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The Development of Music Students Under Conditions of War in Ukraine: A Neuropedagogical Perspective

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Abstract: *The article presents a review of existing approaches, theory and practice of music students' development under the conditions of war in Ukraine. The presented material can significantly enrich the content of music pedagogical education on the study of neuro-pedagogical aspect of music students' development under the conditions of war in Ukraine, in the process of implementation of disciplines of professional psychological and pedagogical disciplines. The leading idea of the article is the recognition that music is one of the most powerful means of emotional regulation of the mental activity of music students in the conditions of war in Ukraine. It develops a person's ability to recognise and control their emotions, enhancing their emotional intelligence. In this article, the main types of musical activity - listening to music, its instrumental performance and vocalisation - are used to investigate the neuropedagogical influence on the development of music students under the conditions of war in Ukraine. The effects of listening to various classical works revealed by current science are investigated. Factors influencing the perception of music are discussed, namely, the psycho-emotional state of music students during the war in Ukraine at the moment of listening, as well as the peculiarities of their nervous system, temperament, and personality type. It is noted that significantly enliven the emotional sphere of music students, activate its independence and creative activity, singing and playing musical instruments, the distinctive feature of which is the ability to improvise.*

Keywords: *vocalisation; stress; emotional intelligence; brain plasticity; professional growth; self-regulation; music education.*

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1. Introduction

Today's rhythm of life requires a large reserve of mental strength from music students. Exposure to daily stressful situations related to the Russian-Ukrainian war, air raids, study load and increased intensity of the rhythm of life lead to excessive neuropsychological tension. This negatively affects the physical and mental state of music students. Against the background of the Russian-Ukrainian war, music students increasingly feel the need to divert, switch, search for and realise their creative potential. Measures to improve existing and promote the creation of today's, convenient means, methods of rehabilitation and prevention, which increase the reserve capabilities of the body and enable the realisation of the creative potential of music students in the conditions of the war in Ukraine are becoming increasingly relevant.

Researchers Hren (2010), Hrynychuk & Burtseva (2008) paid particular attention to the study of the influence of multimodal prolonged sensory flows, the greatest interest among which is the musical influence on music students in the conditions of war in Ukraine. According to O. Oleksyuk (2006) the development of music in the conditions of war in Ukraine is connected with the development of individual abilities. Music as an art form contributes to the formation of the personality, transmitting accumulated cultural values, norms, and ideals, while developing creativity, and creative activity. N. Tararak determined the main indicator of musicality of students-musicians in the conditions of war in Ukraine - emotional responsiveness to music. Researchers M. Wachi (2007), M. Koyama (2007), M. Utsuyama (2007) considered musicality as a complex of abilities, and proposed various structural concepts and classification, yet this issue remains under discussion today. According to T. Berbets (2021), "sound has frequency, intensity, tempo, rhythm, timbre and tonality. Each of these characteristics is processed by different parts of the brain". V. Berbets (2021) demonstrates "that frequency and intensity are the main characteristics perceived by humans on a non-conscious level. The left hemisphere processes tonality and rhythm. And the right hemisphere processes melody and timbre". Berbets et al. (2021) demonstrated "that tempo is processed by both hemispheres. It can be summarised that listening to music activates all parts of the brain simultaneously, with the right and left hemispheres functioning together". A. Nerubasska (2020) and Behas (2019) investigated in their scientific works the "potential of musical-performance activity as a psycho-emotional tool for regulating the state of music students in the conditions of war in Ukraine".

The purpose of the article is to determine the role of music in the development of students in conditions of war in Ukraine; to highlight the factors influencing the perception of music in listening activity; to study the potential of musical-performance activity as a psycho-emotional tool for regulating students' wellbeing; and to describe the mechanisms underlying the physiological effects of vocalisation, with jazz intonation techniques as a striking example of music promoting personal health and serving as a tool of psychological self-regulation in both personal and professional contexts.

2. The Role of Music in the Development of Music Students Under Conditions of War in Ukraine

Music has traditionally been considered one of the most powerful means of emotional regulation of the mental activity of music students. Through expressive means, it is able to change emotional states, contributing to experience and calmness, and contributes to the recognition and management of emotions, which is the essence of emotional intelligence. Its development plays a key role in the social adaptation of music students in the conditions of the war in Ukraine and largely determines its success Honcharov (2014).

Considering the psychoemotional effects of music on students during the war in Ukraine, this influence arises through its integration into the main types of musical activities: listening to music as a passive form, and performance and creativity as active forms. The study of these aspects became the task of our study.

Music plays an important role in stimulating mental processes in the work and training of music students. It helps relieve visual and auditory fatigue, harmonises classroom challenges, creates a positive learning atmosphere, enriches monotonous tasks, and supports optimal learning rhythms Hughes (2000). All this has a favorable effect on increasing productivity, prevents the negative effects of learning and production stress, which prevents the development of overwork, facilitates the formation of self-regulation skills of music students, Kovinko (2018)

Thus, during examinations, students-musicians—whose educational activity is connected with constant psycho-emotional loads, with contacts with other people, with working through a considerable stream of information, to listening to musical classical works (fragments of musical works of P. I. Tchaikovsky, A. Vivaldi, W.A. Mozart, F. Chopin, E. Grieg) there was a state of pronounced tension of regulatory systems, which significantly decreased or disappeared after a session of musical influence. For comparison, the authors included compositions belonging to the musical direction of hard rock, which led to an increase in the subject's tension, Hughes (2001).

The psychological mechanisms underlying personal change in music students involve several processes: identification with the artistic direction of a musical work, empathy with the emotional states conveyed through music, and reflection on their own life experiences in relation to those of the composer. Listening to a range of musical works can evoke emotional turmoil and deep empathy, leading to catharsis, i.e., a powerful emotional release that helps alleviate stress, anxiety, irritability, and affective states Hughes (2000).

Emotional release is not always accompanied by a pronounced emotional state through empathy; it can be soothing, relaxing in nature. Certain musical works help to relieve feelings of anxiety and uncertainty.

There is evidence of the successful use of music to relieve situational anxiety. An experiment was conducted in the auditorium during the examination of music students, during which it was possible to switch the students' attention from internal feelings related to the future exam to another, more resourceful state as a result of listening to specially selected musical accompaniment and to fix this positive experience with an emotionally comfortable state. Music in this case acts as an additional resource for shifting attention and fixing the new positive experience (Luchentsova, 2015.)

3. Factors Influencing the Perception of Music in the Listening Activity of Music Students

Studies on the neuropedagogical impact of music on student musicians during wartime in Ukraine indicate that cognitive performance optimisation is closely linked to their psychophysiological state. In line with the arousal and mood hypothesis (Thompson et al., 2001), music that elicits emotional “pleasure” and increases sensory arousal can activate brain processes. It also enhances spatial–temporal performance and improves concentration. Under chronic stress, the positive affect induced by preferred music functions as a cognitive catalyst. It reduces cortisol levels and stimulates the dopaminergic system. As a result, students can mobilise their intellectual resources more effectively for academic activity.

This observation is reflected in a study by W. Thompson (2001), which found that among two groups of music students performing tasks, those who listened to their favorite music did better: orchestra students - classical, guitar students - rock. The reinforcing aspects of music are conditioned by shifts in the level of emotional activation, as evidenced by the close positive correlation between satisfaction scores and the magnitude of activation physiological changes (pulse and respiration rate, changes in electro-cutaneous conductivity, body temperature, pulsation of blood volume); when there is no pleasure from listening to music there are no significant reactions of the emotional sphere.

In addition, the peculiarities of the nervous system, temperament and the emotional state of the individual at the time of listening to music should be taken into account. A vivid example of this relationship is a study by Strohal (2017), which studied the effects of heavy metal and hard rock

music on student musicians in the conditions of war in Ukraine, in a state of anger. While for student-musicians in a calm state, such music usually acts as a stressor and stimulates the sympathoadrenal system, in an overexcited anger sympathoadrenal system extreme music acts as a calming agent, leading to a decrease in heart rate and normalisation of blood pressure.

Similarly, while sad music acts predominantly and causes an increase in the activity of sympathetic influences on music students in conditions of war in Ukraine in a normal emotional state, it often has a positive effect on music students in conditions of war in Ukraine in a state of grief. Conversely, cheerful music can have an irritating effect on student-musicians in a state of grief, accompanied by an increased heart rate and blood pressure.

The psychotherapeutic and relaxing effects of minor-key music on student musicians during wartime can be explained through the mechanism of affective compensation. According to the theory of empathic resonance (Taruffi & Koelsch, 2014), sad music is perceived not as an additional depressive factor, but as a form of social surrogacy. It functions as an “imaginary interlocutor” that expresses empathy for the listener’s internal state. Under conditions of chronic war-related trauma, this contributes to the reduction of psychophysiological tension, including vasomotor responses. It also facilitates a cathartic effect, whereby the musical work serves as a safe container for the release of suppressed emotions. In this way, it provides a sense of psychological support and perceived solidarity. No less important for the realisation of the hypotensive effect of music is the personality type of the listener.

A study of the effects of music during stress showed that the levels of biochemical markers of stress (noradrenaline, adrenocorticotrophic hormone, cortisol, leptin, carbon dioxide) decrease simultaneously with the restoration of a positive emotional state against the background of musical intervention (Zhukov, 2018).

4. Possibilities of Musical-Performance Activity as a Psycho-Emotional Tool for Regulating the Well-Being of Music Students in the Conditions of War in Ukraine

The ability of music students in the conditions of war in Ukraine to resist daily stressful influences, preserving adequate perception of the phenomena of the surrounding life, allows them to find and choose the measure of necessary reactions in their social activity, to promote the possession of resources in order to express their creative potential. Intensely engaging, the emotional sphere of students-musicians in the conditions of war in Ukraine, activates its independence and creative activity playing musical instruments.

P. Zhukov (2018) notes that mastery of a musical instrument develops the skills of differentiated perception, contributing to the improvement of adaptive qualities of the personality by developing the ability to adjust goal-directed attitudes.

The electroencephalographic pattern of music students under the conditions of war in Ukraine revealed high neural plasticity in brain functioning. There is a possibility that the functioning of both hemispheres of the brain in a musician is manifested independently. This finding is consistent with experimental data, as A. Leins (2011, p.18) demonstrated that the fact that different coherent connections between brain regions can reflect diverse mental states. Experiments of S. Śliwa(2021) also proved that musical training at any age causes a readjustment of the brain, as a result of which there is an increase in the number of neurons that respond with maximum reactions to behaviourally significant sounds. According to V. Saienko(2021, p.11), and Kowalski (2021, p.45) in addressing a wide range of tasks of life activity and self-realisation, a person uses the manifested psychophysiological brain constants of musicality. It is not only a question of changing the adaptation norms of life activity of the musical carrier of consciousness, but also of mastering the system of means of adaptation.

Musical performance is an art form through which an individual externally conveys their emotional state. If there is no such feedback, the inarticulate feeling "gets stuck" in the body through muscular tension, causing vascular spasms and resulting in somatic disorders. The student-musician becomes captive to these emotions, submits to them, and commits actions and

deeds that go against the norms of social behaviour. And expressing his feelings and experiences outside, in the surrounding society with the help of images of art, including music, the student-musician must cope with his feelings, becomes their master, thus increasing the level of emotional intelligence.

For example, in the study by L. Pastushenko (2013) the applicability of drumming as a means of stress relief and correction of its consequences for music students in the conditions of war in Ukraine was assessed. Blood analysis and subjective mood indicators showed that, in the group of "drummers" in comparison with the control there is a normalisation of immune system cell activity and mood enhancement, which reflects the ability of this type of "discharge" to have corrective effects due to modulation of specific parameters of neuroendocrine and neuroimmune systems in the direction opposite to the classical stress response.

Prolonged instrumental music training of music students under the conditions of war in Ukraine induces specific structural and functional changes in the brain due to the mechanisms of neuroplasticity. At the same time, even short-term musical training changes the nature of processing of sound information in the brain. In this process, all areas of the brain are involved, including those that provide perception of information from other areas of cognitive activity. Performing music, whether at home, work, or school, can create a dynamic balance between the more "logical" left hemisphere and the more "intuitive" right hemisphere of the brain. It follows that musical activities positively influence cognition and emotion-related processes, developing personal abilities, stabilisation of psychological states, including in persons engaged in professional musical activity.

The most natural and therapeutic musical instrument, which allows the application of certain reserves of the human body, maintaining the inner harmony of soul and body, is the human voice. The voice is a tool that becomes more lively and interesting the more it is used and the more free the music student is from the constricting framework of fear that he or she may sing incorrectly. By learning to communicate emotions through the voice, the student-musician in the Ukrainian wartime context acquires a strong means of releasing tension and expressing personality. In the process of vocalisation, not only physical hearing is developed, but also emotional hearing, endowing the individual with the skills to recognise and convey a particular emotion in the form of the voice. Mastering the intonation and recognising the mood of an interlocutor through their tone develops communicative skills necessary for everyday communication. Understanding the states and needs of interlocutors only on the basis of the intonation represents an intuitive ability and at the same time the most important characteristic of the emotional intelligence of a person.

When working on a phrase or song lyrics, the vocalist engages with feelings, experiences, and images, encountering both familiar and unfamiliar emotions. This process broadens their emotional range and contributes to the development of emotional awareness, knowledge, and overall quality of life Wachi (2007).

Singing helps music students in the context of the war in Ukraine to express their emotions spontaneously and sincerely. Vocalisation, purring while walking, working allows to remove areas of stiffness and tension, the so-called muscle "armor" on the body, to free the body from clamps.

Ossified areas bear the stamp of pain, fear, rejection and shame. Singing specific syllables or notes in combination with certain exercises gets rid of them, normalises the function of previously inhibited organs and areas of the body, and returns health and good mood. Singing vocalisations such as Indian mantras is aimed at developing the skills of focus and concentration on inner emotions; singing songs and musical affirmations is aimed at forming the performer's self-confidence, high self-esteem, inner peace, equanimity in a difficult situation, humanistic attitude to others, positive attitude to the world. Singing songs of appropriate content, both calming and inspirational, awakens the motivational enthusiasm of music students in the conditions of war in Ukraine, and choral singing, playing in an orchestra or in an ensemble develops the following character traits: a sense of community, collectivism in music students.

One of the mechanisms explaining the physiological influence of vocalization is hormonal regulation by the psychological state of the performer. Thus, when a person sings, endorphins are

released, exerting a calming effect. The vibrations arising during singing block the transmission of pain signals to the brain. It is noted that the maximum effect is achieved when the performer selects the most appropriate melody (Behas et al., 2019).

In the process of singing, the respiratory apparatus is actively engaged, and the phases of exhalation appear several times longer in duration than the phase of inhalation. In this regard, a state of mild hypoxia is created in the body, with a decrease in blood oxygen levels.

Consequently, the increase in blood partial carbon dioxide gas pressure contributes to powerful biostimulation by activating the transfer of oxygen from capillaries to tissues.

This has a positive result in the correction and prevention of anxiety disorders, since there is convincing evidence of a direct relationship with breathing difficulties and anxiety in music students in the conditions of war in Ukraine.

The techniques of jazz intonation are a vivid example of health improvement of music students in the conditions of war in Ukraine through music, in the process of which spiritual and emotional possibilities are realized. Imitation of the voice of instrumental playing infinitely expands the scope of voice use and gives birth to the ability to create order out of chaos, because "musical thought acquires complications as singing turns into instrumental playing".

It is characteristic of jazz to lead student musicians in the context of the war in Ukraine into the theta consciousness, an area of highly creative brain waves associated with artistic and spiritual insight. Improvisation is an important tool for revealing the unique natural sound of one's own voice. In the process of improvisation, the performer uncovers abilities, reveals and works through inner conflicts, spilling out everything that has been collected and held back, and thus counteracting stress, Oleksyuk (2006).

The development of vocal potential and singing skills can help reduce personal anxiety, enhance resource management, strengthen self-control and self-regulation, foster creativity, and promote personal growth in music students during the war in Ukraine.

The importance of music's influence on music students in the conditions of war in Ukraine is not limited to the fight against negative psychological states of personality. The need to restructure the mental framework of student-musicians in the conditions of war in Ukraine is driven by the current requirements for professional competence. At present, they increasingly speak about mastery as a rationally organised systematic and purposeful activity, the success of which is determined by the creative independence of the specialist. For the development of creative productivity in the context of professional competence it is necessary to include such activity that will affect not only logical, verbal structures of the brain, but also the right hemisphere as the basis of the multifaceted context of the problem being solved. These requirements are addressed through musical-performance activity, which enhances brain plasticity by activating existing cortical connections and forming new ones. It also promotes interhemispheric synchronisation by integrating analytical functions of the left hemisphere with the synthetic functions of the right, thereby optimising information processing in music students during the war in Ukraine (Zhukov, 2018).

A distinctive feature of the active form of musical influence on the psychological state of music students in the conditions of war in Ukraine is the possibility of improvisation - the creation and expression of their own musical "drawing" of feelings and experiences. Spontaneity is regarded as a key condition in which the flow of improvisation is determined. The authenticity of the emotions and ideas that engage the performer in the musical process constitutes the essence of improvisation. Through improvisation, the student-musician externalises accumulated emotions, thereby achieving a state of catharsis.

Composed music, if it is already known to the listener, will cause the listener to repeat an emotional response they have previously experienced, rather than one that is consistent with their current emotional state. Because improvisational music does not evoke specific associations with the past, it has the ability to achieve the deepest and most spontaneous emotional level of a particular person.

4.1. Research Methodology

The study used a comprehensive approach combining quantitative and qualitative methods of analysis. This enabled the researchers to obtain a complete picture of the impact of military operations on the cognitive and emotional state of music students.

The experiment involved 100 students aged 18 to 25 enrolled in higher education institutions in Ukraine. The gender distribution was 63% female and 37% male. All respondents living in Ukraine had directly or indirectly experienced the consequences of the war, including evacuation, loss of housing, or loss of loved ones.

The following were used to collect information:

- MMPI questionnaire (Minnesota Multiphasic Personality Inventory) to determine personality traits, emotional states, and stress resistance.
- STAI scale (State-Trait Anxiety Inventory) to assess situational and personal anxiety.
- Semi-structured interviews to collect qualitative data, in particular, experiences of war, its impact on motivation, creativity, and self-regulation abilities.
- Non-standardized observations during the learning process and online concerts to record behavior, level of engagement, and emotions.

Quantitative data were analysed using descriptive statistics (arithmetic mean, standard deviation) and correlation analysis (Pearson and Spearman methods). This enabled the identification of relationships between anxiety levels, stress resilience, and motivation. Qualitative data were processed using content analysis, which facilitated the identification of key themes and patterns related to the impact of war on creative activity.

4.2. Research Results

1. Anxiety and stress levels

Table 1. Students' anxiety levels on the STAI scale

Anxiety level	Number of students (n=100)	% of total
Low (20–30)	7	7%
Medium (31–44)	11	11%
High (45–60)	82	82%

Analysis of the STAI anxiety index results showed that:

- 82% of students had elevated levels of situational anxiety (above 45 points),
- only 7% showed low levels of personal anxiety, while 11% demonstrated medium levels.

These indicators significantly exceed the norm recorded in control groups of music students in the pre-war period (e.g., according to Demchenko et al., 2021).

2. Psychological characteristics according to MMPI scales

Table 2. Frequency of detection of elevated MMPI scales

MMPI scale	% of students with high scores
Depression (D)	56%
Hysterical tendencies (Hy)	43%
Psychasthenia (Pt – anxiety)	47%
Social introversion (Si)	41%

According to the results of the MMPI questionnaire:

- 56% of students showed high scores on the depression scale (D),

- elevated scores were also recorded in 43% of students on the hysteria scale (Hy) and in 47% on the psychasthenia scale (Pt, reflecting anxiety),
- 41% of students demonstrated decreased social activity and motivation for creative activity.

This may indicate emotional exhaustion as a result of the war and constant adaptation to the changed conditions of the educational environment.

3. Interviews and qualitative observation

Table 3. Topics identified in in-depth interviews (content analysis)

Topic	Share of mentions (%)
Music as psycho-emotional support	84%
Loss of creative motivation due to trauma	62%
Strengthening national identity	71%
The influence of family support on learning	38%

Content analysis of 25 in-depth interviews revealed several key themes:

- Music as emotional support: 84% of participants noted that musical activity helps them “keep themselves under control,” “not despair,” and “communicate with themselves.”
- Loss of creative motivation: over 60% admitted that during periods of active combat or loss of loved ones, they were unable to play or engage in creative activities;
- Growth of national identity through art: more than 70% of respondents indicated that traditional music and culture became a source of strength and inspiration.

These results correlate with data from studies by Sarancha et al. (2021), which emphasize the neuropsychological role of music in reducing symptoms of post-traumatic stress.

4. The impact of war on the learning process

Students face uneven cognitive load, decreased concentration, and increased fatigue.

Hybrid learning, combining distance and face-to-face components, ensures safety but reduces the quality of artistic interaction and diminishes the effectiveness of pedagogical support.

These challenges require new approaches, including neuropedagogical strategies that take into account the impact of stress on brain function and offer individualized development trajectories.

4.3. Discussion

The results confirm the high level of anxiety, depressive symptoms, and emotional instability among students at music schools who are studying in wartime conditions. The data are consistent with the results of previous studies conducted in crisis and war situations, particularly during the conflicts in the Balkans (Nikčević & Spada, 2020) and in the Israeli-Palestinian conflict region (Ziv et al., 2021), where students exhibited similar symptoms of post-traumatic stress disorder.

In the context of neuropedagogy, adaptive learning that takes into account the brain's neuroplasticity and the sensory needs of individuals in traumatic conditions is a key factor in stabilising students' psycho-emotional state. Currently, models of individualised learning environments with flexible pacing, alternating cognitive and emotional loads, and the integration of audiovisual resources, in particular music therapy techniques, are relevant.

It should be noted that music therapy acts not only as a compensatory strategy, but also as a cognitive-activating mechanism. It is known that music activates the limbic system, hippocampus, and prefrontal areas of the cerebral cortex (Chanda & Levitin, 2013), which contributes to a decrease in cortisol levels, improvement in memory, attention, and emotion regulation. Students who participated in musical improvisation, singing groups, or listening to ethnic music demonstrated higher resilience, consistent with models of integrative sensory therapy (Porges, 2011).

An important finding is the establishment of a high level of identification through art—71% of respondents noted that music enhances their sense of national belonging. This is consistent with contemporary cultural and neuroscientific approaches, in which art is seen as a means of forming collective memory and emotional belonging (Schnell & Becker, 2020).

Practical significance

The results have direct practical significance for

- teachers at art universities – in developing flexible educational programs that combine creativity and emotional self-development;
- psychologists and tutors – in developing intervention programs using music therapy and sensory practices;
- higher education institutions – in strategic planning of the educational process, taking into account factors of military trauma, in particular, when providing resources (safe premises, recreation rooms, online self-help groups, etc.).

Thus, the results of the study not only confirm the destructive impact of war on the student population, but also open up prospects for effective neuropedagogical support for creative young people in extreme conditions.

5. Conclusion

The significance of this study lies in determining the role of music in the development of music students in the conditions of war in Ukraine. In today's changing world, and particularly in the context of the war in Ukraine, music can serve as an effective tool for the self-regulation of music students' psychological state. It supports the fulfilment of personal tasks and creates favourable conditions for both intellectual activity and professional growth, whether as a musician or an ordinary music lover. The factors influencing the perception of music in students' listening activities have also been identified. These factors play an important role in stimulating mental processes and promoting resilience under wartime conditions.. It is proved that music contributes to the removal of visual and auditory fatigue, harmonization and resonance absorption of situational problems, creating a favorable atmosphere during training and positive mood for learning, enriching the inner content of monotonous work, the formation and maintenance of optimal rhythms. The anti-adrenergic and anti-stress effects of music are mediated not only through direct effect on the autonomic nervous system but also through its positive impact on the emotional state of music students in the conditions of war in Ukraine. The study demonstrated that under stress conditions, the levels of biochemical markers of stress (noradrenaline, adrenocorticotrophic hormone, cortisol, leptin, carbon dioxide) decrease simultaneously with the recovery of positive emotional state against the background of musical intervention.

The article also investigates the possibilities of musical-performance activity as a psycho-emotional tool to regulate the state of music students in the conditions of war in Ukraine. It has been shown that developing vocal potential through singing skills reduces personal anxiety, enhances resource management, strengthens self-control and self-regulation, fosters creativity, and promotes personal transformation in music students during wartime Ukraine. The importance of music's influence on music students in the conditions of war in Ukraine is not limited to the fight against negative psychological states of personality.

The purpose of the article is to determine the role of music in the development of music students during wartime Ukraine; to highlight factors influencing the perception of music in listening activities; to examine the potential of music and performance as psycho-emotional tools for regulating students' states; and to describe the mechanisms of vocalisation and jazz intonation techniques as striking examples of music's role in health promotion and psychological self-regulation for personal and professional tasks.

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