sleep; Vacation.

Emotional intelligence. You need to learn to control your emotions and feelings, openly express them. Prosperity here and now. You need to pay attention to your safety, but not isolate yourself from the environment: communicate on the Internet with friends, in student chats, join online and offline events, various activities. Mutual support. Help each other: Solve some personal and family problems while studying. Pay more attention to those whose behavior or emotional state causes concern. Teacher support. After all, they feel the same, they are forced to adapt to distance education, learn new skills and experiment with the latest technologies. Discuss issues related to learning, assessment, giving recommendations, expressing understanding, not forgetting expressions, opinions and comments. All of this will motivate teachers, encourage improvement, and get them out of isolation with quiet monitors.

The first of the recommendations is compliance with information purity. We are constantly surrounded by both good and bad news. It is necessary to be able to isolate oneself from negative news that falsely affects the emotional state of the student. Every person has a smartphone and is most likely subscribed to many news resources and channels, in order not to touch the phone for at least an hour and dedicate yourself to learning, clear your information space. Reduce the amount of news coming to you to a minimum and devote yourself to science.

You also need to qualitatively filter the information you receive, because now there are quite a lot of people who spread false news, and this, in turn, can become a great burden for an emotional person.

The next recommendation is keeping a diary, where a person can record his thoughts and experiences. It is not always possible to communicate with a person to whom you can open up and trust, but the notebook will always be with you. In modern conditions, the most important thing can be a conversation, which will not be enough due to certain problems or busyness, and being alone with one's experiences alone has bad consequences, such as (bad health, depression, apathy). Therefore, it is worth opening up to at least someone, even if it is a piece of paper. This helps to get rid of all destructiveness and leave only your structural thoughts, which will certainly come in handy during the educational process.

Another recommendation is to increase the time allocated for reading. We have an incredibly large library, precisely because of access to the Internet, which contains a wide variety of literature, dedicated not only to the student's specialization, but also to everything that is happening and has happened in the world. In addition to mental

stimulation, stress reduction, and development of critical thinking, reading also promotes concentration. While writing a term paper, or simply studying a certain material, our brain constantly wants to be distracted from the task at hand. And it is the skills developed during reading that can be useful to everyone, regardless of age. Even our soldiers are advised to read, because it helps them to distract themselves from the front and military operations and plunge into some other reality.

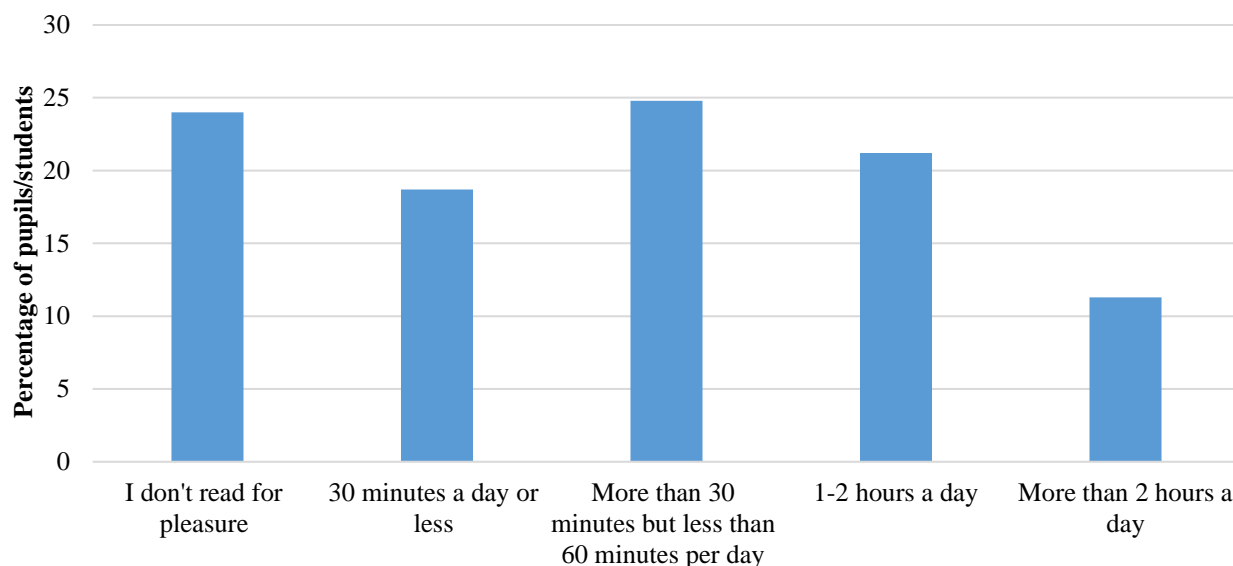


Figure 11. What time pupils/students allocate for reading in Ukraine

Source: developed by the authors based on the results of a survey

The best form of stress resistance is faith. Faith not only helps to heal certain emotional wounds, but it can also help in learning. When a person has someone to turn to and believes that they are protected, it will be easier for them to go through even such a difficult period as now. Therefore, faith can also be attributed to the recommendations in the formation of stress resistance of students of higher education institutions.

It is also necessary not to forget the main privilege of students - they are currently studying and have access to new information every day. And by giving yourself 100% to your studies, you can stop noticing the negativity around you, which will in turn have less impact on the student's emotional consciousness.

One of the most important recommendations is communication. Man is a social being and needs to be in society all the time. It is through communication that we learn new information, or try to look into the mind of a person. Everyone knows that an insufficient amount of communication has a bad effect not only on the emotional state of a person, but also on moral health. A dialogue with another person at the expense of troubling problems accelerates their resolution.

Everyone experiences sleep, but not everyone knows how to use it correctly. Sleep is needed as a rest for the body, and with a small amount of sleep, unwanted mental stress appears. When a person sleeps, he rests not only from physical exertion, he rests with his thoughts, what you thought was impossible on one day, finds its

solution on another day. And with fewer problems, stress decreases, which in turn has a good effect on the student's academic life. If a person has a broken sleep schedule, he also has problems. You need to solve your affairs 2 hours before bedtime, after which you can take time for yourself and go to bed. A good and healthy sleep brings with it productivity, calmness and correctly made decisions, which makes life much easier.

Table 1. How many hours of sleep do people of different ages need?

Newborns	0-3 months	14-17 hours
Babies	4-12 months	12-16 hours
Children of preschool age	3-5 years	11-14 hours
Children of school age	6-12 years old	10-13 hours
Teenagers	13-18 years old	9-12 hours
Adults	18-60 years old	8-10 hours
	61-64 years old	7 or more hours
	65+ years old	7-8 hours

Source: developed by the authors

Rest is an essential recommendation. Everyone should rest and everyone has the right to it, because work and study are impossible without rest. Everyone spends their free time as they want. A good and restful rest leads to many positive consequences, which are known to everyone.

Conclusions. The research revealed the psychological essence of stress resistance and psychological resilience. On the basis of the survey, the mental state of students of higher education institutions during the war was analyzed. The methods of increasing the level of psychological stability of students while studying during the war are considered. Practical recommendations on the formation of stress resistance and psychological stability of students of higher education institutions during the war are presented.

Author contributions. The authors contributed equally.

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