

Building Resilience In Ukrainian Students Amidst Wartime Challenges



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Abstract

The development of resilience among university students enhances their adaptation to challenging conditions and overall mental health. The research focuses on the peculiarities of building resilience in higher education students under wartime conditions in Ukraine. For this purpose, CBT (Cognitive Behavioural Therapy) and mindfulness techniques were chosen as progressive and effective methods for coping with stress and enhancing psychological stability. The main characteristics of these methods and the expected outcomes of their application were outlined. The ERC (Emotional Resilience Criteria) scale was modified according to the defined resilience-building criteria, and an experimental study was conducted based on a survey of higher education students during 2022–2024. According to the research results, a positive impact of using CBT and mindfulness techniques was observed in line with the defined resilience-building criteria. Additionally, an increase in ERC scale indicators was noted throughout the experiment. By the final stage, the students in the experimental group, who applied CBT and mindfulness techniques, achieved high levels on the ERC scale. Based on the outlined methodology, it is possible to adjust or combine resilience-building methods depending on the domain of life and psychological condition, where psychological stability and emotional balance are required. It has been determined that CBT and mindfulness are practical tools for building the resilience of student youth in wartime in Ukraine. They help reduce stress, improve emotional regulation, and increase awareness and quality of life, essential components of mental health and social well-being.

Keywords: resilience, cognitive behavioural therapy, mindfulness, resilience, wartime challenges, higher education students, student youth.

JEL classification: Z 00 - Other Special Topics: General; I 29 - Education: Other

Introduction

Resilience as a psychological phenomenon becomes especially relevant in crises characterised by high-stress levels, instability and uncertainty. For student youth at an essential stage of their life development, these challenges are significantly complicated by the simultaneous influence of external (military conflict) and internal (personal development, academic workload) factors. The peculiarities of student youth as a socio-psychological group combine their desire for independence, critical thinking and social interaction. In wartime, these aspects may be subject

to additional stress due to factors such as the danger of losing loved ones or home, interruption of the educational process or transition to distance learning, financial difficulties and limited opportunities for personal development, and psycho-emotional pressure due to constant news about the war.

Building resilience in students aims to increase adaptive capabilities to effectively overcome difficulties and maintain mental health in the face of chronic stress. The formation of value and sense orientations that support a sense of control over

one's life contributes to developing social skills for effective communication and support in the team. Military operations, economic instability and threats to life create a high level of stress, anxiety and uncertainty. Student youth find themselves under constant information pressure, loss of loved ones or forced migration, which affects their emotional state and ability to adapt.

Critical psychological skills during challenging wartime include achieving mental balance, adapting to new conditions, and psychological recovery. Resilience among higher education students reduces the consequences of stress, enhances engagement in learning, strengthens social connections, and broadens their worldview. Considering this, fostering resilience in student youth is a relevant issue not only during wartime but also in the context of Ukraine's post-war recovery.

The study aims to analyse the effectiveness of CBT and mindfulness methods for building resilience of higher education students in wartime.

Literature review

In the course of analysing literary sources, it was determined that mindfulness and CBT (Cognitive Behavioural Therapy) methods are effective in mitigating the psychological consequences of stressful situations (Almalky & Alwahbi, 2023). The use of these methods increases the level of positive affirmations and reduces the level of negative thoughts (Altes et al., 2024). Mindfulness practices are gaining more attention in youth work due to their versatility and effectiveness, with breathing exercises and meditation helping to reduce physical stress (Zhao et al., 2024). Mindfulness practice increases the ability to focus on learning, even in crises (Yeremenko et al., 2022). Gratitude exercises promote emotional recovery from traumatic events (Barth & Grütter, 2024).

According to researchers, an effective approach is to integrate CBT and mindfulness into psychological assistance programmes for students (Yazici & Uzuner, 2024). This makes it possible to balance rational methods of working with thoughts (CBT) and practices that strengthen emotional resilience (mindfulness) and provide students with comprehensive tools for self-regulation that they can use autonomously. To effectively build student resilience, the authors propose the creation of university psychological support programmes (Dotsenko et al., 2023).

Conducting training for teachers who can help students develop basic resilience skills and using digital tools (meditation apps, online CBT courses) are also practical tools for increasing resilience (Drogovoz et al., 2022). CBT and mindfulness are effective methods of building resilience among students in wartime. Their combination allows them

to work with both cognitive and emotional aspects of resilience, which is especially important in modern challenges (Shcherbiak et al., 2023). However, effectively implementing these methods requires adapting to the specifics of martial law and the individual needs of young people (Myhovich, 2019). Recently, there has been a growing interest in applying mindfulness to empirical research on well-being and using virtual reality (VR) environments and 3D interfaces as a channel for mindfulness training (Yildirim & O'Grady, 2020). It has been determined that mindfulness technology has a physiological effect on autonomic response and emotional regulation (Simione et al., 2022). The article explores how personalistic extraversion tendency affects online social anxiety and realistic social anxiety, respectively, and analyses this aspect through cognitive activities based on the theory of mindfulness therapy (Yang & Zhang, 2022).

This study uses network analysis, a visual data analysis technique, combined with psychopathological network theory to investigate the links between specific mindfulness processes and anxiety symptoms (Luo et al., 2024). The findings showed significant differences in concentration and levels of techno-stress between mindfulness practitioners. Participants also reported benefits to perceived well-being after prolonged mindfulness practice (Bernárdez et al., 2023).

Stress is a significant problem among university students due to internal and external circumstances such as relationship problems, low self-confidence and academic pressure. A brief mindfulness-based intervention has been observed to be effective in improving relaxation and thus reducing stress (Nik Rashidi et al., 2022). Anxiety and stress tend to be lifestyle-related problems where physical and mental conditions deteriorate due to environmental depletion. There has been evidence of the effectiveness of mindfulness interventions in reducing anxiety and stress among neurotic individuals (Nik Rashidi et al., 2023). Psychological stress is a severe problem among university students. Mindfulness-based interventions can significantly reduce stress in person and digitally (Karhiy et al., 2023). The quality of a CBT session is typically assessed by trained raters who manually assign predefined session-level behavioural codes (Chen et al., 2021). A wearable sensor platform designed to monitor and study autonomic nervous system activity for mental health treatment and interventions is presented (Fletcher et al., 2011).

The scope of Android app-based cognitive behavioural therapy in dealing with and overcoming various personality disorders through empowering an Android app for self-learning has been highlighted (Jayachandran & Shyamala, 2017). The results suggest that rehabilitative capacity is influenced not

only by personality traits but also by other factors and that resilience may be determined by the interaction with other factors (Wang et al., 2021). In general, the authors note that cognitive behavioural therapy (CBT) helps students develop strategies to reduce anxiety and replace destructive thoughts with more adaptive ones. Mindfulness practices contribute to emotional regulation, increased awareness and the ability to concentrate even in a crisis.

Methods

1. *Theoretical analysis.* A review of scientific sources, definition of basic concepts, concepts and approaches to understanding resilience.
2. *Surveys and questionnaires.* The level of resilience, the factors that influence its formation, and the assessment of the psychological state of young people were studied.
3. *Ego-Resiliency Scale (ERS).* The ability to adapt in stressful conditions is determined according to the Ego-Resiliency Scale (ERS), adapted to the challenges dictated by the conditions of martial law in Ukraine, on the basis of the developed criteria.
4. *Experimental methods.* The effectiveness of resilience-building programmes (mindfulness, cognitive-behavioural techniques) was tested. During 2022-2024, a control measurement of resilience building was conducted among students, considering the challenges dictated by wartime conditions in Ukraine. A questionnaire was

conducted based on the Ego-Resiliency Scale (ERS), adapted to the criteria for the conditions outlined. The experiment involved 50 higher education students; the experimental group used mindfulness and CBT techniques to build resilience.

Results

Resilience in psychology is the ability of a person to maintain or quickly restore psychological health and resilience in the face of stress, crises or difficult life situations. The psychological challenges for students caused by the full-scale invasion in Ukraine include emotional instability and anxiety, disruption of social ties, disruption of the educational process, economic instability, physical risks and health, and changes in personal values and identity. These challenges affect the ability of young people to adapt to change. Resilience is formed through the interaction of internal resources (personal traits, ability to self-regulate) and external factors (social support, access to resources). Wartime significantly undermines both of these aspects, creating additional pressure. Cognitive behavioural therapy (CBT) and mindfulness techniques are among the most effective in building resilience among students in wartime in Ukraine. They help change destructive thought patterns and develop emotional regulation and focus, contributing to resilience in stressful conditions. Figure 1 shows a diagram of resistance building using CBT and mindfulness.

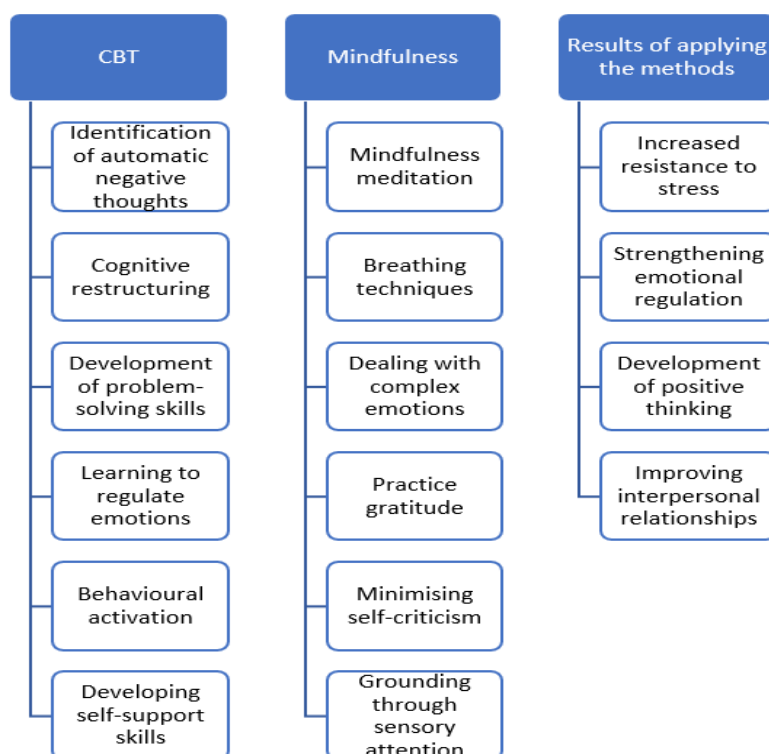


Figure 1. Scheme of building the resilience of student youth under martial law using CBT and mindfulness techniques.

Source: compiled by the author

Cognitive behavioural therapy aims to change dysfunctional beliefs and behavioural patterns that interfere with effective coping. People with low resilience are often prone to catastrophising or self-blaming thoughts. Keeping a thought diary, in which a person records their automatic thoughts in response to stressful events and then analyses their rationality, has a positive impact. Cognitive restructuring replaces negative thoughts with rational beliefs. Enhancing problem-solving skills helps to develop the ability to approach life's difficulties in a structured way. It is crucial to work on managing solid emotions through relaxation techniques, breathing control, and visualising an optimistic scenario. It is also necessary to plan small actions that bring pleasure to resume an active lifestyle. Self-support skills are formed by creating internal resources and developing positive self-perception and self-esteem.

Mindfulness focuses on the moment without judgment to help people accept the situation and find inner balance. Standard mindfulness techniques include focusing on the breath or bodily sensations to bring attention back to the present moment, and controlled breathing helps reduce physiological stress and calm the nervous system. Accepting emotions instead of fighting them and regularly focusing on the positive aspects of life, even under challenging circumstances, also positively impacts building resilience. Focusing on feelings in the present moment and developing a compassionate attitude towards oneself through self-compassion techniques have also proven effective.

A combination of cognitive-behavioural techniques and mindfulness practices can be particularly effective in providing a rational framework for change, helping to embrace the present moment, and reducing internal tension.

The benefits of using CBT and mindfulness for resilience include developing the ability to cope with difficulties and use them for personal growth. People learn to better manage their emotions, especially in crises. There is a shift away from negative cognitive patterns, and greater awareness helps better understand one's needs and the needs of others.

The questions of the Ego-Resilience Scale (ERS) (Block & Kremen, 1996) were divided into four distinct criteria to assess the effectiveness of using resilience-building methods in wartime.

The first criterion (C1) is related to a person's ability to remain calm and balanced during stressful situations and recover quickly from stress. Criterion C1 outlines the ability to resist stress and quickly restore a positive emotional state. Criterion C2 demonstrates indicators of managing negative emotions and cognitive flexibility. Criterion C3 describes the ability to distance oneself from negative emotions and focus on positive aspects of the life cycle. Criterion C4 highlights positively oriented social skills, the ability to engage in effective and positive communication.

Each Ego-Resilience Scale (ERS) question can meet several criteria as the scale assesses interrelated aspects of resilience. This separation helps to understand more clearly which aspects of resilience the respondent has developed and where additional work is needed. According to the resilience assessment scale, respondents with a high resilience score of 45-56 points, medium – 30-44 points, and low – 12-29 points.

Applying these four criteria allows us to obtain an objective picture of changes at different levels: emotional, cognitive, behavioural and social. This provides a comprehensive analysis of the effectiveness of CBT and mindfulness as approaches to developing resilience and adaptability.

Table 1 presents the generalised results of resilience building among students before the experiment in terms of points according to the ERS scale. The experimental group used CBT and mindfulness techniques to build resilience. The experiment began in the first half of 2022, and both groups' resilience scores were average. After introducing mindfulness and CBT methods for building resilience, the indicator reached a high level, while the control group, using standard psychological methods such as group therapy and individual conversations with specialists, gained low levels of resilience due to the psychological burden and challenges caused by wartime conditions.

Table 1. Generalised results of resilience formation in students in points according to the ERS scale

Criteria	Before the experiment		After the experiment	
	CG	EG	CG	EG
C1	8	9	4	10
C2	9	9	5	14
C3	6	7	5	11
C4	7	6	4	14
Total ERS score	30	31	18	49

Source: compiled by the author

The main goal of the pedagogical experiment was to confirm the effectiveness of the above methods of

building resilience in students. Figure 2 shows a general visualisation of the effectiveness of traditional methods and a combination of CBT and mindfulness methods by the developed criteria.

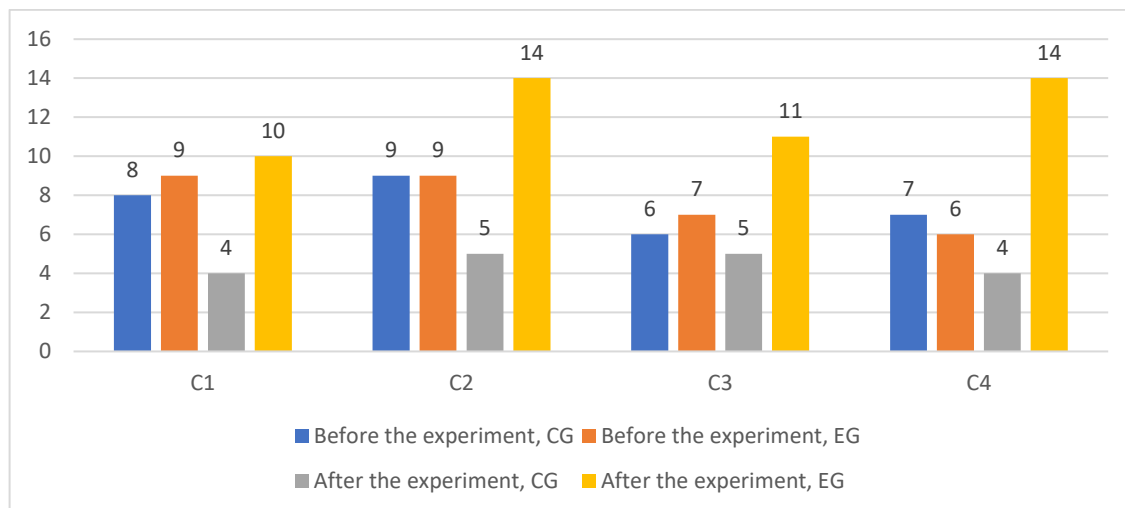


Figure 2. General visualisation of the effectiveness of traditional methods and combining CBT and mindfulness methods according to the developed criteria.

Source: compiled by the author

The study outlined the results of resilience development based on a sample of 50 higher education students. Emotional stability in difficult situations and flexibility of thinking characterise a high level of resilience. The medium level indicates that the respondent has some adaptation skills but may experience difficulties in extreme conditions. A low level shows that the person is less resistant to

stress and has difficulty coping with uncertainty and change. According to the resilience assessment scale, respondents score 45–56 points at the high level, 30–44 points at the medium level, and 12–29 points at the low level.

To increase resilience, a pilot study was conducted in 2022–2024, using cognitive behavioural therapy and mindfulness techniques for the experimental group.

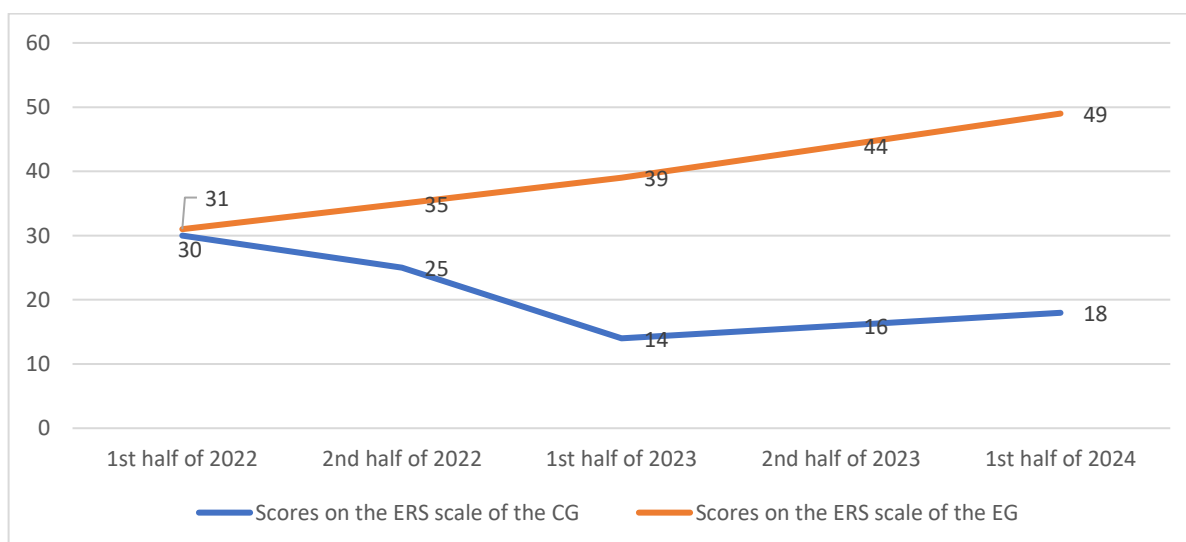


Figure 3. Resilience indicators in 2022-2024, according to the ERS scale

Source: compiled by the author

As shown in Figure 3, in the first half of 2022, students' resilience was average in both the control and experimental groups. Starting in the second half of 2022, the ERS scores in the control group reached

a low level and remained in this range throughout the period due to the prolonged stress of the full-scale invasion. In the experimental group, they steadily

increased and reached a high level in the first half of 2024.

Using the outlined methodology, the study of the indicator of resilience formation by the outlined criteria and over a specific period was carried out. This makes it possible to adjust the use of psychological methods and their combination and demonstrates the effectiveness of using CBT and mindfulness techniques to combat the psychological challenges dictated by the conditions of martial law in Ukraine.

Discussion

War conditions complicate the learning process, but resilience helps students maintain productivity and focus on future goals. Students with a high level of resilience are better able to cope with stress, maintain emotional balance and are ready to act in a crisis. Young people are the driving force of society, so their ability to adapt to the challenges of war and restore internal resources is essential for rebuilding the country.

CBT and mindfulness are evidence-based methods that are highly effective in dealing with stress and anxiety, especially in crises. Resilience building can be integrated into the curriculum through electives, group training or online courses. The skills acquired through CBT and mindfulness remain relevant after the war ends, helping to adapt to a peaceful life.

Mindfulness meditation can increase personal resilience by enhancing an individual's ability to regulate internal emotional experiences during stressful experiences. Community mindfulness training can reduce trauma, improve community response to disasters, and accelerate the impact of targeted crisis interventions (Rice & Schroeder, 2019; Kuzmina et al., 2020). Mindfulness reduces anxiety by allowing people to focus on the present moment instead of ruminating on fears or past losses, improves self-regulation and recovery, and creates space for acceptance of emotions and a positive attitude to life. CBT and mindfulness should be adapted to war specifics, for example, integrated into educational programmes, group training or individual counselling.

A mindfulness-based intervention guides people to focus on opening up experiences without judgement through practice to bring cognitive and emotional benefits. However, conventional interventions are hardly accessible to people with limited time and energy. Virtual reality technology offers a solution to provide automatic and flexible mindfulness interventions (Lu et al., 2023). Cognitive Behavioural Therapy (CBT) helps to change negative thought patterns that perpetuate anxiety and fear, teaches students to cope with emotions and focus on problem-solving effectively, and enables them to re-

examine traumatic events, reducing the risk of developing PTSD.

Although numerous studies have examined different characteristics of mindfulness and flow states, few studies have provided evidence on what traits mindfulness and flow have in common and whether they are compatible. Research suggests that the emergence of flow or mindfulness can facilitate the interaction of the external environment and internal response, which may have implications for improving people's mental health and performance (Chen, 2020). Building resilience among students using CBT and mindfulness techniques is an effective tool for maintaining their psychological health in wartime. It allows not only to adapt to difficult circumstances but also to develop skills that will remain useful throughout life. Further research could better integrate these methods into educational and psychological support programmes.

An analysis of changes in higher education in Ukraine in the context of a full-scale war against Ukraine in 2022–2023 and the context of the tasks of post-war reconstruction of the country on an innovative basis (Zagirnyak et al., 2023). It is also necessary to consider the need to form a sustainable indicator of resilience in the context of post-war recovery (Voropayeva & Averianova, 2022).

The resilience of students in wartime is a critical aspect of psychological well-being, as this contingent is significantly affected by stress, anxiety, loss, and social change. Cognitive Behavioural Therapy (CBT) and mindfulness techniques are essential in this situation, as they aim to develop psychological flexibility and emotional regulation and adapt to difficult circumstances.

Conclusion

In wartime, when students face increased levels of stress, anxiety and emotional exhaustion, developing resilience becomes a critical factor in maintaining mental health, adapting to change and supporting the ability to learn and self-fulfilment. Resilience has become a critical skill for students experiencing psychological pressure, loss of stability, and changes in their studies and personal lives. It has been determined that CBT allows students to recognise and change negative automatic thoughts, develop positive and adaptive thinking, and learn to approach challenges arising in difficult situations in a structured way. While mindfulness practices reduce anxiety, they help control emotions better and help students concentrate on learning. Constant access to mindfulness practices helps students avoid burnout. The study develops a scheme for the formation of resilience of student youth in martial law conditions using the methods of CBT and mindfulness. In order to evaluate the effectiveness of CBT and mindfulness, criteria were developed based on which

questionnaire was conducted. The study of the peculiarities of resilience formation among student youth was based on the questions of the Ego-Resilience Scale (ERS), which were divided into four criteria to assess the effectiveness of the use of methods of resilience formation in wartime. The study of the level of resilience of student youth during 2022–2024 and the analysis of the effectiveness of traditional methods and a combination of CBT and mindfulness methods by the developed criteria were carried out. The outlined methodology is used to adjust the psychological methods and their combination according to the criteria for assessing resilience.

Combining CBT and mindfulness techniques creates a synergy that allows students to simultaneously work on changing negative cognitions (CBT) and learn to feel better in the present moment (mindfulness). Cognitive behavioural therapy and mindfulness techniques effectively build resilience among students in wartime. They contribute to the development of emotional stability, awareness and adaptability, which helps young people overcome the challenges of war and form the basis for future psychological well-being.

References

1. Almalky, H., & Alwahbi, A. (2023). Teachers' perceptions of their experiences with inclusive education practices in Saudi Arabia. *Research in Developmental Disabilities*, 140, 104584. <https://doi.org/10.1016/j.ridd.2023.104584>
2. Altes, T., Willemse, T., Goei, S. L., & Ehren, M. (2024). Higher education teachers' understandings of and challenges for inclusion and inclusive learning environments: A systematic literature review. *Educational Research Review*, 43, 100605. <https://doi.org/10.1016/j.edurev.2024.100605>
3. Barth, C., & Grütter, J. (2024). Inclusive classroom norms and children's expectations of inclusion of peers with learning difficulties in their social world. *Journal of School Psychology*, 104. <https://doi.org/10.1016/j.jsp.2024.101312>
4. Bernárdez, B., Parejo, J. A., Cruz, M., Muñoz, S., & Ruiz-Cortés, A. (2023). On the impact and lessons learnt from mindfulness practice in a real-world software company. *2023 ACM/IEEE International Symposium on Empirical Software Engineering and Measurement (ESEM)*, New Orleans, LA, USA, 1-12. <https://doi.org/10.1109/ESEM56168.2023.10304864>
5. Block, J., & Kremen, A. M. (1996). Ego-Resiliency Scale [Database record]. APA PsycTests. <https://doi.org/10.1037/t01072-000>
6. Chen, S. (2020). Analysis of mindfulness and flow. *2020 International Conference on Public Health and Data Science (ICPHDS)*, Guangzhou, China, 13-18. <https://doi.org/10.1109/ICPHDS51617.2020.00009>
7. Chen, Z., et al. (2021). Feature fusion strategies for end-to-end evaluation of cognitive behaviour therapy sessions. *2021 43rd Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC)*, Mexico, 1836-1839. <https://doi.org/10.1109/EMBC46164.2021.9629694>
8. Dotsenko, N., Gorbenko, O., & Haleeva, A. (2023). Technology of creating educational content for open digital resources in general technical disciplines. *Journal of Physics: Conference Series*, 2611, 012019. <https://doi.org/10.1088/1742-6596/2611/1/012019>
9. Drogovoz, S. M., Seredyn's'ka, N. M., Shtroblya, A. L., et al. (2022). Circadian rhythms: Physiological and pathophysiological aspects. *Neurophysiology*, 54, 175-181. <https://doi.org/10.1007/s11062-024-09949-3>
10. Fletcher, R. R., Tam, S., Omojola, O., Redemske, R., & Kwan, J. (2011). Wearable sensor platform and mobile application for use in cognitive behavioural therapy for drug addiction and PTSD. *2011 Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Boston, MA, USA, 1802-1805. <https://doi.org/10.1109/IEMBS.2011.6090513>
11. Jayachandran, C. M., & Shyamala, K. (2017). Kohonen SOM deployment in Android app-based cognitive behavioural therapy for personality disorders. *2017 World Congress on Computing and Communication Technologies (WCCCT)*, Tiruchirappalli, India, 255-257. <https://doi.org/10.1109/WCCCT.2016.69>
12. Karhiy, M., Sagar, M., Antoni, M., Loveys, K., & Broadbent, E. (2023). Mindfulness-based stress reduction: A randomised trial of a virtual human, teletherapy, and a chatbot. *2023 11th International Conference on Affective Computing and Intelligent Interaction Workshops and Demos (ACIIW)*, Cambridge, MA, USA, 1-7. <https://doi.org/10.1109/ACIIW59127.2023.10388195>
13. Kuzmina, M. O., Protas, O. L., Fartushok, T. V., Raievska, Y. M., & Ivanova, I. B. (2020). Formation of students' competence of tertiary educational institutions by practical training aids. *International Journal of Higher Education*, 9(7), 279-288. <https://doi.org/10.5430/ijhe.v9n7p279>

14. Lu, Y., Xue, Y., & Ni, S. (2023). SeekingHeart: A biofeedback-based VR game for mindfulness practice. *2023 IEEE 11th International Conference on Serious Games and Applications for Health (SeGAH)*, Athens, Greece, 1-8. <https://doi.org/10.1109/SeGAH57547.2023.10253803>
15. Luo, H., Zhou, Y., Fang, Y., Chen, Z., & Li, P. (2024). Visual data mining in mental health: Network analysis of mindfulness processes and anxiety symptoms. *2024 7th International Conference on Computer Information Science and Application Technology (CISAT)*, Hangzhou, China, 450-453. <https://doi.org/10.1109/CISAT62382.2024.10695215>
16. Myhovich, I. (2019). International mobility as a means of ensuring inclusive global higher education space. *Advanced Education*, 6(12), 80-86. <https://doi.org/10.20535/2410-8286.137813>
17. Nik Rashidi, N. A. N. B., Izhar, L. I., Sebastian, P., Elamvazuthi, I. A., & Idris, S. A. (2022). Effectiveness of brief mindfulness-based intervention among students with high neuroticism based on peripheral physiological data: A preliminary study. *2022 IEEE 5th International Symposium in Robotics and Manufacturing Automation (ROMA)*, Malacca, Malaysia, 1-6. <https://doi.org/10.1109/ROMA55875.2022.9915694>
18. Nik Rashidi, N. A., et al. (2023). A study of mindfulness effectiveness among neurotic students based on EEG. *2023 IEEE International Conference on Sensors and Nanotechnology (SENNANO)*, Putrajaya, Malaysia, 69-72. <https://doi.org/10.1109/SENNANO57767.2023.10352575>
19. Rice, V. J., & Schroeder, P. J. (2019). Resilience and mindfulness in active duty and veteran U.S. military service members. *2019 Resilience Week (RWS)*, 142-146. <https://doi.org/10.1109/RWS47064.2019.8972001>
20. Simone, L., Vabba, A., Raffone, A., & Mirolli, M. (2022). Pupil dilation and self-reported emotional response to IAPS pictures: The role of emotional regulation and trait mindfulness. *2022 IEEE International Conference on Metrology for Extended Reality, Artificial Intelligence and Neural Engineering (MetroXRINE)*, 471-476. <https://doi.org/10.1109/MetroXRINE54828.2022.9967538>
21. Shcherbiak, I., Nahorna, O., Kostenko, D., Binytska, O., Kochubei, T., & Gakh, R. (2023). Information competence formation of future social workers using digital technologies. *2023 13th International Conference on Advanced Computer Information Technologies (ACIT)*, Wrocław, Poland, 635-639. <https://doi.org/10.1109/ACIT58437.2023.10275552>
22. Voropayeva, T., & Averianova, N. (2022). Factors for improving Ukraine's information security system in the context of the Russian-Ukrainian neo-imperial war: An integrative approach. *2022 IEEE 9th International Conference on Problems of Infocommunications, Science and Technology (PIC S&T)*, 373-378. <https://doi.org/10.1109/PICST57299.2022.10238609>
23. Wang, H., Komatsu, S., Kato, C., & Aoki, K. (2021). Understanding the relationship between personality traits and resilience among Chinese students. *2021 10th International Congress on Advanced Applied Informatics (IIAI-AAI)*, 311-315. <https://doi.org/10.1109/IIAI-AAI53430.2021.00056>
24. Yang, L., & Zhang, Y. (2022). Research on the correlation between personalistic extroversion tendency and online social anxiety based on data analysis: Chained mediator effect and suppressing effect of mindfulness and online self-disclosure. *2022 IEEE 5th Advanced Information Management, Communicates, Electronic and Automation Control Conference (IMCEC)*, 1575-1586. <https://doi.org/10.1109/IMCEC55388.2022.10020001>
25. Yazici, M., & Uzuner, F. (2024). School-based inclusive mentoring within the scope of an experiential learning model (IEM) for teacher education. *Teaching and Teacher Education*, 152. <https://doi.org/10.1016/j.tate.2024.104799>
26. Yeremenko, T., Lukyanchenko, I., & Demchuk, A. (2022). Development of prospective EFL teachers' questioning skills in classroom discourse: An interdisciplinary approach. *Advanced Education*, 9(21), 22-39. <https://doi.org/10.20535/2410-8286.254730>
27. Yildirim, C., & O'Grady, T. (2020). The efficacy of a virtual reality-based mindfulness intervention. *2020 IEEE International Conference on Artificial Intelligence and Virtual Reality (AIVR)*, 158-165. <https://doi.org/10.1109/AIVR50618.2020.00035>
28. Zagirnyak, M., Lugovyi, V., Talanova, Z., & Zagirniak, D. (2023). Resilience & risks of the electrical and energy engineering higher education in Ukraine: Impact of the war and objectives for post-war recovery. *2023 IEEE 5th International Conference on Modern Electrical*

and Energy System (MEES), 1-4.
<https://doi.org/10.1109/MEES61502.2023.10402540>

29. Zhao, M., You, Y., Gao, X., Li, L., Li, J., & Cao, M. (2024). The effects of a web-based 24-hour movement behaviour lifestyle education programme on mental health and psychological well-being in parents of children with autism spectrum disorder: A randomised controlled trial. *Complementary Therapies in Clinical Practice*, 56, 101865. <https://doi.org/10.1016/j.ctcp.2024.101865>

Appendix 1

The Ego-Resiliency Scale (ERS) self-assessment questionnaire is adapted to the criteria for assessing the effectiveness of methods of building resilience in wartime

Use the Ego-Resiliency Scale (ERS) to assess your level of resilience development in wartime according to the criteria outlined. After each question, indicate the level of resilience skill development with the indicated indicator that corresponds to the score:

- 1 - "It's not about me at all"
- 2 - "Rarely"
- 3 - "From time to time"
- 4 - "Usually"
- 5 - "This is definitely about me"

Criterion 1: Reduced stress and anxiety levels

1. I can easily cope with tense situations.

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2. I remain balanced under stressful conditions.

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3. I can calm myself down when I feel upset.

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Criterion 2: Improved cognitive and emotional regulation

1. I understand my emotions well and know how to control them.

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2. I can easily adapt to new or unexpected situations.

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3. When I face difficulties, I try to look for ways to solve them instead of avoiding them.

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Criterion 3. Increased level of awareness and presence at the moment

1. I can focus on the present moment, even when there are many distractions around me.

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2. I remain calm and focused during sudden changes.

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3. I am aware of my thoughts and feelings at a particular moment in time.

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Criterion 4. Improved quality of life and functioning

1. I maintain good relationships with people, even in difficult times.

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2. I feel satisfied with my life, even if it is full of challenges.

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3. When I face difficulties, I find ways to overcome them and benefit from them.

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