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DESIGNING A HEALTH-PRESERVING ENVIRONMENT IN GENERAL SECONDARY EDUCATION INSTITUTIONS: THEORY AND PRACTICE

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The article examines the pedagogical foundations for developing a health-preserving strategy in general secondary education institutions, addressing contemporary challenges associated with the unique characteristics of the educational process in Ukraine. The study aims to substantiate the theoretical and practical aspects of designing a health-preserving environment in modern general education schools.The research employs theoretical methods, including an analysis of regulatory acts, a logical-systemic analysis of health-preserving methods, synthesis, and the generalization of psychophysiological states of students in the context of learning and stressful conditions. The article outlines a set of organizational and pedagogical techniques and methods grounded in health-preserving technologies, specifically: 1) methods for assessing, self-monitoring, and restoring mental performance during lessons; 2) methods for restoring mental performance during free time; 3) methods for correcting the functional states of visual and auditory analyzers; 4) methods for improving mental health and reducing nervous tension, particularly relevant during the period of martial law in the country; 5) general strengthening methods for increasing resistance to distress (stress with negative health consequences for students). The successful implementation of the theoretical and applied principles for designing a health-preserving environment in general secondary education institutions (GSEI) is contingent upon a comprehensive set of health-preserving techniques and technologies under the following conditions: 1) motivational support for students' health-preserving activities, emphasizing their practical significance and free choice; 2) integration of educational goals from the New Ukrainian School, particularly those focused on forming, preserving, and strengthening students' health and developing their health-preserving competencies; 3) application of the principle of selecting health-preserving technologies in GSEI that prioritises the student's role as an individual with unique experiences and a specific lifestyle; 4) emphasis on humanistic values and prioritizing the recognition of the value of one's own and others' lives in the educational process; 5) ensuring the integrity and continuity of the process of fostering students' health within the educational environment of GSEI. The study concludes by highlighting prospects for further research, including substantiating the feasibility of implementing adaptive learning in general secondary education institutions as a foundation for establishing a health-preserving educational environment in schools.

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ПРОЄКТУВАННЯ ЗДОРОВ'ЯЗБЕРЕЖУВАЛЬНОГО СЕРЕДОВИЩА У ЗАКЛАДІ ПОВНОЇ ЗАГАЛЬНОЇ СЕРЕДНЬОЇ ОСВІТИ: ТЕОРІЯ І ПРАКТИКА

В. І. Бобрицька

У статті здійснено спробу окреслити педагогічне підґрунтя у формуванні здоров'язбережувальної стратегії закладу повної загальної середньої освіти з урахуванням сучасних викликів, пов'язаних із особливостями перебігу освітнього процесу в Україні. Мета дослідження – обґрунтувати теоретичні й практичні аспекти проєктування здоров'язбережувального середовища у сучасній загальноосвітній школі. Методи дослідження – теоретичні: аналіз нормативних актів, логіко-системний аналіз здоров'язбережувальних методів, синтез та узагальнення психофізіологічних станів учнів, що пов'язані з навчанням й стресовими станами. Схарактеризовано комплекс організаційно-педагогічних прийомів та методів, що базуються на здоров'язбережувальних технологіях, а саме: 1) методи оцінювання, самоконтролю і відновлення розумової працездатності під час навчальних занять; 2) методи відновлення розумової працездатності у вільний час; 3) методи корекції функціонального стану зорового і слухового аналізаторів; 4) методи поліпшення стану психічного здоров'я і зменшення нервового напруження, що особливо актуалізується в період воєнного стану в країні; 5) загальнозміцнювальні методи підвищення стійкості до дистресів (стресів, що мають негативні наслідки для здоров'я учнів). Встановлено, що успішна реалізація теоретичних і прикладних засад проєктування здоров'язбережувального середовища у ЗЗСО забезпечується як комплексом здоров'язбережувальних методик і технологій за таких умов: 1) мотиваційне забезпечення здоров'язбережувальної діяльності учня, що ґрунтується на її практичній значущості та вільному виборі; 2) використання у процесі реалізації освітніх цілей Нової української школи, зокрема тих, що стосуються формування, збереження і зміцнення здоров'я учнів, формування їх здоров'язбережувальної компетентності; 3) реалізація настанови у доборі здоров'язбережувальних технологій у ЗЗСО на суб'єктну позицію учні як носія індивідуального досвіду і способу життя; 4) орієнтація в освітньому процесі на пріоритетність гуманістичних цінностей, цінностей життя свого та інших; 5) цілісність, безперервність процесу формування здоров'я учнів в умовах освітнього середовища ЗЗСО. Перспективами дослідницького пошуку визначено обґрунтування доцільності упровадження адаптивного навчання у закладі повної загальної середньої освіти як підґрунтя для реалізації здоров'язбережувального освітнього середовища у школі.

Ключові слова: *заклад повної загальної середньої освіти, здоров'язбережувальне освітнє середовище, здоров'язбережувальні технології.*

Introduction of the issue. The current phase of the development of Ukraine's national education system is characterized by a concerted effort among the state, society, the pedagogical community, and individual citizens to establish socio-value and personal-value foundations for the modernization of Ukrainian education. Central to these processes are the values of life and health, which have gained heightened significance under the conditions imposed by martial law in the country.

Current state of the issue. It is important to note that the research on national priorities in protecting, preserving, and strengthening the health of student youth has been extensively conducted by numerous scholars and analysts, including T. Berezhna [1], N. Karyuk, and L. Yaroshchuk [5]. The author of this article has engaged in research on various aspects of youth health development for over three decades, focusing on topics such as Ukraine's educational policy in the field of health preservation for children and youth [2], national priorities for promoting a healthy lifestyle among young people [3], and the systematic analysis of health-preserving practices in education [10]. However, the conditions required for designing a health-preserving environment in general secondary

education institutions (hereinafter referred to as GSEI) remain insufficiently explored in academic discourse. This gap underscores the necessity of conducting this focused study.

Outline of unresolved issues brought up in the article. The long-term framework for defining and implementing national priorities in promoting a healthy lifestyle among youth, in our view, is articulated in the Law of Ukraine "On Education" (2017) [4]. Addressing the current challenges related to the health of school and university students, the law establishes the formation of a culture of healthy living as one of the core principles of state education policy (Article 6) [4]. Furthermore, Article 12 of the law [4] mandates the development of competencies among the younger generation that are aligned with fostering a culture of healthy living during the acquisition of general secondary education. In light of this, the investigation of the pedagogical conditions necessary for designing a health-preserving environment in general secondary education institutions is both relevant and timely.

The aim of this research is to substantiate the theoretical and practical foundations for designing a health-preserving environment in modern general secondary education institutions.

Results and discussion. The health of a population serves as a key indicator of the socio-economic maturity, cultural development, and success of any civilized state. Consequently, promoting the health of the younger generation must be an integral aspect of all activities within educational institutions, including school education.

National priorities for fostering a healthy lifestyle among youth are outlined in the National Strategy for Building a Safe and Healthy Educational Environment in the New Ukrainian School (Presidential Decree of Ukraine No. 195, May 25, 2020) (hereinafter referred to as the National Strategy-2020) [6]. This strategy was developed to safeguard the health of participants in the educational process and to implement the Presidential Decree "On Urgent Measures to Improve Children's Health" (No. 894, December 7, 2019) [9].

The National Strategy-2020 [6] identifies the primary directions for establishing such an environment in alignment with key government decisions, including the Concept of the New Ukrainian School (2016), the Concept for Mental Health Care Development in Ukraine until 2030 (2017) [7], and the National Action Plan on Non-Communicable Diseases to Achieve the Global Sustainable Development Goals (2018) [8].

To empower students in general secondary education institutions (GSEI) to engage effectively in activities dictated by the specific nature of their intellectual labour, it is essential to provide them with the requisite knowledge to acquire a set of actions conducive to educational success and meaningful self-realisation in life. Thus, the foundation of health preservation for schoolchildren lies in the educational environment, which must prioritize the preservation and strengthening of the younger generation's health.

A health-preserving environment should be designed with careful consideration of its goals (both intermediate and final), the technologies used to deliver the content of health-preserving activities, and a monitoring and control system to facilitate the effective management of these activities. In our view, the design of a health-preserving educational environment in GSEI should commence with a technological analysis. This process involves defining the goals and expected outcomes, identifying specific actions, and determining the operations required to achieve these objectives.

Firstly, it is important to emphasise that identifying the most effective and appropriate strategies for influencing schoolchildren's health indicators requires the development and scientific substantiation of a comprehensive set of organizational-pedagogical techniques and methods grounded in health-

preserving technologies. These methods include:

1. Methods for assessing, self-monitoring, and restoring mental performance during educational sessions.
2. Methods for restoring mental performance during free time.
3. Methods for correcting the functional state of the visual and auditory analyzers.
4. Methods for improving mental health and reducing nervous tension, which is particularly critical during periods of martial law in the country.
5. General strengthening methods to enhance resistance to distress (stress with adverse health consequences for students).

This structured approach provides a comprehensive framework for addressing and promoting the health and well-being of students within the educational environment. The following aspects outline the pedagogical conditions essential for designing a health-preserving environment in general secondary education institutions (GSEI):

1. Motivational support for students' health-preserving activities, grounded in their practical significance and free choice.
2. The integration of educational goals from the New Ukrainian School, particularly those focused on forming, preserving, and strengthening students' health, as well as fostering their health-preserving competence.
3. The adoption of an approach to health-preserving technologies in GSEI that highlights students' roles as active subjects with individual experiences and lifestyles.
4. The prioritisation of humanistic values and the recognition of the inherent worth of one's own life and the lives of others within the educational process.
5. Ensuring the integrity and continuity of the process for fostering students' health within the educational environment of GSEI.
6. Actively engaging students in health-preserving activities throughout the learning process in GSEI.

These pedagogical prerequisites collectively provide a strong foundation for the effective implementation of health-preserving strategies within the educational environment.

Adhering to these pedagogical settings ensures the consistent engagement of students in actions related to:

a) perceiving the educational process in GSEI as an integral part of their daily activities, incorporating essential axiological elements of health preservation;

b) recognizing the interconnection between the indirect manifestations of the educational process in GSEI and real-life activities, such as identifying the integration of health-preserving principles within the school curriculum;

c) understanding their actions and behaviors as components of the broader system of classroom and school activities, wherein health preservation is an indispensable element;

d) transitioning from fragmented efforts to improve their health toward a cohesive structure of activities, underpinned by the acquisition of health-preserving competencies.

This systematic approach aligns educational objectives with health-preserving practices, ensuring a comprehensive and sustainable impact on students' well-being. The framework outlined above establishes a foundation for characterising a set of organisational and pedagogical techniques and methods that underpin the design of a health-preserving environment in general secondary education institutions (GSEI). These include:

1. Methods for assessment, self-monitoring, and restoring mental performance during educational sessions.

Mental performance is a critical integrative indicator that allows students to assess and self-monitor the state of their intellectual and emotional sphere without the need for specialised equipment. Indicators such as an increased number of errors (indicating weakened attention), difficulty concentrating on tasks (reduced focus),

sluggishness, apathy, and a loss of interest in learning serve as warning signs. These may be accompanied by vegetative changes (e.g., increased or irregular pulse, excessive sweating) and headaches, collectively signaling fatigue, overexertion, or a general decline in health.

It is important to note that mental performance exhibits a specific dynamic throughout the school day and week. Understanding the biological patterns underlying this dynamic is facilitated by knowledge of the biorhythmic organisation of the human body.

Initial levels of mental performance are typically low but exhibit a natural tendency to increase under normal conditions. This phase is referred to as the "work adjustment phase"**.** During this period, several processes take place: a) adjustment of nervous and humoral mechanisms responsible for managing specific activities; b) gradual formation of the necessary movement stereotypes; c) achievement of the required levels of vegetative functions.

This phase sets the stage for optimal mental performance and supports the overall goal of fostering a health-preserving educational environment.

The speed at which individuals enter the work adjustment phase is significantly influenced by the type of higher nervous activity. For instance, this phase occurs more rapidly in choleric individuals compared to phlegmatic individuals, and in sanguine individuals compared to melancholic individuals.

Several methods can accelerate the transition into the work adjustment phase, with the most effective being morning hygienic gymnastics ("awakening exercises"). Following the adjustment phase, students enter the phase of optimal stable performance, during which they engage in educational tasks – perceiving or reproducing information – most effectively and productively. The duration of this phase, like the preceding one, varies among individuals and is influenced by factors such as motivation, level of training, working conditions (e.g., temperature, lighting, air quality, background noise), and overall health status.

To purposefully organise productive learning activities, teachers should employ psychophysiological correction methods that extend the phase of optimal stable performance. Research has shown that fatigue in the left hemisphere (responsible for speech and abstract thinking in right-handed individuals) occurs later when the right hemisphere, which governs imaginative and cognitive processes, is also engaged in perceiving information. Consequently, lessons should incorporate illustrative and colorful visual teaching aids alongside moderate physical activity to stimulate the right hemisphere of the brain.

The most effective, accessible, and technologically straightforward approaches for classroom use include physical activity breaks and short physical exercises, the benefits of which are well-established. Experts recommend conducting physical activity breaks as needed, lasting 5-7 minutes, with exercises designed to counteract static postures, reduce eye strain, and alleviate emotional or mental tension. Short physical exercises, lasting 2-3 minutes, are advised during every lesson and should be carefully selected to address fatigue in specific body parts (e.g., back, neck, eyes, hands).

These strategies collectively enhance students' ability to sustain focus and optimise their learning outcomes within the educational environment.

As mental activity progresses, performance gradually declines, resulting in the development of the fatigue phase. At this stage, it is crucial for students to understand the physiological mechanisms of fatigue, accurately self-diagnose it using observable signs, and implement appropriate compensatory strategies. Fatigue is a natural physiological state that arises during intense or prolonged work and is characterized by reduced productivity.

Fatigue is linked to changes in the central nervous system, including disruptions in the transmission of nerve impulses at synapses. During this

process, nerve cells temporarily lose their ability to perceive external signals necessary for continuing work, as well as signals from the working organ. Furthermore, the capacity of nerve cells to distinguish between essential and incidental signals or to isolate relevant signals from background interference diminishes.

Consequently, the regulatory functions of nerve cells are significantly impaired, resulting in the onset of protective inhibition. This inhibition occurs as a safeguard, preventing the complete depletion of the reserves of the working organ or system of organs. By understanding this physiological process, students can better manage their workload and adopt effective measures to mitigate the adverse effects of fatigue.

Initial fatigue can often be overcome through willpower and the presence of a stimulus for activity. In everyday life, this ability to exert additional effort is commonly referred to as the "second wind". The mental mechanism of will plays a critical role in its emergence. When applied effectively, it can gradually enhance intellectual capabilities and increase an individual's endurance for managing intense educational workloads.

However, it is equally important to recognize that fatigue serves as a physiological signal indicating the need for rest as the most effective means of restoring performance. A disruption in the work/rest balance, particularly due to insufficient rest, can result in continued work under conditions of incomplete recovery, ultimately leading to overexertion and health problems.

Therefore, employing methods for assessment, self-monitoring, and restoring mental performance during educational sessions is essential. These methods enable students to optimise their learning outcomes, prevent health deterioration, and adopt a more balanced and rational approach to their lifestyle.

1. Methods for Restoring Mental Performance During Free Time.

When selecting methods for restoring mental performance during free time, the justification for incorporating active forms of rest is particularly significant, especially for individuals engaged in intellectual work. For students, the most effective recovery during periods of learning involves active rest, which entails "switching" to a type of activity distinct from the one that caused fatigue. This approach facilitates a rapid recovery of energy and enhances overall performance.

Optimal active rest requires the selection of leisure activities that differ from those responsible for fatigue. Students who experience fatigue from intensive intellectual work by the end of the week may benefit from activities such as physical exercises, walking, hiking in nature, engaging in sports, or pursuing hobbies and favourite pastimes.

Rest must include a motor (physical) component, which effectively alleviates accumulated neuromuscular tension by neutralizing stress hormones while simultaneously stimulating the development of motor dominance in the central nervous system. This combination contributes to improved psycho-emotional well-being and fosters a positive mood. Such activities not only mitigate mental dominance but also counteract the adverse effects of academic workloads on students' health, including hypodynamia (lack of physical activity) and nervous-psychological tension.

Furthermore, the life of a modern student should not be confined to academic tasks and obligatory activities. It must also encompass personal interests, hobbies, and engagement with the historical, spiritual, and cultural heritage of their community. This broader approach to leisure fosters a well-rounded and enriching experience that supports both mental and physical health.

2. Methods for Correcting the Functional State of the Visual and Auditory Analysers.

For students, learning methods to restore the functionality of the visual and auditory analysers is critical, as the perception of educational information is predominantly facilitated by vision and hearing. Therefore, preventing visual impairments in schoolchildren

necessitates not only addressing the causes and conditions leading to refractive errors (e.g., myopia, hyperopia, astigmatism), reduced visual acuity, and other changes but also equipping them with the knowledge, skills, and abilities required to maintain and restore the functionality of the visual analyser. As such, students' understanding of visual hygiene within the school context is a vital component of establishing a health-preserving environment in general secondary education institutions (GSEI).

Measures to preserve and strengthen vision include strict adherence to personal hygiene practices, such as frequent handwashing with soap, regular changing of personal towels, and appropriate use of handkerchiefs. Proper nutrition also plays a significant role, particularly regarding its balance of essential nutrients and vitamins. Preventing eye diseases in school-aged children involves strict compliance with standards for the use of computers and digital devices, as well as adherence to safety rules at home to avoid eye injuries. These measures support the practical implementation of personal hygiene and proper nutrition in promoting visual health among students.

Under the teacher's guidance, students are introduced to a system of eye exercises and their correct application. Notably, eye exercises designed to prevent overstrain are referred to as "ophthalmic training". These exercises are typically performed 2-3 times daily during the school day and in tasks requiring prolonged visual effort.

One foundational component of ophthalmic training exercises, often incorporated into short physical activity breaks, involves repeatedly shifting focus (15-20 times over 3 minutes) between a small, nearby object (3-5 mm in size, positioned 20 cm from the eyes) and another object along the same line of sight, located 7-10 cm farther away. Another system includes eye movement exercises (10-15 repetitions) performed over 1.0-1.5 minutes, following the shapes of geometric figures such as circles and ellipses. For example, a horizontal line measures 58 cm, and a vertical line measures 46 cm. Following initial exercises, students perform eye movements along inner and outer ellipses, progressing to movements along inner left and right circles.

These structured exercises not only prevent visual overstrain but also contribute to the overall health and functionality of students' visual systems, ensuring optimal performance in educational tasks.

An essential component of methods for correcting the functional state of the visual analyzer in students is the ability to evaluate lighting conditions, which have a direct impact on productivity levels and eye health. Research has demonstrated that insufficient lighting during educational activities significantly contributes to the development and progression of various visual impairments in students. Visual acuity and the stability of clear vision in school-aged children are at their highest at the start of classes but decline as the day progresses, with more pronounced reductions occurring under low lighting conditions.

The issue of adequate lighting in school classrooms remains a pressing concern. Among younger students, there is an increasing prevalence of those who require glasses or contact lenses. It is essential for school administrators and teachers to recognize that sufficient lighting not only supports the physiological functioning of a child's body but also optimizes their energy and vitality. The biological effect of light on the human body depends on the wavelength of the spectrum, its intensity, and the amount of radiation.

To foster the thoughtful and motivated acquisition of health-preserving competencies related to the visual analyser, students' attention should be directed toward two key content areas:

1. The Spectral Components of Light.

It is important to understand that the integral flow of solar radiant energy consists of three parts of the spectrum: ultraviolet (UV), visible, and infrared (IR). The IR spectrum provides thermal energy, while UV radiation plays a critical role in

regulating mineral metabolism, stimulating the synthesis of vitamin D, activating the cortico-adrenal system, and exerting a bactericidal effect. The visible spectrum, meanwhile, ensures the normal functioning of the visual analyzer. Prolonged light deprivation has been shown to weaken the body's immune reactivity and cause functional disorders of the nervous system.

2. Light as an Emotional and Psychological Factor.

Beyond its physiological benefits, light serves as an emotional factor that influences a child's psyche. The profound impact of light is encapsulated in the well-known saying: «Where the sun rarely shines, the doctor often visits.» Prolonged exposure to inadequate lighting not only impairs vision but also negatively affects emotional well-being and overall mental health.

By emphasising these aspects, educational environments can ensure that students gain a deeper understanding of the importance of light for their overall health and develop practical competencies to maintain the functionality of their visual analysers.

Second, lighting – whether natural (solar energy), artificial (primarily incandescent and fluorescent lamps), or mixed (a combination of natural and artificial lighting in a room) – must adhere to the following requirements to ensure optimal conditions for students:

1. Sufficiency.

Lighting adequacy is determined by factors such as the size of windows, their orientation relative to the cardinal directions, the placement of shading objects, the cleanliness and quality of window glass, and the number and power of artificial light sources.

2. Uniformity.

The even distribution of light depends on the arrangement of windows, the configuration of the classroom, and the contrast of wall colors, equipment, and teaching materials.

3. Absence of Shadows at the Workplace.

Shadow-free lighting is influenced by the direction of light; for example, light coming from the left eliminates hand shadows, while overhead lighting ensures completely shadow-free conditions.

4. Absence of Glare.

Glare is influenced by the presence of surfaces with a high reflection coefficient (e.g., polished furniture, glass cabinets). Uneven artificial or natural lighting, as well as glare from work surfaces, negatively impacts visual functions and reduces students' productivity.

5. Absence of Overheating.

The prevention of overheating is dependent on the presence and intensity of direct sunlight and the type of lamps used. Excessive sunlight and prolonged exposure to intense light conditions can adversely affect students' visual functions and cognitive performance.

By meeting these requirements, lighting conditions in educational spaces can be optimized to support students' visual health, enhance their learning environment, and improve overall academic productivity.

For school administrators and teaching staff, it is essential to recognise that creating a health-preserving environment in general secondary education institutions (GSEI) requires particular attention to lighting in computer science and computational technology classrooms (computer labs). In these settings, the illumination level under fluorescent lighting should be approximately 500 lux to ensure optimal conditions. Additionally, the use of local lighting is not recommended when working with computers, as it may cause glare or uneven illumination that can negatively impact visual comfort and performance.

As previously mentioned, students' ability to perceive educational information relies on the coordinated interaction (congruence) of the visual and auditory sensory systems. To ensure the normal functioning of the auditory system, it is critical to maintain hearing hygiene, which encompasses a range of measures aimed at protecting hearing and creating optimal conditions for the auditory analyser.

Two primary conditions that individuals can regulate are as follows:

1. Maintaining an appropriate physical distance.

Ensuring an adequate physical distance between the teacher and students during lessons is essential. This allows students with normal visual and auditory acuity, seated at the back of the classroom, to clearly perceive the teacher's speech and view materials presented on charts or the board. Desks in the first and second rows should be reserved for students with hearing impairments, as normal speech is typically perceived at a distance of 2 to 4 meters, while whispered speech can only be perceived at 0.5 to 1 meter.

2. Preventing the specific and non-specific effects of noise.

Noise can have specific effects, such as varying degrees of hearing impairment, and non-specific effects, including disturbances in the central nervous system, autonomic reactivity disorders, endocrine dysfunction, and issues with the cardiovascular and digestive systems. Exposure to noise levels of 120 dBA can lead to asthenic and neurasthenic symptoms, including irritability, headaches, insomnia, endocrine disorders, and changes in the cardiovascular system, such as disrupted vascular tone, irregular heart rhythm, and fluctuations in blood pressure. In contrast, noise levels below 40 dBA generally do not cause adverse effects on the functional state of the nervous system.

School administrators and teachers must be aware that noticeable changes in the health and performance of students occur when noise levels range between 50-60 dBA.

To help restore the functional state of the auditory analyzer and prevent disorders, short breaks of 10-15 minutes between lessons, along with the use of varied teaching methods that alternate engagement of the visual, auditory, and tactile sensory systems, are highly effective. These measures ensure a more balanced sensory workload and contribute to the overall well-being of students in the educational environment.

1. Methods for Improving Mental Health and Reducing Nervous Tension, Particularly Relevant During Martial Law.

To alleviate nervous tension and enhance the psychological resilience of school-aged children, specialized methods have been developed that focus on abstract-logical thinking and verbal mechanisms for stimulating the nervous system. These methods can be broadly classified into two groups:

Mental Self-Regulation Methods.

This group encompasses various techniques through which individuals can independently influence their emotional, intellectual, and physical states. However, students often lack the requisite knowledge and experience to apply these methods effectively. In the context of designing a health-preserving environment in general secondary education institutions (GSEI), it is crucial to emphasize the mastery of relaxation-breathing exercises and muscle relaxation techniques, particularly during air raid alerts and periods spent in shelters.

Psychological Correction Methods.

These methods aim to modify character traits and behavioural patterns that contribute to or sustain emotional tension. Traits such as irritability, envy, arrogance, shyness, inability to interact harmoniously with others, uncritical self-attitude, and vindictiveness exacerbate emotional strain, as they provoke conflicts with peers, hinder mutual understanding, and may even incite bullying.

When teaching students methods of mental self-regulation and psychological correction, it is important to highlight that negative emotions and psychological overloads are natural aspects of life. Students should be prepared to face stressful situations, as avoiding life's challenges can result in psychological trauma when reality confronts an unprepared psyche. Just as the immune system strengthens through interaction with antigens, negative emotions, shaped by societal values, can activate the

protective mechanisms of the nervous system.

Therefore, fostering mental health requires not only an understanding of strategies to strengthen it but also the acquisition of practical skills to manage excessive negative emotions. Students should be encouraged to develop willpower, self-organization, self-respect, perseverance in achieving goals, and independence in thoughts, actions, and behaviour. These competencies form the foundation for mental resilience and emotional well-being, especially during challenging periods such as martial law.

2. General Strengthening Practices for Increasing Resistance to Distress (Stress with Negative Health Consequences).

General strengthening practices aimed at enhancing resistance to distress include optimal physical activity (PA), tailored to age, gender, type of activity, and health condition, as well as hardening procedures.

Physical activity is a fundamental factor in the formation, preservation, and enhancement of health across all age groups, including school-aged children. It is well-established that PA positively impacts well-being and work capacity, reduces the risk of chronic non-communicable diseases, and contributes to increased life expectancy. Additionally, PA plays a significant role in alleviating nervous and psychological tension within brain structures. The psychophysiological mechanism underlying this effect is that muscular activity creates dominant excitation in the sensorimotor zone, which inhibits excitation in other zones, thereby mitigating nervous and psychological tension.

Optimal PA supports the natural progression of biochemical processes involving stress hormones (e.g., corticoids and catecholamines), effectively redirecting their activity from stress-related mechanisms to those facilitating muscular work. This process neutralises the adverse effects of stress on the body.

Given that learning is predominantly a sedentary activity, evaluating students' physical activity levels during classes (e.g., physical education) and in their free time is essential. This evaluation should consider the frequency and duration of intense PA episodes throughout the week. Intense PA is characterized by activities that lead to a significant increase in heart rate, breathing rate and depth, and visible sweating.

Traditional forms of PA include morning exercises, walks in the fresh air, health jogging, swimming, skiing, household physical work, aerobics and its variations, physical education lessons, and various types of sports. These activities collectively contribute to the holistic development and maintenance of students' physical and mental health, promoting resilience against stress and its negative consequences.

An effective general strengthening method for enhancing the body's resistance to the pathological effects of distress is hardening. Beyond its specific effect of training thermoregulation, hardening facilitates the development of a range of beneficial physiological adaptations in children. During hardening procedures, there is an increase in the synthesis and utilization of adrenal and thyroid hormones in tissues, which is linked to the activation of the immune system and heightened resistance to infections. Additionally, a notable non-specific effect of hardening is the activation of vascular vibration, characterized by alternating dilation and contraction of blood vessels in response to temperature changes. This process improves circulatory conditions and enhances the overall functioning of the cardiovascular system. By promoting these physiological benefits, hardening serves as a valuable tool in fostering resilience and maintaining overall health in children.

In teaching students hardening techniques, emphasis is placed on mastering the key principles of hardening procedures, including gradual progression, systematic implementation, individualisation, and comprehensive application. Additionally, attention is directed toward identifying factors that may reduce the effectiveness of these practices. Among such factors are

harmful habits, such as smoking, which disrupts the normal response of skin blood vessels (causing constriction) to cold and diminishes the barrier function of the respiratory tract, leading to an increased incidence of colds. The underestimation of general strengthening practices became particularly evident during the COVID-19 pandemic, when the importance of maintaining health and boosting immunity was brought to the forefront. These practices highlight the critical role of proactive health measures in promoting resilience and reducing vulnerability to illness.

Conclusions and research perspectives. In conclusion, the successful implementation of the theoretical and practical principles for designing a health-preserving environment in general secondary education institutions (GSEI) is achieved through a combination of established, evidence-based methods and innovative health-preserving technologies, under the following settings: a) motivational support for students' health-preserving activities, grounded in their practical significance and free choice; b) integration of educational goals from the New Ukrainian School, particularly those focused on forming, preserving, and strengthening students' health, as well as fostering the development of their health-preserving competencies; c) application of health-preserving technologies that prioritize students as active participants with unique experiences and lifestyles; d) emphasis on humanistic values and the recognition of the intrinsic value of one's own life and the lives of others within the educational process; e) ensuring the integrity and continuity of health formation processes within the educational environment of GSEI. The next phase of research will focus on substantiating the feasibility of implementing adaptive learning in GSEI as a foundational approach for realizing a health-preserving educational environment in schools.

REFERENCES (TRANSLATED & TRANSLITERATED)

1. Berezhna, T.I. (2023). Osnovni pidkhody ta pryntsypy formuvannia zdorov'iazberezhuvalnoho seredovyshcha zakladu osvity [Key approaches and principles for forming a health-preserving environment in an educational institution]. *Problemy suchasnykh transformatsii. Seriia: pedahohika ta psykholohiia – Problems of modern transformations. Series: pedagogy and psychology,* (1), 11-16 [in Ukrainian].

2. Bobrytska, V.I. (2016). Osvitnia polityka Ukrainy u sferi zdorov'iazberezhennia ditei ta molodi [Educational policy of Ukraine in the field of health preservation for children and youth]. *Materialy Mizhnarodnoho sympoziumu "Osvita i zdorov'ia pidrostaiuchoho pokolinnia" – Proceedings of the International symposium "Education and health of the growing generation":* zb. nauk. prats. Kyiv, issue 1, 98-103 [in Ukrainian].

3. Bobrytska, V.I. (2020). Natsionalni priorytety vykhovannia molodi dlia oriiientyriv zdorovoho sposobu zhyttia [National priorities for youth education towards a healthy lifestyle]. *Metodolohiia neperervnoi osvity ta naukovoho doslidzhennia – Methodology of continuous education and scientific research:* monohrafiia; za red. N.M. Ridei, E.V. Luzik. Kyiv: TOV TsP "Komprynt", 425-450 [in Ukrainian].

4. Zakon Ukrainy "Pro osvitu" [Law of Ukraine on Education]. (2017). *Vidomosti Verkhovnoi Rady (VVR) / Bulletin of the Verkhovna Rada (VVR),* # 38-39, 380. Retrieved from: https://zakon.rada.gov.ua/laws/show/2145-19#Text [in Ukrainian].

5. Kariuk, N.V., & Yaroshchuk, L.I. (2020). Modeliuvannia zdorov'iazberezhuvalnoho osvitnoho seredovyshcha zakladu osvity yak osnovy rozvytku sotsialno aktyvnoi osobystosti [Modeling a health-preserving educational environment in an educational institution as a basis for developing a socially active personality. *Pedahohichnyi poshuk – Pedagogical search,* № 1, 50-56 [in Ukrainian].

6. Natsionalna stratehiia rozbudovy bezpechnoho i zdorovoho osvitnoho seredovyshcha u Novii ukrainskii shkoli [National strategy for building a safe and healthy educational environment in the New Ukrainian School] (2020). *Ukaz Prezydenta Ukrainy vid 25 travnia*

2020 r. № 195 – Decree of the President of Ukraine No. 195 dated May 25, 2020. Retrieved from: https://zakon.rada.gov.ua/laws/show/195/2020#Text [in Ukrainian].

7. Pro skhvalennia Kontseptsii rozvytku okhorony psykichnoho zdorov'ia v Ukraini na period do 2030 roku [On the approval of the concept for the development of mental health care in Ukraine for the Period up to 2030]. (2017). *Rozporiadzhennia Kabinetu Ministriv Ukrainy vid 27 hrudnia 2017 roku № 1018 – Order of the Cabinet of Ministers of Ukraine No. 1018 dated December 27, 2017.* Retrieved from: https://zakon.rada.gov.ua/laws/show/1018-2017-%D1%80#Text [in Ukrainian].

8. Pro zatverdzhennia Natsionalnoho planu zakhodiv shchodo neinfektsiinykh zakhvoriuvan dlia dosiahnennia globalnykh tsilei staloho rozvytku [On the approval of the national action plan on non-communicable diseases to achieve the global sustainable development goals]. (2018). *Rozporiadzhennia Kabinetu Ministriv Ukrainy vid 26 lypnia 2018 r. № 530-r. / Order of the Cabinet of Ministers of Ukraine No. 530-r dated July 26, 2018.* Retrieved from: https://zakon.rada.gov.ua/laws/show/530-2018-%D1%80#Text [in Ukrainian].

9. Pro nevidkladni zakhody shchodo pokrashchennia zdorov'ia ditei [On urgent measures to improve children's health]. (2019). *Ukaz Prezydenta Ukrainy vid 7 hrudnia 2019 r. № 894 – Decree of the President of Ukraine No. 894 dated December 7, 2019.* Retrieved from: https://zakon.rada.gov.ua/laws/show/894/2019#Text [in Ukrainian].

10. Bobrytska, V.I., Reva, T.D., Beseda, N.A., & Filippova, L.V. (2020). Approaches to cultivating healthy behaviours in tertiary students: Systemic review. *European Journal of Educational Research*, vol. 9, is. 4, 1649-1661. Scopus. Retrieved from: https://doi.org/10.12973/eu-jer.9.4.1649 [in English].

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