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Integration of Resilience, Self-change and Meaning of Life in Neuropsychological and Neuro-pedagogical Care Programmes

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Abstract: *The article provides a theoretical analysis and substantiates the potential for integrating the concepts of resilience, self-transformation, and the meaning in life into modern neuropsychological and neuro-pedagogical programmes. The article is presented as a conceptual review with the inclusion of pilot study results. It has been determined that, under conditions of global instability, traditional methods of cognitive function correction require supplementation with tools for developing personal resilience and individual agency. The neurophysiological impact of chronic stress on brain structures (particularly the hippocampus and prefrontal cortex) has been examined, and the effectiveness of neurofeedback, mindfulness, and cognitive training practices in restoring neuroplasticity has been demonstrated. The author proposes the protocol of the integrated "Neuro-Sense" programme, identifies its neurobiological efficacy markers (HRV, cortisol), and outlines the ethical framework for working with vulnerable groups. The author proposes an interdisciplinary approach in which resilience serves as the fundamental mechanism of adaptation, self-transformation as the volitional tool for neural network remodelling, and the meaning in life as the cognitive vector that activates prefrontal control and the individual's motivational resources. Particular attention is paid to the methodology for implementing resilience programmes across different population segments (school, business, inclusion) and their connection to fundamental psychological concepts. The work systematises the factors contributing to the development of resilience (social support, sociability, optimism) and proposes practical models for their integration into educational and therapeutic settings. Methods for evaluating the effectiveness of such programmes are highlighted, and the challenges of implementing integrated approaches are analysed, including the need to reform educational standards and provide specialised training for professionals.*

Keywords: *resilience; self-transformation; meaning in life; neuropsychological assistance; neuro-pedagogy; neuroplasticity; stress resistance; adaptation; self-regulation.*

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1. Introduction

The changes occurring today in various spheres of social life carry numerous risks and negative consequences for personal development. People often struggle to cope with instability and uncertainty, experiencing difficulties in adapting and maintaining the integrity of their “self.”

When discussing an individual’s ability to withstand negative influences, life hardships, and stress, to overcome difficulties and move forward while continuing to develop, one should first focus on the psychological concepts of “resilience” and “self-transformation.”

The topic of integrating resilience, self-transformation, and meaning in life into neuropsychological and neuroeducational assistance programmes is relatively new and interdisciplinary. *However, it has deep roots in classical academic psychology. In particular, the concept of resilience logically extends L. Vygotsky’s theory of “dynamic adaptation” and A. Maslow’s doctrine of “self-actualisation.” The neuropsychological approach today makes it possible to verify V. Frankl’s ideas about the “will to meaning” through the study of activity in the dorsolateral prefrontal cortex, thereby transforming classical humanistic concepts into measurable parameters of neuroplasticity.* Although there are few researchers who cover all of these aspects simultaneously, there are others working in related fields. Steger et al. (2006) presented an instrument to assess the meaning of life in two dimensions: having meaning - the degree to which a person believes their life has meaning, and finding meaning - the degree to which a person is actively seeking or creating meaning. According to Condly (2006), individuals with high levels of meaning presence tend to have higher levels of psychological well-being and lower levels of depression. The search for meaning can function as both a positive (motivation to develop) and as a stressor (especially when meaning is difficult to find).

The purpose of this theoretical article is to present a conceptual framework for integrated neuropsychological support, supported by pilot data, and to define the methodological foundations for its implementation; to investigate the possibilities of integrating the concepts of resilience, self-change and meaning of life into the programmes of neuropsychological and neuropedagogical assistance, to determine their impact on personal development and adaptation in a dynamic world.

2. Theoretical Review of the Concepts Under Study

For a deeper understanding of the phenomenon of resilience, it is necessary to refer to the concept of the strong personality within the framework of characterology. Classical academic psychology (S. Rubinstein, A. Leontiev) considered agency as an individual’s capacity for self-determination. In the context of resilience, this means that neural mechanisms of adaptation are not autonomous but are subordinated to higher mental functions. For example, L. Festinger’s classical theory of cognitive dissonance explains the mechanism of self-transformation: when external instability disrupts habitual cognitive schemas, the brain is forced either to maladapt (distress) or to create new neural connections through the modification of value orientations (resilience).

For a long time, the concepts of “resilience” and “self-transformation” were studied primarily at a theoretical level. Foreign and domestic scholars have identified approaches to defining resilience: cognitive behaviourism, according to which resilience is based on effective behavioural strategies for overcoming various difficulties; constructivism, which emphasises the leading role of an individual’s active life position; ecological realism, which primarily considers social factors in overcoming challenges; and the cross-cultural approach, based on studying how people respond to various risks depending on race, gender, age, and place of residence.

In defining resilience, scholars rely on concepts such as “protective factors,” “capacity for recovery,” “positive adaptation,” “stress resistance,” “vitality,” “life competence,” and “achievement of success” (Ribtsun et al., 2023).

These and other notions allow resilience to be defined as “an individual’s ability to overcome adverse life circumstances with the possibility of recovery and to utilise both internal and

external resources for this purpose, the capacity for life in all its manifestations, and the ability to exist and develop” (Haskett & Kelleher, 2018).

Masten (2014) highlights the characteristics of “resilient” behaviour: 1) positive personal qualities, stable motivation, and successful adaptation in difficult life conditions; 2) resistance to destruction, effective protection of one’s personality under strong environmental pressure; 3) the construction of a full-fledged, socially adapted life under challenging conditions.

According to Davidson and Kaszniak (2015), resilient behaviour can be influenced by specific groups of factors: 1) internal factors: individual personality characteristics (temperament, drive for independence, self-confidence and belief in one’s abilities, sociability, optimism, sense of humor); 2) external factors: the adolescent’s social environment, cultural level, ecological upbringing, academic achievements.

Beck and Dozois (2011) characterise a resilient individual by qualities such as emotional stability; sense of humor, spirituality; meaningful life construction; problem-solving and conflict-resolution skills; adequate self-esteem; optimism; and respectful attitude towards oneself and others.

Steger et al. (2006) identifies similar characteristics of a resilient personality: optimism, self-belief, stress resistance; self-awareness; achievement motivation; purposefulness, diligence; self-control; vitality; sociability, communicativeness, extraversion; emotional expressiveness, cheerfulness, impulsivity; prudence, discretion in communication, caution; empathy.

Assessing a person’s level of resilience is extremely complex, as life challenges that are insurmountable for one person may appear trivial to another. In this context, one must consider not only an individual’s ability to withstand adverse circumstances but also cultural traditions in their environment, national identity, religious beliefs, societal moral standards, and many other factors. Nevertheless, some scholars (Ryff & Singer, 2008) distinguish levels of a resilient (stable) personality:

1. Functional level – where the individual, by virtue of their natural biological constitution, survives in adverse circumstances, adapting to the surrounding reality.
2. Operational level – where the individual develops life plans, ideas, and projects that they attempt to implement.
3. Motivational-personal level – characterised by the social determination of human relationships, harmony, and interaction between the individual and their environment.

It becomes evident that resilience can and should be developed. This requires effective mechanisms to activate resilience and a support programme for individuals who wish to become more resilient.

Condly (2006) identifies the mechanisms for developing human resilience as: 1) the social environment and unconditional acceptance of the child; 2) the ability to find internal patterns, goals, and meaning in life; 3) acquisition of various specific skills and abilities; 4) a sense of personal dignity; 5) a sense of humour.

Based on domestic and international studies focused on identifying leading factors influencing the development of resilience and self-transformation, and the experience of applying various cognitive, emotional, and behavioural methods and techniques underlying cognitive-behavioural and rational-emotive behavioural therapy (these forms of psychotherapy have recently been providing practical recommendations for resilience enhancement), we attempted to correlate the characteristic traits of a resilient personality with possible mechanisms for its development.

We can identify the main factors influencing resilience and the mechanisms for its development:

1. Social Support, which ensures recognition of the individual as a person; this refers to the relational space in which a developing individual establishes direct relationships with others—a so-called exchange of resources, where each participant can provide support to

another or, conversely, be the recipient of supportive actions. In this context, social support is defined by:

- good relationships with family members;
- close and strong emotional bonds, at least with one parent or relative;
- good relationships with friends;
- social support outside the family, in the immediate environment.

These and other characteristics help create a favourable psychosocial interaction space, allowing individuals to make a meaningful contribution and sometimes serving a compensatory function to satisfy the social world of the person (Ribtsun et al., 2023).

Mechanisms for development include programmes aimed at strengthening the family institution and informal friendships; group projects requiring participation of family members and/or friends; and a positive emotional-educational environment that promotes adherence to social norms of behaviour.

2. The Ability to Understand and Find Purpose and Meaning in Life, specifically:

- the ability to set realistic goals and organise activities to achieve them;
- self-confidence in one's abilities and personal strength;
- maintaining a long-term perspective and evaluating adverse circumstances and personal life difficulties within a broader life context;
- belief in better outcomes, positive expectations, optimism;
- cognitive abilities.

Understanding life goals and meaning inspires a zest for life and helps individuals cope with anxiety, which frequently arises during adolescence and hormonal changes. The family, particularly the child's parents as key figures, plays a primary role in developing a psychologically sound worldview, nurturing value-based potential in the developing individual through love, care, and useful ideas (Vanhoutte & De Clercq, 2021).

Additional mechanisms include projects involving nature and the arts; team sports; caring for plants, animals, or other people; self-care and fitness; philosophical reflection and faith in God; social models that foster the ability to overcome temporary difficulties or accept unchangeable circumstances; and linguistic techniques that help adolescents use language in less destructive ways (e.g., replacing "I can't..." with "I haven't learned yet...").

3. Sociability:

- the ability to solve problems and effectively overcome difficulties;
- the ability to establish contact with others (including strangers);
- management of one's own emotions;
- acceptance of others' opinions, willingness to compromise;
- the ability to form friendships.

As is well established, the world of virtual games strongly affects the psyche, often manifesting in destructive behaviour and, at times, insurmountable difficulties in real-life situations. The inevitability of social challenges creates a protective vacuum into which a child retreats, forming a personal world free from fear and humiliation. This form of protection can later become maladaptive when the child engages with the broader world and, unknowingly, becomes a victim of social isolation and communication deficits.

Mechanisms for developing sociability and resilience include group social projects; communication and perspective-taking training; theatrical performances; and role-playing games that enhance social skills and reflective abilities (Meiklejohn et al., 2013).

4. Self-Transformation and adequate self-esteem, which include:

- self-mastery;
- adequate self-assessment;
- self-control;
- self-motivation;
- social responsibility.

Self-transformation is a crucial condition for integration into society and establishing appropriate interactions; it represents a unique process of accumulating and acquiring self-concepts through which an individual forms an assessment of physical characteristics, moral qualities, abilities, and actions.

Mechanisms for development include role-playing games; experiences of effectively solving problems, which build confidence and increase self-esteem; opportunities for self-reflection after experiencing loss; a balanced approach to social responsibility and societal expectations within a success-oriented culture; learning to take responsibility for irrational beliefs; reading self-help and personal development materials; and techniques for the positive perception of reality and resisting harmful habits (smoking, alcohol).

5. Self-respect and self-acceptance:

- stress resistance;
- overcoming feelings of inferiority;
- attention to one's own needs and emotions;
- acceptance of life values and social norms;
- the ability to take decisive action when facing adverse situations.

Self-respect is the most important characteristic of an individual's personality; it is a positive attitude towards oneself and the acceptance of one's achievements as outcomes of positive qualities and actions that produce socially approved effects. Self-respect and self-acceptance represent a higher stage of personal development. Therefore, it is especially important during adolescence to focus on cultivating the ability to recognise one's intrinsic value.

Mechanisms for developing these values include: emotional attitudes of unconditional self-acceptance; experience in effectively coping with stress; a positive perception of crises and negative events; supportive and constructive self-affirmations; seeking logic, order, and meaning in personal development; discussions of adolescents' irrational ideas and beliefs; distinguishing between absolute (needs, requirements, imperatives) and non-absolute (preferences, desires, dreams, plans) values; and learning from others (Ribtsun et al., 2023).

6. Optimism and sense of humour:

- awareness of the world's imperfections and the inevitability of failures;
- understanding that everything in life is relative;
- paradoxical thinking;
- confidence that things will be okay even when everything seems bad;
- creativity and imagination.

From a practical perspective, a sense of humour helps individuals cope with emerging difficulties, anxious thoughts, and fears. The ability to joke in moments of danger is a clear indicator of resilience, that is, a person's psychological robustness.

Mechanisms for developing this skill include creative projects; games and training that stimulate the development of a sense of humour; humorous methods to combat stress (by reducing adolescents' irrational ideas to absurdity and showing how contradictory and ridiculous they are); and techniques for cultivating imagination.

Thus, the necessity of developing resilience remains indisputable. For this process to be successful, it is essential to consider the influence of both external and internal factors and implement key, universal mechanisms of development (social environment and recognition; the ability to perceive purpose and meaning in life; sociability; self-awareness and adequate self-esteem; sense of personal dignity; sense of humour.).

There is a clear need to conduct research on the neuropsychological and neuro-pedagogical aspects of integration and to develop specific mechanisms for resilience development, namely: Programmes of neuropsychological and neuro-pedagogical assistance.

Recent meta-analyses confirm that resilience-based interventions in schools have a sustained positive effect on mental health (Hedge's $g = 0.25-0.44$). In our pilot study ($n=24$, ages 15–17), conducted at a high school over 8 weeks, a statistically significant increase was observed in scores on the Meaning in Life Questionnaire (MLQ) ($p < 0.05$) following the implementation of reflective self-transformation techniques.

3. Neuropsychological and neuro-pedagogical aspects of integration

Stress has a significant impact on the brain, disrupting its function and causing changes in neurotransmitter systems. It can lead to increased cortisol production, which has lasting negative effects on the hippocampus, the brain structure responsible for memory and learning.

Lupien et al. (2009) believes that “neuropsychological practices that help restore brain function, improve self-regulation, and strengthen psychological resilience are effective in reducing the negative effects of stress on the brain.” These practices include cognitive training, meditation, relaxation, and neurofeedback.

Davidson and McEwen (2012) states that “cognitive neuro-education techniques aim to build resilience through the development of critical thinking skills, awareness, and self-control”. These include the use of interactive learning strategies, emotional intelligence exercises, and the practice of skills for adapting to change and managing emotions.

Siegel (2012) believes that “a special place in neuropsychological and neuroeducational approaches is given to meaning in life, which plays a key role in increasing stress resistance and adaptation”. People with clear life goals and intrinsic motivation overcome difficulties much more easily and demonstrate a higher degree of emotional stability. Awareness of the meaning of life helps to mobilise internal resources, make effective decisions, and contributes to psychological well-being. Neuropsychological research confirms that people who have a heightened sense of purpose show higher activity in the prefrontal cortex, which is responsible for planning, decision-making, and self-control.

An example of effective neuro-pedagogical interaction is the “guided challenge” method. Instead of avoiding stress, the programme provides controlled cognitive load, which stimulates the release of brain-derived neurotrophic factor (BDNF). For instance, when working with adolescents, this can be implemented through quests where solving an intellectual task under time constraints “trains” the prefrontal cortex to regulate amygdala responses.

A significant step in modern management development is the shift from hard skills to the employee's repertoire of psychological resources. Integrating resilience, self-transformation, and meaning in life into HR strategies allows the transformation of personnel from function performers into agents of development.

1. Resilience as an Anti-Crisis Resource: Implementing corporate psychological safety programmes reduces absenteeism. Employees trained in mindfulness techniques regain cognitive control more quickly after conflicts.
2. Self-Transformation as the Basis for Lifelong Learning: Readiness to change professional roles (reskilling) relies on neuroplasticity. Cultivating a growth mindset becomes a key KPI for leaders.
3. Meaning of Life as an Antidote to Burnout: Corporate social responsibility (CSR) and aligning employees' personal values with the company mission activate motivational dopaminergic pathways, preventing professional degradation.

Thus, the integration of resilience, self-change, and purposefulness into neuropsychological and neuroeducational programmes promotes effective personal development, greater adaptability, and a better quality of life.

Future research on these approaches will lead to more effective educational and therapeutic strategies for promoting mental health and personal growth in today's environment.

4. Neuropsychological and neuro-pedagogical care programmes

For practical implementation, the “Neuro-Sense” programme has been developed with the following characteristics:

Target Group: Adolescents and adults in crisis situations.

Dosage: 12 sessions of 90 minutes each (twice a week).

Session Structure:

1. Neuro-Alignment – breathing exercises, HRV training;
2. Cognitive Block – logotherapeutic discussions;
3. Self-Transformation Reflection – maintaining an achievements journal.

Facilitator Requirements: a psychologist with training in neuropsychology and cognitive-behavioural therapy (CBT).

Fidelity Measures: the use of standardised session protocols and weekly facilitator supervision.

Statement on the Use of Artificial Intelligence: The authors confirm that artificial intelligence (ChatGPT) was used to improve readability and language, as well as for online searches via search engines enhanced by large language models (LLMs). The final interpretation of results, formulation of conclusions, and scientific generalisations were carried out solely by the authors.

In a changing social, technological, and psychological environment, traditional approaches to education and psychological support often fail to provide the necessary support for the development of psychological resilience, self-awareness and adaptation.

Below are several examples of how these concepts can be integrated into programme structures, methods for evaluating their effectiveness, as well as potential challenges and future prospects.

Table 1. Examples of integration in educational and psychological programmes

Programme	Concepts	Integration methods	Description
Educational programme (school, university)	Resilience, self-change, meaning in life	Psychoeducational trainings, mindfulness approaches, coaching	Integration of emotional resilience training, mindfulness and reflection exercises into training courses
Psychological programmes for adults	Resilience, self-change, meaning in life	Cognitive-behavioural techniques, art therapy, group sessions	Use of psychotherapeutic methods to develop self-understanding and increase motivation for change through art therapy and group sessions
Programme for children with special needs	Resilience, the meaning in life	Adapted mindfulness practices, sensory games	Use of special methods to build internal resilience and self-esteem through interactive exercises and games

Evaluating the effectiveness of programmes aimed at integrating resilience, self-change, and meaning in life is an important step in ensuring their impact. The most common and effective evaluation methods are presented in Table 2.

Table 2. Most common and effective evaluation methods

Evaluation method	Description	Advantages	Disadvantages
Questionnaires and surveys	Evaluation of changes in stress levels, emotional stability, motivation, and awareness of meaning in life using special questionnaires	Easy to use, convenient for obtaining quantitative data	It can be subjective, depending on the honesty of the participants
Psychological tests	Tests to measure the level of emotional intelligence, resilience, and the ability to change (e.g., stress tolerance test)	The ability to objectively measure psychological changes	Testing may not reflect the full picture of personality development over time
Observations	Assessment of participants' behaviour in the face of change or stress (e.g., during stressful situations or training)	The ability to directly assess practical behavioural changes and adaptation strategies	Observation can be subjective and requires a highly qualified assessor.

Integrating the concepts of resilience, self-transformation, and meaning in life into educational and psychological programmes is an important step towards the development of a harmonious and resilient personality. However, this process is accompanied by a number of challenges that require attention to ensure the effective implementation and development of such approaches.

Traditional educational programmes often do not include psychological aspects, such as the development of emotional resilience or self-awareness. In order for these concepts to become part of the educational process, it is necessary to reform educational standards and programmes, which requires significant efforts at the level of state and local educational authorities". The solution is to continuously improve curricula and incorporate practices to develop psychological resilience, self-transformation, and the search for meaning in life as mandatory elements of education. This can be achieved by developing an interdisciplinary approach to the educational process.

Ribtsun et al. (2023) argues that "teachers and psychologists working in schools, universities, or other educational institutions may not have the necessary training to implement the concepts of resilience and self-change". Lack of training can lead to ineffective implementation of new approaches. It is necessary to create training programmes for teachers and psychologists that would teach effective methods of working with emotional resilience, mindfulness, self-transformation, and the search for meaning in life.

Sometimes changes in teaching methods are resisted by both teachers and students. They may be sceptical about the effectiveness of new methods, especially when traditional methods seem more proven and understandable. The successful implementation of these concepts can be ensured by gradually introducing new practices, training all participants in the educational process, and demonstrating real results and positive examples.

Seligman (2011) argues that "additional resources, both financial and temporal, need to be allocated to integrate new concepts into the educational process. For most educational institutions, this can be a serious challenge, especially in a context of limited resources.

However, it is possible to raise additional funds through government programmes or private initiatives and ensure that these resources are managed effectively.

In order to successfully implement the integration of resilience, self-transformation and meaning into educational and psychological support programmes, several practical aspects need to be considered.

It is important to note that, although the connection between the prefrontal cortex and the sense of life purpose is scientifically supported, neurobiological evidence of direct "neural network transformation" under short-term programmes remains preliminary. To assess the effects of the "Neuro-Sense" programme, we propose using feasible neurophysiological markers (Appendix 1):

1. Heart Rate Variability (HRV): an indicator of autonomic nervous system adaptability (low cost, high feasibility).
2. Salivary Cortisol: to assess the dynamics of physiological stress (moderate cost).
3. EEG alpha rhythm asymmetry: a marker of motivational orientation (requires laboratory conditions).

Programme implementation requires strict adherence to ethical standards: informed consent, mandatory written consent from participants (and parents for minors); data protection and anonymisation of neurophysiological measurement results; cultural adaptation, as therapeutic texts must be adjusted to the local context (e.g., taking into account the experience of wartime in Ukraine). The programme also includes modification of the intensity of sensory exercises for individuals with ASD or ADHD.

However, for integration to be successful, certain challenges must be overcome, including ensuring the availability of a skilled workforce and adapting education systems to new approaches.

5. Conclusion

The study confirmed that the concept of resilience represents a contemporary neurobiological interpretation of classical theories of subjectivity. Integrating this knowledge into the developmental repertoire of human resources and differentiating it across population segments (from school-age individuals to inclusive groups) allows the creation of a comprehensive system of societal psychological safety.

The article outlines approaches to defining resilience: cognitive behaviourism, which bases resilience on effective behavioural strategies for overcoming various difficulties; constructivism, which emphasises the leading role of an individual's active life stance; ecological realism, which primarily considers social factors in overcoming challenges; and a cross-cultural approach, which studies how people respond to diverse risks depending on race, gender, age, place of residence, and other factors. It was also established that self-transformation is a crucial condition for an individual's integration into society and for establishing appropriate social interactions. This process represents a unique accumulation and acquisition of self-concepts by which an individual forms assessments of physical characteristics, moral qualities, abilities, and actions. Furthermore, methods of cognitive neuroeducation were identified, aimed at fostering resilience through the development of critical thinking, self-awareness, and self-control skills.

Several examples are also provided of how these concepts can be integrated into programme structures, methods for evaluating their effectiveness, as well as potential challenges and future prospects.

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Appendix 1.

Session Plan – 5th Session of the “Neuro-Sense” Program

Topic: “Value Map and Neuroplasticity: How Meaning Changes the Brain”

Target Group: Adolescents (14–17 years) or adults

Duration: 90 minutes

Materials: A3 sheets, markers, “Values” cards, HRV sensors (if available) or heart rate monitors

Session Stage	Content & Methods	Duration	Neuropsychological Rationale
1. Neuro-Alignment	“Box Breathing” exercise with emphasis on prolonged exhalation. Pulse monitoring.	10 min	Activation of vagal tone, increase in heart rate variability (HRV).
2. Cognitive Bridge	Mini-lecture: “Neuroplasticity: how attention to meaning creates new neural pathways in the prefrontal cortex.”	15 min	Fostering a growth mindset through understanding brain biology.
3. “Values Filter” Exercise	Working with cards: selecting 5 priority life values. Discussion: “Which of these have helped you in difficult times?”	20 min	Activation of ventromedial prefrontal cortex, associated with value assessment.
4. Practical Work	Creating a “Value Map” (collage or diagram). Task: link each value to a specific action (self-transformation).	25 min	Stimulation of executive functions: planning and goal setting.
5. “Mindfulness of Meaning” Technique	Visualization meditation: imagining oneself one year from now acting according to the value map.	10 min	Strengthening neural connections between ideal and real self-concept.
6. Reflection & Homework	Sharing. Homework: “One action this week aligned with your value map.”	10 min	Consolidation of subjective experience and agency.