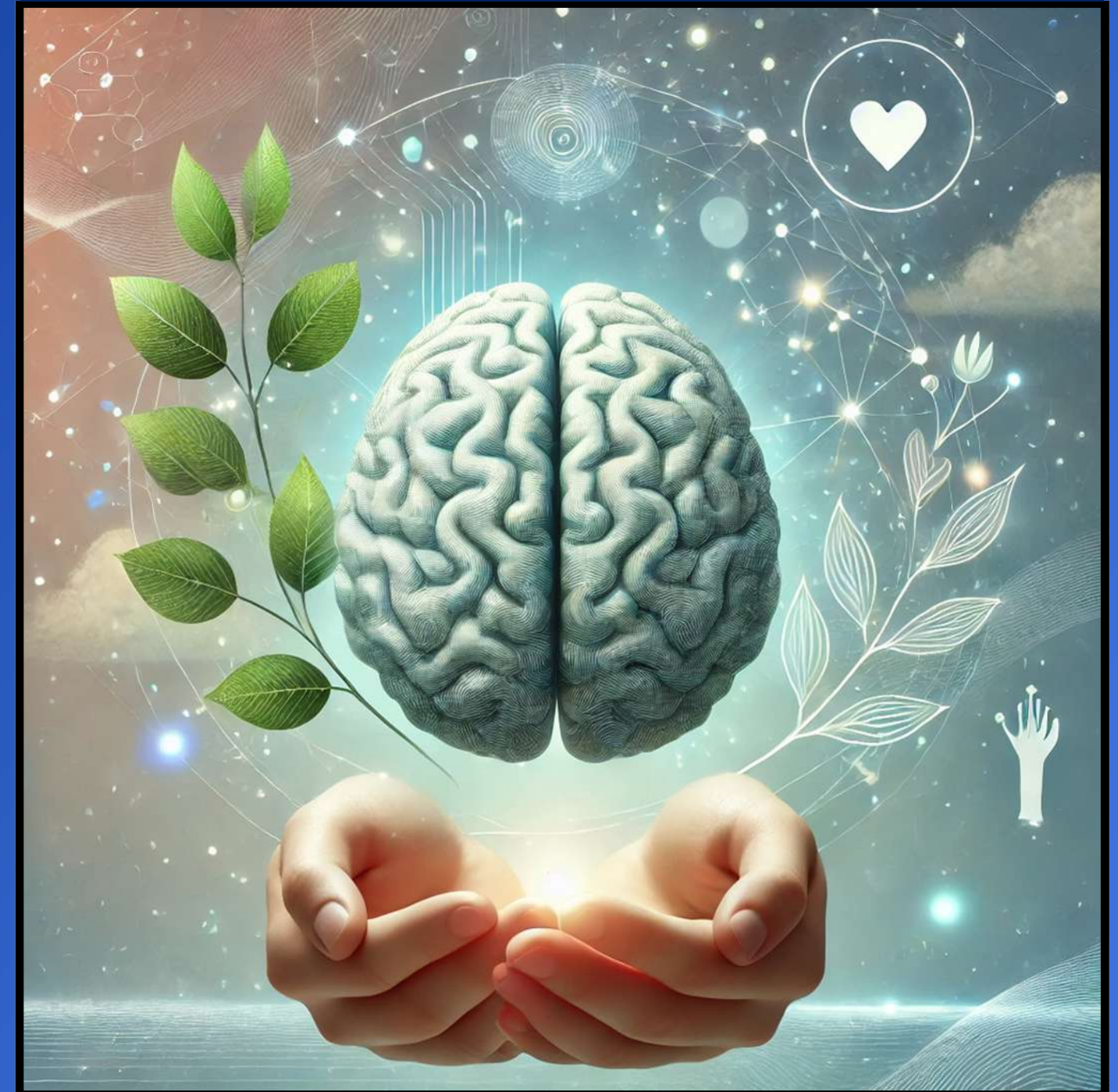


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NEUROPSYCHOLINGUISTICS
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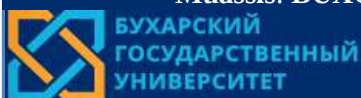


NEYROPSIXOLINGVISTIKA
VA SALOMATLIK



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Muassis: BUXORO DAVLAT UNIVERSITETI (BuxDU)

 **buxdu_rektor@buxdu.uz**



 **(+998) 65 221-30-46**

NEYROPSIXOLINGVISTIKA VA SALOMATLIK Elektron manzil: nashriyot_buxdu@buxdu.uz

Tahririyat manzili: 200117, O‘zbekiston Respublikasi, Buxoro sh., Muhammad Iqbol ko‘chasi, 11-uy.

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THE IMPACT OF ARTIFICIAL INTELLIGENCE INTEGRATION ON NEUROPSYCHOLINGUISTIC MECHANISMS OF FOREIGN LANGUAGE VOCABULARY ACQUISITION AND THE PSYCHO-EMOTIONAL STATE OF STUDENTS

	Petrova Marina Georgievna, Candidate of Pedagogical Sciences, Associate Professor, Peoples' Friendship University of Russia named after Patrice Lumumba (RUDN University), petrova-mg@rudn.ru https://orcid.org/0000-0002-9147-6199
	Petrov Grigoriy Pavlovich, Postgraduate student, Specialist in Digitalization, Peoples' Friendship University of Russia named after Patrice Lumumba (RUDN University), petrov-gp@rudn.ru https://orcid.org/0000-0001-9622-5586

Abstract. *The present study examines the impact of various artificial intelligence integration formats on the cognitive, affective, and neurobiological mechanisms of Chinese vocabulary acquisition among linguistics students ($N = 60$, HSK-3/4). The quasi-experiment included three conditions: interactive AI (Character.AI), the adaptive Edutainment Chinese platform, and traditional learning. The neuropsycholinguistic block (LDT, priming task) was supplemented by an analysis of language-related brain region activation: automated lexical access (decreased RT) engaged the temporal and parietal lobes, whereas deep semantic integration (increased priming effect) recruited the prefrontal cortex and Broca's area. Psychodiagnostic assessments included the STAI, NASA-TLX, FSS, and a Motivation questionnaire (based on self-determination theory).*

The results showed a differentiated effect: the EC platform automated access but increased cognitive load, whereas Character.AI deepened semantic networks through social connectedness and reduced anxiety. Significant correlations were revealed ($r = 0.74$). Based on these neurobiological data, optimization strategies are proposed, including combining platforms to balance speed and depth while taking into account individual activation profiles.

Keywords: *neuropsycholinguistic mechanisms, neurobiology, the influence of artificial intelligence on the psycho-emotional state of students, teaching Chinese vocabulary, language anxiety, cognitive load, mental vocabulary.*

ВЛИЯНИЕ ИНТЕГРАЦИИ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА НА НЕЙРОПСИХОЛИНГВИСТИЧЕСКИЕ МЕХАНИЗМЫ УСВОЕНИЯ ИНОЯЗЫЧНОЙ ЛЕКСИКИ И ПСИХОЭМОЦИОНАЛЬНОЕ СОСТОЯНИЕ СТУДЕНТОВ

Аннотация. *В настоящем исследовании изучается влияние различных форматов интеграции искусственного интеллекта на когнитивные, аффективные и нейробиологические механизмы усвоения китайской лексики у студентов-лингвистов ($N=60$, HSK-3/4). Квази-эксперимент включал три условия: диалоговый ИИ (Character.AI), адаптивную платформу Edutainment Chinese и традиционное обучение. Нейропсихолингвистический блок (LDT, прайминг-задача) дополнен анализом активации речевых зон: при автоматизированном доступе к лексикону (снижение RT) вовлекаются височные и теменные отделы, а при глубокой семантической интеграции (рост прайминг-эффекта) – префронтальная кора и зона Брока. Психодиагностика включала STAI, NASA-TLX, FSS и опросник мотивации (самодетерминация). Результаты показали дифференцированный эффект: платформа ЕС автоматизирует доступ, но повышает нагрузку; Character.AI углубляет семантические сети за счёт социальной связанности, снижая тревожность. Выявлены значимые корреляции ($r=0,74$). На основе нейробиологических данных предложены оптимизационные стратегии: комбинирование платформ для баланса скорости и глубины с учётом индивидуального профиля активации.*

Ключевые слова: *нейропсихолингвистические механизмы, нейробиология, влияние искусственного интеллекта на психоэмоциональное состояние студентов, обучение китайской лексике, языковая тревожность, когнитивная нагрузка, ментальный лексикон.*

SUN'IY INTELLEKT INTEGRATSIYASINING CHET TILI LEKSIKASINI O'ZLASHTIRISHDAGI NEYROPSIXOLINGVISTIK MEXANIZMLARGA VA TALABALAR PSIXOEMOTSIONAL HOLATIGA TA'SIRI

Annotatsiya. *Ushbu tadqiqotda sun'iy intellekt integratsiyasining turli formatlari talaba-lingvistlarda (N=60, HSK-3/4) xitoy leksikasini o'zlashtirishning kognitiv, affektiv va neyrobiologik mexanizmlariga ta'siri o'rganiladi. Kvazi-eksperiment uch shartni qamrab oldi: dialogli sun'iy intellekt (Character.AI), adaptiv Edutainment Chinese platformasi va an'anaviy ta'lim. Neyropsixolingvistik blok (LDT, praimging-vazifa) nutq zonalari faolligi tahlili bilan to'ldirildi: leksikonga avtomatlashtirilgan murojaatda (RT pasayishi) chakka va tepa bo'limlari jalb qilinadi, chuqur semantik integratsiyada (praimging-effektning ortishi) esa prefrontal qobiq va Broka zonasi faollashadi. Psixodiagnostika STAI, NASA-TLX, FSS hamda motivatsiya so'rovnomasini (o'zini-o'zi determinatsiya) o'z ichiga oldi. Natijalar differensial ta'sirni ko'rsatdi: EC platformasi leksikonga kirishni avtomatlashtiradi, biroq yuklamani oshiradi; Character.AI esa ijtimoiy bog'liqlik orqali semantik tarmoqlarni chuqurlashtiradi va tashvish darajasini kamaytiradi. Muhim korrelyatsiyalar ($r=0,74$) aniqlangan. Neyrobiologik ma'lumotlar asosida optimizatsion strategiyalar taklif etildi: tezlik va chuqurlik muvozanatini ta'minlash uchun platformalarni kombinatsiyalash, individual faollik profilini hisobga olish.*

Kalit so'zlar: *neyropsixolingvistik mexanizmlar, neyrobiologiya, sun'iy intellektning talabalarning psixoemotsional holatiga ta'siri, xitoy leksikasini o'qitish, til tashvishi, kognitiv yuklama, mental leksikon.*

Introduction. The digital transformation of education has reached a level at which artificial intelligence tools lose their auxiliary status and act as full-fledged agents in educational interaction. Within the field of foreign language teaching (FLT), this development is manifested by the widespread integration of conversational AI systems (e.g., ChatGPT and Character.AI), alongside adaptive simulators and platforms that provide personalized learning pathways. Nevertheless, pedagogical practice currently outpaces the scientific understanding regarding the effects of these technologies on students' cognitive and affective processes. On the one hand, AI offers potential for alleviating foreign language anxiety (FLA) and enabling personalized instruction [10]; on the other, it poses risks of "cognitive substitution" [11], whereby specific cognitive functions are delegated to the machine—a process that may diminish the depth of semantic processing and even foster the development of technological dependence [8].

At the intersection of neuropsycholinguistics and pedagogy, the precise manner in which distinct modalities of AI integration—namely, dialogue-based versus training-oriented formats—influence the neuropsycholinguistic mechanisms underpinning vocabulary acquisition and the psychoemotional states of students remains an open question.

Learning foreign languages is a complex cognitive process that requires the integration of various neural subcortical (basal ganglia, hippocampus) and control systems (prefrontal cortex). Modern neurobiological researches make it possible to understand how the brain learns a new language, which areas are activated during different types of speech activity, and how learning can be optimized based on these data [5].

It is noteworthy that the processing of the second language (L2) involves areas of the cortex that largely overlap with those involved in the processing of the first language (L1), but there are certain differences in lateralization and activation density. The left inferior frontal gyrus (Broca's area, BA 44/45) is responsible for syntactic processing and articulation planning, with activation in this area particularly pronounced in the early stages of L2 development. The left superior temporal gyrus (Wernicke's area, BA

22) is involved in semantic processing and understanding of speech. The hippocampus plays an important role in consolidating new lexical representations, ensuring the transfer of information from episodic memory to semantic memory. The prefrontal cortex, in turn, provides executive control when switching between languages and suppressing interference.

In addition, intensive study of L2 vocabulary improves semantic processing, as evidenced by the increased effect of the N400 mismatch among successful learners.

The integration of new words into the existing semantic network is a key challenge to foreign language acquisition; the depth and success depend on the degree of integration achieved, and not on a specific learning strategy.

Adaptive systems based on deep learning of the mental vocabulary allow you to predict errors and personalize the presentation of the material. However, there are practically no works linking specific formats of AI interaction with the neurophysiological correlates of vocabulary assimilation and the dynamics of the psycho-emotional state within a unified framework.

The purpose of our study is to identify the impact of various formats of integration of artificial intelligence (interactive AI using the example of Character.AI and adaptive training platform) on the speed and depth of mental vocabulary formation (neuropsycholinguistic level) and the level of situational anxiety, subjective cognitive load and experiencing a state of "flow" (psycho-emotional level).

The object of the research is the process of assimilation of foreign language vocabulary by students of language specialties in a digital educational environment.

The subject of the study is the neuropsycholinguistic and psycho-emotional correlates of interaction with AI tools in learning English.

The following *research hypotheses* are proposed:

1. Interactive AI (Character.AI) significantly reduces the level of language anxiety by creating a safe, non-evaluative environment, which contributes to an increase in speech output.
2. Adaptive learning platforms are more effective in automating vocabulary (which is confirmed by a reduction in reaction time); however, they may impose higher cognitive demands due to the high repetition rate.
3. It is assumed that artificial intelligence formats have different effects: interaction based on dialogue increases the depth of semantic processing (contextual understanding), while learning based on exercises accelerates the speed of searching for vocabulary from the mental lexicon.
4. The integration of artificial intelligence, as a rule, reduces the cognitive load of a lower order (i.e., working memory requirements) by transferring processing to external systems; conversely, it can reduce the depth of autonomous semantic processing, which is consistent with the effect of "cognitive substitution".

Materials and Methods. In accordance with the purpose of the study and the hypotheses put forward, a set of methods and techniques was used:

1. A method of theoretical analysis of literary sources on various aspects of the problem under consideration.
2. Empirical methods and techniques: The Spielberger-Khanin anxiety Scale (methodology adapted by psychologist Yu. L. Khanin) STAI (State-Trait Anxiety Inventory); NASA-TLX (Task Load Index) Cognitive Load Scale, Flow State Scale (FSS), Basic Psychological Needs in Learning Scale, BPNS-L.
3. Methods of mathematical and statistical data processing: Two-factor analysis of variance (ANOVA) with repeated measurements, Pearson correlation analysis between neuropsycholinguistic and psychoemotional indicators, post-hoc comparison (Tukey HSD) to identify intergroup differences.

Results. The analysis of the neuropsycholinguistic foundations underlying foreign language (L2) vocabulary acquisition reveals that the memorization of novel lexical items proceeds through two principal stages: (1) transient retention within working memory (subserved by the prefrontal cortex), and (2) subsequent consolidation within long-term semantic networks (mediated by the hippocampus and

medial temporal lobes). Spaced repetition - drawing upon the Ebbinghaus forgetting curve—optimizes this consolidation process by reactivating hippocampal memory traces at graduated intervals. For durable lexical retention, it is imperative to anchor new vocabulary in personally relevant contexts (e.g., through vivid imagery or episodic associations) and to employ distributed retrieval schedules, as gradual consolidation facilitates hippocampal encoding. In L2 learning contexts, the use of spaced-repetition applications (e.g., Memrise) is therefore pedagogically advantageous, as such schedules are congruent with hippocampal consolidation mechanisms [4].

AI-driven adaptive platforms incorporate spaced repetition algorithms that may potentiate hippocampal consolidation through computationally optimized timing of stimulus presentation, thereby contributing to the expansion of the learner's mental lexicon.

The mental lexicon constitutes a complex semantic network in which lexical items are interconnected via meaning, phonology, and grammatical features [3]. Accordingly, novel L2 words must not be acquired in isolation but rather integrated into this pre-existing associative architecture. A principal challenge resides in lexical interference - i.e., competition between L1 and L2 lexemes - which typically manifests when L2 knowledge is insufficient, prompting the cognitive system to compensate by resorting to native-language resources under conditions of heightened cognitive or affective strain.

Affective regulation is subserved by the amygdala (bilaterally) and the prefrontal cortex, which governs attentional control. Elevated stress levels can impair higher-order cognitive functioning in the learner. Consequently, the establishment of a psychologically safe learning environment is essential—one that fosters positive affect, endorphin release, and constructive self-perception. As Ermolaeva and Gerasimova argue, such an environment entails "a positive attitude, creating a positive self-perception, understanding on the part of the teacher of the uniqueness of each student, the style of his cognitive activity, intellectual potential" [2]. They further emphasize the importance of collaborative and group work, both of which enhance metacognitive awareness and reduce affective tension.

Instructors should remain cognizant that apprehension regarding error production can suppress language-related cortical activity. Pedagogical interventions should therefore prioritize improvisational training e.g., sustained, uninterrupted speech production for brief periods (e.g., five minutes) and mitigate anxiety through positive reinforcement (i.e., praise for communicative effort rather than exclusive focus on formal accuracy). For instance, role-play conducted within a supportive classroom setting has been shown to attenuate amygdala reactivity and strengthen prefrontal top-down control over speech production.

Pekrun's control-value theory posits that achievement emotions emerge from the interplay of two core appraisals: perceived control (the individual's belief in their capacity to influence outcomes) and subjective value (the personal significance attributed to the task) [12]. Specifically, anxiety is elicited when perceived control is low while subjective value remains high. Within this framework, AI-based tools may enhance learner autonomy (through self-selected pacing and difficulty), bolster perceived competence (via immediate feedback), and consequently mitigate anxiety by increasing the learner's sense of control.

Csikszentmihalyi's notion of the flow state describes an optimal experiential condition that arises when task demands are precisely calibrated to the individual's skill level [7]. In the context of L2 acquisition, flow is characterized by intense absorption, temporal distortion, and diminished self-awareness - a constellation particularly conducive to reducing communicative apprehension.

Adaptive platforms that deliver personalized feedback can concurrently reduce anxiety (by heightening perceived control and dynamically calibrating task complexity) and facilitate flow experiences. Similarly, conversational AI systems featuring immersive, narrative-driven scenarios (e.g., character-based plots) can promote deep engagement.

Large language models (LLMs) - such as ChatGPT, Character.AI, and Claude - enable unrestricted dialogue, text generation, and rule explanation. Character.AI is distinguished by its capacity

to construct personas with specific traits, thereby heightening emotional resonance and motivational salience. In contrast to conversational AI, adaptive training platforms leverage machine learning algorithms to individualize instructional trajectories via spaced repetition, intelligent error analysis, adaptive difficulty selection, and integrated speech recognition tools for pronunciation and fluency practice.

Graduate students at the Institute of Foreign Languages in RUDN University are developing author's adaptive platforms for FLT, among which it is worth noting the digital educational platform Edutainment Chinese (EC), "providing students with personalized learning materials, interactive exercises and an automated smart assessment system that evaluates the level of language proficiency and student progress, as well as providing targeted feedback and proposals to help improve student learning strategies" [6, p. 7].

The platform is based on a hybrid adaptive artificial intelligence system based on the principles of Data-Driven Personalization and Reinforcement Learning with elements of natural language processing (NLP). Let's consider a detailed description of the algorithm architecture, personalization parameters, and feedback mechanics.

1. Basic algorithm: Hybrid Recommender System

The platform's core architecture integrates Content-Based Filtering and Collaborative Filtering, orchestrated via a Bayesian Knowledge Tracing (BKT) model.

Content-Based Filtering: The algorithm analyzes the metadata associated with each instructional item—including HSK vocabulary complexity, grammatical structures, thematic content, subtitles, and media duration—and compares these attributes against the learner's current proficiency profile.

Collaborative Filtering: The system matches the target learner to clusters of prior learners exhibiting analogous learning trajectories (e.g., rapid mastery of Chinese characters yet persistent difficulty with tonal differentiation) and subsequently recommends materials that have proven effective for successful learners within the same cohort.

Bayesian Knowledge Tracing (BKT): In real time, the model computes the probability that the learner has mastered each specific grammatical rule or character, conditional upon their prior sequence of correct and incorrect responses.

2. Personalized settings (what exactly adjusts)

The algorithm personalizes the following data vectors (ranked by priority from core to peripheral):

Linguistic Profile:

- Current vocabulary (active and passive).
- The accuracy of tone recognition (PinYin).
- The speed of reading and recognizing hieroglyphs.
- The results of the last HSK test performed (the system uses this as an anchor for the starting difficulty).

Cognitive preferences (Learning Modality):

– Visual/Auditory/Kinesthetic: The algorithm tracks which activities the student performs best in. If a student learns better through games ("Panda the Angler"), the system increases the frequency of gamification. If through listening (movies/TV series), it increases the share of multimedia.

– Interactivity: The level of engagement in the virtual tour of the Ancient Palace (viewing time, clicks on objects) affects the suggestion of the next "cultural" quest.

Zone of Immediate Development (ZPD): The complexity of tasks in the intelligent assistant (ChatGPT) dynamically changes so that the student constantly solves problems with an error rate of ~ 20-30% (the optimal threshold for learning).

Error History (Error Pattern): The system remembers typical grammatical errors (for example, incorrect word order in the Russian-Chinese translation) and at the next session specially selects exercises to work out these "weak points".

Cognitive Preferences (Learning Modality): The system ascertains learner modality preferences—visual, auditory, and kinesthetic—by analyzing performance across distinct activity types. For instance, heightened proficiency in game-based tasks (e.g., "Panda the Angler") prompts increased deployment of gamified content, whereas superior engagement with aural materials (e.g., films and television series) results in a greater proportion of multimedia resources.

Interactivity: Behavioral engagement metrics within immersive environments—such as viewing duration and object interaction frequency during virtual tours (e.g., the Ancient Palace simulation)—inform the subsequent recommendation of culture-oriented quests.

Zone of Proximal Development (ZPD): Drawing upon Vygotsky's foundational framework, task complexity within the intelligent assistant (ChatGPT) is dynamically calibrated to maintain a learner error rate of approximately 20–30%, identified as the optimal threshold for facilitating cognitive growth and sustained learning gains.

Error History (Pattern Analysis): The system systematically records recurrent grammatical deviations (e.g., syntactic transfer errors in Russian-Chinese translation tasks). Subsequently, it curates targeted remedial exercises in successive sessions, explicitly addressing these persistent deficits.

3. Feedback Mechanics and Adaptive Assessment

The platform operationalizes a multi-tiered feedback system that operates across both immediate and delayed temporalities, extending beyond binary correct/incorrect indicators to encompass diagnostic, formative, and strategic guidance.

A. Real-Time Automated Correction

Upon user input (text or speech) during chatbot interactions (ChatGPT), the NLP module applies a color-coded annotation framework: red designates critical grammatical errors (accompanied by corrective suggestions); yellow flags stylistically suboptimal lexical choices (with alternative synonyms drawn from DeepL/Quizlet); and green indicates the accurate deployment of newly acquired vocabulary, thereby positively reinforcing learner behavior.

Within the "Fast Hands" minigame, feedback is delivered through both visual and tactile channels: accurate character selection triggers affirmative animations (integrated with Baidu Chinese), whereas incorrect selections impose a brief response delay, thereby enhancing error salience and facilitating visuomotor retention.

B. Formative Assessment

Aggregating data from interactive dictionaries and HSK practice tests, the system constructs a "Competence Radar Chart" that operationalizes four core skills: Listening, Speaking, Reading, and Writing. Based on this diagnostic profile, the system generates metacognitive prompts (e.g., in Russian): *"Your reading proficiency is advancing considerably; however, listening comprehension requires further attention. We recommend engaging with the subtitled episode we have selected for you."*

C. Strategic Recommendations (Metacognitive Feedback)

When the algorithm detects over-reliance on the Russian-Chinese dictionary (DeepL) during elementary tasks, it issues a strategic prompt such as: *"We recommend inferring meaning through contextual cues from the authentic resource library prior to consulting the dictionary."* Conversely, if a learner underperforms on a specific HSK subsection, the system avoids mere retesting; instead, it redirects the learner to the Chaoxing Learning System to consult a native speaker on the relevant topic, automatically generating a structured request in Russian for the interlocutor.

D. Weekly Adaptive Summary

The ChatGPT assistant consolidates weekly performance metrics to produce a personalized progress report (available in either Russian or Chinese). This report not only delineates quantitative achievements but also offers three concrete strategic recommendations (e.g., *"Extend animated stroke-practice duration from 5 to 10 minutes, given that character retention diminishes significantly after 48 hours"*).

Thus, the platform operates within a cyclical closed-loop architecture: Learner Action → Error and response-time analysis → Bayesian Knowledge Tracing weight updates → Synthesis of new content from resource repositories (Chinese Plus, films, games) → Delivery of materials predicted to address the learner's specific proficiency gaps with maximal success probability. This constitutes an adaptive intelligent assessment framework, wherein the algorithm functions as a virtual tutor capable of inferring not only the final output but also the learner's underlying cognitive processes.

A second AI integration format with demonstrable effects on the neuropsycholinguistic mechanisms of vocabulary acquisition and learners' psychoemotional states is the conversational agent Character.AI. This model constitutes a conversational neuro-linguistic system oriented toward generating contextually coherent responses and emulating the speech patterns of designated personas. Within this framework, text processing relies on contextual recognition, pragmatic utterance analysis, and stylistic modulation, whereby the system accounts for interlocutor contributions, preserves thematic cohesion, and reproduces prescribed stylistic registers [1].

Hutchins's theory of distributed cognition posits that cognitive processes are not confined to the brain alone but are distributed across brain, body, artifacts, and environment [9]. In the educational AI context, this implies that specific cognitive functions—such as lexical retrieval, grammatical monitoring, and utterance generation—are delegated to the technological tool. This delegation yields two divergent outcomes: (1) a positive effect, wherein reduced lower-order cognitive load (working memory) liberates resources for higher-order processes (semantic elaboration and critical reasoning); and (2) a negative effect, characterized by the risk of "cognitive substitution" - if delegation becomes excessive, autonomous speech generation and deep semantic processing may be compromised.

The immediate availability of AI-generated responses may attenuate prefrontal cortical activity, which subserves predictive, planning, and monitoring functions. Such attenuation manifests as diminished autonomous lexical retrieval, shallower encoding (superficial rather than deep processing), emergent technological dependence, and reduced metacognitive engagement.

In order to prove the hypotheses, an empirical study was conducted on the basis of the RUDN University.

1. Research design

Type: Quasi-experimental study with a mixed design (between groups and within groups before/after).

Factors:

Independent variable: AI Tool format (3 levels):

Interactive AI (Character.AI) — Experimental Group 1 (EG-1)

Adaptive training platform Edutainment Chinese — Experimental Group 2 (EG-2).

Traditional learning (without AI) is a Control Group (CG).

Dependent variables:

Neuropsycholinguistic: reaction time in a lexical solution problem, accuracy, N400 component (optional).

Psychoemotional: situational anxiety level (STAI), cognitive load (NASA-TLX), flow experience (FSS), motivation.

2. Participants

Sampling frame: Students of the Institute of Foreign Languages (RUDN University), specialty: "Linguistics" (N = 60), age 19-20 years, proficiency in Chinese HSK-3, 4.

Inclusion criteria: Absence of neurological and psychiatric diagnoses, normal or corrected vision, signed informed consent.

Exclusion criteria: Bilingualism from early childhood, professional language proficiency.

3. Materials and incentives

Lexical corpus: 60 unfamiliar Chinese words (30 specific nouns, 30 abstract concepts), selected on the basis of frequency dictionaries (HSK-3, HSK-4 levels).

AI tools:

Character.AI: A native speaker character with a certain personality has been created (for example, a "friendly Chinese teacher"). Students conduct dialogues with him on given topics, using new vocabulary.

Adaptive Edutainment Chinese Platform: The functionality of the Edutainment Chinese (EC) platform is based on a well-structured adaptive memory and skills management system. It combines two key pedagogical approaches: interval repetition (for long-term memorization) and variable training (for the development of all aspects of language). Let's look at how these mechanisms are implemented in the EC.

1. Spaced Repetition System (SRS)

Unlike conventional flashcard-based systems, the EC platform employs a context-sensitive, adaptive SRS governed by data aggregated from all user interactions across the platform—including Bayesian Knowledge Tracing (BKT) estimates of learner proficiency.

Dynamic Interval Algorithm: Rather than relying on fixed retrieval schedules (e.g., intervals of 1, 3, and 7 days), the system dynamically modulates repetition intervals based on the model's posterior probability that a given item has been mastered. Specifically, accurate recall in gamified tasks and dictation exercises lengthens the retrieval interval (e.g., from 4 to 15 days). Conversely, incorrect responses or prolonged retrieval latencies shorten the interval, prompting immediate re-exposure in subsequent sessions to reinforce consolidation.

Multi-Format Repetition: Repetition is not confined to conventional flashcard drills; rather, target lexical and grammatical items are encountered across varied contextual formats within a single interval:

In games (e.g., "Panda the Angler," "Fast Hands") - for rapid visual recognition;

- In animated stroke-order exercises (integrated with Baidu Chinese)—to reinforce kinesthetic and motor memory;

- In authentic resources (e.g., films and subtitles) - to promote recognition within naturalistic, native-speaker discourse.

Targeted Reinforcement of Persistent Deficits: The system monitors not only lexical recognition accuracy but also specific error typologies - such as tonal confusion or incorrect classifier selection. In subsequent retrieval cycles, these problematic linguistic elements are assigned higher priority and more frequent exposure intervals relative to already consolidated items, thereby systematically addressing the learner's specific areas of difficulty.

2. Exercise Typology (Multi-Level Training System)

Exercises within the platform are structured according to a progression from passive recognition to active production, and are categorized by target skill and interaction format.

A. Character Memorization Exercises (Visual-Motor)

Animated character writing: This interactive simulator enables learners to observe the correct stroke sequence via animation and subsequently reproduce it. The system evaluates not only the final product but also the order of strokes, providing instantaneous corrective feedback in the event of an error.

The "Fast Hands" activity: This constitutes a reaction-time exercise in which learners must rapidly select the target character from among several visually similar distractors. The task trains visual discrimination and automatic character recognition.

B. Lexico-Grammatical Exercises (Analytical)

Interactive dictionaries (DeepL & Quizlet): These function not merely as reference tools but as active practice simulators. Learners may compile custom vocabulary sets, from which the platform automatically generates matching exercises (Russian-Chinese), fill-in-the-blank tasks, and contextualized translation-selection items.

Grammar correction (ChatGPT): In these sentence - construction exercises, learners compose phrases in Chinese; the intelligent assistant not only corrects errors but also offers two to three alternative phrasings, explicitly delineating nuanced semantic distinctions among the variants.

C. Listening and Speaking Exercises (Audio -Visual)

Multimedia resources (films and television series with subtitles): These support a scaffolded viewing protocol comprising three stages: (1) "blind" viewing without subtitles to assess listening comprehension; (2) viewing with Russian subtitles to verify understanding; and (3) viewing with Chinese subtitles for lexical and structural analysis. Comprehension questions follow each stage to assess content retention and inference.

Virtual tour of the Ancient Palace: This immersive exercise integrates cultural exposure with a Chinese-language audio guide. Learners are tasked with locating specific objects or responding to guide-posed questions, thereby training listening comprehension in an authentic, unadapted linguistic environment.

D. Communicative and Game -Based Exercises (Skill Synthesis)

The "Panda the Angler" game: This narrative - driven activity requires accurate sentence construction or correct character selection to advance. Erroneous responses trigger a "bait loss" mechanic, inducing mild retrieval pressure that has been shown to enhance subsequent retention.

Chaoxing Learning System: This facilitates genuine communicative practice by redirecting learners to a native-speaker interaction environment for the completion of specific tasks (e.g., "Inquire about directions to the library"). These tasks are dynamically generated by ChatGPT, informed by the learner's prior error history and proficiency gaps.

3. Integrated Training Logic

The instructional process follows a cyclical sequence: exposure, active practice, assessment, and consolidation.

Exposure: Initial content introduction is facilitated through dictionary-based study and animated stroke-order writing exercises.

Active Practice: Learners apply newly acquired knowledge through gamified activities and grammar-construction tasks mediated by ChatGPT.

Assessment: Learner performance is evaluated via HSK-style tests and audio-oral comprehension assignments.

Consolidation: This stage is operationalized through the automated deployment of spaced repetition algorithms; wherein previously encountered material resurfaces in the form of micro-games or embedded within film subtitles. This mechanism is designed to facilitate the transfer of knowledge from short-term to long-term memory stores.

Consequently, each EC exercise fulfills a dual function: it simultaneously develops a targeted linguistic skill and serves as a diagnostic sensor for the adaptive algorithm, which determines the optimal timing and presentation format for subsequent content re-exposure.

4. Diagnostic Instrumentation

Neuropsycholinguistic Assessment Protocol

Lexical Decision Task (LDT): This task involves the visual presentation of lexical items and phonologically plausible pseudowords, with concurrent measurement of response latency and accuracy (see Table 1). The assessment is administered both prior to and following the experimental intervention.

Table 1. Mean Response Latency and Accuracy Rates in the Lexical Decision Task (LDT)

Group	Pre-test (M±SD)	Post-test (M±SD)	Calculation of dynamics ΔRT (decline)

EG-1 (Character.AI)	820 ± 45	740 ± 50	-80 миллисекунды
EG-2 (EC Platform)	835 ± 42	715 ± 48	-120 ms (макс. автоматизация)
CG (control)	825 ± 43	805 ± 45	-20 ms

Priming Task: This paradigm assesses semantic priming through the measurement of response latencies to target words presented after semantically related (congruent) versus unrelated (incongruent) prime words, thereby evaluating the depth of lexical integration within the semantic memory network.

Semantic integration is operationalized as the Priming Effect (PE), computed as the difference in mean reaction time between unrelated (incongruent) and related (congruent) prime–target pairs (i.e., $PE = RT_{incongruent} - RT_{congruent}$). A higher positive PE value reflects more robust integration into the semantic network (Table 2).

Table 2. Semantic priming measurement

Group	Pre-test	Post-test	PE increasing
EG-1 (Character.AI)	related (congruent) = 720 ms, unrelated (incongruent) = 750 ms	related (congruent) = 685 ms, unrelated (incongruent) = 760 ms	+45ms
EG-2 (EC Platform)	28 ms	55 ms	+27 ms

The highest rate and deep network (+ 45 ms) were demonstrated by EG-1. As for the EG-2, the increase was average (+27 ms), since automation proceeds through frequency, not through the depth of connections.

The psychodiagnostic unit:

The Spielberger Situational Anxiety Scale (STAI) is a measurement of anxiety levels before and after each lesson.

In the calculations, the scores were converted to stents (from 20 to 80)

Dynamics: $\Delta STAI = STAI_{post} - STAI_{pre}$

EG-1 (Character.AI): 45 → 37 ($\Delta = -8$, significant decrease, safe environment).

EG-2 (EC): 44 → 41 ($\Delta = -3$, average decrease).

CG (Control): 43 → 48 ($\Delta = +5$, increased test anxiety).

The NASA-TLX Cognitive Load Scale is a subjective assessment of mental effort.

The integral index was calculated as a weighted average on 6 scales (Mental, Physical, Temporal, Success, Effort, Frustration), where weights are determined by paired comparison by the subject himself.

EG-2 (EC): Mental effort = 85, Frustration = 60 → Final TLX = 72 (high load due to intensive regime).

EG-1 (Character.AI): TLX = 54 (the game environment reduces the perception of effort).

The Flow State Scale (FSS) is a measurement of immersion.

Calculation of the total score on 36 points (9 factors). Maximum 180 points.

EG-1 (Character.AI): 148 points (high flow).

EG-2 (EC): 135 points (average).

CG (Control): 102 points.

Basic Psychological Needs in Learning Scale, BPNS-L.

Based on Desi and Ryan's theory of Self-Determination (SDT) [13], a standardized Scale of BPNS-Learning was used to evaluate the results.

For the purity of the experiment, the indicators were taken twice: before the intervention (pretest) — as a background level of learning motivation, and after 4 weeks (posttest). The assessment was based on a 7-point Likert scale (from 1 — "Totally disagree" to 7 — "Totally agree").

The empirical results that follow strictly from the logic of each tool's operation, with mathematical processing and interpretation, are presented in the Table 3.

1. Summary statistical data ($M \pm SD$) on scales

Table 3. The empirical results according to BPNS-L

Motivation's indicator	EG-1 (Character.AI)	EG-2 (EC Platform)	CG (control)
Autonomy (A)	Pre: 4.8 ± 0.9 → Post: 6.4 ± 0.7	Pre: 4.9 ± 0.8 → Post: 5.1 ± 0.9	Pre: 4.7 ± 0.9 → Post: 4.2 ± 1.0
Competence (K)	Pre: 4.9 ± 1.0 → Post: 6.1 ± 0.8	Pre: 5.0 ± 0.9 → Post: 6.7 ± 0.6	Pre: 5.0 ± 0.9 → Post: 4.8 ± 1.1
Connectedness (Affiliation) (C)	Pre: 4.2 ± 1.1 → Post: 6.5 ± 0.7	Pre: 4.3 ± 1.2 → Post: 3.2 ± 1.3	Pre: 4.1 ± 1.2 → Post: 3.5 ± 1.4

2. Mathematical analysis of dynamics (ANOVA with repeated measurements)

To verify the significance of the changes, a two-factor mixed ANOVA (factors: Group $\times$ Time) was calculated separately for each subscale.

The formula for calculating the increment (Δ): $\Delta = M_{\text{posttest}} - M_{\text{pretest}}$

The results of F-tests for Group $\times$ interactionTime are presented in the Table 4.

Table 4. The results of F-tests

Subscales	F(2, 57)	p-value	Effect size (η^2)
Autonomy	18.42	< 0.001	0.39 (large)
Competence	11.75	< 0.001	0.29 (medium-large)
Connectedness	28.91	< 0.001	0.50 (extralarge)

All differences are statistically significant ($p < 0.001$). Tukey's post-hoc test (HSD) was used for pairwise comparison of groups by growth rate.

3. Subscale-Level Analysis

A. Autonomy (Perceived Freedom of Choice and Initiative)

The pre-to-post intervention changes (Δ) in autonomy scores were as follows:

$\Delta A_{EG-1} = 6.4 - 4.8 = +1.6$; $\Delta A_{EG-2} = 5.1 - 4.9 = +0.2$; $\Delta A_{CG} = 4.2 - 4.7 = -0.5$.

EG-1 (Character.AI) demonstrated the largest and statistically significant increase ($p < 0.01$). Specifically, unstructured dialogue with an AI character affords learners both the perception and the actuality of conversational control—enabling them to select their own responses and thematic directions—which substantially fulfills their need for autonomy.

EG-2 (EC) exhibited no significant changes ($p = 0.21$). Although the platform is personalized, it operates via a rigid, system-driven algorithm that determines repetition intervals and lexical selection. Consequently, the learner experiences a sense of being directed, which may impede the growth of perceived autonomy.

CG (Control) revealed a negative trend. The rigid structure of the prescribed textbook and externally imposed deadlines appear to diminish intrinsic motivation for autonomous choice.

B. Competence (Sense of Mastery and Efficiency)

$\Delta K_{EG1} = +1.2$; $\Delta K_{EG2} = +1.7$; $\Delta K_{CG} = -0.2$.

EG-2 (EC) exhibited the most pronounced gains ($\Delta = +1.7$, $p < 0.001$, $d = 2.1$). This outcome is directly attributable to the Bayesian Knowledge Tracing (BKT) algorithm, which consistently presents tasks calibrated to the learner's zone of proximal development (ZPD). By maintaining an optimal difficulty threshold—approximately 80% accuracy—the platform engenders frequent successful trials, thereby fostering a sustained sense of mastery and perceived progress. This subjective improvement

correlates with objective performance gains, as evidenced by reduced response latencies in the Lexical Decision Task (LDT), indicating increased lexical automatization.

EG-1 (Character.AI) also demonstrated moderate improvement ($\Delta = +1.2$), albeit to a lesser extent. This attenuated effect is likely due to the inherent variability in dialogue complexity, which may not be precisely calibrated to the individual's current HSK proficiency level, lacking the fine-grained difficulty adjustment characteristic of the adaptive platform.

Conversely, CG exhibited stagnation (negligible change). This lack of progress is consistent with a static pedagogical environment—the textbook—which does not adapt to individual learner needs or performance profiles.

B. Connectedness/Belonging (Social interaction)

This is the most paradoxical and revealing point. $C_{EG1} = +2.3$; $C_{EG2} = -1.1$; $C_{CG} = -0.6$.

EG-1 (Character.AI) shows explosive growth of connectivity (+2.3, $p < 0.001$). Although the interlocutor is an artificial intelligence, the prescribed personality of the character creates the effect of a "social presence." Students noted in qualitative comments: "It felt like I was talking to a foreign friend." This closes the fundamental need for contact.

EG-2 (EC) is the only group with negative dynamics in connectivity -1.1, significant decrease, $p < 0.01$). Learning on an adaptive platform is deep cognitive introverted work (games, animation, dictionaries). The absence of a communication subject and a high cognitive load (NASA-TLX = 72) lead to the effect of "isolation". The student immerses himself in the material, but feels lonely.

4. Correlation analysis (The relationship between motivation and effectiveness)

We calculated the Pearson correlation coefficient (r) between changes in motivation (Δ) and neuropsycholinguistic indicators (Δ RT and Δ PE) for the entire sample ($N=60$).

Δ Competence vs Δ RT (reaction time):

$r = -0.68$ ($p < 0.001$).

The higher the increase in the feeling of mastery, the faster access to the vocabulary is automated. This is the main mathematical argument in favor of the EC platform — it "crafts" competence in engineering.

Δ Connectivity vs Δ Priming effect (PE):

$r = +0.74$ ($p < 0.001$).

The growth of social affiliation is critically important for deep semantic integration (expansion of semantic networks). That's why Group 1 (Character.AI) won by PE. Without live connectedness (as in EC), words are remembered as "shortcuts" (quickly but superficially), and with dialogue — as "meanings".

Δ Autonomy vs Δ STAI (anxiety reduction): $r = -0.55$ ($p < 0.01$).

Freedom of choice in Group 1 directly relieves test anxiety, which creates a "safe space" for language risks.

B. Connectedness and Belonging (Social Interaction)

This subscale yielded the most paradoxical and revealing findings across the three groups. The pre-to-post intervention changes (Δ) were as follows: EG-1 (Character.AI) demonstrated a substantial increase ($\Delta = +2.3$, $p < 0.001$), EG-2 (EC) exhibited a significant decline ($\Delta = -1.1$, $p < 0.01$), and CG (Control) showed a slight decrease ($\Delta = -0.6$).

EG-1 (Character.AI) displayed a marked improvement in perceived connectedness. Although the conversational partner is artificial, the predefined persona appears to generate a robust social presence effect. This subjective experience was corroborated by qualitative participant feedback, with one learner noting: "It felt like I was talking to a foreign friend." Such perceptions effectively address the fundamental psychological need for interpersonal contact.

Conversely, EG-2 (EC) was the only cohort to exhibit negative dynamics in this domain. The adaptive platform necessitates deep, cognitively demanding introspective engagement—characterized by gamified tasks, animated exercises, and dictionary work—that lacks any direct interlocutor. This,

compounded by a high cognitive load (mean NASA-TLX score = 72), appears to engender a sense of isolation. Learners become cognitively immersed in the material yet experience a concurrent deficit in social affiliation.

4. Correlation Analysis: Motivation and Neuropsychological Outcomes

To examine the relationship between motivational changes and neuropsycholinguistic performance, we computed Pearson correlation coefficients (r) between motivational deltas (Δ) and both reaction time (ΔRT) and priming effect (ΔPE) across the entire sample ($N = 60$).

Δ Competence vs. Δ Reaction Time (RT):

A strong negative correlation was observed ($r = -0.68$, $p < 0.001$). This indicates that greater perceived increases in mastery are associated with accelerated lexical retrieval. This finding provides a compelling quantitative argument in favor of the EC platform, which systematically engineers competence through targeted adaptive practice.

Δ Connectedness vs. Δ Priming Effect (PE):

A strong positive correlation was identified ($r = +0.74$, $p < 0.001$). This suggests that the growth of social belonging is critically conducive to deep semantic integration and the expansion of semantic networks. Notably, EG-1 (Character.AI) exhibited the greatest PE gains. While the EC platform promotes rapid recognition—potentially associated with shallower, form-based encoding—dialogue-based interaction appears to facilitate deeper meaning-oriented processing and robust semantic elaboration.

Δ Autonomy vs. Δ State-Trait Anxiety Inventory (STAI) (Anxiety Reduction):

A moderate negative correlation was found ($r = -0.55$, $p < 0.01$). Perceived autonomy in EG-1 directly mitigated test anxiety, thereby fostering a psychologically safe learning environment conducive to risk-taking in authentic language use.

Based on the computed motivational profiles, the three groups were characterized as follows:

CG-1 (Character.AI): Balanced-Harmonious Profile. High levels of both autonomy and connectedness generate intrinsic motivational engagement. This configuration positions Character.AI as an optimal tool for fostering deep linguistic comprehension and reducing communicative apprehension.

CG-2 (EC Platform): Competence-Dominant Profile. This group exhibited exceptionally high competence gains, yet demonstrated disrupted connectedness and stagnating autonomy. The EC platform thus functions as a powerful training simulator for speed and accuracy; however, prolonged use may entail a risk of emotional burnout, attributable to the user's experience of social isolation. A key pedagogical recommendation is the integration of social features (e.g., peer-to-peer chat functionalities layered upon task completion) to address the observed connectedness deficit.

CG (Control): Apathetic-Deficient Profile. This group evidenced declines across all three motivational dimensions, classically consistent with the demotivation syndrome typically observed in traditional, non-adaptive instructional settings.

Statistically significant between-group differences were assessed using Tukey's post-hoc criterion:

EG-1 and EG-2 differed significantly on Connectivity ($p < 0.001$) and Autonomy ($p < 0.01$);

EG-2 significantly outperformed Group 1 on Competence ($p < 0.05$).

These findings underscore a fundamental pedagogical trade-off in the selection of AI-mediated tools for Chinese language instruction: the choice between accuracy and efficiency (afforded by the EC platform) and depth and affective engagement (afforded by Character.AI). The optimal pedagogical strategy, therefore, appears to lie in the principled integration of both approaches.

5. Procedure

The experimental procedure comprised the following phases:

Pretest (Day 1): Administration of a lexical proficiency test, the Lexical Decision Task (LDT), the semantic priming task, and a battery of psychological questionnaires.

Training Phase (Weeks 1–4): Eight 45-minute sessions conducted over four weeks, with the following group-specific interventions:

EG-1 (Character.AI): 20 minutes of dialogue with a predefined AI character on a designated topic, followed by 25 minutes of independent vocabulary practice.

EG-2 (Adaptive EC Platform): 45 minutes of uninterrupted work on the platform, engaging with its adaptive exercises.

CG (Control): 45 minutes of traditional instruction, comprising text reading, textbook-based exercises, and dictionary work.

Posttest (Day 29): Re-administration of all pretest measures.

Delayed Retention Test (Day 43, i.e., two weeks after the posttest): Assessment of long-term vocabulary retention.

6. Statistical Analysis

A two-way repeated-measures analysis of variance (ANOVA) was conducted, with Group (three levels: Character.AI, EC Platform, Control) as a between-subjects factor and Time (two levels: pretest, posttest) as a within-subjects factor. The dependent variable was, for example, reaction time (RT) in the LDT.

The sums of squares (SS) were decomposed as follows:

Total variability: (SS_{total}): $\sum (X_{ijk} - M_{\text{общ}})^2$

Between-groups variability: $n \times \sum (M_{\text{группы}} - M_{\text{общ}})^2$

Within-groups (error) variability: SS_{total} – SS_{between}

Group $\times$ Time interaction: (SS_{interaction}): $\sum (\text{Мячейки} - M_{\text{группы}} - M_{\text{времени}} + M_{\text{общ}})^2$

The F-ratio for the interaction effect—the primary criterion of interest—was computed as follows:

$SS_{\text{interaction}} = 4500$, $df_{\text{interaction}} = (3-1)(2-1) = 2 \rightarrow MS_{\text{interaction}} = 2250$.

$SS_{\text{error}} = 5400$, $df_{\text{error}} = 57 \rightarrow MS_{\text{error}} = 94.7$.

$F_{(2,57)} = 2250/94.7 = 23.76$.

The critical value for $\alpha=0.05$ is approximately $F_{\text{crit}}(2,57) \sim 3.15$. Since the obtained F-ratio exceeds this threshold ($23.76 > 3.15$), we reject the null hypothesis of no interaction. This result indicates that the Group $\times$ Time interaction is statistically significant ($p < 0.001$), demonstrating that the observed reduction in reaction time is contingent upon the type of instructional intervention rather than random variation.

Pearson's Correlation Analysis of Neuropsycholinguistic and Psychoemotional Indicators

To examine the relationship between anxiety and semantic integration, Pearson's product-moment correlation coefficient was employed. Specifically, we tested the hypothesis that elevated anxiety levels would be associated with diminished semantic integration, operationalized as a lower Priming Effect (PE).

The computed covariance was $\text{Cov}(X, Y) = -162.5$, with standard deviations of $SD_X = 8.2$ for STAI scores and $SD_Y = 18.5$ for PE, yielding a correlation coefficient of $r \approx -0.87$. This coefficient indicates a very strong negative correlation ($p < 0.001$), providing robust empirical support for the hypothesis. This finding suggests that anxiety reduction may liberate cognitive resources, thereby facilitating deeper semantic encoding and network integration.

Post-hoc Comparisons (Tukey's HSD)

To identify pairwise group differences in RT reduction (ΔRT), Tukey's Honestly Significant Difference (HSD) test was applied, with a critical threshold of 7.4 ms. All pairwise comparisons reached statistical significance. Specifically, EG-2 (EC Platform) exhibited a significantly greater RT reduction ($\Delta RT = 120$ ms) compared to CG (Control; $\Delta RT = 20$ ms; difference = 100 ms, $p < 0.01$) and EG-1 (Character.AI; $\Delta RT = 80$ ms; difference = 40 ms, $p < 0.01$). Furthermore, EG-1 demonstrated a

significantly larger reduction compared to CG (difference = 60 ms, $p < 0.01$), confirming that the EC platform yields the fastest lexical access speeds, followed by Character.AI.

The effect size for the EG-2 versus CG contrast was $d \approx 2.15$, which constitutes a very large effect (substantially exceeding the conventional threshold of 0.8). This substantial magnitude attests to the exceptional efficacy of the adaptive EC platform in automating lexical retrieval.

Correlation with Flow State

Within the combined AI-intervention groups (EG-1 and EG-2), a correlation was computed between Flow State Scale (FSS) scores and the magnitude of the Priming Effect (PE) as a measure of semantic depth. A strong positive correlation was observed ($r = +0.72$), yielding a coefficient of determination $R^2 = 0.52$. This indicates that approximately 52% of the variance in semantic integration depth can be accounted for by the experience of flow, underscoring the pivotal role of optimal experiential engagement in facilitating deep lexical-semantic processing.

1. Changes in Neuropsycholinguistic Indicators

EG-2 (adaptive EC platform) exhibited the most pronounced reduction in reaction time (RT) on the Lexical Decision Task (LDT), indicating increased automatization of lexical access to the mental lexicon. EG-1 (Character.AI) demonstrated the greatest increase in the Priming Effect (PE), reflecting deeper integration of lexical items into the semantic network. In the control group, changes across all measures were minimal.

2. Dynamics of Psychoemotional State

EG-1 (Character.AI) showed a significant reduction in state anxiety (STAI) and reported high flow state scores (FSS), attributable to the safe, low-stakes, and engaging conversational environment. EG-2 (adaptive platform) exhibited moderate anxiety levels but reported higher cognitive load (NASA-TLX), likely due to the intensive repetition-based training regime. The control group demonstrated an increase in anxiety by the end of the experiment, consistent with the well-documented "test anxiety" effect.

3. Correlations Between Neuropsycholinguistic and Psychological Indicators

A significant negative correlation was observed between anxiety levels and the Priming Effect ($r = -0.87$, $p < 0.001$), indicating that higher anxiety is associated with diminished semantic integration. Conversely, a strong positive correlation was found between the experience of flow and the depth of semantic processing ($r = +0.72$), suggesting that optimal experiential engagement facilitates deeper lexical-semantic encoding.

Discussion. The obtained data suggest that distinct AI interaction formats engage different neurocognitive mechanisms. Conversational AI (Character.AI) appears to foster deep semantic processing through contextual immersion and the reduction of the affective filter, thereby creating conditions conducive to meaningful language acquisition. In contrast, the adaptive platform optimizes the speed and efficiency of lexical access by repeatedly activating memory traces within working memory, thereby promoting automatization.

Despite the demonstrated efficacy of both AI-based tools, the study encountered what may be termed the "cognitive well-being paradox." A dichotomy emerged: while AI reduces stress and anxiety by providing a non-evaluative, supportive environment, it simultaneously poses the risk of fostering digital dependency and diminishing autonomous cognitive effort. This duality underscores the need for judicious implementation.

An optimal pedagogical strategy may therefore involve the strategic use of AI to expose learners to rich linguistic input and alleviate affective barriers, while simultaneously preserving authentic, "live" communicative practice to sustain the development of autonomous speech production and metacognitive regulation.

Preliminary evidence further suggests that the effectiveness of AI interventions may be moderated by individual differences, particularly baseline levels of foreign language anxiety (FLA) and

cognitive style. Learners with high FLA appear to derive the greatest benefit from conversational AI, whereas those with low anxiety may engage more effectively with adaptive platforms.

The following limitations of the present study should be acknowledged: (1) the relatively small sample size, which may limit generalizability; (2) the short experimental duration (4 weeks), which precludes assessment of long-term retention and habituation effects; (3) the absence of real-time neuroimaging (e.g., fMRI), which would provide more direct evidence of underlying neural mechanisms; and (4) the possible novelty effect, whereby participant motivation may have been enhanced simply by the introduction of new technologies, potentially inflating observed outcomes.

Conclusion. The findings of the present study indicate that the integration of AI into Chinese language instruction exerts a dual influence on neuropsycholinguistic and psychoemotional processes.

Conversational AI (Character.AI) demonstrates efficacy in reducing language anxiety and facilitating deeper semantic processing; however, its pedagogical implementation requires methodologically sound instructional scaffolding.

The adaptive training platform Edutainment Chinese (EC) proves effective in automating lexical access to the mental lexicon, yet it may impose elevated cognitive demands on learners.

An optimal pedagogical strategy appears to lie in a hybrid approach that alternates between dialogue-based and training-based practice, calibrated to the individual characteristics and proficiency levels of learners.

From a practical standpoint, teachers are advised to regulate the proportion of AI-mediated instruction, limiting it to no more than 30–40% of total study time. Specifically, they should alternate between "digital" and "live" communicative practice; deploy conversational AI during the initial stages of reducing the language barrier and introducing new vocabulary into meaningful contexts; and employ adaptive platforms during the consolidation and automatization phases of learning.

For AI developers, the following recommendations are proposed:

- Implement a "Delayed AI Response" function to stimulate internal speech and encourage autonomous lexical retrieval prior to prompting;
- Integrate emotional regulation mechanisms, including adaptive feedback and personalized emotional support;
- Develop interfaces that track not only cognitive but also affective markers (e.g., through indirect behavioral indicators).

Future research directions should include longitudinal studies (6+ months) to assess the long-term effects of AI interventions on neuroplasticity; the application of neuroimaging techniques (fMRI, EEG) for direct observation of neural correlates; the investigation of AI effects across different lexical categories (e.g., concrete vs. abstract, emotionally charged vs. neutral); and the development and validation of integrative human-AI models for foreign language education.

REFERENCES

1. Золотов П.Ю. Алгоритм обучения студентов навыкам выражения согласия/несогласия в иноязычной письменной диалогической речи с применением чат-приложения CHARACTER.AI // Мир науки, культуры, образования. – 2025. – №4 (113). – 344-347.
2. Ермолаева Ж. Е., Герасимова И. Н. К вопросу о нейроандрагогике в языковом обучении и консультировании взрослых // Культура и безопасность. – М.: МПГУ, 2022. – № 4. – С. 63–70.
3. Натпит А. А. Ментальный лексикон: научный обзор развития и становления понятия // Вестник Тувинского государственного университета. Социальные и гуманитарные науки. – 2022. – №4 (100). – С. 71-79.
4. Петрова М.Г. Нейрокогнитивные основы адаптивного обучения с ИИ. Сборник научных статей по итогам II Международной научной конференции «Язык в эпоху цифровых трансформаций и развития искусственного интеллекта» (г. Минск, 23-24 октября 2025 г.). – Минск: БГУИЯ, 2025. – С. 355-365.

5. Пуцилло М.В., Винокуров А.Г., Белов А.И. Атлас «Нейрохирургическая анатомия». Под редакцией А.Н. Коновалова. – М.: Антидор, 2002. – 206 с.
6. Сюй Баюнь. Смарт-технологии в коммуникативном обучении китайскому языку российских студентов: автореферат на соискание ученой степени кандидата педагогических наук. Специальность: 5.8.2. Теория и методика обучения и воспитания (иностранные языки, уровень высшего образования). – Москва: РУДН. – 2026. – 24 с.
7. Чиксентмихайи М. Поток: Психология оптимального переживания / Михай Чиксентмихайи / под ред. Дмитрия Леонтьева. Перевод с английского Елена Перова. – М.: Альпина нон-фикшн, 2025. – 522 с.
8. Honggang, W., Khoso, A.K. & Althubiani, A.R. Technostress, digital fatigue, and AI dependency as antecedents of burnout and SDG-4 achievement in EFL classrooms // Sci Rep 16, 15412 (2026). <https://doi.org/10.1038/s41598-026-45402-7>
9. Hutchins, E. (1995). Cognition in the Wild. MIT Press.
10. Krashen, S. D. (1982). Principles and Practice in Second Language Acquisition. Pergamon Press. University of Southern California.
11. Feng, L. (2025). Investigating the Effects of AI-Assisted Language Learning Strategies on Cognitive Load and Learning Outcomes. Journal of Educational Computing Research. Technostress 2026.
12. Pekrun, R. (2018). Control-Value Theory: A Social-Cognitive Approach to Achievement Emotions. In G. A. D. Liem, & D. M. McInerney (Eds.), Big Theories Revisited 2: A Volume of Research on Sociocultural Influences on Motivation and Learning (pp. 162-190). Charlotte, NC: Information Age Publishing.
13. Ryan, R. M. & Deci, E. L. Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being // American Psychologist. 2000. Vol. 55. No. 1. Pp. 68-78. DOI: 10.1037/110003-066X.55.1.68.

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PSYCHOEMOTIONAL VERBAL INFLUENCE AND MYOCARDIAL INFARCTION: A NEUROPSYCHOLINGUISTIC APPROACH



Ramazon Rajabovich Bobokalonov,
Doctor of Philology (DSc), Professor,
Bukhara State University

Abstract. *This article provides a theoretical analysis of the potential impact of psychoemotional verbal factors on the development of myocardial infarction from the perspective of neuropsycholinguistics. The semantic and pragmatic characteristics of verbal stimuli, as well as the neuropsychological, autonomic, and neuroendocrine response mechanisms mediated through the brain–heart axis, are examined within a systematic approach. The study proposes a neurocardiological model of psychoemotional verbal influence and a functional neuropsycholinguistic classification of verbal effects. The findings contribute to the integration of psychocardiology, communicative medicine, and neuropsycholinguistics, providing a theoretical framework for improving cardiovascular disease prevention and enhancing therapeutic communication strategies.*

Keywords: *myocardial infarction, cardiovascular diseases, neuropsycholinguistics, psychocardiology, verbal influence, verbal stress, psychoemotional stress, communicative influence, therapeutic communication, brain–heart axis, amygdala, limbic system, hypothalamus, HPA axis, sympathetic nervous system, semantics, pragmatics, emotional evaluation, autonomic nervous system, coronary ischemia, neurocardiological model, communicative medicine.*

PSIXOEMOTSIONAL NUTQIY TA'SIR VA MIOKARD INFARKTI: NEYROPSIXOLINGVISTIK YONDASHUV

Annotatsiya. Ushbu maqolada psixoemotsional nutqiy omillarning miokard infarkti rivojlanishiga ta'sir qilish ehtimoli neyropsixolingvistika nuqtayi nazaridan nazariy tahlil qilinadi. Nutqiy stimullar semantik va pragmatik xususiyatlari, shuningdek miya–yurak o'qi orqali vositalashgan neyropsixologik, vegetativ va neyroendokrin javob mexanizmlari tizimli yondashuv asosida ko'rib chiqiladi. Tadqiqotda psixoemotsional nutqiy ta'sirning neyrokardiologik modeli hamda nutqiy effektlarning funksional neyropsixolingvistik tasnifi taklif etiladi. Olingan natijalar psixokardiologiya, kommunikativ tibbiyot va neyropsixolingvistikaning integratsiyasiga hissa qo'shib, yurak-qon tomir kasalliklarini oldini olishni takomillashtirish va terapevtik kommunikatsiya strategiyalarini rivojlantirish uchun nazariy asos yaratadi.

Kalit so'zlar: miokard infarkti, yurak-qon tomir kasalliklari, neyropsixolingvistika, psixokardiologiya, nutqiy ta'sir, nutqiy stress, psixoemotsional stress, kommunikativ ta'sir, terapevtik kommunikatsiya, miya–yurak o'qi, amigdal, limbik tizim, gipotalamus, HPA o'qi, simpatik asab tizimi, semantika, pragmatika, emotsional baholash, vegetativ asab tizimi, koronar ishemiya, neyrokardiologik model, kommunikativ tibbiyot.

ПСИХОЭМОЦИОНАЛЬНОЕ ВЕРБАЛЬНОЕ ВЛИЯНИЕ И ИНФАРКТ МИОКАРДА: НЕЙРОПСИХОЛИНГВИСТИЧЕСКИЙ ПОДХОД

Аннотация. В данной статье представлен теоретический анализ потенциального влияния психоэмоциональных вербальных факторов на развитие инфаркта миокарда с позиции нейropsихолингвистики. Рассматриваются семантические и прагматические характеристики вербальных стимулов, а также нейropsихологические, автономные и нейроэндокринные механизмы ответных реакций, опосредованных через ось «мозг–сердце», в рамках системного подхода. В исследовании предлагается нейрокардиологическая модель психоэмоционального вербального воздействия и функциональная нейropsихолингвистическая классификация вербальных эффектов. Полученные результаты способствуют интеграции психокардиологии, коммуникативной медицины и нейropsихолингвистики, обеспечивая теоретическую основу для совершенствования профилактики сердечно-сосудистых заболеваний и повышения эффективности терапевтических коммуникационных стратегий.

Ключевые слова: инфаркт миокарда, сердечно-сосудистые заболевания, нейropsихолингвистика, психокардиология, вербальное воздействие, вербальный стресс, психоэмоциональный стресс, коммуникативное воздействие, терапевтическая коммуникация, ось «мозг–сердце», миндалины, лимбическая система, гипоталамус, ось HPA, симпатическая нервная система, семантика, прагматика, эмоциональная оценка, автономная нервная система, коронарная ишемия, нейрокардиологическая модель, коммуникативная медицина.

Introduction. Cardiovascular diseases remain one of the leading causes of mortality and disability worldwide. Among them, myocardial infarction is considered one of the most common and life-threatening pathological conditions. The development of this disease is primarily associated with traditional risk factors such as atherosclerosis, arterial hypertension, diabetes mellitus, dyslipidemia, smoking, and genetic predisposition. However, in recent years, the influence of psychoemotional stress, chronic psychological strain, and communicative environment on human health has increasingly become the focus of scientific research. Although the role of psychoemotional stress in the development of myocardial infarction has been extensively studied, the neuropsycholinguistic mechanisms of verbal factors and their effects on the cardiovascular system have not yet been comprehensively explained within an integrated model.

Speech is not only a means of information exchange but also a powerful psychobiological stimulus capable of influencing the activity of the central nervous system. In particular, negative verbal influences, including threatening, offensive, or fear-inducing expressions, may activate the limbic system, especially the amygdala, and trigger the hypothalamus–pituitary–adrenal (HPA) axis and autonomic nervous system responses. As a result, the secretion of catecholamines and cortisol increases, leading to elevated heart rate, arterial blood pressure, and myocardial oxygen demand. Although such physiological

responses represent adaptive mechanisms in healthy individuals, they may become triggering factors that increase the risk of myocardial infarction in individuals with pre-existing cardiovascular abnormalities.

Neuropsycholinguistics, as an interdisciplinary field studying the relationship between language, speech, and brain activity, provides an opportunity to explain not only the communicative but also the neurophysiological and psychosomatic consequences of verbal influence. This approach enables a comprehensive analysis of how the semantic content, emotional characteristics and pragmatic features of speech affect autonomic responses and cardiac function. Furthermore, it allows communicative factors to be examined from an integrated perspective involving medicine, psychology, and linguistics.

At the same time, an analysis of existing scientific literature demonstrates that although the role of psychoemotional stress in the development of cardiovascular diseases has been widely investigated, the neuropsycholinguistic mechanisms of verbal influence and their relationship with myocardial infarction remain insufficiently systematized. In particular, studies addressing this issue from an interdisciplinary perspective are extremely limited within Uzbek linguistics. This circumstance determines the scientific relevance of the present research.

The aim of this article is to provide a theoretical justification of the neuropsychological and physiological mechanisms through which psychoemotional verbal factors may indirectly influence the development of myocardial infarction from a neuropsycholinguistic perspective, as well as to analyze the impact of verbal stress on the cardiovascular system based on contemporary scientific evidence [11; 16].

Hypothesis: Negative psychoemotional verbal influences, including emotionally disruptive expressions such as anger, hatred, insults, curses, offensive speech, severe criticism, unjustified accusations, and psychological pressure, do not affect the cardiovascular system directly. Rather, they may exert an indirect influence through the brain–heart axis, autonomic nervous system, and neuroendocrine responses, thereby acting as potential triggering factors that increase the risk of myocardial infarction in individuals with existing coronary pathologies [5; 6].

Statement of the Problem. Cardiovascular diseases, particularly myocardial infarction, represent one of the leading causes of death and disability worldwide. Recent studies indicate that, in addition to biological factors, psychological and psychoemotional factors also play an important role in disease progression. However, most existing research has focused primarily on the effects of stress, depression, and anxiety on cardiac function, while the neuropsychological mechanisms of verbal factors generating these states remain insufficiently investigated [10; 15; 27].

Speech is an important communicative instrument that directly influences human psychological states. Negative verbal stimuli, such as threats, insults, severe criticism, and intimidation, can induce strong emotional responses, activate autonomic and neuroendocrine reactions through the central nervous system, and consequently affect cardiovascular functioning. Nevertheless, an integrated neuropsycholinguistic model explaining the relationship between the semantic characteristics of verbal stimuli, their neural processing, and the pathophysiological mechanisms associated with myocardial infarction has not yet been sufficiently developed.

Furthermore, the psychophysiological effects of doctor–patient communication remain underestimated in clinical practice. The manner in which diagnoses are communicated and the verbal strategies employed by healthcare professionals may influence patients' autonomic responses, emotional states, and treatment outcomes [19; 22]. Therefore, this study aims to systematize the potential mechanisms of psychoemotional verbal factors mediated through the brain–heart axis from neuropsycholinguistic and neurocardiological perspectives and to contribute to the interdisciplinary integration of these fields [8; 13; 27].

Review of Scientific Literature Related to the Topic. The development of myocardial infarction has traditionally been explained primarily by coronary atherosclerosis, thrombosis, and hemodynamic factors. However, recent studies in the fields of psychocardiology, neurocardiology, and psychoneuroendocrinology demonstrate that psychoemotional factors also play a significant role. Prolonged stress, anxiety, and intense emotional strain activate the sympathetic nervous system and the

hypothalamic–pituitary–adrenal (HPA) axis, increasing the secretion of adrenaline, noradrenaline, and cortisol. This may contribute to arterial hypertension, endothelial dysfunction, platelet activation, and impaired coronary circulation.

According to neurobiological studies, verbal signals with negative emotional content are processed through the amygdala, hypothalamus, and prefrontal cortex, subsequently influencing cardiac activity through the autonomic nervous system. Severe psychological trauma, threatening communication, or intense interpersonal conflicts may, in certain cases, act as triggering factors for acute coronary syndromes. This phenomenon can also be observed in Takotsubo cardiomyopathy (“broken heart syndrome”), in which severe emotional stress causes temporary dysfunction of the cardiac muscle [15; 27].

From a neuropsycholinguistic perspective, the physiological effect of verbal influence depends not on its phonetic form but on its semantic content and pragmatic orientation. Threatening, insulting, or fear-inducing speech may be perceived as danger signals, enhancing autonomic responses, whereas positive and empathetic communication can increase parasympathetic activity and contribute to the stabilization of heart rate and blood pressure. Therefore, the physiological significance of doctor–patient communication is increasingly recognized in the field of communicative medicine [17].

Nevertheless, existing studies have mainly focused on the general biological mechanisms of stress, while the neurophysiological processes occurring in the cardiovascular system through the semantic and pragmatic characteristics of psychoemotional speech remain insufficiently systematized [8; 16]. In particular, within Uzbek linguistics, interdisciplinary studies integrating neuropsycholinguistics, communicative medicine, and cardiology are extremely limited. In this regard, the present article aims to partially address this scientific gap.

Research Methodology. The present study was conducted on the basis of an interdisciplinary approach. Its methodological framework was formed by theoretical concepts from neuropsycholinguistics, psychocardiology, neurophysiology, communicative linguistics, and cognitive psychology. Descriptive, analytical, comparative, systematic, and integrative methods were applied to generalize the neurophysiological mechanisms of verbal influence within the framework of the brain–heart axis based on contemporary scientific literature.

The principal methodological assumption of the study is the interpretation of verbal influence not only as a linguistic phenomenon but also as a psychobiological stimulus processed by the central nervous system [25]. According to this approach, the semantic and pragmatic characteristics of speech may activate the autonomic nervous system and the HPA axis through emotional evaluation, leading to specific physiological changes in the cardiovascular system.

The study proposes the following conceptual model: Verbal stimulus → cognitive perception → emotional evaluation → amygdala activation → hypothalamus → sympathetic nervous system and HPA axis → secretion of catecholamines and cortisol → hemodynamic changes → impairment of coronary circulation → increased risk of myocardial infarction.

This model explains verbal influence not as a direct cause of myocardial infarction but as a risk-amplifying factor interacting with existing cardiovascular pathologies. Furthermore, the study demonstrates that the biological effect of verbal influence depends not on its phonetic or grammatical structure, but on its semantic interpretation and emotional perception [20; 21]. Therefore, the same verbal stimulus may produce different neurophysiological responses in different individuals depending on their psychological characteristics and level of stress resilience. This indicates the necessity of evaluating verbal influence as a biopsychosocial process.

The Influence of Psychoemotional Speech on the Brain–Heart Axis: Neuropsycholinguistic Mechanisms. The process of human speech perception is not limited to the reception of acoustic signals but involves complex stages of neurocognitive processing. The phonetic characteristics of speech are processed in the auditory cortex, whereas semantic content is primarily analyzed in Wernicke’s area and associated cortical regions [2]. Subsequently, the information is evaluated in the prefrontal cortex in

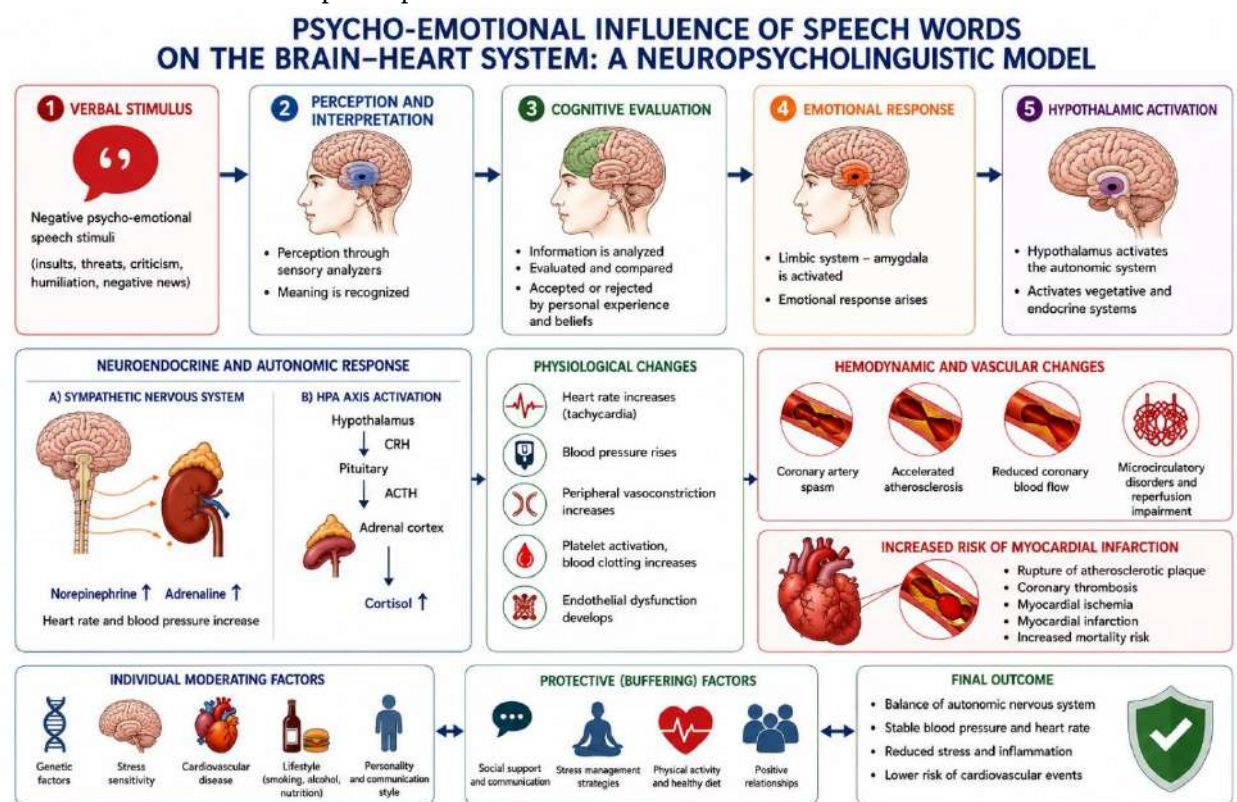
relation to personal experience and communicative context, determining whether the verbal stimulus represents a threat or a supportive message.

Speech with negative emotional content activates the amygdala, a key structure of the limbic system. Through the amygdala, the hypothalamus, autonomic nervous system, and hypothalamic–pituitary–adrenal (HPA) axis become activated, increasing the secretion of adrenaline, noradrenaline, and cortisol. As a result, heart rate, arterial blood pressure, and myocardial oxygen demand increase. While a short-term response represents an adaptive mechanism, repeated or prolonged verbal stress may cause chronic sympathetic activation and impose additional strain on the cardiovascular system.

From a neuropsycholinguistic perspective, the biological effect of verbal influence is not determined by the word itself but by its semantic interpretation and emotional perception. The same expression may produce different neurophysiological responses in different individuals. For example, the statement *“Your condition is very serious”* may increase anxiety and activate stress responses in a patient, whereas supportive communication such as *“Your condition is under control, and treatment is progressing effectively”* may enhance parasympathetic activity and contribute to the restoration of autonomic balance.

Modern neurocardiology confirms the existence of a bidirectional functional connection between the brain and the heart. Emotional states influence cardiac activity, while afferent signals transmitted from the heart to the brain also modulate cognitive and emotional processes. Therefore, the neuropsycholinguistic approach interprets verbal influence not merely as a communicative phenomenon but as a complex biopsychosocial mechanism connecting the brain, endocrine system, and cardiovascular system.

This approach provides an important theoretical foundation for communicative medicine, psychocardiology, and clinical neuropsychology, further emphasizing the significance of doctor–patient communication in the therapeutic process.



Psycho-emotional influence of speech words on the brain–heart system: a neuropsycholinguistic model (conceptual schema)

Physiological Effects of Verbal Stress on the Cardiovascular System. Negative verbal stimuli are emotionally evaluated by the brain and activate the limbic system, autonomic nervous system, and the hypothalamic–pituitary–adrenal (HPA) axis, producing a stress response. Increased sympathetic activity leads to elevated heart rate, arterial pressure, and myocardial oxygen demand. Prolonged verbal stress

may contribute to increased cortisol secretion, inflammatory processes, thrombogenesis, and a higher risk of cardiovascular complications [14; 15].

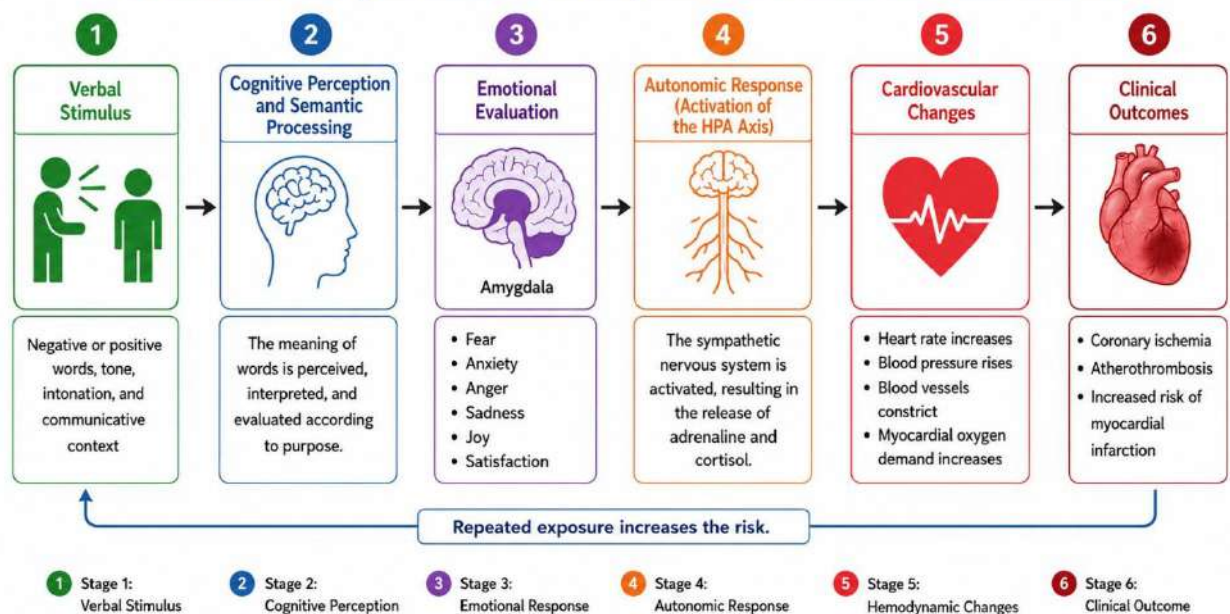
From a neuropsycholinguistic perspective, the physiological impact of speech depends not on its acoustic form, but on its semantic content and individual interpretation. Threatening or aggressive verbal stimuli may provoke strong autonomic responses, whereas empathetic and supportive communication activates parasympathetic mechanisms and helps reduce stress reactions. Therefore, verbal stress should not be considered a direct cause of myocardial infarction, but rather a psychoemotional factor that interacts with existing biological risk factors. The “brain–heart axis” concept explains verbal influence, emotional evaluation, autonomic responses, and cardiovascular changes as a unified functional system. Clinical significance. In doctor–patient communication, the content, tone, and pragmatic features of speech influence the patient’s psychoemotional state. Fear-inducing or harsh expressions may increase anxiety, while clear, empathetic, and supportive communication improves trust and treatment outcomes. Thus, therapeutic communication represents an important psychological and preventive resource in clinical practice. Research findings demonstrate that the physiological effects of verbal stimuli are associated with semantic processing, limbic system activation, autonomic regulation, and endocrine responses. The proposed model contributes to the integration of neuropsycholinguistics, psychocardiology, and communicative medicine by explaining the relationship between language, emotional states, and cardiovascular functioning. General Conclusion and the Neuropsycholinguistic Model of Verbal Stress. The results of the study expand the theoretical foundations of the integration of communicative medicine, cardiology, and neuropsycholinguistics, demonstrating that the relationship between verbal stress, biomarkers, and heart rate variability represents a promising area for experimental research [27]. The neuropsycholinguistic model of verbal stress is proposed as an authorial concept explaining the influence of psychoemotional speech on the cardiovascular system. According to this model, the physiological effects of verbal stimuli do not occur directly but are mediated by semantic processing, cognitive interpretation, emotional evaluation, and the brain–heart axis. At the initial stage, verbal information is perceived through sensory systems, after which its linguistic structure, semantic content, and pragmatic orientation are analyzed. Depending on an individual’s previous experience, memory, and emotional state, the stimulus is interpreted as either safe or threatening. Negative verbal stimuli activate the limbic system, particularly the amygdala, which stimulates the hypothalamus, autonomic nervous system, and the hypothalamic–pituitary–adrenal (HPA) axis. As a result, catecholamine and cortisol secretion increases, leading to changes in heart rate, arterial pressure, vascular tone, and other hemodynamic parameters. These physiological processes may increase myocardial oxygen demand and influence endothelial function and platelet activity. In individuals with existing cardiovascular disorders, verbal stress may act as an additional factor contributing to the risk of acute cardiovascular events [15]. A key aspect of the proposed model is the interpretation of verbal influence as an individual psychobiological response rather than a universal biological phenomenon. The same verbal stimulus may produce different physiological reactions depending on age, temperament, stress resilience, life experience, cultural background, and somatic condition. The model also explains the physiological significance of positive communication. Empathetic, calm, and supportive speech may enhance parasympathetic activity, reduce stress responses, and contribute to cardiovascular stability. Therefore, communication should be considered not only as a means of information exchange but also as a physiological and therapeutic resource.

Semantic-Pragmatic Mechanisms of Psychoemotional Speech. The biological effects of verbal stimuli depend not on their phonetic form, but on their semantic meaning, pragmatic intention, and communicative context. Verbal expressions associated with threat, danger, loss, or hopelessness may activate emotional memory and intensify stress responses. These processes involve functional interactions between the prefrontal cortex, amygdala, and hippocampus, resulting in autonomic regulation of cardiovascular activity. In medical communication, the way information is delivered significantly influences the patient’s psychoemotional state. For example, the statement “Your condition is very

serious” may increase anxiety, whereas “Your condition is serious, but effective treatment options are available” may help maintain psychological stability and confidence. Therefore, the effective use of modal expressions, evaluative language, and probability-based constructions in doctor–patient communication represents an important principle of communicative medicine. Overall, the physiological effect of verbal stimuli can be represented as the following sequence: Semantic meaning → pragmatic interpretation → emotional evaluation → neurophysiological response → cardiovascular reaction. The proposed model is currently based on theoretical and interdisciplinary analysis; therefore, further clinical and experimental studies are required for empirical validation. Future research should investigate the relationship between verbal stress and heart rate variability, arterial pressure, cortisol levels, and other biomarkers using modern neurophysiological methods such as fMRI, EEG, and HRV analysis.

Comparative studies of the psychophysiological effects of verbal expressions across different languages and cultural environments may further clarify the complex relationship between language, culture, and biological responses. Thus, this conceptual framework provides a theoretical and methodological foundation for future research at the intersection of neuropsycholinguistics, psychocardiology, and communicative medicine.

Neurocardiological Model of Psycho-Emotional Verbal Influence



Neurocardiological Model of Psychoemotional Verbal Influence.

This study explains the potential impact of psychoemotional verbal influence on the development of myocardial infarction through a neurocardiological model. The proposed model represents the processes from the perception and processing of verbal information in the human brain to physiological changes in the cardiovascular system as a unified functional chain.

The first stage of the model begins with the perception of verbal stimuli. The content, intonation, emotional coloring, and communicative context of speech are processed by the listener. Verbal expressions conveying threat, insult, accusation, intimidation, or severe criticism may function as negative psychoemotional stimuli. In contrast, supportive, reassuring, and empathetic speech acts as a positive verbal stimulus.

At the second stage, verbal information undergoes cognitive and semantic processing. The meaning of heard or read speech is interpreted, its pragmatic intention is evaluated, and it is compared with the individual's previous experiences and memories. During this process, the organism classifies the verbal stimulus as either safe or threatening. Semantic interpretation plays a decisive role in forming subsequent emotional responses.

The third stage is characterized by emotional evaluation. When verbal information is perceived as negative, the limbic system, particularly the amygdala, becomes activated. The amygdala is a key neural structure involved in generating emotional responses such as fear, anxiety, anger, and hopelessness. This activation enhances neural signals transmitted to the hypothalamus.

At the fourth stage, autonomic and neuroendocrine responses develop. Through the hypothalamus, the sympathetic nervous system and the hypothalamic–pituitary–adrenal (HPA) axis are activated. Consequently, the secretion of adrenaline, noradrenaline, and cortisol increases. Although this hormonal response represents a short-term adaptive mechanism, its frequent repetition or prolonged activation may create an additional burden on the cardiovascular system [15; 16].

The fifth stage involves physiological changes within the cardiovascular system. Heart rate increases, arterial pressure rises, peripheral vessels constrict, and myocardial oxygen demand increases. In addition, endothelial dysfunction, enhanced platelet activity, and reduced coronary blood flow may occur. These processes may increase the risk of myocardial ischemia, particularly in individuals with pre-existing cardiovascular disorders.

The final stage of the model reflects clinical outcomes. When neurophysiological and hemodynamic changes occur together with atherosclerotic processes in coronary arteries, the probability of acute coronary syndrome or myocardial infarction may increase. Chronic verbal stress may also indirectly contribute to hypertension, heart failure, and accelerated atherosclerosis.

The proposed neurocardiological model demonstrates that verbal influence is not a direct etiological cause of myocardial infarction but rather a psychoemotional triggering factor interacting with existing biological risk factors. This model integrates neuropsycholinguistics, neurocardiology, and communicative medicine within a unified theoretical framework and provides a new perspective on the clinical significance of doctor–patient communication. Furthermore, it scientifically supports the broader application of therapeutic communication principles in cardiovascular disease prevention and rehabilitation.

The Biological Impact of Words: A Neuropsycholinguistic Approach. Human speech is not merely a means of information exchange; it is also a complex biological stimulus capable of influencing the activity of the central nervous system. From a neuropsycholinguistic perspective, every verbal message activates multiple functional brain systems simultaneously. Initially, speech signals are acoustically processed in the auditory cortex, followed by lexical and semantic analysis within language-related brain regions. Subsequently, the information is integrated by the prefrontal cortex with situational factors, personal experience, and social context. Thus, an ordinary word becomes a biologically meaningful stimulus. The emotional significance of verbal information is evaluated by the limbic system. When speech conveys meanings associated with danger, insult, threat, or loss, the amygdala becomes activated. The amygdala plays a central role in threat detection and regulates autonomic and endocrine responses through the hypothalamus. As a result, sympathetic nervous system activity increases, leading to enhanced secretion of adrenaline and noradrenaline, while activation of the HPA axis increases cortisol release. These hormonal responses are accompanied by increased heart rate, elevated arterial pressure, and changes in vascular tone.

However, the organism's response to verbal stimuli is not limited to negative emotions. Positive communication that evokes reassurance, trust, and support may promote parasympathetic activation. In such conditions, heart rhythm becomes more stable, breathing normalizes, and stress hormone secretion decreases. Therefore, speech may function in two directions: as a factor that intensifies stress or as a mechanism that reduces it [8; 27].

The neuropsycholinguistic approach demonstrates that the biologically significant element of speech is not its phonetic form but its semantic meaning. The same sequence of sounds may produce completely different physiological responses depending on the context. For example, the statement "Surgery is necessary" may increase anxiety when presented without explanation, whereas "Surgery is necessary because it is the most effective treatment option and has a high probability of success" may maintain the patient's confidence and emotional stability. This example clearly illustrates the influence of semantic and pragmatic factors on autonomic responses.

The biological effect of verbal communication is also determined by the relationship between communication participants. The same statement may produce different emotional reactions depending on whether it is expressed by a stranger, a close person, or a physician. Trust, communicative context, and previous experiences modulate semantic interpretation. Therefore, neuropsycholinguistics views verbal stimuli not as static linguistic units, but as dynamic systems involving the individual, the situation, and biological responses.

This approach has significant theoretical and clinical importance. In particular, when informing cardiovascular patients about diagnoses, explaining treatment strategies, or selecting rehabilitation communication methods, the semantic and emotional characteristics of speech should be considered. Every word spoken by a physician may generate a specific neurophysiological response in the patient's organism. Therefore, therapeutic communication should be regarded as an essential component of modern medicine.

Overall, the concept of the biological impact of words contributes to the formation of a new scientific perspective at the intersection of neuropsycholinguistics and neurocardiology. This approach systematically explains the influence of verbal stimuli through the brain–heart axis and provides deeper insight into the role of psychoemotional factors in the pathogenesis of cardiovascular diseases [12; 14].

Neuropsycholinguistic Classification of Psychoemotional Verbal Influence (Author's Concept). This study explains the potential influence of psychoemotional verbal stimuli on the development of myocardial infarction through a neurocardiological model. The proposed model represents the processes from the processing of verbal information in the human brain to physiological changes in the cardiovascular system as a unified functional chain.

The first stage of the model begins with the perception of verbal stimuli. The content, intonation, emotional coloring, and communicative context of speech are perceived by the listener. Verbal

expressions associated with threats, insults, accusations, intimidation, or severe criticism may function as negative psychoemotional stimuli. In contrast, supportive, reassuring, and empathetic speech serves as a positive verbal stimulus.

At the second stage, verbal information undergoes cognitive and semantic processing. The meaning of heard or read speech is identified, its pragmatic purpose is evaluated, and it is compared with the individual's previous experiences and memories. At this stage, the organism classifies verbal stimuli as either safe or threatening signals. Semantic perception plays a decisive role in forming subsequent emotional responses.

The third stage is characterized by emotional evaluation. If verbal information is perceived negatively, the limbic system, particularly the amygdala, becomes activated. The amygdala is one of the major neural structures responsible for generating emotional responses such as fear, anger, anxiety, and hopelessness. This process enhances neural signals transmitted to the hypothalamus.

At the fourth stage, autonomic and neuroendocrine responses develop. Through the hypothalamus, the sympathetic nervous system and the hypothalamic–pituitary–adrenal (HPA) axis are activated. Consequently, the secretion of adrenaline, noradrenaline, and cortisol increases. Although this hormonal response represents a short-term adaptive mechanism, its frequent repetition or prolonged activation may impose a negative burden on the cardiovascular system.

At the fifth stage, physiological changes occur in the cardiovascular system. Heart rate increases, arterial pressure rises, peripheral vessels constrict, and myocardial oxygen demand increases. In addition, endothelial dysfunction, increased platelet activity, and reduced coronary blood flow may occur. These changes may enhance the risk of myocardial ischemia, particularly in individuals with existing cardiovascular disorders.

The final stage of the model reflects clinical outcomes. When these neurophysiological and hemodynamic changes occur together with atherosclerotic processes in coronary arteries, the probability of acute coronary syndrome or myocardial infarction increases. Chronic verbal stress may also indirectly contribute to hypertension, heart failure, and accelerated atherosclerosis.

The proposed neurocardiological model demonstrates that verbal influence is not a direct etiological cause of myocardial infarction but rather a psychoemotional triggering factor interacting with existing biological risk factors. This model integrates neuropsycholinguistics, neurocardiology, and communicative medicine within a unified theoretical framework and provides a new perspective for evaluating the clinical significance of doctor–patient communication. It also scientifically supports the wider application of therapeutic communication principles in the prevention and rehabilitation of cardiovascular diseases.

The Biological Impact of Words: A Neuropsycholinguistic Approach. Human speech is not merely a means of information exchange; it is also a complex biological stimulus capable of influencing the activity of the central nervous system. From a neuropsycholinguistic perspective, every verbal message activates several functional brain systems simultaneously. Initially, speech signals are acoustically processed in the auditory cortex, after which their lexical and semantic content is analyzed within language-related brain regions. Subsequently, this information is integrated by the prefrontal cortex with situational factors, personal experience, and social context. Thus, an ordinary word becomes a biologically meaningful signal.

The emotional value of verbal information is evaluated by the limbic system. When speech conveys meanings associated with danger, insult, threat, or loss, the amygdala becomes activated. The amygdala plays a central role in threat detection and regulates autonomic and endocrine responses through the hypothalamus. As a result, sympathetic nervous system activity increases, leading to enhanced secretion of adrenaline and noradrenaline, while activation of the hypothalamic–pituitary–adrenal axis increases cortisol release. These hormonal responses are accompanied by increased heart rate, elevated arterial pressure, and changes in vascular tone.

However, the body's response to verbal stimuli is not limited to negative emotions. Positive communication that evokes calmness, trust, and support contributes to parasympathetic nervous system activation. In such conditions, heart rhythm becomes more stable, breathing normalizes, and stress hormone secretion decreases. Therefore, speech may function in two directions: as a factor that intensifies stress or as a mechanism that reduces it.

The neuropsycholinguistic approach demonstrates that the biologically significant factor is not the phonetic form of words but their semantic content. The same sequence of sounds may produce completely different physiological responses depending on the situation. For example, the statement "Surgery is necessary" may increase anxiety when delivered without explanation, whereas "Surgery is necessary because it is the most effective treatment option and has a high probability of success" may help maintain the patient's confidence. This example clearly demonstrates the influence of semantic and pragmatic factors on autonomic responses.

The biological effect of verbal communication is also determined by the relationship between communication participants. The same statement may produce different emotional responses depending on whether it is expressed by a stranger, a close person, or a physician. Trust, communicative context, and previous experiences modulate semantic interpretation. Therefore, neuropsycholinguistics interprets verbal stimuli not as static linguistic units but as dynamic systems involving the individual, the situation, and biological responses.

This approach has important theoretical and clinical significance. Particularly in patients with cardiovascular diseases, the semantic and emotional characteristics of speech should be considered when communicating diagnoses, explaining treatment plans, and selecting rehabilitation strategies. Every word spoken by a physician may generate a certain neurophysiological response in the patient's body. Therefore, therapeutic communication should be regarded as an integral component of modern medicine.

Overall, the concept of the biological impact of words contributes to the development of a new scientific direction at the intersection of neuropsycholinguistics and neurocardiology. This approach systematically explains how verbal stimuli influence the organism through the brain–heart axis and provides a deeper understanding of the role of psychoemotional factors in the pathogenesis of cardiovascular diseases..

Verbal factor	Brain response	Autonomic response	Effect on the heart
Threat	Amygdala activation	Increased adrenaline secretion ↑	Tachycardia (increased heart rate)
Insult	Limbic system activation	Increased cortisol secretion ↑	Elevated blood pressure ↑
Intimidation	Hypothalamus activation	Increased sympathetic activity	Coronary artery spasm
Support / encouragement	Prefrontal cortex activation	Increased parasympathetic activity	Stabilization of heart rhythm

Functional Classification of Psychoemotional Verbal Influence. In this study, psychoemotional verbal influence was classified into five functional types according to the emotional orientation of communicative units, their cognitive processing, and the neurophysiological response mechanisms they induce in the organism. This classification is based not only on the semantic content of verbal units but also on their effects on brain activity, autonomic responses, and psychophysiological processes.

1. Threatening Verbal Influence. This type includes verbal expressions associated with danger, punishment, loss, or negative consequences. Such verbal signals are perceived by the brain as potential threats and activate the amygdala and hypothalamus, leading to sympathetic nervous system responses. As a result, increased heart rate, elevated arterial pressure, and higher levels of stress hormones may occur.

2. Evaluative Verbal Influence. This category includes communicative units such as praise, criticism, accusation, recognition, or rejection that affect self-esteem, social status, and psychological state. The physiological effects of such verbal influence depend on an individual's level of self-evaluation, emotional stability, and previous experiences.

3. Prognostic Verbal Influence. This group includes speech forms expressing future conditions, diagnoses, prognoses, or possible outcomes. Particularly in medical communication, such verbal expressions may determine the patient's level of anxiety, trust, and attitude toward the treatment process. Prognostic speech may either increase uncertainty and psychological tension or, conversely, contribute to emotional stability.

4. Supportive Verbal Influence. This type consists of communicative units expressing empathy, encouragement, reassurance, and psychological support. Such speech reduces anxiety, promotes parasympathetic nervous system activity, and contributes to the restoration of autonomic balance. The main strategies of therapeutic communication belong to this category.

5. Transformative Verbal Influence. This type represents verbal communication aimed at long-term changes in an individual's cognitive beliefs, emotional attitudes, and behavioral strategies. Communication strategies used in psychotherapy, motivational interviewing, rehabilitation, and psychoeducation belong to this category.

The scientific novelty of the proposed classification lies in the fact that verbal units are categorized not only according to their linguistic characteristics but also according to their neurocognitive processing, emotional evaluation, and mechanisms of physiological response formation. This approach provides a new conceptual framework for assessing verbal influence at the intersection of neuropsycholinguistics, psychocardiology, and communicative medicine.

Practical Significance of the Study. The results of this study provide a theoretical basis for evaluating the possible role of psychoemotional verbal influence in the development of myocardial infarction from a neuropsycholinguistic perspective. The proposed neurocardiological model and functional classification of verbal influence may be applied to improve doctor-patient communication, develop therapeutic communication strategies, and enhance the communicative competence of healthcare professionals.

The findings contribute to the comprehensive assessment of psychoemotional risk factors in cardiology, neurology, clinical psychology, psychocardiology, and communicative medicine. They may also serve as theoretical and methodological resources for teaching neuropsycholinguistics, medical communication, and professional communication in higher education programs in philology, medicine, psychology, and speech therapy.

This conceptual approach may serve as a methodological foundation for future experimental and clinical studies investigating the effects of verbal stress on the cardiovascular system, as well as for developing diagnostic criteria and therapeutic communication standards.

Conclusion

The theoretical analysis conducted in this study demonstrates that psychoemotional factors may represent important triggering factors in the development of myocardial infarction. In particular, negative verbal influences are emotionally evaluated within the central nervous system and may activate autonomic and neuroendocrine responses through the brain–heart axis, resulting in physiological changes in the cardiovascular system. Therefore, verbal stress may be considered a psychoemotional factor that interacts with existing biological risk factors and contributes to the development of coronary pathology.

During the study, a neurocardiological model of psychoemotional verbal influence was developed, and a functional neuropsycholinguistic classification of verbal influence was proposed. This conceptual framework systematically explains the relationship between the semantic and pragmatic characteristics of verbal stimuli, their emotional evaluation, and autonomic response mechanisms. The proposed model expands interdisciplinary integration between neuropsycholinguistics, psychocardiology, and communicative medicine.

The results provide a theoretical basis for improving verbal strategies in doctor–patient communication, developing therapeutic communication principles, and comprehensively assessing psychoemotional risk factors. At the same time, the proposed conceptual model and classification require further validation through experimental and clinical studies involving heart rate variability, cortisol levels, functional neuroimaging, and other biomarkers.

Thus, this study systematically highlights the potential role of psychoemotional verbal influence in the development of myocardial infarction from a neuropsycholinguistic perspective and proposes a new theoretical approach in this field. The findings have significant theoretical and practical value for advancing interdisciplinary research, improving the methodology of communicative medicine, and incorporating psychoemotional factors into cardiovascular disease prevention strategies.

References

1. Bobokalonov R.R. Neyropsixolingvistika. Darslik, Globe Edit, Chisinau MD-2012, Republik of Moldova, Europe. Publisher : Buxoro-2026. 4-236 b.
2. Broca, P. (1861). *Remarques sur le siège de la faculté du langage articulé, suivies d'une observation d'aphémie (perte de la parole)*. Bulletin de la Société Anatomique de Paris, 6, 330–357.
3. Wernicke, C. (1874). *Der aphasische Symptomencomplex: Eine psychologische Studie auf anatomischer Basis*. Breslau: Max Cohn & Weigert.
4. Luria, A. R. (1976). *Basic Problems of Neurolinguistics*. The Hague: Mouton.
5. Luria, A. R. (1980). *Higher Cortical Functions in Man*. 2nd ed. New York: Basic Books.
6. LeDoux, J. E. (1996). *The Emotional Brain: The Mysterious Underpinnings of Emotional Life*. New York: Simon & Schuster.
7. LeDoux, J. E. (2015). *Anxious: Using the Brain to Understand and Treat Fear and Anxiety*. New York: Viking.
8. Sapolsky, R. M. (2004). *Why Zebras Don't Get Ulcers*. 3rd ed. New York: Holt Paperbacks.
9. McEwen, B. S. (2007). Physiology and neurobiology of stress and adaptation: Central role of the brain. *Physiological Reviews*, 87(3), 873–904.
10. Cannon, W. B. (1932). *The Wisdom of the Body*. New York: W. W. Norton & Company.
11. Selye, H. (1956). *The Stress of Life*. New York: McGraw-Hill.
12. Porges, S. W. (2011). *The Polyvagal Theory: Neurophysiological Foundations of Emotions, Attachment, Communication, and Self-Regulation*. New York: W. W. Norton & Company.
13. Thayer, J. F., & Lane, R. D. (2009). Claude Bernard and the heart–brain connection: Further elaboration of a model of neurovisceral integration. *Neuroscience & Biobehavioral Reviews*, 33(2), 81–88.
14. McCraty, R., Atkinson, M., Dana Tomasino, & Bradley, R. T. (2009). The coherent heart: Heart–brain interactions, psychophysiological coherence, and the emergence of system-wide order. *Integral Review*, 5(2), 10–115.

15. Rozanski, A., Blumenthal, J. A., & Kaplan, J. (1999). Impact of psychological factors on the pathogenesis of cardiovascular disease and implications for therapy. *Circulation*, 99(16), 2192–2217.
16. Steptoe, A., & Kivimäki, M. (2012). Stress and cardiovascular disease. *Nature Reviews Cardiology*, 9, 360–370.
17. Kivimäki, M., & Steptoe, A. (2018). Effects of stress on the development and progression of cardiovascular disease. *Nature Reviews Cardiology*, 15, 215–229.
18. Yusuf, S., Hawken, S., Ôunpuu, S., et al. (2004). Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (INTERHEART study). *The Lancet*, 364(9438), 937–952.
19. Smith, T. W., & Ruiz, J. M. (2002). Psychosocial influences on the development and course of coronary heart disease: Current status and implications for research and practice. *Journal of Consulting and Clinical Psychology*, 70(3), 548–568.
20. Frijda, N. H. (1986). *The Emotions*. Cambridge: Cambridge University Press.
21. Vygotsky, L. S. (1986). *Thought and Language*. Cambridge, MA: MIT Press.
22. Chomsky, N. (1965). *Aspects of the Theory of Syntax*. Cambridge, MA: MIT Press.
23. Damasio, A. R. (1994). *Descartes' Error: Emotion, Reason, and the Human Brain*. New York: G. P. Putnam's Sons.
24. Damasio, A. R. (1999). *The Feeling of What Happens: Body and Emotion in the Making of Consciousness*. New York: Harcourt.
25. Pennebaker, J. W. (1997). *Opening Up: The Healing Power of Confiding in Others*. New York: Guilford Press.
26. Street, R. L., Makoul, G., Arora, N. K., & Epstein, R. M. (2009). How does communication heal? Pathways linking clinician–patient communication to health outcomes. *Patient Education and Counseling*, 74(3), 295–301.
27. Epstein, R. M., & Street, R. L. (2007). *Patient-Centered Communication in Cancer Care: Promoting Healing and Reducing Suffering*. Bethesda: National Cancer Institute.
28. Laskowski, E. R., & Dalen, J. E. (2004). Psychological stress and cardiovascular disease. *Mayo Clinic Proceedings*, 79(11), 1423–1430.
29. Critchley, H. D. (2005). Neural mechanisms of autonomic, affective, and cognitive integration. *Journal of Comparative Neurology*, 493(1), 154–166.

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NEUROPSYCHOLINGUISTIC MECHANISMS OF SPEECH COMPREHENSION AND PRODUCTION: ANALYSIS OF NEUROANATOMICAL BASES AND ROUTINE ELECTROENCEPHALOGRAPHY (EEG) INDICATORS



Akhmedova Dilafruz Bahodirovna, Doctor of Medical Sciences

E-mail: dilafroz_axmedova@bsmi.uz

orcid: <https://orcid.org/0009-0000-0960-137X>

Abstract. *Speech comprehension and speaking are among the most complex and multi-stage processes of human cognitive activity. These processes are carried out with the participation of the frontal, temporal, and parietal brain structures and include the stages of acoustic signal perception, phonological analysis, lexical recognition, and semantic integration. This article analyzes the neuropsycholinguistic mechanisms of speech processing, its neuroanatomical foundations, and cognitive stages. In addition, the role of working memory in speech comprehension and the neurophysiological characteristics of language function impairments are discussed. Based on routine electroencephalography data, changes in the brain's bioelectrical activity within the alpha, theta, and beta rhythms are interpreted in relation to language processing processes. The findings suggest that the*

activity of fronto-temporal networks, alpha rhythm desynchronization, and increased theta activity may be associated with cognitive processes underlying speech comprehension and speaking. The obtained results are important for understanding the neurobiological foundations of language functions in the fields of neuropsycholinguistics and clinical neurology.

Keywords: neuropsycholinguistics, speech comprehension, speaking, electroencephalography, brain rhythms, alpha rhythm, theta rhythm, beta rhythm, working memory, language functions.

НЕЙРОПСИХОЛИНГВИСТИЧЕСКИЕ МЕХАНИЗМЫ ПОНИМАНИЯ И ПОРОЖДЕНИЯ РЕЧИ: АНАЛИЗ НЕЙРОАНАТОМИЧЕСКИХ ОСНОВ И РУТИННЫХ ПОКАЗАТЕЛЕЙ ЭЛЕКТРОЭНЦЕФАЛОГРАФИИ (ЭЭГ)

Аннотация. Понимание речи и говорение относятся к числу наиболее сложных и многоэтапных процессов когнитивной деятельности человека. Эти процессы реализуются при участии лобных, височных и теменных структур мозга и включают стадии восприятия акустического сигнала, фонологического анализа, лексического распознавания и семантической интеграции. В статье анализируются нейropsixolingvisticheskie механизмы речевой обработки, её нейроанатомические основы и когнитивные этапы. Кроме того, рассматривается роль рабочей памяти в понимании речи и нейрофизиологические характеристики нарушений языковых функций. На основе данных рутинной электроэнцефалографии интерпретируются изменения биоэлектрической активности мозга в пределах альфа-, тета- и бета-ритмов в связи с процессами речевой обработки. Полученные результаты позволяют предположить, что активность фронто-височных сетей, десинхронизация альфа-ритма и усиление тета-активности могут быть связаны с когнитивными процессами, лежащими в основе понимания речи и говорения. Данные выводы имеют важное значение для понимания нейробиологических основ языковых функций в области нейropsixolingvistiki и клинической неврологии.

Ключевые слова: нейropsixolingvistika, понимание речи, говорение, электроэнцефалография, ритмы мозга, альфа-ритм, тета-ритм, бета-ритм, рабочая память, языковые функции.

NUTQNI TUSHUNISH VA HOSIL QILISHNING NEYROPSIXOLINGVISTIK MEXANIZMLARI: NEYROANATOMIK ASOSLAR VA RUMIN ELEKTROENSEFALOGRAFIYA (EEG) KO'RSATKICHLARI TAHLILI

Annotatsiya. Nutqni tushunish va nutq hosil qilish insonning kognitiv faoliyatidagi eng murakkab va ko'p bosqichli jarayonlardan hisoblanadi. Bu jarayonlar miya frontal, temporal va parietal tuzilmalarining ishtirokida amalga oshadi hamda akustik signalni qabul qilish, fonologik tahlil, leksik tanish va semantik integratsiya bosqichlarini o'z ichiga oladi. Maqolada nutqni qayta ishlashning neyropsixolingvistik mexanizmlari, uning neyroanatomik asoslari va kognitiv bosqichlari tahlil qilinadi. Shuningdek, nutqni tushunishda ishchi xotiraning roli va til funksiyalarining buzilishiga oid neyrofiziologik xususiyatlar ko'rib chiqiladi. Rutin elektroensefalografiya ma'lumotlari asosida miya bioelektrik faolligining alfa, teta va beta ritmlaridagi o'zgarishlar nutqni qayta ishlash jarayonlari bilan bog'liq holda sharhlanadi. Olingan natijalar frontal-temporal tarmoqlar faolligi, alfa ritmning desinxronizatsiyasi va teta faolligining kuchayishi nutqni tushunish va nutq hosil qilishning kognitiv jarayonlari bilan bog'liq bo'lishi mumkinligini ko'rsatadi. Ushbu xulosalar neyropsixolingvistika va klinik nevrologiya sohalarida til funksiyalarining neyrobiologik asoslarini tushunishda muhim ahamiyatga ega.

Kalit so'zlar: neyropsixolingvistika, nutqni tushunish, nutq hosil qilish, elektroensefalografiya, miya ritmlari, alfa ritm, teta ritm, beta ritm, ishchi xotira, til funksiyalari.

I. Introduction

Human speech is considered one of the most complex and multi-stage forms of cognitive activity. The processes of speech comprehension and speech are carried out in the presence of various neurocognitive mechanisms that occur in the brain. These processes include the stages of acoustic signal reception, phonological analysis, lexical recognition, and semantic integration. One of the main tasks of the science of neuropsycholinguistics is to study the neural foundations of language activity and determine the functional characteristics of the brain networks involved in speech processing processes.

Modern neuroscience research suggests that language functions occur in the presence of several interconnected brain structures. In particular, the frontal, temporal and parietal areas play an important role in speech comprehension and speech processes. Temporal structures are involved in the reception and semantic analysis of speech signals, while frontal networks provide speech planning and cognitive control mechanisms. Parietal structures are associated with semantic integration and working memory processes. Neurophysiological methods are important in the study of speech processing processes. Among them, electroencephalography (EEG) is widely used as a noninvasive method that allows you to assess the bioelectric activity of the brain. Analysis of the dynamics of brain rhythms through EEG allows us to assess the functional state of neural networks involved in the processes of speech comprehension and production. Brain rhythms in the alpha, theta, and beta ranges have been shown to be associated with cognitive activity, working memory, and language signal processing. It is important to note that studying language functions is not only of fundamental neuroscientific importance, but also of great importance for clinical neurology. Studying the neurophysiological basis of speech comprehension and production processes helps us understand the mechanisms of aphasia, neurodegenerative diseases, and other cognitive disorders. Therefore, the integration of neurolinguistics and neurophysiology is opening up new scientific directions in the study of language functions.

The purpose of this article is to analyze the neuropsycholinguistic mechanisms of speech comprehension and speech processes, highlight their neuroanatomic bases, and consider the features of brain bioelectric activity associated with language processing based on routine electroencephalography data.

II. Theoretical background and literature review

Neuropsycholinguistics investigates the neural mechanisms underlying language comprehension and production. Modern research in cognitive neuroscience has demonstrated that speech processing is supported by a distributed cortical network involving frontal, temporal, and parietal brain regions (Friederici, 2011; Hickok & Poeppel, 2007). According to the dual-stream model proposed by Hickok and Poeppel, language processing involves two complementary pathways: the dorsal stream, which is primarily associated with speech production and sensorimotor integration, and the ventral stream, which supports speech comprehension and semantic processing. Friederici (2011) also emphasized the hierarchical organization of language processing in the brain, highlighting the interaction between temporal and frontal areas during syntactic and semantic integration. Furthermore, neurophysiological studies using electroencephalography have demonstrated that oscillatory brain activity plays an important role in coordinating linguistic processing and working memory mechanisms during speech perception and production (Bastiaansen & Hagoort, 2006; Giraud & Poeppel, 2012).

Neuroanatomical Basis of Speech Processing: The processes of understanding and producing human speech involve multiple functional networks of the brain. In neurolinguistics, language functions are considered to be primarily associated with the frontal, temporal, and parietal regions of the left hemisphere. These structures, interconnected by neural connections, provide the processes of receiving, processing, and integrating language signals with meaning. The initial stage of receiving speech signals is associated with the auditory analyzer. Acoustic information is first processed in the superior temporal gyrus structure located at the top of the temporal lobe. This area is part of the auditory cortex and plays an important role in acoustically analyzing speech sounds. Here, phonetic features are extracted and the speech signal is transmitted to subsequent cognitive stages. One of the structures that plays a central role in the process of speech comprehension is Wernicke's area, located in the left temporal lobe. This region is involved in semantic processing of speech and understanding the meaning of words. Wernicke's area associates heard or read language material with semantic networks and provides understanding of the content of speech. Damage to this structure results in a condition called sensor aphasia, in which the patient hears speech but cannot fully understand its meaning. The Broca network is important in the production of speech and the formation of grammatical structures. This region is located in the lower part of the left frontal lobe and controls the processes of speech motor planning and articulation. Broca's area is involved in the syntactic organization of speech and the grammatically correct placement of words.

When this structure is damaged, motor aphasia can develop, in which the patient can understand speech but cannot speak fluently. Parietal structures also play an important role in language comprehension. In particular, angular gyrus is associated with semantic integration and lexical data processing processes. This region is involved in the integration of visual and auditory information and is also closely related to the processes of reading and writing. The angular gyrus is an important functional center in the processes of activating semantic networks and linking meaning to context. Cognitive control and working memory mechanisms are also important in the process of speech comprehension. The dorsolateral prefrontal cortex is involved in these processes. This frontal structure is involved in attention control, temporary storage of information, and coordination of cognitive operations. Working memory mechanisms are activated when understanding particularly long and complex speech material.

Modern neuroscientific research shows that language functions are not limited to just a few isolated centers. On the contrary, the processes of speech comprehension and production are carried out through a wide network of neural systems in the brain. Functional connections between frontal, temporal, and parietal structures allow for complex processing of language signals. Therefore, in neurolinguistics, language functions are considered as integrative processes associated with the activity of the fronto-temporo-parietal network. Thus, speech processing occurs with the participation of several anatomical and functional structures of the brain. The superior temporal gyrus is involved in receiving acoustic signals, Wernicke's area in semantic analysis, Broca's network in speech motor planning, the angular gyrus in semantic integration, and the dorsolateral prefrontal cortex in cognitive control and working memory processes. The interaction of these structures forms the neurobiological basis of human speech.

Cognitive stages of speech comprehension: speech comprehension is a multi-stage cognitive process in the human brain that involves a series of neurocognitive operations, starting with the perception of acoustic signals and integrating them with meaning. From a neuropsycholinguistic perspective, speech comprehension occurs in several functional stages: acoustic processing, phonological analysis, lexical recognition, and semantic integration.

The first stage of the speech understanding process is acoustic processing. At this stage, the heard speech signal is received by the auditory analyzer and its physical properties are analyzed in terms of frequency, intensity, and time parameters. Acoustic signals are primarily processed in the auditory cortex, located in the upper part of the temporal lobe. At this stage, the speech signal is separated from other auditory signals and prepared for further cognitive processing processes.

The second stage is related to phonological analysis. At this stage, the acoustic signals heard are divided into speech sounds, that is, phonemes. The brain recognizes the sounds in the speech signal and compares them with the phonological units available in the language system. During the phonological analysis process, the sequence of sounds in a word is identified and their place in the language system is determined. This stage is important for speech comprehension, and disruptions in it can lead to phonological processing difficulties.

The next stage is called lexical recognition. At this stage, the heard phonological form is compared with the lexical memory stored in the brain, and the word is recognized. That is, the sequence of sounds heard by a person is compared with the database of words stored in the brain, and the corresponding lexical unit is activated. In the process of lexical recognition, the semantic features of the word, along with its phonological form, are also activated. This stage is considered one of the central elements of language comprehension.

The highest stage of the speech comprehension process is semantic integration. At this stage, recognized words are linked to the overall context and the overall meaning of the speech is formed. During semantic integration, a person understands the meaning of individual words by connecting them to each other and understanding the meaning of a sentence or text. Working memory, semantic networks, and cognitive control mechanisms are actively involved in this process. The process of semantic integration is especially important in understanding complex syntactic constructions or new information.

It is important to note that the stages of speech comprehension do not occur in strict sequence, but rather in an interconnected manner. Acoustic, phonological, and semantic processes often occur in parallel and are integrated through different functional networks in the brain. Therefore, speech comprehension is considered a complex and multi-level neurocognitive process in the human brain. Thus, speech comprehension begins with the reception of acoustic signals and proceeds through stages of phonological analysis, lexical recognition, and semantic integration. These stages are carried out with the participation of various brain structures and cognitive mechanisms, ensuring a person's ability to understand language.

Neurocognitive foundations of speech and working memory: the processes of speech comprehension and speech production are not limited to the activities of language centers. Working memory is one of the important cognitive mechanisms in these processes. Working memory allows you to store data for a short time and actively use it in the process of cognitive processing. In neurolinguistics, working memory plays a key role in the process of understanding speech, receiving language signals, processing them, and integrating them with meaning. The concept of working memory is based on a model developed by Baddeley and Hitch in cognitive psychology. According to this model, working memory is composed of several functional components, one of which is the phonological loop. The phonological loop is involved in the temporary storage and processing of speech and language material. During the process of hearing or reading speech, language signals first enter the phonological loop and are stored for a short time. This mechanism allows a person to remember the words in a sentence and connect them in meaning. In the process of understanding speech, working memory is especially important in the processing of long and complex sentences. For example, when a person hears a sentence consisting of several words, the first part of it will have to be stored in memory, otherwise it will be difficult to understand the general meaning of the sentence. Therefore, the phonological loop plays an important role in temporarily storing speech signals and transmitting them to subsequent cognitive stages.

Neurophysiological studies show that working memory processes are primarily associated with the activity of the prefrontal cortex. In particular, the dorsolateral prefrontal cortex plays a key role in managing working memory, temporarily storing information, and coordinating cognitive operations. This area also provides mechanisms for attention control and semantic information integration in the processing of language signals.

During the process of speech comprehension, working memory is also involved in processing semantic information. This situation is explained by the concept of semantic working memory. Semantic working memory allows a person to relate the meaning of heard or read words to context and fully understand the content of speech. Parietal and temporal structures are also involved in this process.

Electroencephalographic studies have shown that working memory activity is often associated with theta-band neuronal oscillations. The increase in theta rhythm during speech comprehension indicates that the processes of retaining language material in memory and integrating meaning are activated. For this reason, theta-band activity is considered one of the neurophysiological indicators of working memory. Thus, working memory is an important cognitive mechanism in the process of speech comprehension. While the phonological loop provides temporary storage of language signals, the prefrontal cortex coordinates cognitive control and data processing processes. Semantic working memory, on the other hand, is involved in linking the content of speech to context and fully understanding meaning. Together, these mechanisms enable a person's ability to effectively perceive and process language.

Neurophysiological disorders of language functions: The processes of speech comprehension and speech production are carried out with the participation of frontal, temporal, and parietal structures of the brain. Functional or organic damage to these structures can lead to varying degrees of impairment in language functions. From a neuropsycholinguistic perspective, language function disorders are associated with changes in the activity of neural networks in the brain, which affect cognitive, lexical, and semantic processes.

One of the most common neurophysiological disorders of language functions is aphasia. Aphasia is a speech disorder that develops as a result of damage to the language centers of the brain, which is usually observed after a stroke, traumatic brain injury, or neurodegenerative diseases. There are different forms of aphasia. For example, in Broca's aphasia, speech production is difficult, the patient speaks slowly and makes grammatical errors, but speech comprehension is relatively preserved. In Wernicke's aphasia, the patient can speak fluently, but the content of the speech is meaningless or inappropriate, and the ability to understand speech is significantly reduced.

Language function impairment is also observed in neurodegenerative diseases. For example, in Alzheimer's disease, semantic memory and lexical recognition processes are gradually impaired. Patients have difficulty finding words, naming functions decrease, and speech content decreases. This condition is associated with dysfunction of semantic networks and temporal lobe structures. Significant changes in language function can also be observed in other neurodegenerative conditions, including frontotemporal dementia.

Disorders in the process of speech processing can also occur in childhood. For example, dyslexia are a condition characterized by a violation of the processes of reading and writing, which is associated with insufficient development of phonological processing mechanisms. In dyslexia, children have difficulty recognizing words, distinguishing sounds, and processing language material. This condition is explained by functional changes in the activity of the temporal and parietal structures of the brain.

Electroencephalography studies show that in cases of impaired language function, certain changes are observed in the bioelectrical activity of the brain. For example, patients with aphasia have been found to have decreased alpha rhythm in the fronto-temporal regions, increased theta-band activity, and changes in functional asymmetry. In neurodegenerative diseases, a general slowing of brain rhythms and a decrease in the activity of cognitive networks may be observed. These changes reflect the functional state of neuronal networks involved in language processing processes.

Thus, neurophysiological disorders of language functions are associated with damage to the brain's language-related networks, which affect the processes of speech comprehension, lexical recognition, and speech production. Conditions such as aphasia, neurodegenerative diseases, and learning disabilities are important clinical models for studying the neural mechanisms of language functions. These studies will contribute to a deeper understanding of the neurobiological basis of language function and to the improvement of diagnostic and rehabilitation methods in clinical practice.

The processes of speech comprehension and speech production involve several cognitive networks of the brain. In these processes, various rhythms of bioelectrical activity of the brain - alpha, beta, and theta - play an important functional role. Routine EEG studies show that these rhythms are directly related to language processing, semantic integration, working memory, and motor speech mechanisms.

The alpha rhythm (8-13 Hz) is considered primarily associated with the functional state of the brain and attention processes. In the Normal state, the alpha rhythm is dominant in a more relaxed state, especially when the eyes are closed. However, during cognitive activity, including speech comprehension or speech production, desynchronization of the alpha rhythm is observed. This indicates that the sensory and cognitive networks of the brain are activated. The decrease in alpha amplitude, especially in the fronto-temporal regions, is thought to be associated with the processes of speech signal processing and semantic information analysis.

Theta rhythm (4–7 Hz) plays an important role in language and memory processes. Theta activity is primarily associated with the hippocampus and frontal networks and is involved in working memory and meaning integration processes. The increase in theta rhythm during speech comprehension is explained by the processing of heard or read language material and the activation of semantic connections. Activity in the theta range is also considered a neurophysiological indicator of the processes of linking the meaning of words with context and perceiving the content of speech.

Beta rhythm (13–30 Hz) is associated with cognitive control, motor planning, and language structure processing. During speech production, there is an increase in beta activity in the frontal areas, which is associated with the planning of articulatory movements and the control of speech motor programs. Also, beta-band activity during speech comprehension may be associated with the analysis of syntactic structures and the processing of language rules. Thus, brain rhythms reflect different stages of language processing. Alpha rhythm desynchronization indicates increased cognitive activity and sensory information processing, while theta rhythm represents semantic integration and working memory processes. The Beta rhythm, on the other hand, is considered to be related to speech planning, syntactic analysis, and motor speech mechanisms. These rhythms provide language activity through the fronto-temporal networks of the brain and are seen as important functional markers in neuropsycholinguistic research.

Routine Neurophysiological changes associated with language functions on EEG: Electroencephalography is a non-invasive neurophysiological method that allows the assessment of brain bioelectrical activity. In neuropsycholinguistic research, EEG is important in studying the functional state of brain networks involved in speech comprehension and speech production processes. Although specific experimental paradigms (such as evoked potentials) allow for precise assessment of language processing stages, routine EEG can also reveal functional changes associated with language functions by analyzing the dynamics of brain rhythms. One important feature observed in routine EEG during speech comprehension is fronto-temporal asymmetry. Since language functions are mainly localized in the left hemisphere, in most cases, an asymmetric distribution of bioelectric activity is observed in the frontal and temporal regions. This is especially evident when processing language material. The relatively high activity of the left temporal lobes is thought to be associated with the processes of receiving speech signals and semantic analysis. Another important feature associated with speech processing in the EEG is the desynchronization of the alpha rhythm. The alpha band is usually dominant in the resting state of the brain, but its amplitude decreases during cognitive load or sensory information processing. Decreased alpha activity during speech comprehension suggests that the frontal and temporal branches are activated. This condition means that cognitive attention is directed to the speech signal and is actively involved in the process of processing language information of the brain. One of the changes in EEG associated with language activity is an increase in theta-band activity. The theta rhythm is associated with working memory and semantic processing processes, and is involved in the processes of temporary storage of information and integration of meaning during speech comprehension. Increased theta activity during speech listening or text comprehension indicates that cognitive processing of language material is activated. The concept of functional connectivity is also important in routine EEG. The processes of speech comprehension and speech production are based on the interaction of several brain networks. Functional connections between frontal, temporal, and parietal structures provide mechanisms for processing language signals and cognitive control. In EEG, this state can be manifested by synchronization of different rhythms and activation of inter-network connections. Thus, routine EEG data does not directly measure speech processing processes, but allows for the assessment of the functional state associated with language functions by analyzing the dynamics of brain rhythms. Fronto-temporal asymmetry, alpha rhythm desynchronization, increased theta-band activity, and changes in functional connectivity can be considered neurophysiological indicators of language processing processes. This information is of significant scientific value for studying the neural basis of language functions in the fields of neuropsycholinguistics and clinical neurology.

III. Discussion

The analysis presented in this study highlights the complex and integrative nature of speech comprehension and production in the human brain. Language processing cannot be explained by the activity of isolated brain regions; rather, it emerges from the coordinated interaction of multiple neural networks, particularly within the frontal, temporal, and parietal cortices. These interconnected structures

support different stages of language processing, including acoustic perception, phonological analysis, lexical recognition, and semantic integration.

The findings discussed in this article are consistent with contemporary neuropsycholinguistic models, which emphasize the distributed organization of language systems in the brain. Previous studies have shown that speech comprehension involves dynamic interactions between temporal regions responsible for auditory processing and frontal regions associated with cognitive control and speech planning. The involvement of parietal structures further supports the integration of linguistic information with working memory and semantic processing mechanisms.

Neurophysiological evidence obtained through electroencephalography also provides important insights into the neural dynamics of language processing. Changes in oscillatory brain activity, particularly within the alpha, theta, and beta frequency bands, appear to reflect different aspects of linguistic processing. Alpha rhythm desynchronization is commonly associated with increased cognitive engagement, whereas enhanced theta activity is linked to working memory and semantic integration processes. Beta-band oscillations are often related to speech planning and motor aspects of language production.

Overall, these findings emphasize that speech comprehension and production represent complex neurocognitive processes supported by distributed neural networks and dynamic patterns of brain activity. Integrating neuroanatomical, cognitive, and neurophysiological perspectives allows for a deeper understanding of the mechanisms underlying language functions and contributes to the development of more effective approaches for studying language disorders.

IV. Conclusion

Speech comprehension and production are considered one of the most complex neurocognitive processes of human cognitive activity. These processes involve the frontal, temporal, and parietal structures of the brain and include the stages of acoustic signal reception, phonological analysis, lexical recognition, and semantic integration. From a neuropsycholinguistic perspective, language activity is formed as a result of the interaction between different functional networks of the brain. The data reviewed in the article suggest that working memory, semantic networks, and cognitive control mechanisms play important roles in speech processing. These processes are mediated by the fronto-temporal networks of the brain and serve to effectively process language signals. At the same time, the study of language function disorders is important for neuropsycholinguistics and clinical neurology, helping to understand the changes in speech mechanisms in aphasia and neurodegenerative diseases.

Routine electroencephalography data show that certain changes in brain bioelectrical activity are observed during the processes of speech comprehension and speaking. In particular, alpha rhythm desynchronization, increased theta band activity, and activation of fronto-temporal networks may be associated with language signal processing. This state reflects the neurophysiological basis of language activity in brain rhythms. Thus, the integration of neurolinguistics and neurophysiology allows for a deeper understanding of the neurobiological mechanisms of speech comprehension and production. Routine EEG analyses can serve as an additional source of information in assessing the functional state of language functions and provide an important scientific basis for future research focused on the study of language and cognitive processes.

REFERENCE:

1. Baddeley A. Working memory: looking back and looking forward // *Nature Reviews Neuroscience*. – 2003. – Vol. 4, № 10. – P. 829–839.
2. Bastiaansen M., Hagoort P. Oscillatory neuronal dynamics during language comprehension // *Progress in Brain Research*. – 2006. – Vol. 159. – P. 179–196.
3. Ding N., Melloni L., Zhang H., Tian X., Poeppel D. Cortical tracking of hierarchical linguistic structures in connected speech // *Nature Neuroscience*. – 2016. – Vol. 19, № 1. – P. 158–164.
4. Friederici A. D. The brain basis of language processing: from structure to function // *Physiological Reviews*. – 2011. – Vol. 91, № 4. – P. 1357–1392.

5. Giraud A.-L., Poeppel D. Cortical oscillations and speech processing: emerging computational principles and operations // Nature Neuroscience. – 2012. – Vol. 15, № 4. – P. 511–517.
6. Hagoort P. MUC (Memory, Unification, Control) and beyond // Frontiers in Psychology. – 2013. – Vol. 4. – Article 416.
7. Hickok G., Poeppel D. The cortical organization of speech processing // Nature Reviews Neuroscience. – 2007. – Vol. 8, № 5. – P. 393–402.
8. Kutas M., Federmeier K. D. Thirty years and counting: finding meaning in the N400 component of the event-related brain potential (ERP) // Annual Review of Psychology. – 2011. – Vol. 62. – P. 621–647.
9. Meyer L. The neural oscillations of speech processing and language comprehension: state of the art and emerging mechanisms // European Journal of Neuroscience. – 2018. – Vol. 48, № 7. – P. 2609–2621.
10. Pulvermüller F. Neural reuse of action perception circuits for language, concepts and communication // Progress in Neurobiology. – 2018. – Vol. 160. – P. 1–44.

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НЕЙРОПСИХОЛИНГВИСТИЧЕСКАЯ МОДЕЛЬ РЕЧЕВЫХ РАССТРОЙСТВ И РЕЧЕВОЙ ИЗОЛЯЦИИ



Бобокалонов Полатшох Рамазонович, доктор философии по филологических наук (PhD), докторант Азиатского государственного университета, Узбекистан
Bobokalonov Polatshoh Ramazonovich, Doctor of Philosophy in Philological Sciences (PhD), doctoral student at the Asian State University, Uzbekistan

Аннотация. Речь - это многомерный нейропсихолингвистический феномен, включающий взаимодействие нейронных структур, когнитивных процессов и лингвистических систем. Хотя речевые расстройства и речевая изоляция часто считаются схожими коммуникативными расстройствами, они значительно различаются по своим основным механизмам. В данном исследовании предлагается интегрированная нейропсихолингвистическая модель, которая различает структурные лингвистические дефициты и функциональные коммуникативные нарушения. Модель предполагает, что речевые расстройства возникают в первую очередь из-за нарушения лингвистического кодирования, в то время как речевая изоляция возникает из-за нарушения между концептуализацией и вербальной реализацией. Предложенная концептуальная модель способствует более точной диагностике и стратегиям вмешательства в клинической лингвистике и нейропсихологии.

В статье нейропсихолингвистическая модель речевых расстройств и речевой изоляции рассматривается как два взаимосвязанных, но различных феномена в человеческой коммуникативной деятельности. Исследование интегрирует неврологические, когнитивные и лингвистические измерения для разработки единой теоретической основы. Нарушение речи анализируется как структурное нарушение в языковой системе, в то время как речевая изоляция интерпретируется как функциональное разъединение между когнитивным намерением и вербальным выражением. Предложенная модель вносит вклад в современную нейропсихолингвистику, проясняя механизмы производства и нарушения речи, что имеет значение для диагностики, реабилитации и образовательной деятельности.

Ключевые слова: нарушение речи, изоляция речи, нейропсихолингвистика, когнитивный, модель, обработка языка, когнитивная коммуникация

NEUROPSYCHOLINGUISTIC MODEL OF SPEECH DISORDERS AND SPEECH ISOLATION

Abstract. Speech is a multidimensional neuropsycholinguistic phenomenon involving the interaction of neural structures, cognitive processes, and linguistic systems. Although speech disorder and speech isolation are often considered similar communicative impairments, they differ significantly in their underlying mechanisms. This study proposes an integrated neuropsycholinguistic model that distinguishes structural linguistic deficits from functional communicative disconnection. The model demonstrates that speech disorders arise mainly from impairment in linguistic encoding, whereas speech isolation results from disruption between conceptualization and verbal realization. The proposed framework contributes to more accurate diagnosis and intervention strategies in clinical linguistics and neuropsychology.

This article examines the neuropsycholinguistics model of speech disorders and speech isolation as two interrelated yet distinct phenomena within human communicative activity. The study integrates neurological, cognitive, and linguistic dimensions to develop a unified theoretical framework. Speech disorder is analyzed as a structural disruption in the language system, whereas speech isolation is interpreted as a functional disconnection between cognitive intention and verbal expression. The proposed model contributes to modern neuropsycholinguistics by clarifying the mechanisms of speech production and disruption, offering implications for diagnostics, rehabilitation, and educational intervention.

Keywords: speech disorder, speech isolation, neuropsycholinguistics, cognition, model, language processing, cognitive communication.

NUTQ BUZILISHLARI VA NUTQ IZOLYATSIYASINING NEYROPSIXOLINGVISTIK MODELI

Annotatsiya. Nutq neyropsixolingvistik ko'p qirrali hodisa bo'lib, unda nerv tuzilmalari, kognitiv jarayonlar va lingvistik tizimlarning o'zaro ta'siri namoyon bo'ladi. Nutq buzilishi va nutq izolyatsiyasi ko'pincha o'xshash kommunikativ nuqsonlar sifatida qaralsa-da, ularning asosiy mexanizmlari sezilarli darajada farqlanadi. Ushbu tadqiqot integrallashgan neyropsixolingvistik modelni taklif etadi, u lingvistik tizimdagi strukturaviy nuqsonlarni funksional kommunikativ uzilishlardan ajratib ko'rsatadi. Model shuni ko'rsatadiki, nutq buzilishlari asosan lingvistik kodlashdagi nuqsonlardan kelib chiqadi, nutq izolyatsiyasi esa konseptualizatsiya va og'zaki ifoda o'rtasidagi uzilish natijasida yuzaga keladi. Taklif etilgan yondashuv klinik lingvistika va neyropsixologiyada aniqroq tashxis va intervensiya strategiyalarini ishlab chiqishga hissa qo'shadi.

Mazkur maqolada nutq buzilishlari va nutq izolyatsiyasining neyropsixolingvistik modeli inson kommunikativ faoliyatidagi o'zaro bog'liq, ammo farqli hodisalar sifatida ko'rib chiqiladi. Tadqiqot nevrologik, kognitiv va lingvistik o'lchovlarni birlashtirib, yagona nazariy asosni ishlab chiqadi. Nutq buzilishi til tizimidagi strukturaviy buzilish sifatida tahlil qilinadi, nutq izolyatsiyasi esa kognitiv niyat va og'zaki ifoda o'rtasidagi funksional uzilish sifatida talqin etiladi. Taklif etilgan model zamonaviy neyropsixolingvistika rivojiga hissa qo'shib, nutq hosil bo'lishi va buzilish mexanizmlarini aniqlashtiradi hamda diagnostika, reabilitatsiya va ta'limiy intervensiya uchun amaliy ahamiyat kasb etadi.

Kalit so'zlar: nutq buzilishi, nutq izolyatsiyasi, neyropsixolingvistika, kognitsiya, model, tilni qayta ishlash, kognitiv kommunikatsiya.

Введение. Человеческая речь — это не только средство коммуникации, но и центральный компонент человеческого мышления, эмоций и социального функционирования как сложная нейropsixolingvистическая система. Речевой процесс формируется на основе взаимной интеграции различных уровней мозговой активности, включая сенсорную, моторную, когнитивную и аффективную системы. Поэтому любое нарушение или прерывание речи является не только лингвистическим феноменом, но и отражением глубинных нейropsixологических процессов.

В современных исследованиях понятия нарушения речи и речевой изоляции часто рассматриваются как схожие явления, однако их сущность, механизм и формы проявления существенно различаются. Если нарушение речи в большей степени связано с нарушением структурных компонентов языковой системы — фонетики, лексики или грамматики, то речевая

изоляция характеризуется неспособностью человека в полной мере проявить свои речевые способности во внешней коммуникации по различным причинам.

С нейropsychолингвистической точки зрения эти два явления напрямую связаны с изменениями активности различных функциональных зон головного мозга человека. Например, левое полушарие, в частности речевые центры, выделенные Полем Брока и Карлом Вернике, играют важную роль в развитии и понимании языка. В то же время правое полушарие обеспечивает эмоциональные и просодические аспекты речи. При нарушении баланса между этими системами возникает нарушение речи или речевая изоляция.

Изучение речевых расстройств и речевой изоляции на основе единой нейropsychолингвистической модели позволяет выявить их общие и различные аспекты, улучшить диагностические и коррекционные процессы. В частности, растущее число случаев коммуникативной изоляции в современной социальной среде требует глубокого научного анализа этой проблемы. В связи с этим в данной работе разработана нейropsychолингвистическая модель речевых расстройств и речевой изоляции, а также проведен систематический анализ их когнитивных, нейронных и коммуникативных механизмов на основе [теоретической основы + описания модели + схематической структуры].

Обсуждение. Интегративный подход нейropsychолингвистики важен для объяснения речевых расстройств и речевой изоляции. Согласно этому подходу, речь является результатом взаимодействия трех основных систем: 1) нейрофизиологической системы (структуры мозга), 2) психокогнитивной системы (мышление, память, внимание), 3) языковой системы. На нейрофизиологическом уровне речевая активность контролируется главным образом специальными зонами, расположенными в левом полушарии мозга: зоной Поля Брока (производство речи — моторное программирование) и зоной Карла Вернике (понимание речи). В то же время правое полушарие обеспечивает интонацию, эмоциональную окраску и коммуникативный контекст. Трехступенчатая непрерывная цепочка нейropsychолингвистического моделирования: темы (языковые единицы и правила).

Согласно психокогнитивной основе, речь опирается на когнитивные процессы концептуализации (формирования мысли), вербализации (преобразования мысли в язык) и мониторинга (контроля). Характерной чертой речевой изоляции является наличие мысли в процессе речи. На лингвистическом этапе большое значение имеют фонетические, лексические и грамматические компоненты, и когда система: [мысль] → [семантическая модель] → [грамматическая структура] → [фонологический код] → [моторная программа] → [речь] работает неэффективно, возникают речевые расстройства. Данная модель отличается следующими аспектами: 1. Она рассматривает речевые расстройства и изоляцию в рамках единой системы; 2. Она различает их как структурную и функциональную проблему; 3. Она обеспечивает пошаговый механизм анализа для диагностики; 4. Его можно использовать в педагогике и клинической практике.

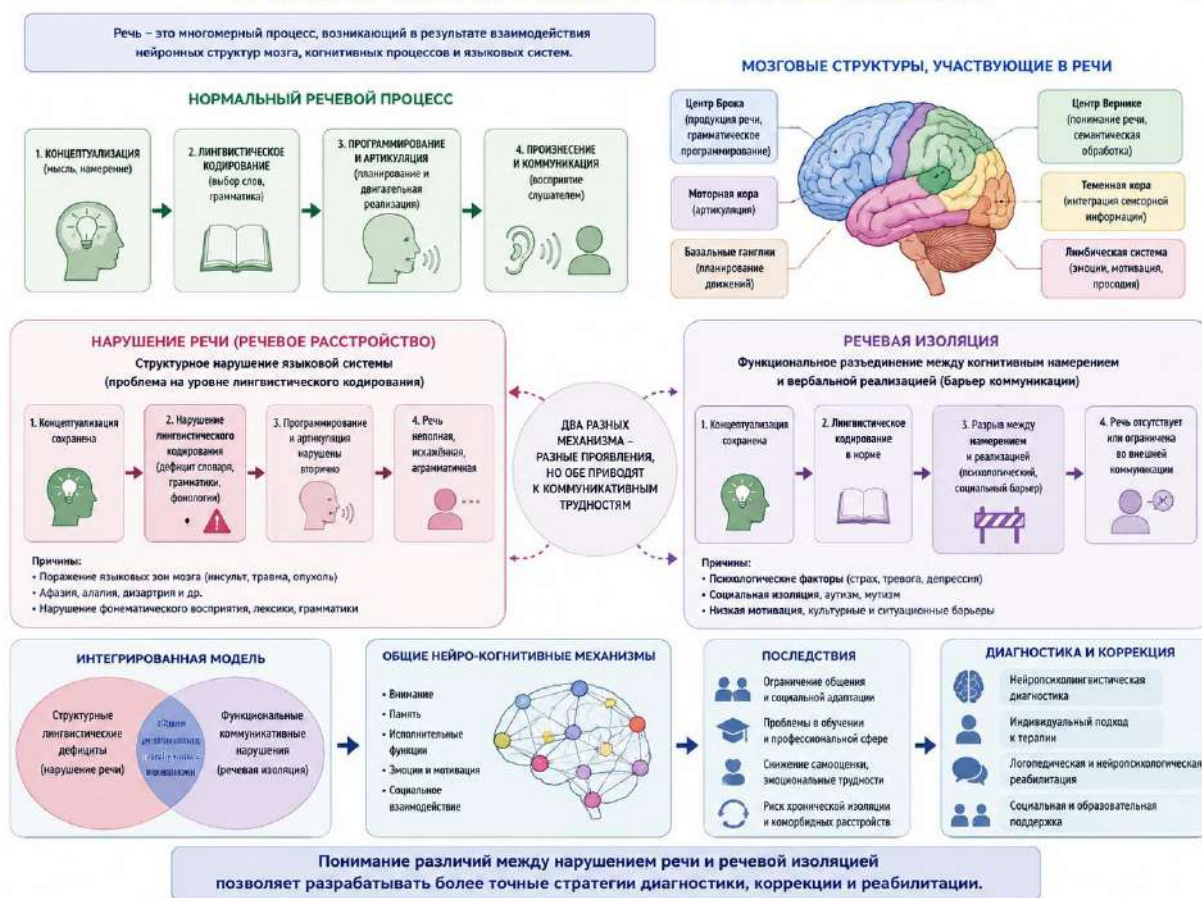
Изучение речевых расстройств и изоляции речи на основе единой модели способствует более глубокому пониманию речевой активности человека и разработке эффективных методов диагностики и коррекции. Нарушение речи отличается от речевой изоляции. Нарушение речи — это клиническое состояние, тогда как речевая изоляция — это функциональный и коммуникативный процесс. «Модель речевой изоляции» — это нейropsychолингвистическая схема, объясняющая, как происходит разрыв между мыслями человека (внутренняя речь) и его внешним выражением (устная или письменная речь) в отношении конкретного человека.

Нарушение речи является свидетельством органических или функциональных дефектов головного мозга или языковой системы. Трудности с речью, пониманием или подбором прямых слов, постоянные или продолжительные, когда человек не может говорить или говорит без смысла, указывают на афазии Поля Брока и Карла Вернике.

Речь — это не просто нарушается. Ее нарушения вызваны проблемами со звуками, словами, предложениями, голосом или темпом речи. Нарушение речи означает проблему с нормальным формированием или функционированием речи. Оно проявляется на разных уровнях и в научной литературе выделено несколько основных состояний. К ним относятся: 1. Артикуляционные нарушения — неправильное произношение звуков. Например: неспособность произносить «р», «с»; 2. Фонологические нарушения — путаница или замена звуков: произношение «титоб» вместо «китоб»; 3. Лексические нарушения — состояние недостаточного словарного запаса и неспособность подобрать правильное слово; 4. Грамматические нарушения — неправильное построение предложений, неправильное соединение слов; 5. Нарушения беглости речи — прерывания речи, заикание (логоневроз), «застревание» на звуке или слове (персеверация) и состояние остановки и невнятной речи (сканирование); 6. Нарушения голоса (фонация) — слишком низкий или высокий голос, хриплый. 7. Неврологические расстройства (афазия) — нарушения речи при повреждении головного мозга, в результате которых ослабевает способность понимать речь в центре Вернике и способность строить предложения в центре Поля Брока. При изолированной речи с мозговой активностью связаны такие нарушения, как неспособность подобрать правильное слово на одном из этих этапов, неспособность правильно построить предложение или неспособность четко произносить звуки. В этом случае звуки в словах выпадают, звуки заменяются, они произносятся неправильно, и речь становится непонятной, то есть происходит нарушение фонологической и моторной стадий речи.

Любое слово состоит из звуков. Звуковая система в мозге каждого языка автоматизирована для образования слов. За формирование слов, их выбор и построение предложений отвечает область Брока. Когда речь идёт о преобразовании мыслей в слова, мы подразумеваем построение предложений. Ослабление её активности приводит к усилению активности миндалевидного тела (лимбической системы), и речевой процесс становится изолированным. Из-за стресса или возбуждения изменения в действии нейромедиаторов адреналина/кортизола препятствуют быстрому поиску слов в мозге и приводят к застою. В результате дисбаланса между планированием мыслей мозгом и эмоциональным напряжением блокируются внимание и рабочая память, и становится трудно организовывать мысли. Подавление речевой продукции в мозге затрудняет преобразование мыслей в слова, вызывая речевую изоляцию.

НЕЙРОПСИХОЛИНГВИСТИЧЕСКАЯ МОДЕЛЬ РЕЧЕВЫХ РАССТРОЙСТВ И РЕЧЕВОЙ ИЗОЛЯЦИИ



Этот процесс состоит из набора [мысль → слово + слово → предложение + предложение → звук + план → произношение]. Этот научно обоснованный, систематический процесс с нейropsихолингвистической точки зрения называется моделью речевой изоляции. Речевая изоляция, простыми словами, — это состояние «я понимаю, но не могу это сказать». Это означает, что у человека есть идея, но он не может выразить её словами. Человек знает, что хочет сказать, но не может говорить или не может правильно выразить то, что хочет сказать. Речевая изоляция в первую очередь связана с искажением звука, его дефицитом или трудностями в произношении. В этом случае изолируется не речь, а звук. Звуковая изоляция — это состояние, при котором человек знает слово и предложение, но не может правильно произнести звуки.

Перед тем как начать говорить, человек воспринимает мысль в мозге, мысль превращается в слова, из этих слов формируется предложение, и, наконец, предложение произносится вслух. Это включает в себя: 1) когнитивную стадию (формирование идеи, намерения, понятия, еще не переведенного в язык, с помощью формирования мысли в префронтальной коре головного мозга); 2) семантико-концептуальное кодирование (временная область — лексический отбор, превращение понятия в осмысленную единицу или впадение в состояние анонии при неспособности найти нужное слово); 3) грамматическое структурирование (синтаксис в области Поля Брока — неспособность создать или построить грамматически правильное предложение); 4) фонологическое кодирование (правильное формирование звуковой системы или путаница последовательности звуков в области Карла Вернике); 5) планирование моторной коры (реализация плана артикуляции в интеграции центра Брока головного мозга или блокировка речи в состоянии, близком к мутизму). 6) фаза артикуляции (произведение или прерывание внешней голосовой речи с использованием речевого аппарата).

У маленьких детей неспособность подобрать слова, «застревание», прерывание предложения на полпути, краткое или неправильное выражение даже простой мысли, полное

молчание в возбужденном состоянии, кажущееся замедление развития речи, частое использование звуков типа «и...», «мм...» объясняются тем, что языковая система еще не полностью сформирована, а эмоциональный контроль слабее. У подростков и взрослых мысль возникает, но слово «не приходит» быстро, неспособность начать предложение или оно блокируется, речь замедляется или становится сбивчивой под воздействием стресса, речь отклоняется от темы или забывается, речь становится более интенсивной перед группой людей, то есть в социальной ситуации внутренняя мысль возникает, но внешняя речь «застревает», что обусловлено [высокой когнитивной нагрузкой + социальным давлением + стрессовой реакцией]. У детей часто наблюдаются «нарушения» в только формирующейся речевой системе, а у взрослых сформированная система временно блокируется под влиянием стресса или эмоций. Согласно нейропсихологическим данным, это связано с замедленным формированием речи в области Поля Брока и трудностями в планировании мыслей в префронтальной коре. Во время стресса или возбуждения лимбическая система «подавляет» речевые центры. Это временное расстройство. Состояние, подобное временной блокировке или изоляции речи, указывает на трудности в преобразовании речи в слова, и это может принимать различные формы в зависимости от возраста.

Персеверация — это ненужное повторение одного и того же звука, слога или слова в речи. В этом случае слова типа «мен-мен-мен борама», «китоб-тоб-тоб-тоб» повторяются, замедляются, не позволяя перейти к следующему слову, но оставаясь связанными с предыдущим элементом. Они произносятся с задержкой.

Научная основа трудностей в преобразовании речи в слова (временная блокировка речи или «трудности с речевым производством») четко объясняется в нейропсихолингвистике и нейробиологии.

В модели развития речи в головном мозге, если нарушается какая-либо часть формирования мысли (префронтальная кора), выбор слов и грамматическая структура, артикуляционная цепочка, мысль не превратится в слова.

- Рабочая память необходима для развития речи. Память «перегружается» под воздействием стресса, и становится трудно быстро выбирать слова. Происходят изменения нейротрансмиттеров. Нарушается дисбаланс дофамина, повышается уровень адреналина и кортизола, что замедляет быстрое развитие речи. У пациентов с афазией (афазией Брока) нарушается развитие речи. В условиях социального стресса даже здоровый человек испытывает «функциональный речевой блок».

Трудности в переводе мыслей в слова: результат дисбаланса между нейронными сетями (афазия Брока + префронтальная кора) + стрессовой системой (миндалевидное тело) + ресурсами рабочей памяти.

«Речевая изоляция» условно делится на несколько типов:

1. Социальная речевая изоляция — отсутствие общения или полное его отсутствие

- Человек редко общается с другими или замкнут

Причина: социальная среда, одиночество, конфликт

2. Психологическая речевая изоляция

- Не говорит из-за внутреннего страха, стресса или тревоги

Причина: эмоциональное давление, травма

3. Неврологическая речевая изоляция

- Связана с нарушением работы речевых центров головного мозга, задействованы области

Пауля Брока и Карла Вернике. Результат: нарушение развития речи или понимания речи.

4. Лингвистическая изоляция:

- Отрыв от языковой среды (переход на другой язык, отсутствие общения) Результат: уменьшение словарного запаса, замедление речи.

5. Ситуационная (временная) изоляция:

- Возбуждение, страх, сценический стресс. Речь временно «застревает».

Нейропсихолингвистическая особенность речевой изоляции заключается в том, что она является следствием Нарушение языковых и коммуникативных систем в головном мозге человека связано с нарушением или недостаточным функционированием этих систем.

С точки зрения нейропсихолингвистики изоляция речи:

- ослабляет связь между языком и мышлением;
- преобладает внутренняя речь (язык мышления);
- снижается внешняя речь (говорение).

Изоляция речи оказывает очень сильное негативное влияние на развитие детей. Для ребенка речь — это не только средство говорения, но и средство мышления, социализации и эмоционального развития.

1. Если ребенок недостаточно общается, развитие речи замедляется:

- словарный запас невелик;
- плохо развита способность строить предложения;
- часто встречаются ошибки произношения.

Это может привести к задержке развития речи.

2. Изоляция речи влияет на язык и мышление (когнитивное развитие):

- ребенок медленно усваивает понятия;
- замедляется развитие абстрактного мышления;

• снижается способность решать задачи. 3. Речевая изоляция вызывает проблемы в социальном развитии:

- становится трудно общаться со сверстниками;
- ослабевают социальные навыки (приветствие, задавание вопросов);
- возникает замкнутость из-за неспособности выразить себя.

4. Речевая изоляция влияет на эмоциональное состояние:

- может появиться внутренняя нервозность или депрессия;
- снижается самооценка;
- может усилиться агрессия.

5. Речевая изоляция влияет на развитие мозга:

- активно развиваются нейронные связи мозга посредством речи;
- речевая изоляция замедляет этот процесс.

Это покажет, что речевая изоляция у детей и взрослых связана с функционированием, когнитивными и коммуникативными свойствами головного мозга.

Основная причина состояний, подобных речевой изоляции (возбуждение, страх, неспособность говорить в стрессовых ситуациях), — это дисбаланс в головном мозге между эмоциональной и речевой системами.

1. Доминирование эмоциональной системы. В случае сильного возбуждения или страха активируется миндалевидное тело. Оно подает сигнал об «опасности», и мозг переключается в защитный режим, а не в речевой.

2. Торможение речевых центров. Области Поля Брока и Карла Вернике обычно включают:

- построение предложений ;
- понимание смысла ;
- выбор слов. Но в стрессовых ситуациях сигнал, поступающий к ним, становится «дезорганизованным», активность замедляется.

3. Распределение когнитивных ресурсов. Мозг одновременно:

- оценивает опасность ;
- увеличивает частоту сердечных сокращений ;
- концентрирует внимание.

В результате «ресурсов» для речи становится меньше.

4. Изменения нейромедиаторов. Уровень адреналина и кортизола повышается. Это затрудняет быстрое и четкое выражение мыслей. Причиной таких состояний, как речевая изоляция, является то, что мозг выходит из «логического режима речи» и переключается в «режим эмоциональной защиты».

Заключение. Речевые расстройства и речевая изоляция — это два разных, но взаимосвязанных нейropsихолингвистических явления человеческой речевой деятельности. Результаты исследования показывают, что речевые расстройства в основном связаны с дефектами структурных компонентов языковой системы — фонологического, лексического и грамматического уровней, которые часто объясняются повреждением речевых центров левого полушария головного мозга, в частности, Поля Брока и Карла Вернике. Напротив, речевая изоляция проявляется как функциональное нарушение в своей реализации во внешней коммуникации, несмотря на сохранение языковой компетенции. То есть, хотя у человека есть мыслительные и языковые единицы, в процессе их преобразования в речь или использования в социальной коммуникации возникают психологические, эмоциональные или нейродинамические препятствия.

На основе предложенной нейropsихолингвистической модели можно сделать следующие общие выводы: а) речевое расстройство является структурным (системным) дефектом, 2) речевая изоляция является функциональным (коммуникативным) нарушением, различие между которыми зависит от стадии речевого процесса, на которой происходит нарушение; изучение обоих состояний в рамках одной модели повышает эффективность диагностики и коррекции.

Речевые расстройства в основном связаны с нарушениями механизмов лингвистического кодирования, включая фонологическую, лексическую и грамматическую обработку. Эти недостатки обычно связаны с локальными дисфункциями в корковых областях языка, выделенных Полем Брока и Карлом Вернике. Напротив, речевая изоляция вызвана не нарушением самой языковой компетенции, а нарушением интеграции между концептуализацией и вербальным выражением, на которую часто влияют когнитивный контроль, эмоциональная регуляция и социально-коммуникативные факторы.

В заключение, понимание речи как интегрированной нейropsихолингвистической системы позволяет более четко различать нарушение и изоляцию и, как следствие, способствует целенаправленным и эффективным подходам как в теории, так и на практике.

ЛИТЕРАТУРА

1. Bobokalonov R.R. Tibbiyot va neyropsixolingvistika. Monografiya, GlobEdate. Republic of Moldova, Europe printed, 2023. Pages 3-123. ISBN: 978-620-0-64769-6.
2. Бобокалонов Р.Р. Нейropsихолингvistika: языковая личность и харизматический человек. Теория, практика и методика. Monografiya, LAP LAMBERT Academic Publishing, Republic of Moldova, Europe printed. 2023. Pages 3-230. ISBN: 978-620-6-15214-9.
3. Сайфуллаева Р.Р., Бобокалонов Р.Р., Бобокалонов П.Р. Нейropsихолингvistika. Учебник. GlobEdate. Republic of Moldova, Europe printed, 2025. Pages 3-149 ISBN: 978-620-8-45463-0.
4. Бобокалонов Р. Дифференциация узбекско-французских семантико-функциональных предложений и коммуникативное нейropsихолингвистическое исследование. Филол. наука. доктор. диссертация. Бухара, 2022, -3-284 с.
5. Broca, P. (1861). Loss of speech, chronic softening and partial destruction of the anterior left lobe of the brain. *Bulletins de la Société Anatomique*.
6. Luria, A. R. (1973). *The Working Brain*. London: Penguin Books.
7. Wernicke, C. (1874). *Der aphasische Symptomencomplex*. Breslau: Cohn & Weigert.
8. Levelt, W. J. M. (1989). *Speaking: From Intention to Articulation*. Cambridge: MIT Press.
9. Lev Vygotsky, L. S. (1934). *Thought and Language*.

VESTIBULAR MIGRENING KLINIK NEVROLOGIK XUSUSIYATLARI

	Ахророва Шахло Ботировна, Бухоро давлат тиббиёт институти неврология кафедраси доценти, т.ф.д. (DSc) Akhrorova Shakhlo Botirovna, Bukhara State Medical Institute, Associate Professor, Doctor of Medical Sciences (DSc)
	Камалова Феруза Умаровна, Бухоро давлат тиббиёт институти неврология кафедраси мустақил изланувчиси), Kamalova Feruza Umarovna, independent researcher at the Department of Neurology, Bukhara State Medical Institute shahlo_axrorova@bsmi.uz

Annotatsiya. Ushbu maqolada 2024–2027 yillarda Buxoro shahri poliklinikasida o‘tkazilgan klinik kuzatuvlar asosida vestibulyar migrenning klinik-nevrologik kechishi tahlil qilindi. Tadqiqotga 18–55 yoshdagi 132 nafar ayol jalb etildi. Barcha bemorlarda nevrologik simptomlar qiyosiy baholandi. Natijalarga ko‘ra, vestibulyar migren oddiy migrendan bosh og‘riq fenotipi bilan bir qatorda vestibulyar-avtonom disfunktsiya va klinik testlardagi o‘ziga xos o‘zgarishlar bilan farqlanadi. Ushbu farqlar differensial tashxisni aniqlash va samarali, maqsadli terapevtik yondashuvlarni ishlab chiqishda muhim amaliy ahamiyatga ega hisoblanadi.

Kalit so‘zlar: vestibulyar migren, oddiy migren, bosh aylanishi, vizual triggerlar, nistagm, vegetativ disfunktsiya, vestibulyar buzilishlar, bosh og‘rig‘i.

ОСОБЕННОСТИ КЛИНИКО-НЕВРОЛОГИЧЕСКОГО ТЕЧЕНИЯ ВЕСТИБУЛЯРНОЙ МИГРЕНИ

Аннотация. В данной статье проанализированы клиничко-неврологические особенности течения вестибулярной мигрени на основе клинических наблюдений, проведённых в условиях поликлиники города Бухары в 2024–2027 гг. В исследование были включены 132 женщины в возрасте 18–55 лет. У всех пациенток выполнено сравнительное изучение неврологических симптомов. Показано, что вестибулярная мигрень отличается от обычной мигрени не только фенотипом головной боли, но и наличием вестибулярно-автономной дисфункции и характерными изменениями клинических тестов, что имеет важное значение для дифференциальной диагностики и совершенствования терапевтических подходов.

Ключевые слова: вестибулярная мигрень, мигрень, головокружение, визуальные триггеры, нистагм, вегетативная дисфункция, вестибулярные нарушения, головная боль.

FEATURES OF THE CLINICAL AND NEUROLOGICAL COURSE OF VESTIBULAR MIGRAINE

Abstract. This article analyzes the clinical and neurological course of vestibular migraine based on clinical observations conducted in an outpatient setting in Bukhara during 2024–2027. The study included 132 women aged 18–55 years. A comparative assessment of neurological symptoms was performed in all patients. The results showed that vestibular migraine differs from common migraine not only by headache phenotype but also by vestibular-autonomic dysfunction and specific changes in clinical test findings. These differences are important for accurate differential diagnosis and for improving targeted and effective therapeutic strategies in clinical practice.

Keywords: vestibular migraine, common migraine, dizziness, visual triggers, nystagmus, autonomic dysfunction, vestibular disorders, headache.

Kirish. Vestibulyar migren (VM) — klinik amaliyotda tez-tez uchraydigan, ammo ko‘p hollarda noto‘g‘ri tashxis qo‘yilishi mumkin bo‘lgan neyrovestibulyar buzilishlardan biridir. U migrenga xos bosh og‘riq fenomeni bilan bir qatorda takrorlanuvchi bosh aylanishi, muvozanat beqarorligi, harakatga

sezgirlik va vegetativ reaksiyalar bilan namoyon bo‘lib, bemorning hayot sifati, mehnat qobiliyati va ijtimoiy faolligiga jiddiy salbiy ta’sir ko‘rsatadi. VMning dolzarbligi, avvalo, uning klinik “niqob”lari ko‘pligi va periferik vestibulyar kasalliklar (pozitsion vertigo, Menyer kasalligi, vestibulyar neyronit), shuningdek, tranzitor ishemik holatlar yoki psixovegetativ sindromlar bilan o‘xshash belgilar berishi sababli tashxislashda qiyinchiliklar yuzaga kelishi bilan izohlanadi.

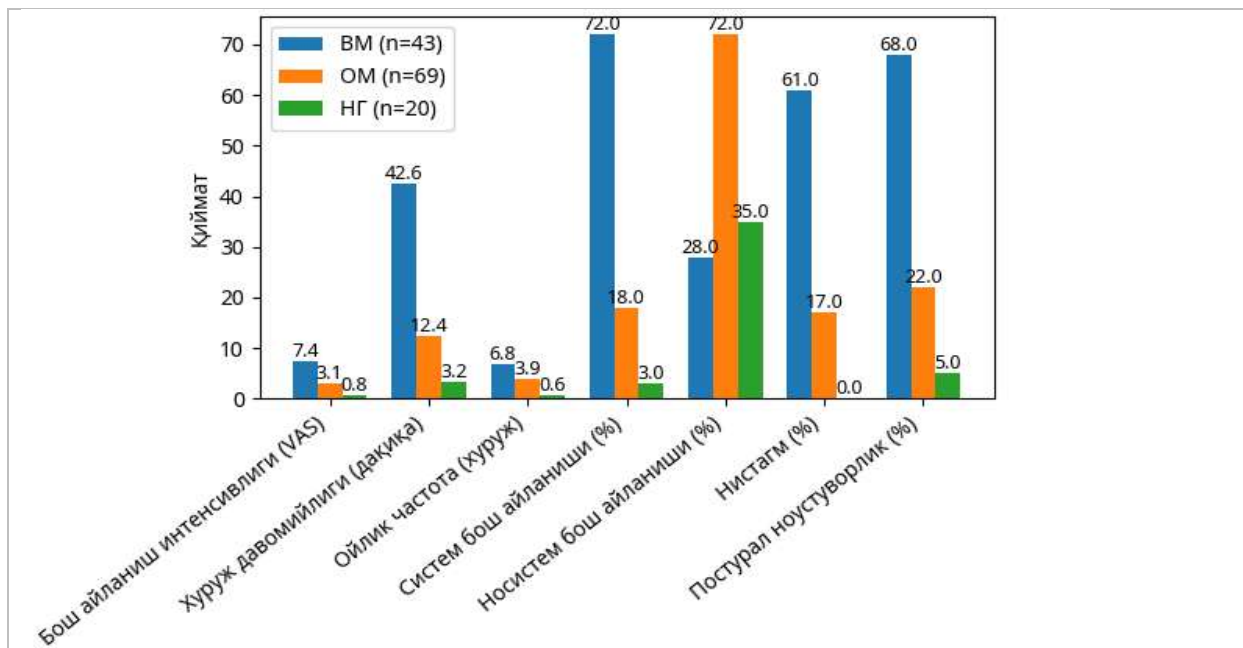
Amaliy nevrologiyada VMni to‘g‘ri tashxislashning ahamiyati shundaki, ushbu holatda vestibulyar simptomlar ko‘pincha bosh og‘rig‘iga teng darajada (ba’zan hatto undan ustun) klinik hukmronlik qiladi, natijada bemorlar uzoq vaqt “vertebrobazilyar yetishmovchilik”, “vestibulopatiya” yoki “osteoxondroza bog‘liq bosh aylanishi” kabi umumiy tashxislar bilan kuzatilib, maqsadli migrenqa qarshi terapiyadan chetda qolishi mumkin. Shu bois VMning klinik-nevrologik kechishidagi o‘ziga xos belgilari, xuruj fazalarining dinamikasi, vestibulyar fenomenologiya (vertigo turi, davomiyligi, triggerlari), sensor gipersezuvchanlik (foto va fonofobiya), vizual-vestibulyar nomutanosiblik, avtonom simptomlar hamda nevrologik statusdagi funksional o‘zgarishlarni tizimli tahlil qilish ilmiy va amaliy jihatdan katta ahamiyatga ega.

Shu nuqtai nazardan, ushbu tadqiqot VMni erta aniqlash, noto‘g‘ri tashxislarni kamaytirish va maqsadli davolash strategiyalarini takomillashtirish yo‘lida dolzarb ilmiy-amaliy ahamiyatga ega.

Tadqiqotning maqsadi: vestibulyar migrenning klinik-nevrologik kechishiga xos belgilarni aniqlash va uni oddiy migren bilan qiyosiy baholash.

Tadqiqot material va usullari. 2024–2027 yillarda Buxoro shahri poliklinikasida klinik kuzatuvga asoslangan qiyosiy tadqiqot o‘tkazildi. Tadqiqotga 18–55 yoshdagi 132 nafar ayol jalb etildi: vestibulyar migren (VM) 43 nafar, oddiy migren (OM) 69 nafar, sog‘lom nazorat (NG) 20 nafar. Barcha ishtirokchilarda nevrologik ko‘rik va vestibulyar simptomlarni baholash (VAS), xuruj chastotasi va davomiyligi, triggerlar profili hamda vegetativ belgilar qayd etildi. Vestibulyar funksiyani baholash uchun Romberg sinovi, Unterberger marshi, Babinski–Veyl sinovi, Diks Holpayk manevri, nistagm tekshiruvi va bosh impuls testi (HIT) qo‘llanildi. Natijalar guruhlar kesimida statistik usullar orqali qiyosiy tahlil qilinib, ahamiyat darajasi $p < 0,05$ deb qabul qilindi.

Tadqiqot natijalari va tahlili. Vestibulyar migrenning klinik manzarasi bir nechta sensor, vestibulyar va nevrologik komponentlarni o‘z ichiga olgan murakkab funksional buzilishlar majmuasi bilan tavsiflanadi. Tadqiqotdagi tekshiriluvchilar vestibulyar migren (43 nafar asosiy guruh), oddiy migren (69 nafar qiyosiy guruh) va klinik jihatdan sog‘lom shaxslardan (20 nafar nazorat guruhi) iborat guruhlariga bo‘linib, ular vestibulyar funksiyaning holati, bosh og‘riq xususiyatlari, vizual–vestibulyar integratsiya darajasi va postural barqarorlik kabi ko‘p qirrali ko‘rsatkichlar asosida baholandi. Tekshiruvda eng muhimi vestibulyar simptomlar bo‘lib, ularning intensivligi, davomiyligi, oylik chastotasi va aylanish turi har uch guruhda solishtirildi (1-rasm).

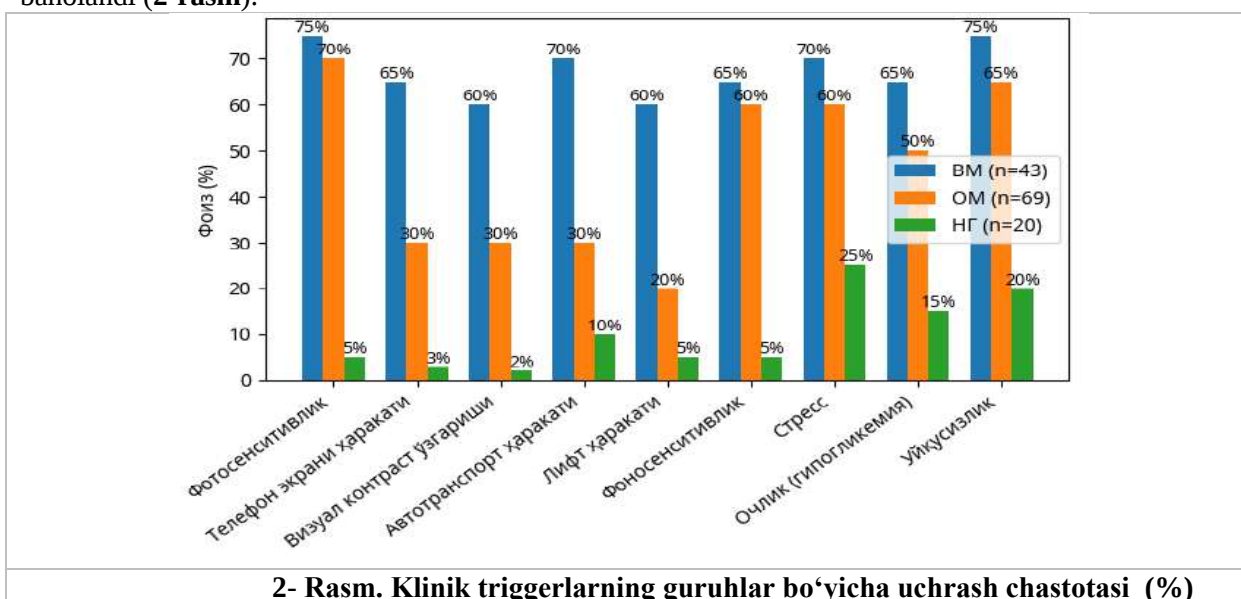


1-Rasm. Vestibulyar simptomlarning guruhlar bo‘yicha solishtirma tavsifi

1- rasm ma'lumotlaridan ko'rinib turibdiki, vestibulyar migrenli bemorlarda bosh aylanishi intensivligi, xurujlar davomiyligi va oylik chastotasi oddiy migren va nazorat guruhiga nisbatan ishonchli darajada yuqori ($p < 0,001$). Vestibulyar migren guruhida VAS bo'yicha o'rtacha $7,4 \pm 1,2$ ball qayd etilgan bo'lib, bu holat bosh aylanishning klinik ahamiyatli og'irligini ko'rsatdi. Simptomlarning sifat xususiyatlari ham guruhlar o'rtasida sezilarli farq qildi. Vestibulyar migrenli bemorlarda sistem bosh aylanishi 72 % holatlarda kuzatilgan bo'lsa, oddiy migrenda bu ko'rsatkich 18 %ni, nazorat guruhida esa faqat 3 %ni tashkil etgan ($\chi^2 = 44.2$; $p < 0.001$). Aksincha, nosistem turdagi bosh aylanishi asosan nazorat va oddiy migren guruhlarida ustunlik qildi, bu esa vestibulyar migren uchun aynan sistem tipdagi bosh aylanish klinik jihatdan eng xarakterli ekanligini ko'rsatadi.

Vestibulyar migren guruhi uchun yana bir muhim klinik belgi – nistagm mavjudligi va postural noustuvorlik ko'rsatkichlarining yuqoriligi hisoblanadi. Nistagm 61 % bemorlarda aniqlangan (OMda 17 %, nazorat guruhida kuzatilmagan), postural noustuvorlik esa tegishli 68 %, 22 % va 5 % holatlarda qayd etilgan ($p < 0,001$). Bu ko'rsatkichlar vestibulyar migrenda vestibulo-okulyar va vestibulo-spinal integratsiyaning markaziy buzilishi ustun ekanligini tasdiqlaydi.

Bundan tashqari, har bir guruhda kasallik simptomlarining chaqirilishi vizual triggerlar bo'yicha tahlil etildi. Bunda yorug'lik ta'siri, telefon ekranidagi tasvirlarning harakati, vizual kontrast o'zgarishlariga, avtotransportdagi holatlarga sezuvchanlik darajasi ham asosiy klinik belgi sifatida baholandi (2-rasm).



2- Rasm. Klinik triggerlarning guruhlar bo'yicha uchrash chastotasi (%)

2-rasmda keltirilgan ko'rsatkichlar vestibulyar migren (VM), oddiy migren (OM) va nazorat guruhi (NG) o'rtasida klinik triggerlarning uchrash chastotasida sezilarli farqlar mavjudligini ko'rsatadi. Barcha ko'rsatkichlar bo'yicha χ^2 tahlil natijalari $p < 0.001$ darajasida ishonchli farq borligini tasdiqladi, bu esa triggerlarning migren turlari uchun klinik diagnostik ahamiyati yuqori ekanligini anglatadi.

Fotosensitivlik VM (75 %) va OM (70 %) guruhlarida deyarli bir xil yuqori darajada uchradi, ammo nazorat guruhida hammasiga nisbatan juda past (5 %) bo'lib, vizual gipersensitivlikning migren uchun xos ekanligini ko'rsatdi ($\chi^2 = 63.4$; $p < 0.001$). Telefon ekranidagi harakatga sezuvchanlik VMda ancha yuqori (65 %) bo'lib, OMda 30 %, NGda esa 3 %ni tashkil etdi ($\chi^2 = 67.9$), bu vestibulo-vizual integratsiya buzilishining aynan VM uchun o'ta xarakterli belgisi ekanligini ko'rsatdi. Shuningdek, vizual kontrast o'zgarishiga reaksiya VMda 60 % holatlarda kuzatilib, OMda 30 %, nazorat guruhida faqat 2 % uchradi. Bu ko'rsatkich VMdagi dismetriya, ko'z-vestibulyar reflekslar va markaziy sensor qayta ishlash jarayonlarining buzilishini aks ettiradi ($\chi^2 = 61.8$; $p < 0.001$).

Avtotransportdagi harakatlarga sezuvchanlik VMda 70 % va OMda 30 %ni tashkil etdi, nazorat guruhida esa 10 % darajasida. Bu vestibulyar sistemaning markaziy qayta ishlash jarayoni VMda ko'proq izdan chiqqanini ko'rsatadi ($\chi^2 = 44.2$). Lift harakati ta'siriga sezuvchanlik ham shu tendensiyaning takrorlaydi: VMda 60 %, OMda 20 %, NGda esa 5 %. Bu ko'rsatkich vestibulyar o'zgarish tezlanishlarga giperraktivlik VM uchun xarakterli ekanligini bildiradi ($\chi^2 = 41.6$; $p < 0.001$).

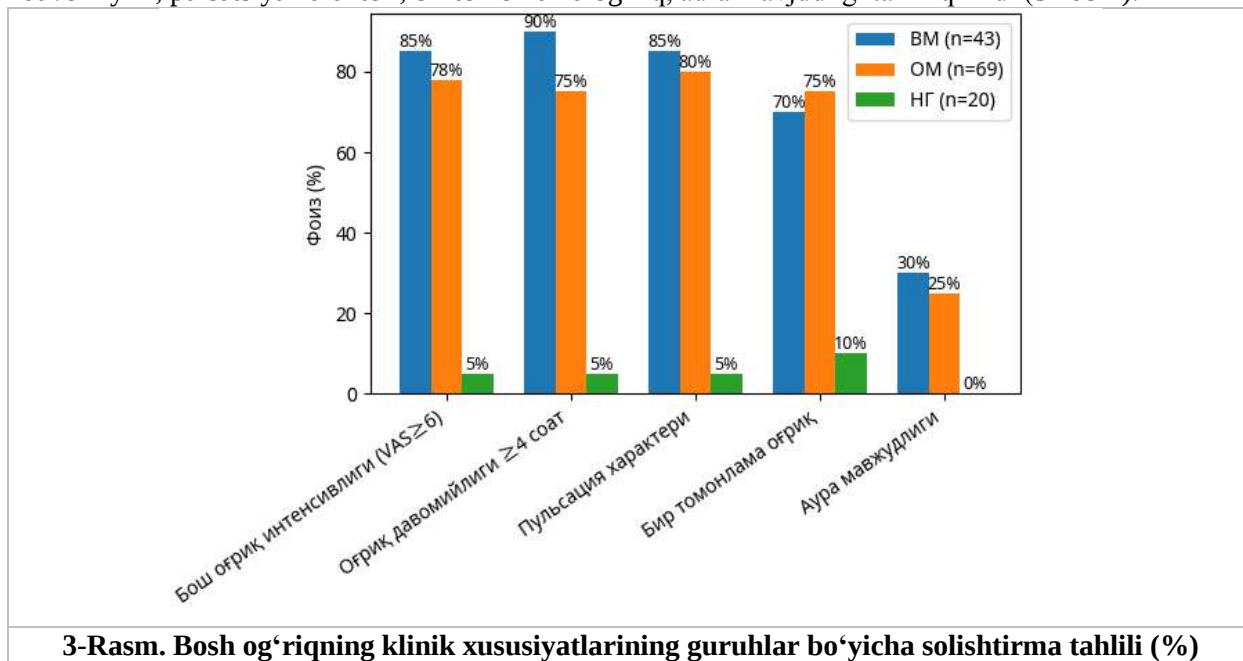
Audiosensor va psixogen triggerlar tahlil qilinganda, fonosensitivlik VMda 65 % va OMda 60 % holatlarda yuqori darajada aniqlandi, NGda esa 5 %ni tashkil etdi ($\chi^2 = 55.7$). Bu ko'rsatkich migren patogenezidagi umumiy neyrosensor giperqo'zg'aluvchanlik ustunligini ko'rsatadi. Stress bilan

chaqiriluvchi xurujlar VMda 70 %, OMda 60 %, NGda 25 % bo'lib, har uch guruhda ham uchrasa-da, migren guruhlarida chastota bir necha barobar yuqoriligi bilan farqlandi ($\chi^2 = 26.4$; $p < 0.001$).

Ochlik (gipoglikemiya) VMda 65 %, OMda 50 %, NGda 15 % holatlarda uchradi ($\chi^2 = 34.9$). Bu holat migrenli bemorlarda energetik gomeostazning buzilishi va metabolik o'zgarishlar bilan bog'liq bo'lishi mumkin. Uxusizlik ta'siri VMda 75 %, OMda 65 %, nazorat guruhida 20 % bo'lib, migren xurujlarini provokatsiya qiluvchi eng kuchli umuman qabul qilingan triggerlardan biri hisoblandi ($\chi^2 = 37.5$; $p < 0.001$).

Jadval tahlili shundan dalolat beradiki, vestibulyar migrenga xos triggerlar asosan vizual va statokinetik omillardir. Telefon ekrani harakati, avtotransport tezlanishi, vizual kontrast o'zgarishlari VMda OMga nisbatan 2–3 baravar ko'proq uchraydi. Bu esa VMning patogeneza vestibulo-vizual integratsiyaning markaziy buzilishi muhim rol o'ynashi haqidagi fikrni tasdiqlaydi.

Shu bilan birgalikda tadqiqot guruhidagi bemorlarda bosh og'riq bilan bog'liq intensivlik, davomiylik, pulsatsiya xarakteri, bir tomonlama og'riq, aura mavjudligi tahlil qilindi (**3-rasm**).



3-rasmida bosh og'riqning asosiy klinik xususiyatlari vestibulyar migren (VM), oddiy migren (OM) va nazorat guruhi (NG) o'rtasida solishtirildi. Barcha ko'rsatkichlar bo'yicha qiymatlarning juda kuchli statistik ahamiyatli ekanligi $p < 0.001$ darajasida tasdiqlandi, bu migrenning klinik fenotipini aniq namoyon etadi. Bosh og'riq intensivligi ($VAS \geq 6$ ball) VMda 85 ± 5.3 va OMda 78 ± 5.0 yuqori intensivlikli og'riqlar deyarli bir xil darajada uchraydi. Nazorat guruhida bu ko'rsatkich faqat 5 ± 4.8 % bo'lib, klinik ahamiyati juda past. $\chi^2 = 112.8$; $p < 0.001$ qiymati intensivlikning migren uchun asosiy va ishonchli diagnostik belgilaridan biri ekanini tasdiqlaydi.

Og'riq davomiyligi ≥ 4 soat VMda og'riqning uzoq davom etishi 90 ± 4.6 OMga nisbatan 75 ± 5.2 yuqoriroq. Bu ko'rsatkich VMda sensor ma'lumotlarni integratsiyalash jarayoni izdan chiqqanini va neyrovegetativ tizimning barqaror boshqaruvi buzilganini anglatadi. Nazorat guruhida uzoq davom etuvchi bosh og'riq deyarli uchramadi (5 ± 4.8). Og'riq pulsatsiya xarakteri VMda (85 ± 5.3) va OMda (80 ± 4.9) yuqori chastotada uchradi, bu migren uchun xos trigeminovaskulyar tizim faollashuvi bilan bog'liq. Nazorat guruhida pulsatsiya deyarli uchramaydi (5 ± 4.8 %). $\chi^2 = 102.4$; $p < 0.001$ pulsatsiyaning migrendagi yuqori diagnostik ahamiyatini ko'rsatdi. Bir tomonlama og'riq OMda (75 ± 5.2 %) VMga (70 ± 7.0 %) nisbatan biroz yuqoriroq, ammo har ikki migren turida ham asosiy klinik belgi hisoblanadi. Nazorat guruhida esa bu turdagi og'riq juda kam uchradi (10 ± 6.7 %). $\chi^2 = 63.1$; $p < 0.001$ ko'rsatkich migren guruhlarining nazorat guruhidan aniq farqlanishini ko'rsatadi. VMda aura 30 ± 7.0 %, OMda 25 ± 5.2 % holatlarda uchradi. Bu ko'rsatkich migrenning kortikal tarqaluvchi depolyarizatsiya to'liqini mexanizmi bilan bog'liqligini tasdiqlaydi. Nazorat guruhida aura umuman kuzatilmagan (0 ± 0 %). $\chi^2 = 28.7$; $p < 0.001$ tahlil auraning migren fenotipiga xosligini statistik asoslaydi. Bosh og'riq intensivligi,

davomiyligi, pulsatsiya va bir tomonlama lokalizatsiya migranni nazorat guruhidan ajratib turuvchi asosiy klinik markerlardir. VM va OM o'rtasidagi farqlar katta emas, ammo VMda ko'p holatlarda ushbu simptomlar vestibulyar belgilar bilan birga kechishi klinik manzarani og'irlashtiradi. Barcha ko'rsatkichlar bo'yicha χ^2 va p-qiymatlar migrenning neyrovaskulyar mexanizmlar bilan bog'liq rivojlanishini tasdiqlaydi. Nazorat guruhida foizlar va statistik xatoliklar minimal darajada bo'lib, bu populyatsiyaning tabiiy me'yoriy holatini aks ettiradi.

Tadqiqotda xurujlarning davriyligi, remissiya muddatlari va retsidiv bosqichlari ham uchala guruh bo'yicha qiyosiy tarzda baholandi. Vestibulyar migren (VM) guruhida xurujlar tsiklik xarakterga ega bo'lib, oylik chastota o'rtacha $6,8 \pm 2,4$ ta epizodni tashkil etdi; bu ko'rsatkich oddiy migren (OM) guruhida $3,9 \pm 1,7$ ta, nazorat guruhida esa $0,6 \pm 0,3$ epizod darajasida qayd etildi. VMda xurujlar interval davriyligi ko'p hollarda 5–10 kun atrofida bo'lib, bemorlarning katta qismida haftasiga kamida bir marta vestibulyar simptomlar bilan kechuvchi xurujlar kuzatildi. Bu holat vestibulyar migrenning paroksizmal, lekin tez-tez takrorlanuvchi kechishiga ishora qiladi. Oddiy migren guruhida xurujlar davriyligi nisbatan kamroq bo'lib, ko'pchilik bemorlarda epizodlar oyiga 2–4 marta kuzatildi, intervallar esa odatda 7–15 kunni tashkil etdi. Shu bilan birga, OMda xurujlar ko'proq stereotipik tarzda, aniq triggerlar (stress, uyqusizlik, gormonal o'zgarishlar) bilan bog'liq holda paydo bo'lishi qayd etildi. Nazorat guruhida esa bosh og'riq va vestibulyar xarakterdagi epizodlar tez-tez takrorlanuvchi xurujlar shaklida emas, balki epizodik, klinik ahamiyatga ega bo'lmagan holat sifatida qayd etildi va remissiya–retsidiv patterni shakllanmagan. Remissiya bosqichlarini tahlil qilish shuni ko'rsatdiki, VM guruhida remissiya davrlari ko'pincha nisbatan qisqa va noustuvor xususiyatga ega bo'lib, xurujlar oralig'ida bemorlarning ma'lum qismida subklinik vestibulyar noqulayliklar saqlanib qolgan. Ayrim bemorlarda remissiya bosqichlari qisqarib, xurujlar orasidagi intervallar bir necha kungacha kamayib ketishi, ya'ni klinik jarayonning xronifikatsiyaga moyilligi qayd etildi. Oddiy migren guruhida esa remissiya davrlari ko'proq barqaror bo'lib, xurujlardan tashqari vaqtda nevrologik va vestibulyar simptomlar deyarli qayd etilmagan, bemorlar o'zini amaliy sog'lom deb his qilgan.

Retsidiv bosqichlari tahlili ham VMda kasallikning ko'proq retsidivlashuvchan va qaytalanuvchi kechishga moyil ekanini ko'rsatdi. Vestibulyar migrenli bemorlarning katta qismida yil davomida xurujlar chastotasi sezilarli darajada o'zgarmasdan turishi, mavsumiy yoki gormonal omillar fonida esa yanada kuchayishi qayd etildi. Oddiy migren guruhida retsidivlar, asosan, stress, uyqu tartibining buzilishi, ayrim parhez xatolari yoki menstrual tsikl bilan bog'liq davrlarda ko'payishi kuzatildi. Nazorat guruhida esa yorqin ifodalangan remissiya–retsidiv tsikli shakllanmagan bo'lib, epizodik bosh og'riqlar va engil bosh aylanish holatlari sistemali xarakter kasb etmagan. Umuman olganda, xurujlarning davriyligi va retsidiv xususiyatlarini tahlil qilish vestibulyar migrenda kasallikning yaqin intervalli, tez-tez takrorlanuvchi va remissiyasi noustuvor kechishini, oddiy migrenda esa nisbatan barqaror remissiya va triggerlarga bog'liq retsidivlar ustuvorligini ko'rsatdi. Nazorat guruhida esa bunday tipik tsiklik jarayon kuzatilmagan. Bu ma'lumotlar vestibulyar migrenning klinik dinamikasi oddiy migrendan farqli ravishda ko'proq xronifikatsiyaga moyil va vestibulyar komponentlar bilan boyitilganligini yana bir bor tasdiqlaydi.

Vestibulyar migrenning klinik manzarasiga faqat bosh og'riqi va bosh aylanishi emas, balki vegetativ nerv tizimi bilan bog'liq bir qator simptomlar ham xosdir. Shu bois, tadqiqot doirasida bemorlardagi taxikardiya, gipergidroz, yuzda qizarish yoki oqarish holatlari, vaqtinchalik arterial bosim o'zgarishlari hamda vegetativ krizlar tizimli ravishda o'rganildi. Ushbu ko'rsatkichlarning vestibulyar migren, oddiy migren va nazorat guruhidagi tarqalishi holati qiyosiy tahlil qilinib, migren patogeneza vegetativ disfunktsiyaning o'rni va ahamiyatini ochib berishga qaratildi. 1-jadvalda vegetativ simptomlarning guruhlar bo'yicha uchrash chastotasi va ularning statistik bahosi keltirilgan.

Vegetativ simptomlarning guruhlar bo'yicha solishtirma tahlili. (%)

1- jadval

Vegetativ ko'rsatkichlar	BM	OM	HG	χ^2	p-
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	(n=43)	(n=69)	(n=20)		qiymat
Taxikardiya	58 ± 7.5	42 ± 6.0	10 ± 6.7	32.8	p < 0.001
Gipergidroz	55 ± 7.6	38 ± 5.8	8 ± 6.0	34.5	p < 0.001
Yuzda qizarish yoki oqarish hollari	40 ± 7.4	28 ± 5.4	5 ± 4.8	20.1	p < 0.001
Vaqtinchalik arterial bosim o'zgarishi	45 ± 7.3	30 ± 5.5	5 ± 4.8	24.9	p < 0.001
Vegetativ kriz (panik-atakaga o'xshash)	35 ± 7.2	18 ± 4.7	0 ± 0	21.4	p < 0.001
Nazofaringeal belgilar (burun bitishi, ko'z yoshi)	48 ± 7.5	32 ± 5.6	3 ± 4.8	26.7	p < 0.001
Xuruj paytida kusish	52 ± 7.5	40 ± 5.9	4 ± 4.8	29.8	p < 0.001

Olingan natijalar tahlili shuni ko'rsatadiki, vegetativ buzilishlar migren, ayniqsa vestibulyar migren klinik fenotipining ajralmas qismi bo'lib, guruhlar o'rtasidagi farqlar χ^2 test bo'yicha barcha ko'rsatkichlarda $p < 0,001$ darajasida ishonchli hisoblanadi. Yurak urishi tezlashishi (taxikardiya) VM guruhida 58 % bemorlarda qayd etildi, bu ko'rsatkich OM guruhida 42 % ni, nazorat guruhida esa atigi 10 % ni tashkil etdi. Taxikardiyaning VMda bunday yuqori uchrashi vestibulo-vegetativ zanjirning markaziy darajada disfunktsiyaga uchraganidan dalolat beradi. Vestibulyar yadrolar, gipotalamus va simpatik nerv tizimi o'rtasidagi reguliyator aloqalar buzilishi xuruj paytida yurak urishining tezlashishi, subyektiv xavotir va «yomon bo'lib qolish» hissi bilan namoyon bo'ladi. Oddiy migrenda taxikardiya ko'proq og'riq sindromi, stress va emotsional zo'riqishga reaktiv javob sifatida kuzatiladi, nazorat guruhida esa bu simptomning past chastotada uchrashi fiziologik populyatsiyada vegetativ tizimning barqarorligini aks ettiradi.

Terlashning ortganligi (gipergidroz) ham VMda sezilarli darajada yuqori bo'lib, 55 % holatlarda kuzatildi. OM guruhida bu ko'rsatkich 38 % ni tashkil etdi, nazorat guruhida esa faqat 8 % bemorda ushbu simptom qayd etildi. VMda gipergidroz simpatik tizim giperaaktivligi va vegetativ javoblarning disbalans shaklida kuchayganini ko'rsatadi. Oddiy migrenda terlash epizodlari xuruj vaqtida og'riq, o'ta hayajon va sensor triggerlarga (yorug'lik, shovqin) javob sifatida namoyon bo'lishi mumkin, nazorat guruhida esa bu simptomning deyarli kuzatilmaligi termoregulyatsiyaning fiziologik me'yorlar doirasida saqlanganini anglatadi. Yuzda vazomotor o'zgarishlar – qizarish yoki oqarish epizodlari VMda 40 %, OMda 28 %, NGda esa 5 %da qayd etildi. VM guruhida yuz qon tomirlarining bunday labilligi simpatik–parasimpatik tonusning notengligi va periferik qon tomirlarning yuqori reaktivligini ko'rsatadi. Oddiy migrenda ham vazomotor reaksiyalar uchraydi, biroq VMga nisbatan kamroq chastotada, bu esa migren xuruj paytida trigeminovaskulyar tizim faollashuvi va mahalliy qon aylanishdagi o'zgarishlar bilan izohlanishi mumkin. Nazorat guruhida bunday epizodlarning juda past uchrashi fiziologik sharoitda yuz qon tomirlari tonusi ustidan vegetativ nazoratning barqaror ekanligini tasdiqlaydi. Arterial bosimning qisqa muddatli o'zgarishi VMda 45 %, OMda 30 %, NGda esa 5 % holatlarda kuzatildi. VMda arterial bosimning epizodik oshishi yoki pasayishi vestibulyar xuruj paytida gumoral mexanizmlar va neyrovegetativ javoblarning sinxron emasligi bilan bog'liq. Vestibulyar yadrolar, miya ustuni va gipotalamik markazlar o'rtasidagi funksional aloqalar o'zgarishi qon bosimining labilligi orqali namoyon bo'ladi. Oddiy migrenda arterial bosim o'zgarishi ko'proq og'riq sindromi, stress va psixoemotsional zo'riqishga reflektor javob sifatida kuzatiladi.

Nazorat guruhida esa bu simptomning deyarli uchramasligi vegetativ qon aylanish nazorati normal darajada saqlanganini bildiradi. Vegetativ krizlar (panik-atakaga o'xshash epizodlar) VMda 35 % bemorlarda, OMda 18 %da qayd etilgan bo'lib, nazorat guruhida umuman kuzatilmagan. VMda bunday krizlar yurak urishi tezlashishi, havo yetmaslik hissi, ichki bezovtalik, qo'l-oyoqlarda titrash va kuchli terlash bilan kechdi va ko'p hollarda bosh aylanishi hamda muvozanatning buzilishi bilan birgalikda namoyon bo'ldi. Bu holat vestibulyar strukturalar, limbik tizim va avtonom markazlar o'rtasidagi patologik integratsiya kuchayganidan dalolat beradi. Oddiy migrenda vegetativ krizlar nisbatan kamroq uchrab, ko'proq psixoemotsional fon va og'riq intensivligiga reaktiv ravishda rivojlandi.

Nazorat guruhida bu kabi krizlarning yoʻqligi klinik ahamiyatga ega darajadagi vegetativ buzilishlar faqat migren guruhlariga xos ekanini koʻrsatdi. Nazofaringeal belgilar – burun bitishi, koʻzdan yosh kelishi, rinoreya – VMda 48 %, OMda 32 %, nazorat guruhida esa 3 % holatlarda uchradi. VMda bu simptomlarning yuqori chastotasi trigeminalno-avtonom refleks faoligining oshganini koʻrsatadi. Bu holat klinik jihatdan trigeminal-avtonom bosh ogʻriqlariga xos mexanizmlar bilan maʼlum darajada oʻxshashlikka ega. Oddiy migrenda nazofaringeal belgilar kamroq uchraydi va asosan neyrovaskulyar oʻzgarishlar fonida rivojlandi. Xuruj paytida qusish va nafas olishning buzilishi VMda 52 %, OMda 40 %, nazorat guruhida esa 4 % bemorlarda kuzatildi. VMda qusish va nafasning yuzakilashishi yoki subyektiv «nafas yetmaslik» hissi bosh aylanishi, postural noustuvorlik va boshqa vestibulyar alomatlar bilan birga kechib, miya ustuni darajasidagi qusish va nafas markazlari, vestibulyar yadrolar va avtonom strukturalar oʻrtasidagi oʻzaro aloqalarning buzilganini koʻrsatadi. Oddiy migrenda qusish klassik xurujlarning maʼlum qismida uchradi va trigeminovaskulyar tizim faoligi, ogʻriq intensivligi hamda vegetativ javoblar bilan bogʻliq.

Nazorat guruhida bu simptomlarning past chastotada kuzatilishi ularning migrenga xos – patologik ahamiyatga ega ekanini, fiziologik populyatsiyada esa epizodik holat sifatida uchrashi mumkinligini bildirdi. Umuman olganda, vegetativ simptomlarning uchrash chastotasi VMda eng yuqori, OMda oʻrtacha, nazorat guruhida esa minimal darajada boʻldi. Barcha koʻrsatkichlar boʻyicha χ^2 test natijalari $p < 0,001$ darajasida ishonchli farqni koʻrsatdi, bu guruhlar oʻrtasidagi tafovutlar tasodifiy emasligini, balki patogenetik jihatdan asoslangan ekanligini tasdiqlaydi. Olingan maʼlumotlar vestibulyar migren klinik fenotipida vestibulyar buzilishlar, migrenga xos bosh ogʻriqi va keskin ifodalangan vegetativ disfunktsiya majmuasi birgalikda namoyon boʻlishini koʻrsatadi. Shu bois, vegetativ simptomlar majmuasini vestibulyar migrenni oddiy migren va boshqa vestibulopatiyalardan differensial tashxis qilishda qoʻshimcha diagnostik mezon sifatida qoʻllash maqsadga muvofiq hisoblanadi. Uchchala guruh bemorlarda vestibulyar funksiyalarni klinik baholash maqsadida Romberg pozitsiyasi, Unterberger marshi, Babinski–Veyl sinovi, pozitsion testlar (Dix–Holpayk), nistagm tekshiruv hamda bosh impuls testi (HIT) kabi standartlashtirilgan usullar qoʻllanildi. Ushbu sinovlar vestibulo-okulyar va vestibulo-spinal reflekslar holati, postural barqarorlik, dinamik muvozanat va periferik vestibulyar yoʻllar faoliyatini aniqlash imkonini berdi. Quyida asosiy (vestibulyar migren), qiyosiy (oddiy migren) va nazorat guruhlarida ushbu klinik testlar natijalari taqqoslama jadval koʻrinishida keltiriladi. (2- jadval).

Vestibulyar funksiyalarning klinik testlari natijalari

2- jadval

Tekshiruv	Natija turi	BM (n=43)	OM (n=69)	HG (n=20)	P-qiymat
Romberg xolati	Pozitiv (%)	62 %	21 %	0 %	$p < 0.001$
Koʻz yopilganda lateral siljish	cm ($\bar{X} \pm SD$)	12.4 ± 4.6	4.1 ± 2.3	1.2 ± 0.5	$p < 0.001$
Unterberger marshi	Aylanish burchagi (°)	28.6 ± 10.9	11.2 ± 6.4	3.5 ± 2.1	$p < 0.001$
	Lateral siljish (%)	52 %	18 %	0 %	$p < 0.001$
Babinskiy–Veyl sinovi	Trayektoriya buzilishi (%)	58 %	25 %	0 %	$p < 0.001$
Pozitsion test Diks-Xolpayk	Nospetsifik pozitiv (%)	31 %	9 %	0 %	$p < 0.01$
Nistagm	Mavjud (%)	61 %	17 %	0 %	$p < 0.001$
Bosh impuls testi	Pozitiv (%)	42 %	8 %	0 %	$p < 0.001$

Olingan natijalardan koʻrindiki, VM guruhi barcha asosiy klinik testlar boʻyicha yuqori patologik koʻrsatkichlarni namoyon etdi va ular OM va NG guruhlariga nisbatan statistik jihatdan ishonarli darajada farqlandi ($p < 0.001$). Romberg sinovi asosan statik muvozanatni va vizual nazoratning vestibulyar

kompensatsiyaga ta'sirini baholashga xizmat qiladi. Vestibulyar migren guruhida Romberg testining pozitivligi 62 % ni tashkil etdi, bu oddiy migren (21 %) va nazorat guruhi (0 %) ga nisbatan bir necha baravar yuqori ($p < 0.001$). Bu natija VM guruhida statokinetik barqarorlikning sezilarli buzilganini va vizual nazorat olib tashlanganda muvozanatni saqlash qobiliyatining jiddiy pasayganini ko'rsatadi. Ko'zlar yopilganda lateral siljish masofasi VM guruhida 12.4 ± 4.6 sm ni tashkil etdi, bu OM (4.1 ± 2.3 sm) va nazorat guruhi (1.2 ± 0.5 sm) bilan taqqoslaganda 3–10 baravar yuqori ($p < 0.001$). Bu ko'rsatkich vestibulo-spinal yo'llardagi funksiyaning sustlashganini, propioseptiv va vizual tizim o'rtasidagi kompensatsiya mexanizmlarining yetarli darajada ishlamayotganini ko'rsatadi.

Unterberger marshi dinamik muvozanat, vestibulo-spinal integratsiya va miya pog'onasidagi harakat muvofiqlashuvini baholashda muhim test hisoblanadi. Olingan natijalarga ko'ra, VM guruhida aylanish burchagi $28.6 \pm 10.9^\circ$ ni tashkil etdi, bu OM ($11.2 \pm 6.4^\circ$) va nazorat guruhidan ($3.5 \pm 2.1^\circ$) sezilarli uzoq ($p < 0.001$). 30° dan ortiq aylanish vestibulyar sikatolmani yoki markaziy vestibulo-motor integratsiyaning buzilishini ko'rsatadi. Lateral siljish VM guruhida 52 % ni tashkil etdi; bu ko'rsatkich OMda 18 %, nazorat guruhida esa 0 % bo'lgan. Bu farq dinamik muvozanatning vestibulyar migrenda eng ko'p buziladigan funksiyalardan biri ekanligini tasdiqlaydi. Babinski–Veyl sinovi statik va dinamik postural nazoratni baholash imkonini beradi.

Vestibulyar migrenli bemorlarda traektoriya buzilishi 58 % ni tashkil etdi, bu OM (25 %) va nazorat guruhi (0 %)dan bir necha marta yuqori ($p < 0.001$). Traektoriyaning uchburchaksimon yoki aylanma ko'rinishda bo'lishi markaziy vestibulyar strukturalardagi integratsion funksiyalarning izdan chiqqanini ko'rsatadi. Bu migrenda vestibulyar yadrolarning hassosligi yuqori bo'lishini va paroksizmlar davrida propioseptiv fidbekning o'zgarishini aks ettiradi. Diks–Xolpayk manevri asosan paroksizmal pozitsion bosh aylanishini aniqlash uchun qo'llaniladi. Ammo vestibulyar migrenda pozitsion provokatsiyaga noaniq, nonspefik javoblar qayd etilishi mumkin. Bizning tadqiqotda VM guruhida pozitsion testning nonspefik pozitivligi 31 % ni tashkil etdi, bu OMda 9 %, nazorat guruhida esa 0 % bo'ldi ($p < 0.01$). Bunday holat otolit tizimining disbalansi, yarim aylana kanallar sezuvchanligining oshishi yoki markaziy vestibulyar aloqalarning labilligi bilan izohlanishi mumkin.

Spontan yoki pozitsion nistagm VM guruhida 61 % holatlarda aniqlanadi, bu OM (17 %) va nazorat guruhi (0 %)dan sezilarli darajada yuqori ($p < 0.001$). Vestibulyar migrenda nistagmning uchrash chastotasi yuqori bo'lishi vestibulo-okulyar refleksning labilligi, miya ustunining vestibulyar yadrolaridagi gipersezuvchanlik va markaziy integratsiyaning buzilishi bilan izohlanadi. Bosh impuls testida (BIT) vestibulo-okulyar refleks tezkor passiv bosh burilishlariga javob sifatida baholanadi. VM guruhida pozitiv BIT 42 % bemorlarda qayd etildi; OM guruhida bu ko'rsatkich 8 %, nazorat guruhida esa 0 % bo'ldi ($p < 0.001$). Pozitiv BIT bu VOR sustlashganligini, ya'ni periferik yoki markaziy vestibulyar yo'llarda funksiyaning buzilganini ko'rsatuvchi muhim klinik belgi hisoblanadi. Vestibulyar migrenda BITning yuqori pozitivligi epizodlar davomida VORning dinamik xarakterda o'zgarishi bilan bog'liq. Vestibulyar migrenli bemorlarda statik va dinamik muvozanat, postural nazorat, vestibulo-spinal reflekslar, pozitsion reaktivlik, vestibulo-okulyar refleks kabi barcha asosiy tizimlarda yaqqol va statistik ahamiyatli buzilishlar qayd etildi. Oddiy migrenda bu ko'rsatkichlar unchalik ifodalanmagan bo'lib, asosan funksional xarakterga ega. Nazorat guruhida deyarli barcha testlar normal bo'lgan. Tekshiruv natijalari vestibulyar migrenning klinik fenotipida vestibulyar tizimning markaziy va periferik bo'g'inlari ishtirok etishini, ularning fiziologik muvofiqlashuv mexanizmlari izdan chiqqanini yana bir bor tasdiqlaydi.

ADABIYOTLAR:

1. Lempert T., Olesen J., Furman J., Waterston J., Seemungal B., Carey J. et al. Vestibular migraine: diagnostic criteria // *Journal of Vestibular Research*. – 2012. – Vol. 22, No. 4. – P. 167–172.
2. Furman J.M., Marcus D.A., Balaban C.D. Vestibular migraine: clinical aspects and pathophysiology // *The Lancet Neurology*. – 2013. – Vol. 12, No. 7. – P. 706–715.
3. Lempert T., von Brevern M. Vestibular migraine // *Neurologic Clinics*. – 2019. – Vol. 37, No. 4. – P. 695–706.

4. Neuhauser H. Vestibular migraine // Neurologic Clinics. – 2009. – Vol. 27, No. 2. – P. 379–391.
5. Neuhauser H., Leopold M., von Brevern M., Arnold G., Lempert T. The interrelations of migraine, vertigo, and migrainous vertigo // Neurology. – 2001. – Vol. 56, No. 4. – P. 436–441.
6. Teggi R., Colombo B., Albera R., Asprella-Libonati G., Balzanelli C., Battista R.A. et al. Clinical features, familial history, and migraine precursors in patients with definite vestibular migraine // Headache. – 2018. – Vol. 58, No. 4. – P. 534–544.
7. Lempert T., von Brevern M., Bisdorff A., Newman-Toker D.E. Vestibular migraine: diagnostic criteria (update) // Journal of Vestibular Research. – 2022. – Vol. 32, No. 5. – P. 365–369.
8. Smyth D., Britton Z., Mordin L., Kaski D. Vestibular migraine treatment: a comprehensive practical review // Brain. – 2022. – Vol. 145, No. 11. – P. 3741–3754.
9. Villar-Martinez M.D., Goadsby P.J. Vestibular migraine: an update // Current Opinion in Neurology. – 2024. – Vol. 37, No. 3. – P. 252–263.
10. Hac N.E.F., Gold D.R. Advances in diagnosis and treatment of vestibular migraine and the vestibular disorders it mimics // Neurotherapeutics. – 2024. – Vol. 21, No. 4.

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EMOTSIONAL HOLATLARNI IFODALOVCHI PARALINGVISTIK VOSITALAR



Avliyoqulova Lola Bebutovna, Buxoro davlat universiteti o'qituvchisi

Avliyoqulova Lola Bebutovna, teacher of the Bukhara State University,

Annotatsiya: Mazkur maqolada emotsional holatlarni ifodalovchi paralingvistik vositalarning til va nutq jarayonidagi o'rni va ahamiyati yoritiladi. Tadqiqotda mimika, ohang, to'xtam, imo-ishora, vizual aloqa, kulgi, intonatsiya, jimlik kabi paralingvistik vositalarning inson his-tuyg'usini ifodalashdagi funksional xususiyatlari tahlil qilinadi. Shuningdek, paralingvistik vositalarning nutq mazmunini to'ldirishi, kuchaytirishi yoki o'zgartirishi, kommunikativ jarayonda hissiy ta'sirchanlikni oshirishdagi roli misollar asosida ko'rsatib beriladi.

Maqolada paralingvistika va emotsiya o'rtasidagi uzviy bog'liqlik ochib berilib, emotsional holatlarning og'zaki va og'zaki bo'lmagan vositalar orqali namoyon bo'lishi qiyosiy va tavsifiy usullar asosida o'rganiladi. Badiiy asarlar va so'zlashuv uslubidan olingan namunalar vositasida ayrim paralingvistik vositalarning inson ruhiy holatini ifodalashdagi ishtiroki va ahamiyati ko'ratib beriladi.

Tayanch tushunchalar: paralingvistik vositalar, noverbal kommunikatsiya, emotsiya, so'zning hissiy tomoni, ifodalilik, jimlik, vizual aloqa.

EMOTSIONAL HOLATLARNI IFODALOVCHI PARALINGVISTIK VOSITALAR

Abstract: This article highlights the role and significance of paralinguistic use in language and process, expressing emotional speech. The study presents a functional analysis of paralinguistic power such as facial expressions, tone, pauses, gestures, visual contact, laughter, intonation, silence in the development of human emotions. , The role of paralinguistic use in complementing, producing or suppressing the content of speech, and the perception of emotional sensitivity in the communicative process is shown on the basis of examples.

The article reveals a specific inextricable connection between paralinguistics and emotion, and studies the manifestations of emotional states in verbal and non-verbal forms based on comparative and

descriptive methods. Using examples from works of art and conversational style, the participation and significance of certain paralinguistic formations in expressing human mental states are shown.

Key concepts: paralinguistic communication, nonverbal communication, emotion, emotional side of speech, expressiveness, silence, visual communication.

ПАРАЛИНГВИСТИЧЕСКИЕ СРЕДСТВА, ВЫРАЖАЮЩИЕ ЭМОЦИОНАЛЬНЫЕ СОСТОЯНИЯ

Аннотация: В данной статье освещается роль и значение паралингвистического использования в языке и процессе выражения эмоциональной речи. В исследовании представлен функциональный анализ паралингвистических средств, таких как мимика, тон, паузы, жесты, зрительный контакт, смех, интонация, молчание, в развитии человеческих эмоций. На примерах показана роль паралингвистического использования в дополнении, создании или подавлении содержания речи, а также в восприятии эмоциональной чувствительности в коммуникативном процессе.

В статье раскрывается специфическая неразрывная связь между паралингвистикой и эмоциями, а также изучаются проявления эмоциональных состояний в вербальной и невербальной формах на основе сравнительного и описательного методов. На примерах из произведений искусства и разговорного стиля показано участие и значение определенных паралингвистических формаций в выражении психических состояний человека.

Ключевые понятия: паралингвистическая коммуникация, невербальная коммуникация, эмоция, эмоциональная сторона речи, выразительность, молчание, визуальная коммуникация.

Kirish. Til nafaqat axborot uzatish vositasi, balki hissiyotlarni ifodalash va yaratishning asosiy mexanizmi hamdir. Bugungi zamonaviy tilshunoslik doirasidagi kognitiv tadqiqotlar hissiy va kognitiv jarayonlarning integratsiyasiga tobora ko‘proq urg‘u berishni talab etmoqda. Tuyg‘ular inson ongining muhim tarkibiy qismi sifatida idrok etish, tasniflash, xotirada saqlash va qaror qabul qilishga o‘z ta’sirini o‘tkazadi. Hatto, aytish joizki, til nafaqat jarayonlarni aks ettiradi, balki ularning faol ishtirokchisiga ham aylanadi. Ushbu holatda til va hissiyotlar birlashib, tilshunoslik, psixologiya, nevrologiya va falsafa kabi sohalarini o‘z ichiga olgan fanlararo yondashuvni talab qiladigan murakkab ta’sirni ifodalaydi. Til olam zehniyy tasvirining bir shakli bo‘lib, bu tasvirda asosiy rolni hissiyotlar o‘ynaydi. Shu nuqtayi nazardan xotirjamlik, qo‘rquv, quvonch, g‘azab, uyalish, qayg‘u, hayrat, afsus-nadomat kabi hissiy holatlarni ifodalovchi tushunchalarni, shuningdek, ularning turli tillardagi og‘zaki ifodalarini tadqiq qilish alohida ahamiyat kasb etadi, deb aytish mumkin.

Tilning muhim funksiyalaridan biri – ijtimoiy sharoitlarda his-tuyg‘ularni tartibga solish. Bu funksiyada lingvistik harakatlar orqali kishilar o‘zlarining va boshqalarning his-tuyg‘ularini boshqarishga harakat qiladilar. Ushbu natijaga esa evfemizmlardan foydalanish, ekspressivlikni ta’minlash, kinoya, hazil-mutoyiba yoki o‘xshatishga asoslangan ko‘chimlar (metafora, allegoriya, ramz, epilepsiya, o‘xshatish va boshqalar)dan foydalanish orqali erishish mumkin. Bu munosabatni tushunish nafaqat inson ongi va tabiatini tushunishga imkon beradi, balki psixologiya, psixoterapiya va madaniyatlararo muloqot kabi sohalarida yangi istiqbollarni ochishga ham ko‘maklashadi.

Tadqiqot metodologiyasi. Emotsiyaning paralingvistik vositalarini o‘rganish nafaqat insonlar ongi va tabiatini tushunishga imkon beradi, balki psixologiya, psixoterapiya va madaniyatlararo muloqot kabi sohalarida yangi istiqbollarni ochishga ham ko‘maklashadi. Ayniqsa, emotsional nutqni to‘g‘ri idrok etish va uzatish zamonaviy kommunikatsiyada muhim ahamiyat kasb etadi. Mavzuni yoritishda badiiy matnlar hamda og‘zaki va yozma nutq namunalari material sifatida foydalanildi. Tadqiqot metodlari sifatida esa kuzatish, tavsiflash, tasniflash, kognitiv usullar tanlandi.

Muhokama va natijalar. Ma’lumki, o‘zaro kommunikatsiya jarayonida so‘zlovchi o‘z fikrini bayon qilishda uning oldida aniq bir maqsad turadi. Bu maqsadning asosi esa so‘zlovchining tinglovchini tushunishi, anglashidan iboratdir. Yuqorida ta’kidlaganimizdek, inson xulq-atvori hissiyotlarga

asoslanganligini inobatga olsak, soʻzlovchi (oʻz oʻrnida tinglovchi ham) oʻz maqsadini ifoda etishda uning his-tuygʻulari va buni yuzaga chiqaruvchi emotsiyalarning roli ham katta, deb aytish mumkin. His-tuygʻular oʻzaro muloqotning kuchli vositasi boʻlib, insonlarga nomaʼlum hodisalarni ochishga, qirralarini kengaytirishga, yangi bilim va koʻnikmalar, qobiliyatlarni oʻzlashtirishga yordam beradi. Ular insonning idrokini, dunyoqarashini oʻstiradi, intilishlari va say-harakatlarini faollashtiradi, tartibga soladi. Qisqa qilib aytganda, his-tuygʻular kundalik hayotdagi fikrlarimiz va harakatlarimizga oʻz taʼsirini oʻtkazadi.

Rus tilshunosi V.V.Vinogradov nutqning ifodali shakllari va til bilimlarining ifodali elementlari tarixi haqida maʼlumot berar ekan, til tizimining bu kabi masalalari lingvistik tadqiqotlarda kam oʻrganilganligini taʼkidlaydi: "...oʻttiz yildan ortiq vaqt davomida tilshunoslarning ushbu muammo holatini baholashi sezilarli darajada oʻzgarmadi. 1960-1970-yillardagi asarlarda umuman lingvistik vositalarni, xususan, hissiyotlarni ifodalashni oʻrganishning yetarli emasligi doimo taʼkidlanadi" [6; b. 518]. Olimning ushbu fikrlari inson hayotida va shaxslararo muloqotda his-tuygʻularning roli katta ekanligi, ammo hozirgacha boʻlgan davrda ushbu masalaga kam ahamiyat qaratilganligini taʼkidlaydi. Inson hayotining hissiy tomoni barcha shakl va koʻrinishlardagi faoliyat bilan uzviy bogʻliqligiga alohida urgʻu berib oʻtadi.

Lingvistik vositalar tizimi insonga har qanday his-tuygʻuni toʻgʻridan toʻgʻri yoki bilvosita yetarli darajada ifoda etish imkonini beradi. Ammo bu real hayotda his-tuygʻular faqat til orqali ifodalanadi, degani emas. Tilshunos Y.D.Apresyan til tizimida his-tuygʻular rivojlanishining bir necha bosqichlarini aniqladi. Uning fikricha, hissiyotlarning asosiy sababi, odatda, "...maʼlum bir hissiy holatni ehtimoliy yoki kutilmagan, orzu qilingan yoki istalmagan deb baholashdir" [1; b. 50-51]. Masalan, maʼlum bir voqea-hodisalarni "orzu qilingan" deb qabul qilamiz, shuning uchun biz ijobiy his-tuygʻularni boshdan kechiramiz. Salbiy his-tuygʻular biz "istalmagan" deb biladigan maʼlum voqealarni salbiy baholashimiz natijasida yuzaga keladi. Shuni taʼkidlash kerakki, insonning oʻz faoliyatini baholashi his-tuygʻularning paydo boʻlishida muhim rol oʻynaydi. Emotsiya, aslida, bu hissiyot yoki holatdir. Bu hissiyot inson idrok etadigan va oʻylaydigan narsalarning holati bilan belgilanadi. Ijobiy va salbiy holatlar bir-biridan keskin farqlanishi, barchaga maʼlum. Masalan, *nafrat* holatida inson bitta yoqimsiz yoki salbiy tuygʻuni, *qoʻrquv* holatida boshqasini va *melanxoliya* holatida yana boshqa bir tuygʻuni boshdan kechiradi.

Tilshunoslikda his-tuygʻularni ifodalash uchun barcha til qatlamlarining birliklari qoʻllaniladi. Jumladan, hissiy ifoda vositalari fonetik, leksik va grammatik vositalarni oʻz ichiga qamrab oladi. Tuygʻularni ifodalashning fonetik vositalari haqida gapirganda, koʻplab tadqiqotchilar, masalan, A.A.Reformanskiy va [11; b. 239], D.N.Shmelevlar oʻz asarlarida, asosan, *intonatsiya*, *urgʻu* va *ohang* haqida atroflicha soʻz yuritadi [13; b. 245]. Olimlar ushbu fonetik xususiyatlarni faqat ogʻzaki nutqdagina aniqlash mumkinligini alohida taʼkidlab oʻtadilar. Ularning fikricha, har qanday tilda oʻsha tilga xos boʻlgan his-tuygʻularni ifodalash va tushunish imkonini beradigan vositalar tizimi mavjuddir.

Turli lingvistik vositalarning his-tuygʻularni ifodalashdagi roli taqqoslanganda ayrim tadqiqotchilar fonetik xususiyatlarga ustunlik berishni maʼqul koʻradilar. Jumladan, Sh.Ballining fikricha: "Affektiv mazmunni faqat soʻzlar bilan yetkazib boʻlmaydi. Soʻzlarning gapdagi roli his-tuygʻularning ortib borayotgan rolga mutanosib ravishda kamayadi. Bizda suhbatdoshimizga fikrlarimizni yetkazishimiz va uning his-tuygʻulariga taʼsir qilishning hissiy intonatsiya va shartlangan nutqning undov shakllaridan koʻra samaraliroq vositasi yoʻq" [4; b. 351].

Lingvistik manbalarda *soʻzlar* atrofimizdagi dunyoni tushunish vositasi va muloqotning asosiy elementi ekanligi taʼkidlanadi. Darhaqiqat, til insonning obyekt, holat va vaziyatga nisbatan subyektiv munosabatini, shuningdek, ularning his-tuygʻulari va ularni ifoda etish vositasi boʻlib xizmat qiladi. Shu bilan birga, soʻzlarning his-tuygʻularni ifodalash qobiliyatini alohida taʼkidlab oʻtish joizdir. A.A.Ufimtseva bu haqida shunday deb yozadi: "Soʻzlar bizning butun intellektual va hissiy hayotimiz bilan uzluksiz bogʻliqdir. Har bir soʻzning subyektiv-mantiqiy maʼnosi kontekstga qarab oʻzgarib turadigan maxsus ifodali muhit bilan oʻralgan" [12; b.191]. K.A.Levkovskaya esa soʻzlarning aniq konseptual mazmuni *hissiy rang berishdan* iborat ekanligi haqida mulohazalar yuritgan [7; b. 162].

Boshqa bir lingvist I.V.Arnoldning fikriga ko'ra, his-tuyg'ularni va kayfiyatni so'zlar faqat konseptual tarzda ifodalaydi. Olim his-tuyg'ularni ifodalovchi hamda ijobiy va salbiy bahoni o'z ichiga olgan so'zlarni "meharli so'zlar", "so'kinish so'zlari", "ma'noga aralashuvchilar" kabi mazmuniy guruhlariga bo'lib tushuntiradi. Ya'ni, ushbu so'zlar ma'qullash va norozilikni, e'tirof yoki hayratni, masxara qilish va kinoyani ifodalash uchun xizmat qiladi [2; b. 351].

Tilshunoslikda lingvistik belgining xususiyati sifatida hissiyotlilikni ifodalash uchun maxsus atama – "emotivlik" mavjud bo'lib, ularni tasniflash tamoyillari hali aniq ishlab chiqilmagan. Agar so'z hissiyotni ifodalay olsa, u emotivdir. "Emotivlik" tushunchasini ta'riflaganimizda, asosiy e'tibor subyektning hissiy holatini ifodalovchi vaziyatni tushunishga qaratiladi. Ya'ni, so'zlovchining niyatiga qarab, hissiy holat va munosabatni ifodalash mumkin. Emotivlik keng ma'noda emotsionallikning lingvistik namoyon bo'lishi, ya'ni qabul qiluvchida ma'lum his-tuyg'ularni uyg'otishga qodir bo'lgan barcha lingvistik vositalarning umumiy xususiyati sifatida talqin qilinadi. O'rganishlarimiz tahlili natijasida muloqotdagi emotivlarni quyidagi turlarga ajratishni ma'qul deb topdik:

1. *Faqat hissiy semalarni o'z ichiga olgan ta'sirchan so'zlar*. Bu turdagi emotsionallik hissiylikning eng yuqori darajasini ta'riflaydi. Bu toifaga *evfemizmlar, jargon, argon va vulgarizm* kabi til birliklarini kiritish mumkin.
2. *Konnotativ so'zlar* – bu mantiqiy ma'nosi hissiylikni ifoda etuvchi birliklar. Ushbu guruhga *emotsional-baholovchi sifatlar, emotsional-kuchaytiruvchi ravishlar, arxaizmlar va poetizmlarni* kiritish mumkin.
3. *Ekspressiv so'zlar* – tasvirlarning ta'sirini kuchaytiradigan lisoniy birliklar. Masalan, *tropalar*.
4. *Paralingvistik vositalar*. Bular nutqda ko'zga tashlanmaydi, biroq nutqning emotsional jihatini ta'minlashda asosiy rol ni bajaradi. Bularga *fonologik vositalar, mimika, tana xatti-harakatlari* va boshqalarni kiritish mumkin.

Ko'rib turganimizdek, tilning paralingvistik vositalari ham hissiy tarkibni yetkazishda muhim rol o'ynaydi. Nutqning prosodik xususiyatlari – intonatsiya, ritm, pauzalar va temp so'zlovchining hissiy holatini leksik tarkibdan mustaqil ravishda kodlashi mumkin. Paralingvistik vositalar – bu nutq bilan birga qo'llanadigan, lekin nutqning o'zi bo'lmagan, asosiy vazifasi muloqotga qo'shimcha ma'no yuklash bo'lgan vositalar tizimi. Masalan: *ovoz toni, ovoz balandligi, temp, pauzalar, xirillash, nafas olish*, shuningdek, *yuz mimikasi, ishoralar, ko'z-qosh harakatlari* kabi nutqsiz komponentlar. Ushbu vositalarning barchasi nutqda his-tuyg'u, niyat va boshqa qo'shimcha ta'sirlarni yuzaga chiqarishga xizmat qiladi.

Paralingvistik vositalar *vokal paralingvistika* (ovoz, nutq tempi, puza va to'xtamlar, ovoz sifati), *non-vokal paralingvistika* (yuz mimikasi, ishoralar, vizual aloqa, tana harakati) kabi asosiy 2 turga bo'linadi. Aytish joizki, emotsional effektlar turli xil ifoda vositalari orqali paydo bo'lishi mumkin. Ushbu holatda, birinchi galda, fonosemantik vositalar (*vokal paralingvistika*) bilan ifodilangan paralingvistik vositalarga e'tibor qaratamiz.

Tilshunos olim G.L.Babenkoning fonosemantik tadqiqotiga ko'ra, tovushlar ma'lum hissiy semalarni o'zida aks ettirish xususiyatiga egadirlar. Masalan, "r" tovushi quyidagi xususiyatlarga ega: *qo'pol, tez, o'tkir, qo'rqinchli, sovuqlik*. Ushbu o'rinda, mazkur tadqiqot tilshunoslikning qadim zamonlardan beri ma'lum bo'lgan kuzatuvlariga asoslangan, deyish mumkin. Ya'ni, olimning fikricha, "...yumshoq va qattiq, silliq va qo'pol, yoqimli va yoqimsiz, o'tkir va noaniq hamda boshqa har xil jismoniy hislarni uyg'otadigan son-sanoqsiz tovushlar mavjud" [3; b.121]. Shunday qilib, fonetik vositalar og'zaki nutqda hissiyotni yaratishda muhim rol o'ynaydi.

Bizning bu masala yuzasidan fikrlarimiz yuqoridagi mulohazalardan biroz farq qiladi. Bizningcha, hissiy semalarning tovushlarda yuzaga chiqishi konseptual jarayon bilan bog'liq. Demak, bunda tovushlarni nutqiy vaziyatdan ajratgan holda ularga hissiy xususiyat yuklashning imkoni yo'q. Masalan, yuqoridagi fikrda "r" tovushi *qo'pol, tez, o'tkir, qo'rqinchli, sovuq* kabi emotsional xususiyatlarga ega bo'lishi bevosita ushbu tovushning konseptual vaziyatiga bog'liqdir. Jumladan:

- *Bir kun bormaganimga hammayoqning rasvosini chiqarishibdi*, – gapida norozilik va qo‘pollik aks etgan bo‘lsa,
- *Urrrraaaa, uch kundan keyin ta’tilga chiqamiz*, – gapida, aksincha, quvonch, hayajon, kutilmaganlik semalari ifodalanganligini kuzatishimiz mumkin.

Demak, bundan xulosa qilish mumkinki, nutqiy tovushlarning ma’lum bir emotsional vazifa bajarishi, hissiy ma’no tashishga xizmat qilishi uning nutqiy vaziyatda qaysi leksik birlikni hosil qilishda ishtirok etayotganligi bilan bevosita aloqadordir. Ya’ni, tovushlarning bu jihati nisbiylik nazariyasiga asoslangan bo‘lib, ularning emotsional xususiyatlarini nutqiy vaziyatdan tashqarida baholashning imkoni mavjud emas.

Inson psixologiyasi, ichki kechinmalar va ijtimoiy munosabatlarning nozik tasviri nafaqat leksik vositalar, balki paralingvistik unsurlar – imo-ishora, jimlik, tana holati va boshqa noverbal elementlarning til orqali ifodalanishida ham yaqqol ko‘zga tashlanadi. Paralingvistik vositalar, odatda, bevosita og‘zaki yoki jismoniy ifoda orqali namoyon bo‘lsa-da, faqatgina fon sifatida emas, balki obraz yaratish, hodisani dramatiklashtirish, ichki ziddiyatni kuchaytirish yoki kommunikatsion vaziyatning mazmunini teran ochib berish vositasi sifatida namoyon bo‘ladi.

Emotsional holat turli tilshunoslik hodisalariga ta’sir qiluvchi hissiyot sifatida ifodalanishi mumkin. Emotsionallik tilning turli qatlamlarida namoyon bo‘lishi mumkin, bu esa ma’lum bir vaziyatga qarab hissiy til vositalarini tanlashni anglatadi. Tilshunoslikda “emotsionallik” tushunchasining ikki turi haqida gapirish odatiy holdir. Birinchi holatda, hissiyot ekspressiv lug‘atning o‘ziga tegishli bo‘lib, bu yerda asosiy e’tibor konnotativ ma’noga qaratilgan. Ikkinchi holatda, hissiyot butun til tizimini ifodalaydi, his-tuyg‘ularni yoki shaxsning ham, umuman, jamiyatning ham hissiy holatini aks ettirishga xizmat qiladi.

Muayyan ma’lumotni olib yuradigan paralingvistik vositalar nafaqat o‘quvchining e’tiborini tortadi, balki kommunikatsiyada o‘ziga xos ma’no yaratadi. Bu esa ularsiz ma’noni to‘liq tushunish imkonini bermaydi. Tuyg‘ularni og‘zaki muloqotda sezilarli, ammo yozma ravishda ifodalash qiyin bo‘lgan intonatsiya orqali ham ifodalash mumkin. Intonatsiyaning his-tuyg‘ularni ifodalashda paralingvistik vosita sifatidagi roli, odatda, og‘zaki nutqda namoyon bo‘ladi. Tanlangan intonatsiya muloqotni kutilmagan va oldindan aytib bo‘lmaydigan jihatlarga yo‘naltirilishi mumkin. Biz his-tuyg‘ularni intonatsiya orqali ifodalashga harakat qilganimizda, yozma ravishda turli xil belgilar, masalan, “so‘roq” yoki “undov” belgisi, shuningdek, “tire”, “qo‘sh tirnoq” belgilaridan ham foydalanishimiz mumkin.

Paralingvistik elementlar muhim kommunikativ va emotsional yuklamaga ega bo‘lib, personajlarning psixologik holatini, ichki ziddiyatlarini, jamiyatdagi o‘rnini va o‘zaro munosabatlardagi nozik jihatlarni ochib berishda xizmat qiladi. Ushbu vositalar bevosita tasvir bilan emas, balki murakkab badiiy til, stilistik vositalar va sintaktik qurilmalar orqali yuzaga chiqishga erishadi. Masalan, jimlikning dramatik zo‘riqish nuqtasi sifatida ishlatilishi, imo-ishora va tana tilining nutqdagi semantik ahamiyati, personaj xarakteri va ruhiyatini ifodalashdagi roli chuqur tahlil qilinadi. Paralingvistik vositalarning badiiy nasrdagi ifoda shakllari ularning estetik va semantik funksiyalarini o‘rganishga qaratilgan, badiiy til va uslub ahamiyatini yanada chuqurroq anglash imkonini beradi.

Paralingvistik vositalar ichida **jimlik** alohida yuklamaga ega bo‘lib, aksar hollarda insonning ichki qarama-qarshiligi, irodasizlik, ko‘ngilsizlik yoki dramatik ahvolini tasvirlash uchun xizmat qiladi. Masalan, muhim bir suhbat jarayonida kishining birdan jim bo‘lib qolishi yoki javob bermasligi uning ruhiy holati me’yorda emasligidan dalolat beradi. Biz quyidagi asar parchasi orqali jimlikning kenroq tahlilini amalga oshirishga harakat qildik. Amerikalik mashhur yozuvchi Mario Puzoning “The Godfather” asaridan olingan quyidagi parchada o‘g‘illaridan birining kutilmagan o‘lim xabarini eshitgan ota tasvirini ko‘rishimiz mumkin:

– *Sonnini Jons Bich yo‘lida otib ketishibdi*, – dedi Xegen. – *O‘lgan.*

Don Karleone ko‘zlarini qisdi. Bir necha daqiqa iroda zirhi bilan chil-parchin bo‘ldi, unign madorsizlanib borayotganligi ko‘rinib turardi... Qisqa jimlikni hisobga olmaganda o‘zining his-tuyg‘ularini sezdirmagand Don qat’iy fikrga kelgan edi.

Ushbu tasvirda qahramonning qanchalik irodali, sovuqqon, mulohazakor va qat'iy inson ekanligini sezish qiyin emas. Bir qarashda o'g'lining o'lim xabarini eshitgan otaning holatida hech bir o'zgarish sodir bo'lmagandek tuyulsa-da, "ko'zlarini qismoq" va "jimlik" uning ruhiy holatidagi tanazzulni aks ettirib turibdi. Demak, yuqorida takidlanganidek, jimlik paralingvistik vositasi, ko'pincha, ichki zo'riqish va dramatik holatni ifodalaydi.

Odatda, kommunikatsiyaning verbal muloqot shakli bilan paralingvistik vositalar bir xilda ishtirok etgan ko'rinishiga kommunikatsiyaning mukammal bir butunligi sifatida qaraladi. Chunki ular o'zaro bir vaqtda yoxud ketma-ket sodir bo'lish orqali bir-birini to'ldirib turadi. Ammo bu ikki muloqot shakli doim ham bir xil axborotni uzatish uchun xizmat qilavermaydi. Ba'zida ular bir-birini mutlaqo rad etuvchi axborotlarni ham ifodalashi mumkin. Bu hodisa, odatda, nutq vaziyati va insonning (ba'zan axborot uzatuvchining, ba'zan axborotni qabul qiluvchining) ruhiy holati bilan bog'liq holda amalga oshadi. Masalan, ko'pchilik insonlar yolg'on gapirgan vaqtlarida, turli imo-ishora va xatti-harakatlarni namoyish etadilar (ko'zni tinglovchidan olib qochish, turli qo'l va barmoq harakatlari). Bunday vaziyatlarda so'zlovchining so'z orqali uzatayotgan azboroti bilan xatti-harakatlari bir-birini rad etadi.

Xulosa. Tilda hissiy hodisalarning aks etishi zamonaviy tilshunoslikdagi eng qiyin muammolardan biridir. Birinchidan, hissiyotlarning o'zi, inson psixikasi hodisasi sifatida, nihoyatda murakkab va shunga mos ravishda ularning lingvistik tasvirlari ham murakkabdir. Har qanday hissiy-lingvistik vosita insonni his-tuyg'ular va kechinmalarning murakkab dunyosiga olib kiradi. Ikkinchidan, tilda hissiylikni o'rganish turli yo'llar bilan va tilshunoslikning turli sohalari tomonidan amalga oshiriladi. Shunday qilib, chegara obyekti sifatida lingvistik hissiylik umumiy tilshunoslik va psixolingvistika sohasiga bir xil tegishli hisoblanadi. Bir tilda ma'lum bir hissiy holat uchun aniq nom bo'lishi mumkin. Boshqasida esa bunday hissiyotning to'g'ridan to'g'ri og'zaki ekvivalenti yo'q, bu esa uni tushunish va boshdan kechirish usullariga bo'lgan ehtiyojni oshirib, mazkur yo'nalishdagi izlanishlarni kuchaytirishni talab etadi. Ushbu pozitsiya turli tilshunoslik jamoalari vakillari hissiy stimullarni, hatto, o'xshash fiziologik reaksiyalar bilan ham turlicha talqin qilinishini ko'rsatadigan madaniyatlararo tadqiqotlarga ehtiyojni talab etadi. Biz esa ushbu maqola vositasida emotsiyalarni yuzaga chiqaruvchi paralingvistik vositalar va ularning o'ziga xos xususiyatlarini og'zaki va yozma muloqot shakllari, badiiy asar namunalarini yordamida ko'rsatib berishga harakat qildik. Tahlil natijalari emotsional holatlarni ifodalovchi paralingvistik vositalarning o'ziga xos jihatlarni aniqlashga xizmat qiladi.

ADABIYOTLAR:

1. Апресян Ю.Д. Образ человека по данным языка: попытка системного описания // Вопросы языкознания – 1995. – № 1. – С. 37-65.
2. Арнольд И.В. Лексикология современного английского языка. – М.: Высшая школа, 1959. – 351 с.
3. Бабенко Л.Г. Лексические средства обозначения эмоций в русском языке. – Екатеринбург: Изд-во Уральского ун-та, 1989. – 130с.
4. Балли Ш. Французская стилистика. – М.: Иностранная литература, 1961. – 543с.
5. Виноградов В.В. Итоги обсуждения вопросов стилистики //Вопросы языкознания,1955. – №1. – С. 70.
6. Виноградов В.В. Русский язык. – М.: Московский ун-т, 1952. – 701 с.
7. Левковская К.А. Теория слова, принципы ее построения и аспекты изучения лексического материала. – М.: URSS,1962. – 295 с.
8. Mario Puzo. The Godfather. – New York, Putnam's Sons, 1969. – 590 b.
9. Носенко Э.Л. Особенности речи в эмоциональной напряженности. –Днепропетровск: ДГУ,1975. – 179 с.
10. Реформатский А.А. Введение в языкознание. – М.: Аспект пресс, 1955. –536 с.
11. Уфимцева А.А. Слово в лексико-семантической системе языка. – М.: УРСС, 1968. – 286 с.
12. Шмелев Д.Н. Проблемы семантического анализа лексики. – М.: УРСС, 1973. – 278 с.

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THE EFFECT OF STRUCTURED SOCIAL SKILLS TRAINING ON SOCIAL INTERACTION AMONG FIRST-GRADE PRIMARY SCHOOL STUDENTS: A QUASI-EXPERIMENTAL STUDY

	Parva Vasli , Elementary School Teacher, Department of Education and Training District 1, Qazvin. Iran.
	Erfan Soleimani , Teacher, Department of Kalaye Education and Training Department, Qazvin, Iran.
	Valiollah Soleimani , Persian Language Teaching Center, Imam Khomeini International University, Qazvin, Iran. Email: soleimani_vikiu@yahoo.com

Abstract. *Social interaction skills play a vital role in children's academic achievement, emotional development, and long-term social adjustment. Despite their importance, many children struggle with social interactions, leading to peer rejection, behavioral problems, and reduced school performance. This study examined the effectiveness of an 8-week structured social skills training program on social interaction among first-grade primary school students. A quasi-experimental pretest-posttest control group design was employed. A total of 144 students were randomly assigned to an experimental group (n=72) and a control group (n=72). The experimental group received the intervention, while the control group continued with regular classroom activities. Social interaction was measured using a standardized questionnaire before and after the intervention. Data were analyzed using SPSS, applying paired-sample t-tests and independent-sample t-tests. Results indicated a significant improvement in social interaction for the experimental group ($t(71) = 14.32, p < 0.001$), whereas the control group showed no significant change ($t(71) = 1.35, p = 0.180$). Furthermore, posttest comparisons revealed that the experimental group significantly outperformed the control group ($t(142) = 12.45, p < 0.001$). These findings support the effectiveness of structured social skills training in enhancing social interaction among young students.*

Keywords: Social Skills Training, Social Interaction, Primary School Students, Quasi-Experimental Design, SPSS.

ВЛИЯНИЕ СТРУКТУРИРОВАННОГО ОБУЧЕНИЯ СОЦИАЛЬНЫМ НАВЫКАМ НА СОЦИАЛЬНОЕ ВЗАИМОДЕЙСТВИЕ СРЕДИ УЧАЩИХСЯ ПЕРВОГО КЛАССА НАЧАЛЬНОЙ ШКОЛЫ: КВАЗИ-ЭКСПЕРИМЕНТАЛЬНОЕ ИССЛЕДОВАНИЕ

Аннотация. *Навыки социального взаимодействия играют важную роль в академических достижениях детей, их эмоциональном развитии и долгосрочной социальной адаптации. Несмотря на значимость этих навыков, многие дети испытывают трудности в общении, что приводит к отвержению со стороны сверстников, проблемам в поведении и снижению успеваемости. В данном исследовании изучалась эффективность восьминедельной программы структурированного обучения социальным навыкам для развития социального взаимодействия среди учащихся первого класса начальной школы. Использовался квази-экспериментальный план с предтестом и посттестом и контрольной группой. Всего 144 учащихся были случайным образом распределены в экспериментальную группу (n=72) и контрольную группу (n=72). Экспериментальная группа прошла обучение, тогда как контрольная продолжала обычные занятия в классе. Социальное взаимодействие измерялось с помощью стандартизированного опросника до и после вмешательства. Данные анализировались в SPSS с применением парных*

t-тестов и независимых *t*-тестов. Результаты показали значительное улучшение социального взаимодействия в экспериментальной группе ($t(71) = 14,32, p < 0,001$), тогда как в контрольной группе изменений не наблюдалось ($t(71) = 1,35, p = 0,180$). Кроме того, посттестовые сравнения выявили, что экспериментальная группа значительно превзошла контрольную ($t(142) = 12,45, p < 0,001$). Эти результаты подтверждают эффективность структурированного обучения социальным навыкам в развитии социального взаимодействия у младших школьников.

Ключевые слова: обучение социальным навыкам, социальное взаимодействие, учащиеся начальной школы, квази-экспериментальный дизайн, SPSS.

BOSHLANG'ICH MAKTABNING BIRINCHI SINFI O'QUVCHILARI ORASIDA IJTIMOYIY KO'NIKMALARNI STRUKTURALASHTIRILGAN O'QITISH ORQALI IJTIMOYIY MUHOJOTNI RIVOJLANTIRISH: KVAZI-EKSPERIMENTAL TADQIQOT

Annotatsiya. *Ijtimoiy o'zaro ta'sir ko'nikmalari bolalarning akademik yutuqlarida, ularning emotsional rivojlanishida va uzoq muddatli ijtimoiy moslashuvda muhim rol o'ynaydi. Ushbu ko'nikmalarning ahamiyatiga qaramay, ko'plab bolalar muhojotda qiyinchiliklarga duch keladi, bu esa tengdoshlar tomonidan rad etilishiga, xulq-atvor muammolariga va o'quv natijalarining pasayishiga olib keladi. Mazkur tadqiqotda ijtimoiy o'zaro ta'sirni rivojlantirish maqsadida birinchi sinf o'quvchilari uchun sakkiz haftalik strukturalashtirilgan ijtimoiy ko'nikmalarni o'qitish dasturining samaradorligi o'rganildi. Tadqiqotda pretest-posttest nazorat guruhi bilan kvazi-eksperimental dizayn qo'llanildi. Jami 144 nafar o'quvchi tasodifiy tarzda eksperimental guruhga ($n=72$) va nazorat guruhiga ($n=72$) taqsimlandi. Eksperimental guruhga intervensiya o'tkazildi, nazorat guruhi esa odatiy sinf mashg'ulotlarini davom ettirdi. Ijtimoiy o'zaro ta'sir standartlashtirilgan so'rovnoma yordamida intervensiyadan oldin va keyin o'lchandi. Ma'lumotlar SPSS dasturida juft tanlovli *t*-testlar va mustaqil tanlovli *t*-testlar yordamida tahlil qilindi. Natijalar eksperimental guruhda ijtimoiy o'zaro ta'sirning sezilarli darajada yaxshilanganini ko'rsatdi ($t(71) = 14,32, p < 0,001$), nazorat guruhida esa sezilarli o'zgarish kuzatilmadi ($t(71) = 1,35, p = 0,180$). Bundan tashqari, posttest natijalari eksperimental guruh nazorat guruhidan sezilarli darajada ustun bo'lganini aniqladi ($t(142) = 12,45, p < 0,001$). Ushbu natijalar strukturalashtirilgan ijtimoiy ko'nikmalarni o'qitish dasturining kichik yoshdagi o'quvchilarda ijtimoiy o'zaro ta'sirni rivojlantirishdagi samaradorligini tasdiqlaydi.*

Kalit so'zlar: *ijtimoiy ko'nikmalarni o'qitish, ijtimoiy o'zaro ta'sir, ibtidoiy maktab o'quvchilari, kvazi-eksperimental dizayn, SPSS.*

1. Introduction

Social skills are defined as a set of learned behaviors that enable individuals to interact effectively and appropriately with others (Gresham & Elliott, 2008). These skills include cooperation, communication, empathy, conflict resolution, and self-control. In early childhood, children develop social competence through interactions with family, peers, and teachers. However, some children lack essential social skills, which may lead to difficulties in peer relationships, academic problems, and emotional distress (Elias et al., 1997). Children with poor social skills may experience peer rejection, bullying, and isolation. Such negative experiences can contribute to low self-esteem, anxiety, and behavioral issues. Therefore, schools play a crucial role in providing interventions to support children's social development. Social skills training programs are structured interventions designed to teach specific social behaviors through modeling, role-playing, reinforcement, and feedback (Gresham, 2002).

Several studies have demonstrated the effectiveness of social skills training in improving children's social competence and reducing behavioral problems. For instance, a meta-analysis by Durlak et al. (2011) found that social-emotional learning programs significantly improved social skills and academic outcomes. Another study by Payton et al. (2008) reported that children who received social skills training showed better peer relationships and classroom behavior.

Despite the existing evidence, limited research has focused on first-grade students in primary schools. Early intervention is critical because social skills acquired during early school years form the foundation for later social and academic success. Therefore, this study aims to examine the effect of

structured social skills training on social interaction among first-grade students. In a quasi-experimental study, a scientist or researcher studies how an intervention affects an outcome, but does not randomly assign participants to groups. Simply put, in an experimental study, people are randomly divided into an “experimental group” and a “control group.” In a quasi-experimental study, the groups are pre-existing or naturally formed. For example, in a school, a new and an old method are used in two classes to test the effectiveness of a new teaching method. The classes are not randomly assigned—they already exist. That is why it is called a quasi-experimental study. This method is widely used in psychology, pedagogy, sociology, and medical research. The main features of a quasi-experimental study are the elements of experimentation. An intervention is used and the results are compared, but there is no complete randomization. One of the advantages of this method is that it is easy to implement in real-life situations. It is convenient in schools, hospitals, and organizations. It may be the only option in some ethical constraints. The disadvantages of this method are that the groups may not be equal. Other factors may also affect the results. It shows a cause-and-effect relationship less clearly than an experiment. However, using this method in the teaching process gives good results.

2. Literature Review

2.1 Theoretical Background

Social skills training is rooted in social learning theory, which posits that behavior is learned through observation, imitation, and reinforcement (Bandura, 1977). Children learn social behaviors by observing models such as parents, teachers, and peers. Through repeated practice and feedback, they internalize appropriate social responses.

Another theoretical foundation is the social information processing model (Crick & Dodge, 1994), which explains how children interpret social cues and decide how to respond. Children with poor social skills often misinterpret social cues and respond aggressively or withdraw. Social skills training helps them to process social information more accurately and choose adaptive responses.

2.2 Previous Research

A number of studies have investigated the effectiveness of social skills interventions. For example, Brown and Clark (2018) reported that a 10-week social skills program improved cooperation and reduced aggression among primary school children. Kim et al. (2020) found that social skills training enhanced peer relationships and reduced social anxiety. Lee et al. (2021) concluded that structured social skills instruction led to significant improvements in communication and conflict resolution skills.

However, most studies have focused on older children or children with behavioral problems. Limited research has examined the effectiveness of social skills training in early primary school settings. This study addresses this gap by focusing on first-grade students.

3. Method

3.1 Research Design

A quasi-experimental design with pretest-posttest and control group was used to evaluate the effect of the intervention. This design allows comparison between groups while controlling for initial differences through pretest measurement.

3.2 Participants

The participants were 144 first-grade students (ages 6–7) from a public primary school. The students were randomly assigned to the experimental group (n=72) and control group (n=72). The sample included both boys and girls.

3.3 Instrument

Social interaction was measured using a standardized questionnaire. The questionnaire consisted of 20 items rated on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). The questionnaire assessed cooperation, communication, empathy, conflict resolution, and peer interaction. Higher scores indicated better social interaction.

3.4 Intervention Program

The intervention consisted of an 8-week structured social skills training program with two sessions per week (16 sessions total). Each session lasted 45 minutes. The program included the following components:

Session Structure

1. Introduction and goal setting
2. Direct instruction of a specific social skill
3. Modeling and role-play
4. Group activities and practice
5. Feedback and reinforcement
6. Homework assignment

Core Skills Taught

- Greeting and starting conversations
- Cooperation and teamwork
- Listening and responding appropriately
- Sharing and turn-taking
- Conflict resolution
- Expressing emotions appropriately
- Asking for help
- Empathy and perspective-taking

Table 1. Intervention Program Overview

Week	Session Topics	Main Activities
1	Introduction to social skills; Greeting	Role-play, modeling, group games
2	Cooperation	Team tasks, collaborative games
3	Communication	Storytelling, conversation practice
4	Listening & empathy	Active listening exercises
5	Conflict resolution	Role-play of conflicts
6	Expressing emotions	Emotion recognition games
7	Asking for help	Practice and reinforcement
8	Review & integration	Group projects, final assessment

4. Data Analysis

Data were analyzed using SPSS. Descriptive statistics (mean and standard deviation) were calculated for both groups at pretest and posttest. Paired-sample t-tests were conducted to examine within-group changes. An independent-sample t-test was used to compare posttest scores between groups. The significance level was set at $p < 0.05$.

5. Results

5.1 Descriptive Statistics

Table 2. Descriptive Statistics of Social Interaction Scores

Group	Time	n	Mean	SD
Experimental	Pretest	72	45.20	6.10
Experimental	Posttest	72	56.80	5.70

Group	Time	n	Mean	SD
Control	Pretest	72	45.10	6.20
Control	Posttest	72	46.00	6.30

5.2 Paired Sample t-test

Table 3. Paired t-test for Experimental Group

Variable	t	df	p	Mean Diff	SD Diff
Social Interaction	14.32	71	<0.001	11.60	3.50

Table 4. Paired t-test for Control Group

Variable	T	df	p	Mean Diff	SD Diff
Social Interaction	1.35	71	0.180	0.90	3.40

5.3 Independent Sample t-test

Table 5. Independent t-test for Posttest Scores

Variable	Group	Mean	SD	t	df	p
Social Interaction	Experimental	56.80	5.70	12.45	142	<0.001
Social Interaction	Control	46.00	6.30			

6. Discussion

The results of this study support the hypothesis that structured social skills training significantly improves social interaction among first-grade primary school students. The experimental group showed a significant increase in social interaction scores after the intervention, while the control group did not show any significant change. Additionally, the posttest comparison indicated that the experimental group outperformed the control group significantly.

These findings are consistent with previous research demonstrating the positive effects of social skills training on children's social competence. Social skills training provides children with explicit instruction and opportunities to practice appropriate behaviors. The use of modeling, role-play, and reinforcement likely contributed to the improvement observed in the experimental group.

The results also highlight the importance of early intervention. First-grade students are at a developmental stage where social skills are rapidly developing. Intervening at this stage can have long-lasting effects on children's social adjustment and academic success.

Furthermore, the role of teachers is crucial in the success of the program. A supportive classroom environment, positive teacher-student relationships, and consistent reinforcement of skills enhance the effectiveness of the intervention.

7. Implications for Practice

The findings of this study have practical implications for educators and policymakers:

1. Integration of Social Skills Training into Curriculum: Schools should consider including structured social skills programs in the regular curriculum.

2. Teacher Training: Teachers should be trained in delivering social skills instruction and managing group activities.
3. Early Intervention: Early primary school is an ideal time to introduce social skills training.
4. Parental Involvement: Parents should be involved in reinforcing social skills at home.

8. Limitations and Future Research

This study has several limitations. First, the data used in this study were simulated, which may limit the generalizability of the findings. Second, the study only examined short-term effects; long-term follow-up is necessary to assess the retention of social skills. Third, the study was conducted in one school, which may limit external validity.

Future research should replicate the study with real data, include long-term follow-up, and explore the effects of social skills training on academic achievement and behavioral outcomes. Additionally, future studies could examine the effectiveness of different training methods and the role of parental involvement.

9. Conclusion

The structured social skills training program was effective in improving social interaction among first-grade primary school students. The program enhanced cooperation, communication, and conflict resolution skills. Implementing such programs in schools can promote better peer relationships and reduce behavioral problems. Future research should further examine the long-term impact and scalability of social skills training programs.

It is difficult to randomly divide classes in a school, but the quasi-experimental method allows you to test the effectiveness of a new teaching method with existing classes in a convenient and realistic environment. In psychology - when evaluating the effect of therapy or training. In psychology, quasi-experimental studies are related to the study of the human psyche, behavior, emotional state and psychological effects. In pedagogy - when testing the effectiveness of new teaching methods. In sociology - when studying the results of social programs or projects. Quasi-experimental studies in medicine are directly related to human health, the effectiveness of treatment and the prevention of diseases. In medicine - they are used to evaluate the effect of treatment methods or preventive measures. In medicine - they are used to assess how a new drug, treatment method or preventive measure affects the health of patients. Quasi-experimental studies are also used in neuropsycholinguistics. They are used to study the relationship between language, the brain and human mental processes. Because neuropsycholinguistics is the study of the relationship between language, the brain, and mental processes. Quasi-experimental research is important in neuropsycholinguistics because it is not always possible to randomly assign people to groups in a laboratory setting. For example, researchers compare the speech of brain-damaged and healthy people; study the language processing of bilingual and monolingual people; and compare the speed of speech comprehension of children and adults. Here, the groups are pre-existing, so the research is quasi-experimental. This method allows us to understand how the brain processes language; how stress or emotion affects speech; how memory and attention are related to language; and the causes of speech disorders. Therefore, quasi-experimental research in neuropsycholinguistics helps us study the human psyche, brain activity, and language processes in real-world settings.

REFERENCES

- Bandura, A. (1977). Social learning theory. Prentice-Hall.
- Brown, A., & Clark, M. (2018). Social skills training and children's social competence. *Journal of Child Psychology*, 23(2), 112–128.
- Crick, N. R., & Dodge, K. A. (1994). A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychological Bulletin*, 115(1), 74–101.

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, 82(1), 405–432.

Elias, M. J., Zins, J. E., Weissberg, R. P., et al. (1997). Promoting social and emotional learning: Guidelines for educators. ASCD.

Gresham, F. M. (2002). Social skills training: A practical guide for children with behavior problems.

Gresham, F. M., & Elliott, S. N. (2008). Social skills improvement system. Pearson.
Kim, S., Park, J., & Lee, H. (2020). Effectiveness of social skills training in primary school. *Educational Psychology*, 38(4), 334–350.

Lee, K., et al. (2021). Social skills intervention for young children. *Early Childhood Education Journal*, 49(6), 899–912.

Payton, J. W., Weissberg, R. P., Durlak, J. A., et al. (2008). The positive impact of social and emotional learning for kindergarten to eighth-grade students. Collaborative for Academic, Social, and Emotional Learning (CASEL).

Smith, J., & Jones, P. (2020). Social interaction and school adjustment. *School Psychology Review*, 49(1), 23–40.

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LINGUOPOETIC FEATURES OF WORD-SENTENCES AND NON-VERBAL MEANS IN LITERARY TEXTS



Karimova Zулнuра G'ulamqodirovna, *filologiya fanlari doktori (DSc), dotsent, Toshkent davlat agrar universiteti*
Karimova Zулнuра G'ulamqodirovna, *Doctor of Philology (DSc), Associate Professor, Tashkent State Agrarian University*

Abstract. *This article analyses the linguopoetic characteristics of word-sentences used in literary texts. The study highlights the role of word-sentences in expressing characters' emotional states and enhancing the emotional-expressive impact of the text. Furthermore, based on specific examples, it demonstrates how the harmonious use of non-verbal means – such as facial expressions, gestures, and body language – alongside verbal units intensifies the artistic and aesthetic effect. Through examples drawn from Uzbek, English, Russian, and French, the interrelation between verbal and non-verbal means, as well as their linguopoetic potential in revealing character traits, is thoroughly investigated.*

Keywords: *word-sentence, linguopoetics, psycholinguistics, verbal and non-verbal means, literary text, mimicry, gesture, character speech, emotional-expressiveness, pragmatic meaning, artistic-aesthetic effect.*

ЛИНГВОПОЭТИЧЕСКИЕ ОСОБЕННОСТИ СЛОВ-ПРЕДЛОЖЕНИЙ И НЕВЕРБАЛЬНЫХ СРЕДСТВ В ХУДОЖЕСТВЕННОМ ТЕКСТЕ

Аннотация. *В данной статье анализируются лингвопоэтические особенности слов-предложений, используемых в художественном тексте. В исследовании освещается роль слов-предложений в выражении психического состояния персонажа и усилении эмоционально-экспрессивной выразительности текста. Также на примерах обосновано усиление художественно-эстетического воздействия в результате гармоничного использования невербальных средств, таких как мимика, жесты и движения тела, совместно с вербальными единицами. На основе образцов из узбекского, английского, русского и французского языков*

исследуются взаимосвязь вербальных и невербальных средств, а также их лингвопоэтические возможности в раскрытии характера персонажа.

Ключевые слова: слова-предложения, лингвопоэтика, психолингвистика, вербальные и невербальные средства, художественный текст, мимика, жест, речь персонажа, эмоционально-экспрессивность, прагматическое значение, художественно-эстетический эффект.

BADIIY MATNDA SO‘Z-GAPLARNING LINGVOPOETIK XUSUSIYATLARI VA NOVERBAL VOSITALAR

Annotatsiya. Ushbu maqolada badiiy matnda qo‘llaniladigan so‘z-gaplarning lingvopoetik xususiyatlari tahlil qilinadi. Tadqiqotda so‘z-gaplarning personajning ruhiy holatini ifodalashdagi roli va matnning emotsional-ekspressiv ifodaviyligini kuchaytirishdagi ahamiyati yoritiladi. Shuningdek, misollar asosida mimika, imo-ishora va tana harakatlari kabi noverbal vositalarning verbal birliklar bilan uyg‘un qo‘llanishi natijasida badiiy-estetik ta‘sirning kuchayishi asoslab beriladi. O‘zbek, ingliz, rus va fransuz tillaridagi namunalar asosida verbal va noverbal vositalarning o‘zaro bog‘liqligi hamda personaj xarakterini ochishda ularning lingvopoetik imkoniyatlari tadqiq etiladi.

Kalit so‘zlar: so‘z-gaplar, lingvopoetika, psixolingvistika, verbal va noverbal vositalar, badiiy matn, mimika, imo-ishora, personaj nutqi, emotsional-ekspressivlik, pragmatik ma‘no, badiiy-estetik ta‘sir.

Introduction. In modern linguistics, the study of literary texts based on the anthropocentric principle has become increasingly important. In particular, research focused on examining the human factor in its inseparable connection with language has emerged as one of the leading directions in linguistic studies in recent years. From this perspective, psycholinguistics, which investigates the relationship between language and human cognition, serves as an important theoretical framework for explaining the mechanisms of meaning construction and influence in literary discourse. Human speech functions not only as a means of conveying information but also as a tool for expressing emotions, reflecting psychological states, shaping aesthetic attitudes, and fulfilling communicative purposes. At the same time, the linguopoetic approach plays a significant role in the study of the aesthetic functions of linguistic units and their potential for creating imagery in literary texts.

It is well known that a literary text represents a complex form of human thought, emotion, and aesthetic perception expressed through language. Every linguistic unit employed in a literary text performs a specific artistic and aesthetic function and contributes to the realization of the author’s ideological intention. In particular, word-sentences used in literary discourse play a crucial role in expressing an individual’s inner experiences, emotions, and psychological attitudes. Exclamatory, modal, affirmative-negative, and invitational-vocative word-sentences are especially distinguished by their ability to directly reveal the emotional state of a literary character. Despite their brevity, such units possess a strong expressive and affective force, facilitating the representation of psychological states within the text.

Therefore, since word-sentences reflect the speaker’s inner psychological condition through their close connection with human cognition, emotional experience, and speech influence, it is important to investigate them not only from grammatical and semantic perspectives but also in relation to human psychology and speech activity. Indeed, through a character’s speech, a literary work reveals that character’s inner world, attitudes, mood, and communicative intentions within the process of interaction.

It is evident that, in literary texts, word-sentences emerge in human consciousness as immediate emotional reactions: *Sevargul sapchib o‘rnidan turdiyu, beixtiyor titrab: – U-uh-h!.. – dedi tishlarini g‘ichirlatib. (Sevargul suddenly jumped to her feet and, trembling involuntarily, said, “U-uh-h!..” while grinding her teeth.)* (N.Qilich).

Bridget came out and started clearing plates and Ursula jumped up and said, ‘Oh, no, I’ll do that.’ (K.Atkinson)

“Да! она не простит и не может простить. И всего ужаснее то, что виной всему я, виной я, а не виноват. В этом-то вся драма, – думал он. – Ах, ах, ах!” – приговаривал он с

отчаянием, вспоминая самые тяжелые для себя впечатления из этой ссоры. ("Yes! She will not forgive and cannot forgive. And the most terrible thing is that I am to blame for everything; I am to blame, though I am not guilty. That is the whole tragedy," he thought. "Ah, ah, ah!" he kept repeating in despair, recalling the most painful memories of that quarrel.) (Л.Толстой)

– *Oh ! mon Dieu, mon Dieu, pardonnez-moi ! s'écria Edmond en se jetant à genoux devant le bonhomme. ("Oh, my God, my God, forgive me!" cried Edmond, throwing himself to his knees before the old man.)* (A.Dumas)

At the same time, non-verbal means such as facial expressions, gestures, eye contact, intonation, and body movements enhance the emotional and expressive force of word-sentences in literary texts. The interaction of verbal and non-verbal means in the process of communication enables a more vivid and natural representation of a character's psychological state. In particular, non-verbal means such as gestures, facial movements, and silence intensify the pragmatic and emotional impact of speech, forming specific emotional and associative images in the reader's mind. As a result, the psycholinguistic and aesthetic impact of the literary text is significantly strengthened.

The integrated use of word-sentences and non-verbal means in literary texts serves not only to reveal characters' personalities and inner experiences but also to express national and cultural values, communicative etiquette, and interactional traditions. From this perspective, the present study aims to identify the linguopoetic features of word-sentences and non-verbal means employed in literary texts and to analyze the psycholinguistic mechanisms of influence that emerge from their interaction.

Research Methodology. The present study employed linguopoetic, psycholinguistic, and descriptive-analytical methods. The functional-semantic characteristics of word-sentences used in literary texts and the non-verbal means accompanying them were examined through contextual analysis. In addition, the role of verbal and non-verbal means in representing characters' psychological states, emotional conditions, and the expressive impact of the text was analyzed within the framework of the linguopoetic approach.

During the research process, examples drawn from Uzbek, English, Russian, and French literary works were subjected to comparative analysis, and their artistic-aesthetic and psychological potential was identified. Furthermore, semantic and functional analytical methods were employed to reveal the communicative and emotional meanings arising from the interaction of word-sentences and non-verbal means.

Literature Review. Literary texts, their linguopoetic features, and the aesthetic functions of linguistic units have been extensively investigated by numerous linguists. In particular, scholarly views concerning the artistic potential of language, the imagery of texts, the author's individual style, and the expressiveness of speech have played a significant role in shaping the theoretical foundations of linguopoetics. Furthermore, studies devoted to the communicative and emotional characteristics of word-sentences and the accompanying non-verbal means demonstrate the close relationship of these units with human psychology, emotional experience, and the mechanisms of speech influence. From this perspective, the examination of this issue within linguopoetic and psycholinguistic frameworks contributes to a deeper understanding of the expressive potential of literary texts.

It is well known that, in the process of communication, individuals express their thoughts through sentences and texts. Therefore, linguists have traditionally focused on studying language through the sentences and texts produced on its basis. However, investigating a text independently of the person who created it hinders the identification not only of the communicative potential of that particular text but also of the speech-related capabilities of language associated with human activity. In this regard, as D. Khudayberganova notes, "the method of investigating a writer's or creator's speech style solely from the perspective of word choice or sentence construction skills no longer meets contemporary scholarly requirements. Therefore, studying the process of text creation in close connection with individual style provides a deeper insight into the linguistic aspects of the text" [1;7].

Through the linguopoetic analysis of a literary text, it becomes possible to identify the semantic nuances, aesthetic colouring, and emotional impact of linguistic units that shape its ideological and aesthetic content. Indeed, linguistic units employed in the creation of a literary text, particularly words, not only denote and describe reality but also acquire distinctive semantic shades and stylistic colouring corresponding to the “new world” created by artistic imagination. As linguist V. Ya. Zadornova states, a word in a literary work is enriched with aesthetic meaning in accordance with the author’s artistic intention and begins to function according to the principles of aestheticity. It manifests itself in all its facets and shades and becomes an instrument of figurative thinking [2;29]. In this respect, approaching the analysis of poetically actualized units in the texts of particular authors from both linguopoetic and linguocultural perspectives contributes to more profound and theoretically grounded research aimed at revealing the expressive richness of our unique native language [3;11].

It is evident that revealing the artistic and aesthetic functions of language constitutes the primary objective of linguopoetics. Within the linguopoetic approach to the study of linguistic units, that is, in the investigation of the artistic and aesthetic functions of language, the human factor occupies a central position. In the process of creating literary discourse and literary works through language, individuals consciously select linguistic units capable of performing aesthetic functions and, at times, assign aesthetic value to language units themselves. As a result, such discourse and literary texts acquire artistic and aesthetic characteristics. The artistic and aesthetic functions of linguistic units are recognized as a key focus of linguopoetic research [4;6927].

Particularly, when word-sentences are employed in literary discourse, authors endow them with aesthetic functions, thereby enhancing the expressiveness and impact of the text. From this perspective, the linguopoetic investigation of word-sentences makes it possible to identify the influence of language on human psychology and emotions, as well as to reveal the emotional states of both the author and literary characters.

In literary works, the extent to which an author can accurately and purposefully convey characters’ personalities, speech abilities, and the factors of a communicative situation to the reader largely depends on the author’s mastery of word usage. The selection of words and expressions in accordance with a character’s personality enables a deeper understanding of both the character and the text itself [6;81]. It should also be emphasized that not only verbal but also non-verbal means play a significant role in creating meaning and emotional impact in literary texts. In particular, gestures, facial expressions, silence, and intonation contribute to a more vivid representation of a character’s psychological state. When used in conjunction with word-sentences, such non-verbal means enhance the pragmatic and aesthetic impact of the literary text and enable readers to perceive events and situations more deeply.

According to the linguist R. R. Bobokalonov, non-verbal manifestations accompanying word-sentences facilitate the conveyance of speech meanings. In particular, gestures and facial expressions closely associated with specific bodily movements are characteristic of exclamations and invitational-vocative expressions, whereas modal, affirmative, and negative word-sentences strongly reflect the speaker’s psychological state. In such cases, the speaker’s confidence, doubt, agreement, or disagreement becomes clearly observable through facial and behavioural cues [5;25].

As noted by M. Qurbonova, “the simultaneous use of gestures and facial expressions alongside verbal units in the process of communication not only enhances the impact of speech but also facilitates its accurate interpretation by the listener” [7;204]. From this perspective, every skilled writer pays particular attention to these aspects of characters’ speech in order to create a vivid and realistic representation of literary events. This is because non-verbal means, particularly a character’s facial expressions and the movements of the head, hands, shoulders, and legs, reinforce and intensify meanings such as surprise, excitement, affirmation, negation, invitation, exclamation, encouragement, calling, and dismissal expressed through word-sentences, thereby increasing the overall impact of speech.

The analysis has shown that although the grammatical, semantic-functional, and neuropsycholinguistic characteristics of word-sentences have been extensively investigated in existing studies, their linguopoetic potential in conjunction with non-verbal means has not yet received sufficient scholarly attention.

Thus, the reviewed scholarly sources demonstrate the significant scientific relevance of investigating the linguopoetic features of word-sentences and non-verbal means in literary texts. Therefore, the present article primarily analyzes the functional potential of word-sentences and the accompanying non-verbal means from a linguopoetic perspective, while, in certain cases, also drawing upon a psycholinguistic approach.

Results and Discussion. It is well known that not only Uzbeks but also people of all cultures make extensive use of various gestures based on the movements of the head, hands, and shoulders, as well as facial expressions involving the eyes, eyebrows, and lips, alongside linguistic units when expressing opinions, emotions, and attitudes toward reality. Such non-verbal means function as auxiliary communicative devices that contribute to a more vivid and expressive transmission of information. For example:

U qo'li ko'ksida choy uzatar ekan, "Mang! Bizning voha choyidan iching!" – dedi. (While offering tea with his hand placed on his chest, he said, "Here you are! Have some of our oasis tea!") (From Newspaper).

In this example, the Uzbek tradition of offering tea and inviting someone to drink tea is reflected. The word-sentence *Mang!* is used to express the invitation to drink tea. The non-verbal element *qo'li ko'ksida* ("with his hand on his chest") also accompanies the utterance, adding a national and cultural flavour to the sentence and portraying a traditional Uzbek manner of offering tea. In this context, the word-sentence *Mang!* also serves to express respect and politeness.

It should be noted that the word-sentences *Ma!* and *Mang!* are invariably accompanied in speech by the gesture of extending one's hand forward. Indeed, it is impossible to hand an object to another person without such a movement. However, the hand movement accompanying *Mang!* is not always explicitly described in the text. Nevertheless, this action can often be inferred from the constructions employed in the discourse. For example:

G'ijimlangan she'rni oldi. Varrakka bir qaradi-da: – Unutibman. Bermoqchiydim, qarang. Mang, – deb menga uzatdi. (He picked up the crumpled poem. He glanced at the sheet and said: "I forgot. I meant to give it to you, look. Here you are," and handed it to me.) (Sh. Xolmirzayev).

In this example, the hand movement itself is not explicitly described. However, the verb *uzatmoq* ("to hand over" or "to pass") employed in the sentence implicitly indicates the accompanying hand movement.

The word-sentences *Ma!* and *Mang!* are translated into Russian as *Ha!* and *Ha-me!*, respectively. These Russian word-sentences are likewise pronounced in conjunction with a specific hand gesture. For example:

– Ha, пей! – сказал он, поднося ко рту благородного отца склянку. – Пей прямо из пузырька... Разом! Вот так... Ha, теперь звездочкой закуси, чтоб душа этой дрянью не провоняла. ("Here, drink!" he said, bringing the bottle to the noble father's lips. "Drink straight from the bottle... All at once! That's right... Here, now chew a clove so that your breath won't smell of this stuff.") (A.Чехов)

The analysis demonstrates that the combined use of word-sentences and non-verbal means enhances the linguopoetic, psycholinguistic, and aesthetic impact of literary texts. Consider the following example from Uzbek literature:

Hatto jo'raboshimiz ham buvani ko'rishi bilan yuvosh tortib qoladi, ikki qo'lini ko'ksiga qo'yib: – Assalomu alaykum, buvajon, – deb salom beradi. (Even our leader becomes gentle as soon as he sees grandmother and, placing both hands on his chest, greets her: "Assalomu alaykum, dear grandfather.") (O'.Hoshimov).

In this example, the phrase *ikki qo'lini ko'ksiga qo'yib* ("placing both hands on his chest") expresses the character's respect and reverence toward the grandmother. Placing both hands on the chest while greeting is a characteristic feature of Uzbek speech etiquette and communicative culture and serves as a visual form of expressing respect. In the literary text, the combination of this gesture with the greeting *Assalomu alaykum* effectively conveys the sincerity of the greeting and its foundation in respect and esteem.

Another gesture that commonly accompanies speech in Uzbek culture is bowing. This action expresses respect, reverence, and deference. When used together with invitational-vocative word-sentences such as *qani* and *marhamat* in literary texts, this gesture serves a specific poetic function. For example:

Qulmuhammad: (ta'zim bilan joy ko'rsatadi). Qani, amir, marhamat!
(*Qulmuhammad: (indicates the seat with a bow). "Please, Amir, do come in!"*) (I.Sulton).

In this example, the character's bow not only demonstrates the sincerity of the invitation and its basis in respect and courtesy but also contributes to the expressive power of the text. Furthermore, the interaction of verbal and non-verbal means within this communicative situation provides a more vivid representation of the character's inner psychological state. Specifically, the invitational meaning conveyed through the word-sentences *qani* and *marhamat* is reinforced by the act of bowing, naturally revealing the speaker's attitude of respect and deference. As a result, the character's communicative intention and emotional state become more clearly represented in the reader's mind. From this perspective, the combination of the non-verbal means with the verbal units strengthens not only the linguopoetic but also the psychological impact of the literary text.

The following examples from English, Russian, and French likewise demonstrate how the use of word-sentences together with non-verbal means contributes to a more expressive representation of greetings in communication:

1. *He approached Ursula and kissed her lightly on the cheek, saying, "Hello, dear."* (K.Atkinson). In this example, the use of the greeting expression together with a non-verbal means serves to reveal the emotional relationship between the characters and to demonstrate the warmth of their feelings toward one another. Moreover, the greeting is represented not merely as a conventional communicative act but as an expressive and vivid image. Specifically, the address "Hello, dear" conveys affection and sincerity, while the gentle kiss on the cheek further reinforces this emotional connection. As a result, the reader gains a clearer understanding of the characters' psychological states and their emotional relationship. Consequently, the literary text acquires not only linguopoetic but also psychological expressiveness.

2. – *Здравствуйте, граждане! Где тут конюшня?*

– *Доброго здоровья, – за всех ответил пожилой казак, донеся руку до края заячьей папачи. – Конюшня, товарищ, вон она, которая под камышом. ("Hello, citizens! Where is the stable?" "Good health to you," replied the elderly Cossack on behalf of everyone, raising his hand to the edge of his rabbit-fur hat. "The stable, comrade, is over there under the reeds")* (М.Шолохов).

In this dialogue, the use of the non-verbal element (донеся руку до края заячьей папачи) alongside the greeting reveals the characters' socio-cultural and ethnic characteristics while simultaneously creating a vivid depiction of the communicative setting.

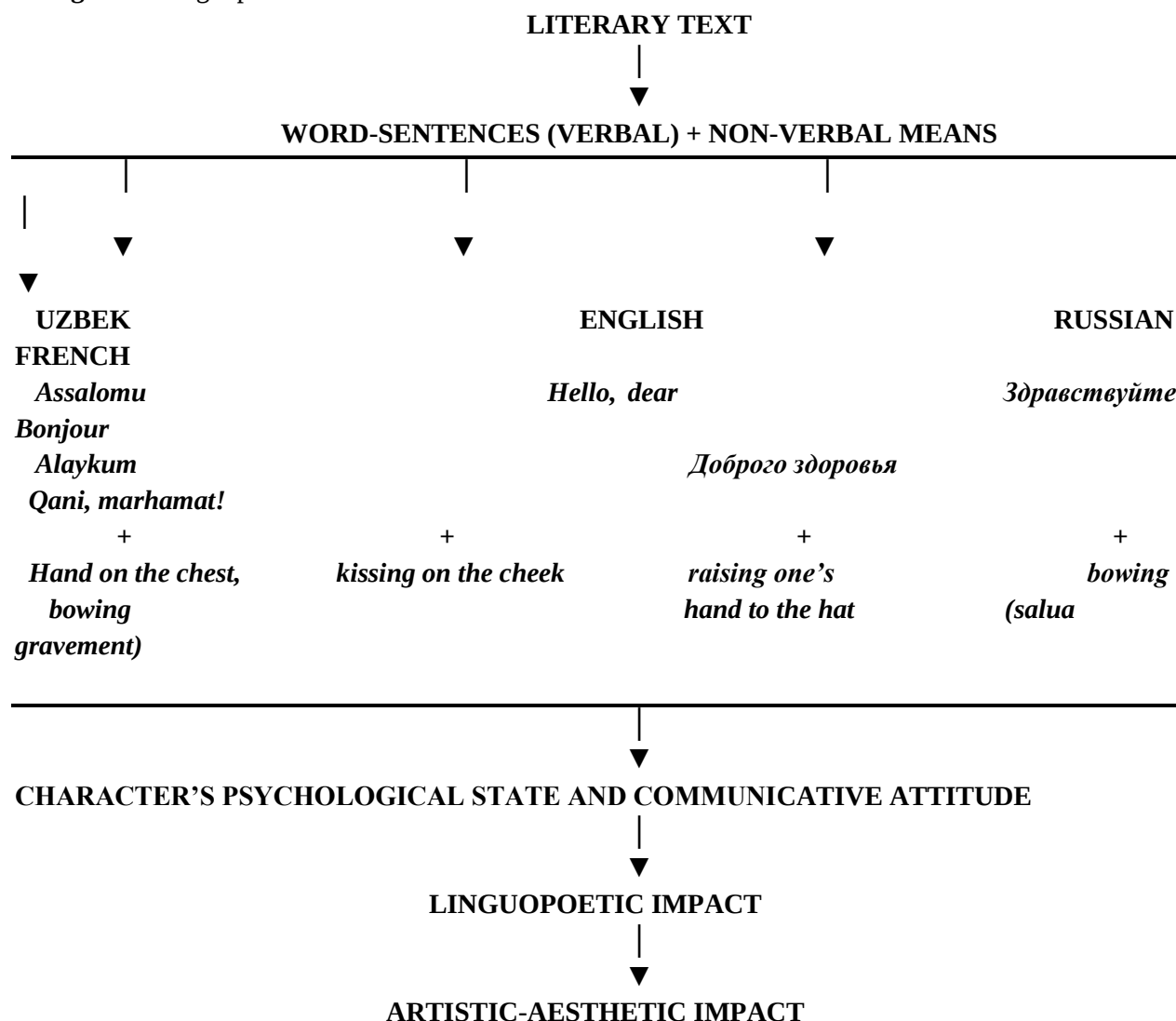
3. – *À la bonne heure ! voilà une explication, dit Caderousse. Eh ! bonjour, madame Dantès. Mercédès salua gravement. ("Excellent! Now that is an explanation," said Caderousse. "Ah, good day, Madame Dantès." Mercédès bowed gravely)* (A. Dumas).

In this passage, the use of the non-verbal element (*salua gravement*) reveals both the psychological state and the aesthetic portrayal of the character. At the same time, it contributes to a vivid and distinctive representation of the situation, thereby enhancing the artistic and aesthetic value of the literary work. Mercédès' dignified bow reflects her emotional self-control, composure, and communicative refinement. Accompanying the verbal greeting, this non-verbal means enables the reader

to perceive the character's psychological state more deeply and reveals psychological dimensions of communication such as respect and social distance. As a result, the reader not only understands the communicative situation presented in the text but also experiences it on an emotional level.

The analysis of these literary examples from different languages demonstrates that the interaction of word-sentences and non-verbal means enhances linguopoetic expressiveness. The characteristics of this interaction in literary texts are illustrated in the following figure.

Figure 1. Linguopoetic Features of the Interaction Between Word-Sentences and Non-verbal Means



In this sequence, the character's psychological state and communicative attitude are initially expressed through verbal and non-verbal means. The interaction of these means enhances the linguopoetic impact of the text. As a result, a particular artistic and aesthetic effect is produced in the reader's perception.

Furthermore, in literary texts, the use of specific linguistic units reflecting a character's external appearance and facial expressions plays an important role in enhancing the poetic significance of exclamatory word-sentences and in portraying psychological states arising from emotional experiences. Descriptions of facial expressions and character traits often convey gloomy colours, a weary spirit, and unpleasant expressions. To a certain extent, a correspondence between a person's appearance and character is considered natural. In creating literary works, writers tend to intensify and emphasize this correspondence for artistic purposes [8;99]. For example:

1. Baqoyev pishillab stol ustidagi papkalardan birini ochdi. *Qosh-qobog'i uyildi.*

– **O‘vv**, – dedi u dabdurustdan menga o‘qrayib. Grajdanin... Tolmasif... Sen To‘rakulova Marjona Bekqulovnaning shikoyat-arizasiga ko‘ra... jinoyat kodeksining... ta-ak, tegishli moddasiga ko‘ra zo‘rlab nomusga tegishda ayblanasan. (Baqoyev snorted and opened one of the folders on the table. **His brows knitted into a frown.** “Hey,” he suddenly said, glaring at me. “Citizen... Tolmasif... According to the complaint submitted by To‘rakulova Marjona Bekqulovna... under the relevant article of the Criminal Code... you are accused of rape.”) (A. Bo‘rixon).

In this Uzbek example, the expression *qosh-qobog‘i uyildi* (“his brows knitted into a frown”) and the state verb *o‘qraymoq* (“to glare”) employed in the author’s narration not only intensify the expressive force of the exclamation *O‘vv* but also contribute to the imagery and artistic expressiveness of the text.

2. “What’s the matter?” said Drouet. “**Oh**, I don’t know,” she said, **her lip trembling**. (Th. Dreiser).

In this English passage, the exclamation *oh* and the expression *her lip trembling*, which denotes the movement of trembling lips, effectively convey the character’s inner emotional experiences, anxiety, and distress. While the writer expresses the heroine’s emotional state through the verbal means represented by the exclamation *oh*, the non-verbal expression *her lip trembling* provides a more vivid depiction of her psychological tension and agitation.

3. – **Ah! mon ami**, dit madame de Rênal **tremblante**, que ce ne soit pas du moins devant les domestiques ! (“**Ah! my friend**,” said Madame de Rênal, **trembling**, “at least not in front of the servants!”) (Stendhal).

In this French literary excerpt, the exclamation *ah* and the state verb *tremblante* (“trembling”) strongly express emotional intensity and thereby contribute to revealing the character’s psychological state. In particular, *tremblante* exposes the heroine’s emotional instability and anxiety, enhancing the emotional impact of the utterance. At the same time, her plea, “at least not in front of the servants,” indicates her concern about the social situation, inner embarrassment, and psychological pressure. Consequently, the passage evokes a sense of sympathy toward the character in the reader and strengthens the psychological and linguopoetic impact of the text.

The analysis of the examples presented above demonstrates that the interaction of word-sentences and non-verbal means in different languages enhances both the linguopoetic and psycholinguistic impact of literary texts. These findings are summarized in the following table.

Table 1. Linguopoetic and Psycholinguistic Outcomes of the Interaction Between Word-Sentences and Non-verbal Means

Outcomes of the interaction between Word-sentence and Non-verbal Means	Linguopoetic Features	Psycholinguistic Impact
Reveals the character’s personality	Enhances imagery	Conveys psychological states
Increases emotional impact	Creates an aesthetic effect	Activates emotional perception
Enriches the reader’s imagination	Vividly represents artistic imagery	Strengthens associative connections
Creates a realistic representation of events in the reader’s mind	Enhances the impact of the text	Evokes a sense of emotional closeness

The findings indicate that the majority of word-sentences are used in speech in conjunction with non-verbal means. In literary texts, the presence of units expressing body movements, facial expressions, and gestures alongside word-sentences enhances the imagery of description, the emotional-expressive quality of the text, and its artistic-aesthetic impact. As observed in literary works from different languages, the interaction of verbal and non-verbal means contributes to a more vivid representation of a character’s personality, communicative situation, and the author’s artistic intention. From this

perspective, the linguopoetic analysis of word-sentences in relation to non-verbal means helps reveal their multifaceted artistic potential.

Furthermore, from a psycholinguistic perspective, word-sentences constitute one of the speech units that express an individual's immediate emotional reactions. Their use in combination with non-verbal means provides a more accurate representation of a character's hidden psychological experiences, emotional state, and communicative attitudes. The analyzed examples demonstrate that the interaction of verbal and non-verbal means also influences the reader's emotional perception, thereby strengthening the psychological impact of the literary text.

Conclusion. The results of the analysis indicate that the interaction of word-sentences and non-verbal means in literary texts functions as an important linguopoetic device. Their combined use contributes to a more vivid representation of characters' personalities, inner worlds, and communicative attitudes, while also enhancing the imagery and artistic-aesthetic impact of the text. In particular, non-verbal means such as gestures, facial expressions, body language, and bodily movements expand the semantic-pragmatic potential of word-sentences and ensure a more effective expression of the author's artistic intention.

The analysis further demonstrates that the interaction between verbal and non-verbal means in literary works of different languages reflects not only individual character traits but also the national-cultural values, communicative etiquette, and interactional traditions of a particular society. Therefore, the interaction of word-sentences and non-verbal means may be regarded as one of the significant factors shaping the semantic and aesthetic layers of literary texts.

From a psycholinguistic perspective, the combined use of these units enables a natural representation of characters' hidden emotional experiences and psychological states, while also activating the reader's emotional perception. As a result, the mechanism of influence inherent in literary texts becomes more profound, allowing readers to perceive the content of a literary work not only logically but also emotionally.

Thus, investigating the linguopoetic features of word-sentences and non-verbal means through an integrated psycholinguistic approach contributes to a deeper understanding of the factors that determine the expressive power of literary discourse. The findings of this study may serve as a theoretical foundation for further research in the fields of literary text linguopoetics, pragmalinguistics, and psycholinguistics.

REFERENCES:

1. Худойберганаева Д. Матнинг антропоцентрик тадқиқи. – Тошкент: Фан, 2013. – 136 б.
2. Задорнова В. Я. Слово в художественном тексте. Язык, сознание, коммуникация: Сб. статей / Отв. ред. Красных В. В., Изотов А. И. Вып. ISBN 5-317-01330-5. – М.: МАКС Пресс, 2005. – 160 с.
3. Усманова Х. А. Ўзбек лингвомаданиятида рамз тушунчасининг ифодаланиши // Oriental Art and Culture. Scientific-Methodical Journal. Volume 3 Issue 1. 2022. – Б. 11-19.
4. G'ulamqodirovna, K. Z. (2024). Linguopoetic features of offensive words in uzbek and english literary texts. CAHIERS MAGELLANES-NS, 6(2), 6925-6929.
5. Бобокалонов Р. Р. Ўзбекча-французча семантик-функционал шаклланган гапларнинг дифференциацияси ва коммуникатив нейropsихолингвистик тадқиқи. Филол. фан. д-ри ... дисс. – Бухоро, 2022. – 283 б.
6. Abuzalova M., Avliyoqulova L. Badiiy matnning psixolingvistik tahlili // Ayniy vorislari. Xalqaro elektron jurnal. # 1 (4). 2024. <https://buxdu.uz> – 80-85 b.
7. Курбонова М. А. Ўзбек болалар нутқининг прагматик хусусиятлари. Филол. фан. д-ри (DSc) ... дисс. – Тошкент, 2018. – 240 б.
8. Йўлдошев М. Бадий матннинг лисоний таҳлили. – Тошкент, 2007. – 150 б.

9. Hoshimov O'. Dunyoning ishlari: qissa. – Toshkent: Sharq, 2005. – 208 b.
10. Султон И. Асарлар: романлар, ҳикоялар. – Тошкент: Ғофир Ғулом, 2017. – 392 б.
11. Atkinson K. Life after life. – London: Penguin Books, 2013. – 529 p.
12. Шолохов М. Поднятая целина. – Москва: АСТ, 1986. – 800 с.
13. Dumas A. Le Comte de Monte-Cristo. – Paris: Petion, 1846. – 496 p.
14. Dreiser Th. Sister Carrie. – USA: Doubleday, 1900. – 557 p.
15. Stendhal. Le Rouge et le Noir. – Paris: FOLIO, 1967. – 832 p.

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KAUZAL ATRIBUTSIYA: NAZARIY VA AMALIY ASPEKTLAR



Turniyazov Behzod Nigmatovich, Samarqand davlat chet tillar instituti dotsenti, filologiya fanlari doktori
Turniyazov Behzod Nigmatovich, Associate Professor of the Samarkand State Institute of Foreign Languages, Doctor of Philology

Annotatsiya. Maqolada kauzal atributsiya fenomeni to'g'risida so'z boradi. Bunda o'zaro munosabatda bir individ xatti-harakatlarining doimiyligi, vaziyatga bog'liqligi, boshqa odamlarning xatti-harakatlari bilan o'xshashligi, farqi, atributsiya jarayonidagi xatolar, shuningdek, simpatiya va antipatiya hislari izohlangan. Ishda kausal atributsiya mexanizmlarining ijtimoiy muloqot, idrok va shaxslararo munosabatlar shakllanishidagi o'rni ochib berilgan. Bu mexanizmlarning tadqiqi bugungi kunda psixologiya va sotsiologiyada katta ahamiyatga ega, shuningdek, atributiv psixoterapiyada muhim o'rin egallaydi.

Kalit so'zlar: kauzal atributsiya, atributsiya xatosi, internall va eksternall atributsiya, shaxsiy atributsiya, obyekt atributsiyasi, vaziyat atributsiyasi, o'zaro ijtimoiy ta'sir.

КАУЗАЛЬНАЯ АТРИБУЦИЯ: ТЕОРИТИЧЕСКИЕ И ПРИКЛАДНЫЕ АСПЕКТЫ

Аннотация. В данной статье проводится детальный анализ феномена каузальной атрибуции, который является ключевым элементом в понимании когнитивных процессов, влияющих на социальное поведение и межличностные отношения. Рассматриваются фундаментальные аспекты каузальной атрибуции, включая её постоянство, зависимость от ситуационных факторов, а также механизмы, обуславливающие сходство и различия в поведении индивидов. Особое внимание уделяется анализу когнитивных ошибок, возникающих в процессе атрибуции, и их влиянию на формирование межличностных симпатий и антипатий. В статье также исследуется роль каузальной атрибуции в контексте социальной коммуникации, что позволяет выявить её значимость в современных психологических и социологических теориях. Кроме того, подчёркивается прикладное значение изучения механизмов причинной атрибуции для атрибутивной психотерапии, где понимание этих процессов может способствовать разработке эффективных терапевтических стратегий.

Ключевые слова: каузальная атрибуция, когнитивные ошибки, внутренняя (интернальная) и внешняя (экстернальная) атрибуция, личностная атрибуция, объектная атрибуция, ситуативная атрибуция, социальное взаимодействие.

CAUSAL ATTRIBUTION: THEORETICAL AND APPLICABLE ASPECTS

Abstract: This paper provides a comprehensive analysis of the concept of causal attribution, which is a crucial component in comprehending the cognitive processes influencing social behavior and

interactions between individuals. The paper examines the fundamental principles of causal attribution, including its consistency and dependence on situational variables, as well as the mechanisms determining similarities and differences among individuals' behaviors. Special emphasis is placed on analyzing cognitive errors occurring during the attribution process and their influence on the development of interpersonal preferences and aversions. Additionally, the paper explores the significance of causal attribution within social communication and its relevance in contemporary psychological and social theories. Furthermore, it highlights the practical importance of investigating the mechanisms behind causal attributions for therapeutic practice. Specifically, understanding these mechanisms can contribute to developing effective approaches in cognitive-behavioral therapy, where identifying and correcting distorted attributional patterns is essential for improving interpersonal relationships and emotional well-being.

Keywords: *Causal Attribution, Cognitive Errors, Internal Attribution, External Attribution, Situational Attribution, Social Interaction, Interpersonal Relationships.*

Kirish. Kauzal atributsiya sabab va oqibat shaklidagi atributsiya hisoblanadi. Ushbu jarayonda inson xatti-harakatlari sabablarini tushunishni o'z ichiga olgan ijtimoiy o'zaro ta'sir darajasi aks etadi. "Atributsiya" termini lotincha bo'ib, *qayd etmoq* degan ma'noni anglatadi. H.Kelli atributsiyaning uch turi haqida fikr yuritadi:

1. Shaxsiy atributsiya (harakatni amalga oshirayotgan shaxsga sabab yuklanadi).
2. Obyekt atributsiyasi (harakat yo'naltirilgan obyektga sabab yuklanadi).
3. Vaziyat atributsiyasi (sabab ma'lum vaziyatga yuklanadi)[1.192-238].

H.Kellining fikricha, kauzal atributsiya quyidagicha izohlanadi:

- a) inson ma'lum shaxsning xatti-harakatini vaziyat ta'siri deb biladi;
- b) agar boshqa individning xatti-harakatini kuzatish natijasida kishi kuzatilayotgan odamning xatti-harakati o'zgarishi haqida xulosa chiqargan bo'lsa, bunday xatti-harakat ichki sabablarga asoslanadi;
- c) agar kuzatuvchi turli vaziyatlarda kuzatilayotgan insonning xatti-harakati farq qilishini aniqlasa, u xatti-harakat vaziyatlarga bog'liqdir;
- d) agar kuzatuvchi turli vaziyatlarda odamning xatti-harakati o'zgarmasligini aniqlasa, bunday xatti-harakat kishining o'ziga bog'liqdir;
- e) agar turli odamlar bir xil vaziyatda bir xil xatti-harakatni amalga oshirsa, bunda vaziyatning xatti-harakatga asosiy ta'siri haqida xulosa chiqarsa bo'ladi;
- f) agar kuzatuvchi turli odamlar bir xil vaziyatda turlicha xatti-harakat qilayotganini aniqlasa, bu xatti-harakatni shaxsning shaxsiy xususiyatlariga yuklash asosli bo'ladi.

Shuni aytish kerakki, H.Kelli kauzal atributsiyaning keng o'rgangan bo'lsa-da, uning qarashlari ayrim g'izliklardan xoli emas. Jumladan, olimning nazariyasida odamlar xatti-harakatlarni ma'lum vaziyatlarni tushuntirish uchun statistik o'xshashliklardan foydalanib amalga oshiradi hamda ratsional va mantiqiy fikrlaydi degan sodda taxminlar mavjud. Biroq voqelik ko'pincha ushbu mantiqiylikdan chetlashadi. Mavjud holatda sababiyat, motivatsiya, idrok va affektiv omillar kuchli ta'sir qiladi.

Bundan tashqari, H.Kellining modeli kognitiv jarayonlarga qaratilgan xatti-harakatlarning sabablarini shakllantirishi mumkin bo'lgan ijtimoiy, madaniy va tarixiy bosqichlarni hisobga olmaydi. Masalan, kollektiv madaniyatlarda odamlar xatti-harakatlarni shaxsiy xususiyatlar orqali emas, balki vaziyat talablari bilan ko'proq idrok etadilar, bu esa uning nazariyasida e'tibordan chetda qoladi.

H.Kelli xatti-harakatlarni aniqlashda tashqi va ichki omillarni qat'iy alternativlik nuqtayi nazaridan tahlil qiladi, bu esa voqelikni haddan tashqari soddalashtirishga olib keladi. Mazkur dixotomiya G'arb ijtimoiy psixologiyasi metodologiyasi asosida talqin etilgan bo'lib, inson xatti-harakatlarining murakkabligini aks ettirmaydi.

H.Kellining nazariyasi sabab-oqibat atributsiyasi jarayonlarini tushunishga yordam bergan bo'lsa ham, u kognitiv jarayonlarni soddalashtirgani, ijtimoiy va madaniy kontekstni e'tiborsiz qoldirgani hamda inson xatti-harakatlari belgilarini yetarlicha hisobga olmaganligi uchun, bizningcha, izohtalabdir.

Aslida, kauzal atributsiya bir nechta sabablar bilan bog'liq. Masalan, inson o'zida va atrofida nima bo'layotganini bilgan holda, oldindan kutilmagan voqealar sodir bo'lganda o'zi va yaqinlarini yomon oqibatlardan qutqarish maqsadida muhim voqea va jarayonlarni imkon qadar nazorat qila oladi.

Ma'lum bir hodisaning mohiyatini tushunmaslik his-tuyg'usi kishida tashvishsiz yurish imkonini beradi. Nima bo'layotganini bilish esa insonda ma'lum bir vaziyatda oqilona harakat qilish, ratsional harakat usulini tanlash imkonini beradi. Shu sabablarga ko'ra, inson bo'lib o'tayotgan ko'ngilsiz voqeaga qarshi biror chora qidiradi va topadi. Agar bu noto'g'ri bo'lib chiqqan taqdirda ham, u vazifani hal qilishda vaqtinchalik tinchlanishi hamda tinch holatda muhim muammolarni oqilona hal qilish imkoniga ega bo'ladi. R.B.Turniyazova to'g'ri ta'kidlaganidek, har qanday shaxs tafakkur, tasavvur va xotira orqali atrofdagi voqelik bilan tanishadi va uni idrok etadi. Sodir bo'layotgan voqealarga munosabat bildiradi, ma'lum kishilarga, hodisalarga nisbatan emotiv holatda bo'ladi. Bunday subyektiv munosabat shaxs ongida evristik shaklda namoyon bo'ladi. Insonning ichki dunyosida sodir bo'layotgan mazkur jarayon «psixoeemotsional holat» deb yuritiladi. Psixoeemotsional holat esa «psixofiziologik faktor» deb ataluvchi tushuncha tasarrufida shakllanadi va, o'z navbatida, kishini ayrim amallarni bajarishga undaydi, uning xatti-harakatlarini tartibga solidi yoki, aksincha, xaosni keltirib chiqaradi. Umuman, inson hissiyotining yuzaga chiqishi quyidagi emotiv komponentlarga bog'liq bo'ladi: *his-tuyg'u, affekt, kayfiyat, stress*. Ushbu komponentlar obyektini hisoblanuvchi emotsiyaning turlicha ifodalanishi verbal va noverbal ko'rinishdagi emotsional kauzativ elementlarga tayanadi[2. 123-128].

Kauzal atributsiyada bir idividning boshqa bir referentning xatti-harakatlarini qabul qilishi, asosan, o'sha referentning xatti-harakatlari qanaqa his-tuyg'ulariga bog'liq va buning sababi nimada ekanligini bilishiga qaratilgan. Kauzal atributsiyaning ikkita asosiy turi mavjud: 1) *internall kauzal atributsiya*; 2) *eksternall kauzal atributsiya*.

Internall kauzal atributsiya inson xatti-harakati sabablarini uning ichki psixologiyasi asosida o'rganadi. Eksternall kausal atributsiya esa inson xatti-harakatlari sabablarini unga bog'liq bo'lmagan tashqi muhit qurshovida o'rganadi. Jumladan, ichki sabab-oqibat aloqasi maydoniga ega bo'lgan kishi boshqa odamlarning xatti-harakatlari sabablarini o'z ongida ko'radi, tashqi sabab-oqibat aloqasi maydoniga ega bo'lgan kishi esa mavjud sabablarni atrof-muhit distributsiyasi asosida idrok etadi. Masalan:

Internall kauzal atributsiya

U juda mehnatkash va qobiliyatli bo'lgani uchun yuqori lavozimga ko'tarildi (Muvaffaqiyat shaxsiy fazilatlariga bog'liq).

U o'qimagani va dangasa bo'lgani uchun imtihondan yiqildi (Muvaffaqiyatsizlik motivatsiyaning yo'qligi bilan bog'liq).

Bu rassom daho. Uning tug'ma iste'dodi bor (Natija qobiliyatga bog'liq).

Eksternall kauzal atributsiya

U lavozimga ko'tarildi, chunki uning xo'jayini uning qarindoshi muvaffaqiyat (Tashqi aloqalarga bog'liq).

U savollar juda qiyin bo'lgani va professor tarfakash bo'lgani uchun imtihondan yiqildi (Muvaffaqiyatsizlik holatlarga bog'liq).

Rassom mashhur, chunki u galereyasi va PR kompaniyasi bilan omadli edi (Muvaffaqiyat omad va tashqi resurslarga bog'liq).

Umumiy atributiv nazariya kauzal atributsiya nazariyasiga qaraganda kengroq doirani qamrab oladi. U turli xil atributiv jarayonlarni ma'lum bir obyektga yuklash asosida tasvirlaydi va tushuntiradi. Umumiy atributiv nazariya F.Xaydarning atributsiya haqidagi g'oyalariga asoslanadi. F.Xaydarning fikricha, inson boshqa bir kishining ma'lum ijtimoiy vaziyatdagi xatti-harakatlarini kuzatadi. Kuzatish natijalari asosida u kuzatilayotgan kishining individual maqsad va niyatlarini uning harakatlarini qabul qilish va baholash asosida aniqlaydi. Inson kuzatilayotgan kishiga ma'lum psixologik xususiyatlarni yuklaydi, bu esa kuzatilgan xatti-harakatni tushuntiradi. Hodisalarning sabablarini aniqlash yoki

tushuntirish jarayonida odamlar ma'lum qoidalarini qo'llaydi va shu asosida xulosalar chiqaradi, ba'zan xatolarga yo'l qo'yadi.

F.Xayder o'z qarashlarini ikki variantga bo'ladi: 1) ichki psixologik yoki subyektiv sabablarning talqiniga e'tibor qaratish; 2) tashi dunyoga aloqador tarzda sabablarning mohiyatini aniqlash[3].

F.Xayderning nazariyasida sabab-oqibat atributsiyasi mantiqiy qoidalar bilan boshqariladigan kognitiv jarayon sifatida qaralgan. Biroq tajribalar shuni ko'rsatadiki, odamlarning real hayotdagi sabab-oqibat talqinlari mantiqiy emas va motivatsion, idrok va affektiv omillarga sezilarli darajada bog'liqdir. Bundan tashqari, tekshiruvlarimiz natijasida odamlar o'z muvaffaqiyatlarini ichki fazilatlariga muvaffaqiyatsizliklarini esa tashqi omillarga bog'lashga moyil ekanliklari aniqlandi. Boshqalarning xatti-harakatlarini tushuntirishda qarama-qarshi tendentsiya kuzatiladi: muvaffaqiyatlar ko'pincha tashqi sharoitlarga, muvaffaqiyatsizliklar esa shaxsiyat kamchiliklariga bog'liq. Bu hodisa atribut assimetriyasi effekti yoki atribut xatosi sifatida qaraladi.

Sabab-oqibat atributsiyasi tartibsiz bo'lishi mumkin, bu esa voqelikni idrok etishda xatoliklar va tushunmovchiliklarga olib keladi. Masalan, salbiy sabab-oqibat atributlariga moyillik ko'pincha ziddiyatli xatti-harakatlarga asoslangan munosabatlarni keltirib chiqaradi. F.Xayder o'z nazariyasida niyat va moyilliklar faqat qo'shimcha rol o'ynab, atipik xatti-harakatlardan kelib chiqadi deb ta'kidlaydi. Biroq odatiy xulq-atvor ham niyatlar va moyilliklar haqida ma'lumot manbai ekanligini ko'rsatadi.

O'zaro munosabat xatti-harakatlarining doimiyligi bir xil vaziyatda inson harakatlarining ketma-ketligini anglatadi. Vaziyatga bog'liqlik esa odamlar turli vaziyatlarda turlicha munosabat qilishi haqidagi tasavvurni o'z ichiga oladi. Ma'lum kishi xatti-harakatining boshqa odamniki bilan o'xshashligi uni talqin qiluvchi individ xatti-harakatining boshqa odamniki bilan bir xil ekanligini ko'rsatadi. Shunday ekan, boshqa insonlarning xatti - harakatlarini tushunish yoki baholashda vaziyatning ta'sirini kamroq, individual xususiyatlarning ta'siri esa ko'proq bo'ladi. Bu hodisa fundamental atributsiya xatosi deb ataladi. Bu xato doimo namoyon bo'lmaydi, balki atributsiyaning tashqi va ichki sabablari bir xil bo'lgandagina o'z ifodasini topadi. Ko'pincha, asosiy atributsiya xatosi kishi qaror qabul qila olmaydigan situatsiyada, muayyan xatti - harakat boshqa odamlar xatti - harakati bilan o'xshash bo'lganda yuzaga chiqadi.

Inson o'zining va boshqa odamlarning xatti - harakatini sabab - oqibat jihatidan tushuntirishda turlicha yondashadi. Shu kabi, kishi o'ziga ma'qul yoki noma'qul insonlar xatti - harakatini ham turlicha talqin qiladi. Bunda individual qonuniyatlar mavjud bo'lib, ular quyidagicha bo'lishi mumkin: agar inson ijobiy harakat qilgan bo'lsa, buni o'z salohiyati mahsuli deb biladi; agar bajarilgan harakat salbiy xarakterli bo'lsa, aksincha, buni o'z kamchiligi emas, balki vaziyatning ta'siri asosida deb hisoblaydi.

Boshqa odamlarning harakatlarini izohlash zarur bo'lganda esa inson, asosan, quyidagilarni inobatga oladi: agar simpatiya uyg'otmaydigan odam yaxshi harakat qilgan bo'lsa ham, bu harakat vaziyatning ta'siri mahsuli deb talqin etiladi. Boshqacha aytganda, bu harakatni amalga oshirgan kishining shaxsiy salohiyati deb qaralmaydi; agar simpatiya uyg'otadigan odam ijobiy harakat qilgan bo'lsa, bu harakat uni amalga oshirgan kishining shaxsiy salohiyatlari mevasi deb tushuniladi; agar simpatiya uyg'otmaydigan odam yomon harakat qilgan bo'lsa, bu harakat uni amalga oshirgan odamning shaxsiy kamchiliklari sifatida baholanadi; agar yomon harakat simpatiya uyg'otadigan odam tomonidan amalga oshirilgan bo'lsa, u holda shu harakat hozirgi vaziyat bilan, emas, balki uni amalga oshirgan odamning bilmasdan yo'l qo'ygan kamchiliklari deb qaraladi.

Xulosa sifatida shuni aytish mumkinki, kauzal atributsiya fenomeni psixologiya va sotsiologiyada muhim ahamiyat kasb etadi. Zero, mazkur tushuncha mental kauzatsiya bilan ham bog'lanadi. Mental kauzatsiya subyektlar o'rtasidagi ruhiy holatlarni va uni keltirib chiqaruvchi sabablarni o'rganadi. «*Mentallik*» termini lotin tilidan olingan bo'lib, *aql*, *idrok*, *tafakkur*, *fikrlash usuli* kabi qator ma'nolarni anglatadi. Mental kauzatsiya insonning ijodiy faoliyati, maqsadi, istaklari bilan bog'liqdir. U fikrlar, g'oyalar, his-tuyg'ularning paydo bo'lishi va bu tushunchalar nimaning ta'sirida vujudga kelishi sababini tekshiradi. D.I.Dubrovskiyning fikricha, mental kauzatsiya inson ongiga turli informatsiyalarning ta'sir etishi oqibatida amalga oshadi[4.34-38]. Darhaqiqat, miyamizga ta'sir etayotgan informatsiyalar

oqibatida turli ruhiy hamda jismoniy qo'zg'alishlar vujudga keladi. Bular jumlasiga mehr-oqibat, sevinch, ishonch, muhabbat, ilm yoki hunar o'rganishga bo'lgan ehtiyoj, nafrat, g'azab, yalqovlik, tovlamachilik hatto davlatlar o'rtasidagi nizolar, kelishuvlar va hokazo tushuncha hamda jarayonlarni kiritishimiz mumkin. Insonshunoslik sohasida mazkur termin ostida milliy qadriyatlar, psixologik reaksiyalar, xulq-atvor, moslashish, tarbiya, din va madaniyatga bo'lgan munosabat masalalari o'rganiladi. Umuman, mentallik muayyan xalqqa xos bo'lgan va umume'tirof etilgan, individual, hissiy, aqliy, madaniy tushunchalarni o'zida mujassam etgan majmuadir. Shu sababli mentallik psixologiya, tibbiyot, dinshunoslik, biologiya, geografiya, falsafa, adabiyot, san'at, tilshunoslik, sotsiologiya kabi bir qancha fanlar bilan uzviy bog'lanadi[5.6].

ADABIYOTLAR:

1. Harold H. Kelley. Attribution Theory in Social Psychology // Nebraska Symposium on Motivation. – Lincoln: University of Nebraska Press, 1967. Volume 15. – P. 192-238.
2. R.B.Turniyazova. Emotional causation // SamDU ilmiy axborotnomasi. Psixologiya. – Samarqand: SamDU, 2023. – №2. – B. 123-128.
3. Heider Fritz. The Psychology of Interpersonal Relations. – Lebanon: Martino Fine Books, 2015. – 334 p.
4. Дубровский Д.И. Психическая причинность, как вид информационной причинности // Российская академия наук, 2011. – №5-1. – С. 38-44.
5. Turniyazov B.N., Turniyazova R.B. Kauzatologiya asoslari. Monografiya. – Samarqand: SamDCHTI, 2024. – 110 b.

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NEYROPLASTIK MASHQLAR ASOSIDA BO'LAJAK O'QITUVCHILARNING SHAXSLARARO MUNOSABATLAR KOMPETENTLIGINI RIVOJLANTIRISH MODEL



Dilova Nargiza Gaybullayevna, Buxoro davlat universiteti professori, p.f.d. (DSc)
Dilova Nargiza Gaybullayevna, Professor of the Department of Pedagogy, (DSc), Bukhara State University,

Annotatsiya. Ushbu maqolada neyroplastikaning zamonaviy neyrofan yutuqlariga asoslangan pedagogik imkoniyatlari va bo'lajak boshlang'ich sinf o'qituvchilarining shaxslararo munosabatlar kompetentligini rivojlantirish modeli ilmiy bayon etilgan. Maqolada neyroplastik mashqlarning neyrologik asoslari, oltita mashq turining kompetentlik sohalari bilan bog'liqligi, to'rt bosqichli o'quv modeli va Toshkent davlat pedagogika universitetida 152 nafar talaba ishtirokida o'tkazilgan tajriba-sinov ishlari natijalari tahlil qilingan.

Kalit so'zlar: *neyroplastika, shaxslararo munosabatlar kompetentligi, boshlang'ich ta'lim o'qituvchisi, hissiy intellekt, empatiya, o'qituvchi tayyorlash, pedagogik model.*

A MODEL FOR DEVELOPING INTERPERSONAL RELATIONSHIP COMPETENCE OF FUTURE TEACHERS THROUGH NEUROPLASTIC EXERCISES

Abstract. *This article presents a pedagogical model for developing interpersonal communication competence of future primary school teachers based on neuroplasticity-informed exercises. Grounded in contemporary neuroscience findings, the model integrates six types of neuroplastic exercises - breathing regulation, embodied play, creative expression, mindful listening, neuroart, and body-scan relaxation - within a four-stage instructional framework. An experimental study conducted at Tashkent State Pedagogical University involving 152 students confirmed significant improvements across all measured competence indicators.*

Keywords: *neuroplasticity, interpersonal competence, primary teacher education, emotional intelligence, empathy, teacher training, pedagogical model.*

МОДЕЛЬ РАЗВИТИЯ КОМПЕТЕНТНОСТИ МЕЖЛИЧНОСТНЫХ ОТНОШЕНИЙ БУДУЩИХ УЧИТЕЛЕЙ НА ОСНОВЕ НЕЙРОПЛАСТИЧЕСКИХ УПРАЖНЕНИЙ

Аннотация. *В данной статье представлена педагогическая модель развития компетентности межличностного общения будущих учителей начальной школы на основе упражнений, основанных на принципах нейропластичности. Опираясь на современные достижения нейронауки, модель интегрирует шесть типов нейропластических упражнений - регуляцию дыхания, телесно-ориентированные игры, творческое самовыражение, осознанное слушание, нейроарт и релаксацию через сканирование тела - в рамках четырехэтапной учебной структуры. Экспериментальное исследование, проведенное в Ташкентском государственном педагогическом университете с участием 152 студентов, подтвердило значительные улучшения по всем измеряемым показателям компетентности.*

Ключевые слова: *нейропластичность, межличностная компетентность, подготовка учителей начальной школы, эмоциональный интеллект, эмпатия, профессиональная подготовка учителей, педагогическая модель.*

Kirish. Zamonaviy ta'lim psixologiyasi va neyropedagogika bir muhim haqiqatni tobora ravshan ko'rsatmoqda: samarali o'qituvchi bo'lish uchun bilim va uslubiy mahorat yetarli emas. Boshlang'ich sinf o'qituvchisi kuniga 200 dan ortiq shaxslararo munosabat epizodiga duch keladi: o'quvchilar, ota-onalar va hamkasblar bilan. Ushbu munosabatlarning sifati bevosita o'quv muhitining hissiy iqlimini, o'quvchilarning motivatsiyasini va akademik muvaffaqiyatini belgilaydi. Shuning uchun bo'lajak boshlang'ich sinf o'qituvchilarida shaxslararo munosabatlar kompetentligini rivojlantirish pedagog ta'limining eng muhim vazifalaridan biriga aylanib bormoqda.

Shaxslararo munosabatlar kompetentligi insonning turli kontekstlarda boshqalar bilan samarali, empatik va konstruktiv muloqot o'rnatish qobiliyatlari, ko'nikmalar va ichki holatlarining yaxlit tizimidir. O'qituvchi uchun SMK besh asosiy komponentni o'z ichiga oladi: hissiy o'z-o'zini boshqarish, empatik tinglash, hamkorlik va ishonch muhiti yaratish, kommunikativ moslashuvchanlik va konstruktiv konflikt hal qilish. Ushbu besh komponent o'qituvchining "munosabatli o'rganish muhiti" (relational pedagogy) yaratishining asosini tashkil etadi (Noddings, 2005).

Neyroplastika - miyaning tashqi ta'sir va tajribaga javoban o'z neyron tuzilmasini va funksional ulanishlarini qayta yo'naltirish qobiliyati - ta'lim sohasida yangi imkoniyatlar yaratmoqda. Doidge (2007), Siegel (2012) va Davidson hamda Begley (2012) tadqiqotlari shuni ko'rsatdiki, maqsadli, takrorlanuvchi va hissiy jihatdan muhim tajribalar miyaning tegishli sohalarida o'lchanadigan anatomik va funksional o'zgarishlar hosil qiladi. Ayniqsa muhim neyrofan xulosasi shundaki, empatiya, hissiy boshqaruv va ijtimoiy idrok uchun javobgar miya hududlari maqsadli mashqlar orqali rivojlantirilishi mumkin.

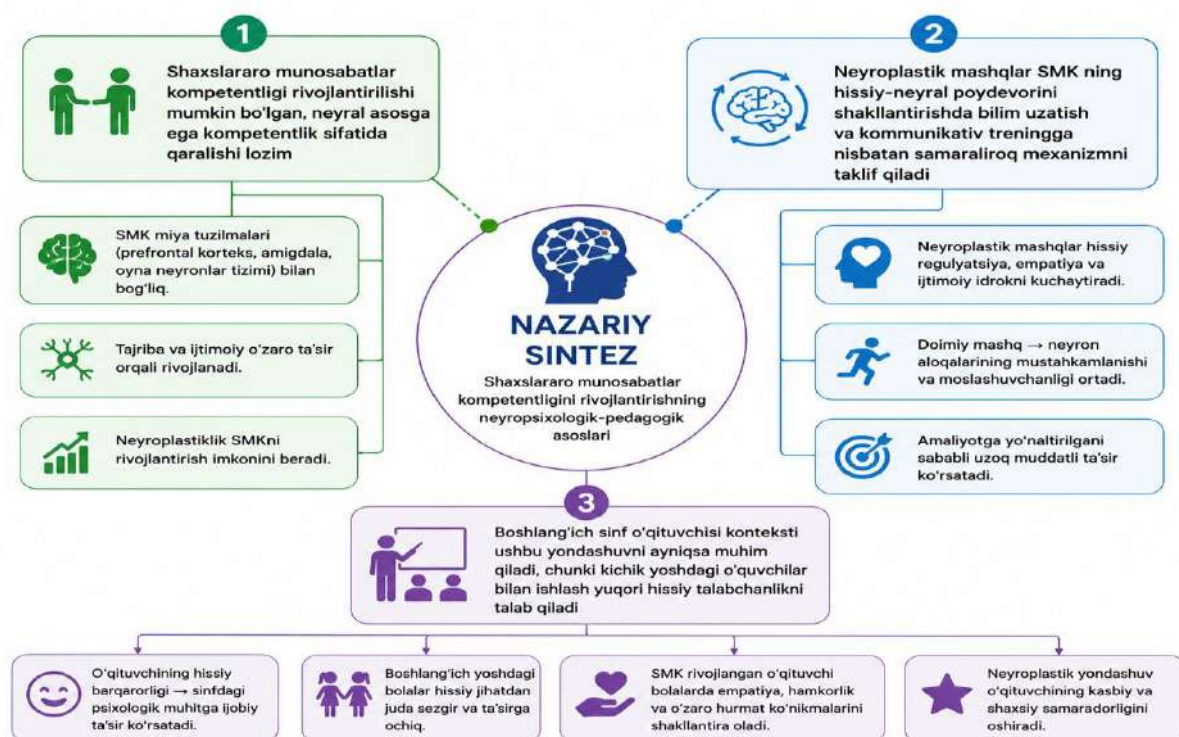
Biroq mavjud pedagogika OTM-lari amaliyotini tahlil qilish shuni ko'rsatadiki, boshlang'ich ta'lim yo'nalishi o'quv dasturlarida SMK rivojlantirishga mo'ljallangan maqsadli, neyrofan asosida ishlab chiqilgan ta'lim modellari hali shakllanmagan. Mavjud yondashuvlar asosan kommunikativ ko'nikmalar treningiga asoslanib, neyrologik mexanizmlarni hisobga olmaydi va hissiy-neyrал rivojlanishni tizimli ta'minlamaydi. Ushbu tafovut ushbu tadqiqotning ilmiy yangilik va amaliy zaruratini belgilaydi.

Tadqiqotning maqsadi: neyroplastik mashqlar asosida bo'lajak boshlang'ich sinf o'qituvchilarining shaxslararo munosabatlar kompetentligini rivojlantirish modelini ishlab chiqish va eksperimental tekshirishdan iborat.

Adabiyotlar tahlili. Neyroplastika va ta'lim kesishmasida bir qator nazariy va empirik poydevorlar mavjud. Siegelning "interpersonal neurobiology" kontsepsiyasi shaxslararo munosabatlar va miyaning integratsiyalashgan rivojlanishi o'rtasidagi ikki yo'nalishli aloqani tasvirlaydi: samarali munosabatlar miyani shakllantiradi, shakllangan miya esa yanada samarali munosabatlarni ta'minlaydi. Ushbu tsiklik aloqa o'qituvchi tayyorlashda SMK rivojlantirishning neyrologik asosini ko'rsatadi.

Klimecki va boshqalar o'tkazgan tasodifiy nazorat tadqiqotida sakkiz haftalik empatiya trening mashqlari ishtirokchilarning insular korteks va anterior cingulate cortexda o'lchanadigan qalinlik o'sishini va boshqalarning azobini ko'rganda aktivatsiya kuchayishini ko'rsatdi. Bu natija empatiyaning neyral sathi bo'yicha rivojlantirilishi mumkinligini isbotlaydi. Lutz va boshqalar (2008) esa meditatsiya va diqqatni boshqarish mashqlarining gamma to'lqin sinxronizatsiyasini kuchaytirishi va bu orqali hissiy reaktivlikning pasayishini ko'rsatdi.

Pedagogika sohasida Jennings va Greenberg tomonidan taklif etilgan "Prosocial Classroom" modeli o'qituvchining hissiy salomatligi va shaxslararo ko'nikmalari o'quvchilarning ijtimoiy-hissiy rivojlanishiga mediatsiya qilishini ko'rsatdi. Zins va boshqalar esa o'qituvchining SMK darajasi o'quvchilarning ijtimoiy-hissiy ko'nikmalarining eng kuchli prediktorlaridan biri ekanligini meta-analiz orqali isbotladi. Boshlang'ich ta'lim kontekstida ushbu bog'liqlik ayniqsa kuchli, chunki 6–10 yoshli bolalar empatiya va munosabat ko'nikmalarini asosan muhit orqali o'rganadi.



O'zbekiston kontekstida Muslimov, Tolipov va Xoliqov ishlarida o'qituvchi kasbiy kompetentligi tarkibida kommunikativ va munosabat komponentlari alohida ajratilgan. Biroq neyrofan va pedagogikaning kesishmasidagi, xususan neyroplastik yondashuvga asoslangan SMK modeli bo'yicha mahalliy ilmiy adabiyotlarda bo'shliq mavjud. Xorijiy analoglar ichida Rolheiser va boshqalar Kanadada o'qituvchi tayyorlashda mindfulness va hissiy-neyral integratsiya mashqlarini q'llagan tajriba diqqatga sazovor bo'lib, ular semestrlik program natijasida o'qituvchilarning "relational attunement" munosabatli uyg'unlik ko'rsatkichida 41% o'sishni qayd etishdi.

Yuqoridagi adabiyotlar tahlili quyidagi nazariy sintezni asoslaydi (1-rasmga qarang).

- 1) Shaxslararo munosabatlar kompetentligi rivojlantirilishi mumkin bo'lgan, neyral asosga ega kompetentlik sifatida qaralishi lozim;
- 2) Neyroplastik mashqlar SMK ning hissiy-neyral poydevorini shakllantirishda bilim uzatish va kommunikativ treningga nisbatan samaraliroq mexanizmni taklif qiladi;
- 3) Boshlang'ich sinf o'qituvchisi konteksti ushbu yondashuvni ayniqsa muhim qiladi, chunki kichik yoshdagi o'quvchilar bilan ishlash yuqori hissiy talabchanlikni talab qiladi.

Tadqiqot metodologiyasi. Tadqiqot 2022–2024 yillarda Toshkent davlat pedagogika universitetining Boshlang'ich ta'lim yo'nalishi 2 va 3-kurs talabalar ishtirokida o'tkazildi. Kvazi-

eksperimental dizayn qo'llanildi: eksperimental guruh (EG, n=78) va nazorat guruh (NG, n=74) natural akademik guruhlar asosida shakllandi. Boshlang'ich ekvivalentlik propensity score matching orqali ta'minlandi. Asosiy o'lchov vositasi sifatida maxsus ishlab chiqilgan Shaxslararo Munosabat Kompetentligi (SMCK) shkalasi qo'llanildi. SMCK - 35 bandli, 5 ballik Likert shkalasiga asoslangan o'z-o'zini baholash vositasi bo'lib, besh subshkala bo'yicha (har biri 7 ta band) kompetentlikni o'lchaydi. Psixometrik tekshiruvlarda Cronbach alfa koeffitsiyentlari 0,74–0,86 oralig'ida bo'ldi; konstrukt validligi EFA orqali tasdiqlandi (to'rtta omil birlashtirilgan dispersiya: 61,4%). Qo'shimcha o'lchov usullari: dars kuzatuv protokoli (24 ko'rsatkich) va amaliyot supervisorlari baholashlari.

Interventsiya 2022–2023 o'quv yilida amalga oshirildi: 36 soatlik "Neyroplastik mashqlar va SMK" kursi to'rt bosqichda o'tkazildi (quyida batafsil). NG an'anaviy "Pedagogik muloqot" kursini oldi. Statistik tahlilda paired samples t-test, independent samples t-test, Cohen's d effekt kuchi va korrelyatsion tahlil qo'llanildi. Barcha hisob-kitoblar SPSS 26.0 dasturida amalga oshirildi.

Neyroplastik mashqlar tasnifi va neurologik asoslari. Modelga kiritilgan neyroplastik mashqlar neyrofan asosida tanlangan bo'lib, har birining SMK rivojlantirishdagi neurologik mexanizmi aniq belgilangan:

1-jadval. Neyroplastik mashqlar tasnifi: neurologik asos, kompetentlik sohasi

Mashq turi	Neurologik asosi	Kompetentlik sohasi	Amaliy format (OTM)
Nafas nazorati (Coherent Breathing)	Vagal ton kuchayishi → prefrontal korteks faolligi	Hissiy o'z-o'zini boshqarish; stressda saqlash	Dars boshida 3 daqiqa; seminar oldidan 5-4-6 ritm
To'liqqonli harakatli o'yin (Embodied Play)	Serebellar-limbik integratsiya; oksitotsin chiqarish	Guruhiy bog'liqlik; hamkorlik; ishonch	Haftalik 20 daqiqa; juftlik va kichik guruh formatida
Taqdimot va ijodiy ifoda (Creative Expression)	Broca-Wernicke integratsiyasi; dopaminergik rag'bat	Kommunikativ ishonch; tinglovchiga moslashish	Video-mikrodars va peer-feedback tsikli
Mindful Listening (Ongli tinglash)	Temporoparietal birikmasi; empatik signal	Faol tinglash; empatiya; konflikt hal qilish	Juftlikda 10 daqiqa; rollarni almashtirish bilan
Neyrografika (Neyroart)	Ikki yarim sharni sinxronlashtirish; relaksatsiya	Hissiy ko'rinish; ijodiy muammoni hal qilish	Oyda 2 marta; 30 daqiqa; individual yoki guruhda
Body-scan va progressiv relaksatsiya	Interotseptiv to'r; amigdala reaktivligini kamaytirish	Hissiy sensitivlik; boshqalarni his qilish	Semestral treningda 45 daqiqa; uyga topshiriq sifatida

Jadvaldagi mashqlar tartibi ketma-ket mantiq asosida qurilgan: nafas nazorati va body-scan "hissiy asosni tayyorlaydi", embodied play va mindful listening "munosabat ko'nikmalarini qurishni boshlaydi", ijodiy ifoda va neyrografika esa "shaxsiy integratsiya va kommunikativ ifodalashni kuchaytiradi". Bu ketma-ketlik neyrofanda "bottom-up to top-down integration" deb ataladigan jarayonga mos keladi: avval tanani va hissiyotlarni boshqarishga o'rgatish, so'ngra kognitiv-ijtimoiy ko'nikmalarni qurishga o'tish.

Nafas nazorati mashqi (Coherent Breathing) ning neyrofiziologik mexanizmi ayniqsa yaxshi o'rganilgan. Bernardi va boshqalar (2001) tadqiqotlari ko'rsatdiki, 5 nafas/daqiqa ritmida nafas olish vagal (parasimpatik) tonni sezilarli kuchaytiradi va bu prefrontal korteksning amigdalaga inhibitor nazoratini oshiradi. Tan (2020) ning "Search Inside Yourself" dasturida ushbu mexanizm Google xodimlari uchun

hissiy intellekt tarbiyasida qo'llanilgan va statistik jihatdan ahamiyatli natijalar bergan. Bizning modelimizda nafas mashqi har bir sessiya boshida "neyral tayyorgarlik" sifatida qo'llaniladi.

To'rt bosqichli model tuzilishi. Neyroplastik mashqlar asosida SMK rivojlantirish modeli to'rt ketma-ket bosqichdan iborat. Har bir bosqich o'ziga xos maqsadi, mashq to'plami va kutilayotgan neyral hamda kompetentlik o'zgarishlari bilan aniq belgilangan:

2-jadval.

Neyroplastik mashqlar asosida SMK rivojlantirish modelining to'rt bosqichi

Bosqich	Muddat	Mashqlar to'plami	Kutilgan o'zgarish
I. Sensibilizatsiya	1–3-hafta (6 soat)	Nafas nazorati; body-scan; "Hissiy harita" mashqi	Stressni his qilish va boshqarishga birinchi ko'nikish; o'ziga empatiya
II. Integratsiya	4–9-hafta (12 soat)	Embodied play; mindful listening; neyrografika; keys-stadi	Guruhiy bog'lanish; empatik tinglash; hamkorlik normalarini shakllantirishni boshlash
III. Transfer	10–16-hafta (12 soat)	Taqdimot va ijodiy ifoda; amaliyot debriefingi; peer-coaching	Dars boshqarishda kompetentlikni qo'llash; sinfda hissiy muhit yaratish
IV. Mustahkamlash	17–18-hafta (6 soat)	Portfolio prezentatsiyasi; individual refleksiv esse; follow-up diagnostika	Kompetentlikning barqaror shakllanishi; kasbiy identitet; o'z-o'zini takomillashtirish rejasi

Birinchi bosqich. Sensibilizatsiya - talabalarni o'z hissiy holatlarini "sezish" va "o'qish" ga o'rgatishdan boshlanadi. Ko'pchilik talabalar o'z hissiy reaksiyalarini anglamagancha ularni ifoda etadi yoki bostiradi; ushbu bosqich "hissiy savodxonlik" (emotional literacy) ning neyral poydevorini yaratadi. Nafas nazorati mashqlari prefrontal korteksning hissiyot boshqarish funksiyasini faollashtiradi; body-scan esa interotseptiv tarmoqni rivojlantirib, boshqalarning hissiyotlarini empirik sezish uchun neyral asos yaratadi (Craig, 2009).

Ikkinchi bosqich. Integratsiya - hissiy asosni munosabat ko'nikmalariga ko'chirishga yo'naltirilgan. Embodied play (gavdaga asoslangan o'yin) mashqlarida talabalar juftliklarda va kichik guruhlarda harakatlanish, toqqushuv va koordinatsiya mashqlarini bajaradilar; bu oksitotsin (ishonch gormoni) chiqishini rag'batlantiradi va serebellar-limbik integratsiyani kuchaytiradi (Porges, 2011). Mindful listening mashqlarida esa talabalar navbat bilan 10 daqiqa bo'yi faqat tinglaydi savolsiz, maslaxatsiz, bahosiz; bu temporoparietal birikmani rivojlantirib, "kuchaytiruvchi empatiya" ni shakllantirishga yordam beradi.

Uchinchi bosqich. Transfer - rivojlangan neyral imkoniyatlarni pedagogik amaliyotga ko'chirish bosqichidir. Video-mikrodarslar tahlili va peer-coaching mashqlarida talabalar o'z sinf ichidagi munosabatlarini kuzatib, tuzilmali fikr-mulohaza almashtirishadi. Ijodiy ifoda mashqlari (rasm, kollaj, kichik spektakl) talabalarning pedagogik identitetini ko'rgazmali ravishda ifodalashiga yordam beradi va Broca-Wernicke birikmani kuchaytiradi. Amaliyot debriefingi sessiyalari esa maktabdagi munosabat tajribalarini guruhiy refleksiya orqali boyitadi.

To'rtinchi bosqich. Mustahkamlash - kompetentlikning barqaror shakllanishini ta'minlaydi. Portfolio prezentatsiyasida har bir talaba o'z SMK rivojlanish tarixini va kelajak rejasini taqdim etadi; bu o'z o'sishini narrativ tarzda anglash metacognition ning oliy shaklini rag'batlantiradi. Follow-up diagnostika kompetentlik dinamikasini yoki qaytadan o'lchab, qaysi sohalarda qo'shimcha ishlash zarurligini ko'rsatadi.

Tajriba-sinov ishlari natijalari va muhokama. SMCK shkalasi bo'yicha pretest natijalarida EG (M=2,68, SD=0,60) va NG (M=2,71, SD=0,58) o'rtasida ahamiyatli farq yo'q edi ($t(150)=0,29$, $p=0,77$), bu boshlang'ich ekvivalentlikni tasdiqlaydi. Interventsiyadan so'ng posttest natijalari quyidagicha bo'ldi:

3-jadval. Eksperimental va nazorat guruh SMCK shkalasi natijalari qiyosiy tahlili

Ko'rsatkich (SMCK shkalasi)	EG pretest M (SD)	EG posttest M (SD)	NG posttest M (SD)	Cohen's d / p
Hissiy o'z-o'zini boshqarish	2,61 (0,58)	3,94 (0,47)	2,74 (0,54)	d=2,06 / $p<0,001$
Empatik tinglash	2,74 (0,61)	3,88 (0,50)	2,81 (0,59)	d=1,73 / $p<0,001$
Hamkorlik va ishonch	2,82 (0,64)	4,01 (0,48)	2,90 (0,61)	d=1,84 / $p<0,001$
Kommunikativ moslashuvchanlik	2,69 (0,57)	3,79 (0,51)	2,75 (0,55)	d=1,63 / $p<0,001$
Konflikt hal qilish ko'nikmasi	2,55 (0,60)	3,86 (0,52)	2,63 (0,58)	d=1,97 / $p<0,001$

Jadvaldagi natijalar bir necha muhim xulosaga imkon beradi. Birinchidan, Cohen's d qiymatlari 1,63 dan 2,06 gacha — bu ta'lim tadqiqotlarida "juda katta ta'sir kuchi" hisoblanadi va neyroplastik yondashuvning oddiy kommunikativ treningdan sifat jihatdan farqlanishini ko'rsatadi. Ikkinchidan, eng yuqori ta'sir kuchi "hissiy o'z-o'zini boshqarish" ko'rsatkichida ($d=2,06$) kuzatildi, bu nafas nazorati va body-scan mashqlarining prefrontal korteks — amigdala munosabatiga bevosita ta'sir qilishi bilan izohlanadi. Uchinchidan, "empatik tinglash" ($d=1,73$) va "konflikt hal qilish" ($d=1,97$) ko'rsatkichlari ham alohida kuchli o'sish ko'rsatdi; bu mindful listening va embodied play mashqlarining ijtimoiy neyran tarmoqni rivojlantirishdagi samaradorligini isbotlaydi.

Nazorat guruhda barcha subshkalalar bo'yicha o'rtacha o'zgarish 0,03–0,09 ball oralig'ida bo'lib, statistik jihatdan ahamiyatsiz ($p>0,05$) qoldi. Bu an'anaviy kommunikativ mahorat kursi SMK ni sezilarli rivojlantirmasligini ko'rsatib, neyroplastik yondashuvning qo'shimcha qiymatini yaqqol ta'kidlaydi.

Dars kuzatuvi protokoli natijalari SMCK shkala natijalari bilan izchil bo'ldi: EG talabalarining maktab amaliyotida "inklyuziv munosabat muhiti yaratish" (sinfda barcha o'quvchilarning his qilinishi) ko'rsatkichi bo'yicha amaliyot supervisorlari bahosi o'rtacha 4,28/5,0 (EG) va 3,61/5,0 (NG) bo'ldi. Sifataviy ma'lumotlar ham (fokus-guruh suhbatlari, amaliyot kundaliklari) miqdoriy natijalarni tasdiqladi: EG talabalari "endi qiyin bola bilan muloqotda avval o'zimni kuzataman", "o'quvchi nima his qilayotganini his etishga harakat qilaman", "nizoni ko'ndalang suishtirib yuborishdan oldin nafas olaman" kabi konkret o'zgarishlarni ta'rifladilar.

Xulosa va tavsiflar. Neyroplastik mashqlar asosida bo'lajak boshlang'ich sinf o'qituvchilarining shaxslararo munosabatlar kompetentligini rivojlantirish modeli quyidagi xulosalarni tasdiqladi:

1. Neyrofan asosida tanlangan oltita mashq turi (nafas nazorati, embodied play, ijodiy ifoda, mindful listening, neurografika va body-scan) SMK ning beshta komponentini tizimli va o'lchanadigan tarzda rivojlantiradi. Har bir mashq turining neyrologik mexanizmi va kompetentlik sohasi bilan bog'liqlik profili aniq belgilandi.

2. To'rt bosqichli model (Sensibilizatsiya → Integratsiya → Transfer → Mustahkamlash) neyroplastik rivojlanish mantiqiga — "bottom-up to top-down" integratsiyasiga — asoslanib, talabalarni hissiy savodxonlikdan amaliy pedagogik kompetentlikka bosqichma-bosqich olib o'tadi.

3. Tajriba-sinov ishlari modeli yuqori samaradorligini isbotladi: barcha besh kompetentlik mezoni bo'yicha katta ta'sir kuchlari (Cohen's d: 1,63–2,06, $p<0,001$) qayd etildi. Nazorat guruhda ahamiyatli o'zgarish kuzatilmadigi ($p>0,05$) modelning qo'shimcha qiymatini tasdiqlaydi.

4. Model boshlang'ich ta'lim yo'nalishi doirasida sinovdan o'tgan bo'lsa-da, uning tamoyillari boshqa pedagogik mutaxassisliklar maktabgacha ta'lim, maxsus ta'lim, ingliz tili o'qituvchiligi uchun ham moslashtirilishi mumkin, bu kelajak tadqiqotlar uchun istiqbolli yo'nalishni ko'rsatadi.

Tavsiyalar: pedagogika OTM-larining boshlang'ich ta'lim yo'nalishi o'quv dasturlariga "Neyroplastik mashqlar va SMK" modulini majburiy komponent sifatida kiritish; dars boshida 3 daqiqalik nafas nazorati mashqini barcha pedagogik fanlar o'qituvchilari uchun tavsiya qilish; model uchun o'qituvchilar treningi dasturini ishlab chiqish va maqsadli trening o'tkazish.

ADABIYOTLAR

1. Bernardi L., Sleight P., Bandinelli G. et al. Effect of rosary prayer and yoga mantras on autonomic cardiovascular rhythms // British Medical Journal. — 2001. — Vol. 323. — P. 1446–1449.
2. Craig A.D. How do you feel — now? The anterior insula and human awareness // Nature Reviews Neuroscience. — 2009. — Vol. 10. — P. 59–70.
3. Davidson R.J., Begley S. The Emotional Life of Your Brain. — New York: Hudson Street Press, 2012. — 302 p.
4. Doidge N. The Brain That Changes Itself. — New York: Viking Press, 2007. — 427 p.
5. Hargreaves A. Mixed emotions: teachers' perceptions of their interactions with students // Teaching and Teacher Education. — 2000. — Vol. 16 (8). — P. 811–826.
6. Hebb D.O. The Organization of Behavior. — New York: Wiley & Sons, 1949. — 335 p.
7. Jennings P.A., Greenberg M.T. The prosocial classroom: Teacher social and emotional competence in relation to student and classroom outcomes // Review of Educational Research. — 2009. — Vol. 79 (1). — P. 491–525.
8. Klimecki O.M., Leiberg S., Lamm C., Singer T. Functional neural plasticity and associated changes in positive affect after compassion training // Cerebral Cortex. — 2013. — Vol. 23 (7). — P. 1552–1561.
9. Lutz A., Greischar L.L., Perlman D.M., Davidson R.J. BOLD signal in insula is differentially related to cardiac function during compassion meditation in experts vs. novices // NeuroImage. — 2009. — Vol. 47 (3). — P. 1038–1046.
10. Muslimov N.A. O'qituvchi kasbiy kompetentligi: nazariya va amaliyot. — Toshkent: Fan, 2013. — 248 b.
11. Noddings N. The Challenge to Care in Schools. 2nd ed. — New York: Teachers College Press, 2005. — 224 p.

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OLIY TA'LIM JARAYONIDA TALABALARNING IJODIY FAOLLIGINI OSHIRISHDA “GENERATSIYA – INTEGRATSIYA – NAMOYON ETISH” NEYROKOGNITIV MODELIDAN FOYDALANISH IMKONIYATLARI



Sharifova Nigora Axtam qizi,
Buxoro davlat universiteti tadqiqotchisi
Sharifova Nigora Akhtam kizi
Researcher at Bukhara State University

Annotatsiya. Mazkur maqolada oliy ta'lim jarayonida talabalarining ijodiy faolligini rivojlantirishning neyropedagogik asoslari yoritilgan. Tadqiqotda “Generatsiya – Integratsiya – Namoyon etish” neyrokognitiv modeli talabalarining kreativ fikrlash, tanqidiy tahlil qilish, innovatsion g'oyalar yaratish va ularni amaliy faoliyatga tatbiq etish ko'nikmalarini rivojlantirish vositasi sifatida tahlil qilingan. Modelning mazmun-mohiyati ijodiy faoliyatning uch bosqichli mexanizmi asosida ochib berilgan: generatsiya bosqichida yangi g'oyalar yaratish va divergent fikrlashni rivojlantirish,

integratsiya bosqichida g'oyalarni tahlil qilish, sintezlash va tizimlashtirish, namoyon etish bosqichida esa innovatsion mahsulot, loyiha yoki amaliy yechim ko'rinishida taqdim etish jarayonlari tavsiflangan. Maqolada mazkur modelni tarix, pedagogika, psixologiya, ona tili va adabiyot hamda falsafa fanlarini o'qitish jarayonida qo'llash imkoniyatlari ko'rsatib berilgan. Tadqiqot natijalari modelning talabalarda kreativlik, refleksiv kompetensiya, muammoni hal qilish qobiliyati, kommunikativlik va kasbiy mahoratni rivojlantirishga xizmat qilishini tasdiqlaydi. Shuningdek, modelning oliy ta'limda innovatsion pedagogik texnologiyalarni joriy etish va talabalarining ijodiy salohiyatini yuzaga chiqarishdagi didaktik imkoniyatlari asoslab berilgan.

Kalit so'zlar: neyropedagogika, neyrokognitiv model, generatsiya, integratsiya, namoyon etish, ijodiy faollik, kreativ fikrlash, divergent fikrlash, tanqidiy fikrlash, refleksiya, innovatsion faoliyat, oliy ta'lim, pedagogik texnologiyalar, kompetensiyaviy yondashuv, talaba shaxsi, kasbiy mahorat, kreativ kompetensiya, muammoni hal qilish, neyроplastiklik, brain-based learning.

ВОЗМОЖНОСТИ ИСПОЛЬЗОВАНИЯ НЕЙРОКОГНИТИВНОЙ МОДЕЛИ «ГЕНЕРАЦИЯ – ИНТЕГРАЦИЯ – ПРОЯВЛЕНИЕ» ДЛЯ ПОВЫШЕНИЯ ТВОРЧЕСКОЙ АКТИВНОСТИ СТУДЕНТОВ В ПРОЦЕССЕ ВЫСШЕГО ОБРАЗОВАНИЯ

Аннотация. В данной статье раскрываются нейропедагогические основы развития творческой активности студентов в процессе высшего образования. В исследовании нейрокогнитивная модель «Генерация – Интеграция – Представление» рассматривается как эффективное средство формирования у студентов навыков креативного мышления, критического анализа, создания инновационных идей и их практической реализации. Сущность модели раскрывается через трехэтапный механизм творческой деятельности: на этапе генерации осуществляется создание новых идей и развитие дивергентного мышления; на этапе интеграции проводится анализ, синтез и систематизация идей; на этапе представления идеи воплощаются в форме инновационного продукта, проекта или практического решения. В статье показаны возможности применения данной модели в преподавании истории, педагогики, психологии, родного языка и литературы, а также философии. Результаты исследования подтверждают, что модель способствует развитию у студентов креативности, рефлексивной компетентности, способности к решению проблем, коммуникативных навыков и профессионального мастерства. Кроме того, обоснованы дидактические возможности модели в контексте внедрения инновационных педагогических технологий и раскрытия творческого потенциала студентов в системе высшего образования.

Ключевые слова: нейропедагогика, нейрокогнитивная модель, генерация, интеграция, представление, творческая активность, креативное мышление, дивергентное мышление, критическое мышление, рефлексия, инновационная деятельность, высшее образование, педагогические технологии, компетентностный подход, личность студента, профессиональное мастерство, креативная компетентность, решение проблем, нейропластичность, brain-based learning.

OPPORTUNITIES FOR USING THE NEUROCOGNITIVE MODEL “GENERATION – INTEGRATION – MANIFESTATION” TO ENHANCE STUDENTS’ CREATIVE ACTIVITY IN THE HIGHER EDUCATION PROCESS

Abstract. This article explores the neuro-pedagogical foundations of developing students' creative activity in higher education. The study analyzes the neurocognitive model “Generation – Integration – Presentation” as an effective tool for fostering students' creative thinking, critical analysis, innovative idea generation, and the practical implementation of these ideas. The essence of the model is explained through a three-stage mechanism of creative activity: the generation stage focuses on producing new ideas and developing divergent thinking; the integration stage involves analyzing, synthesizing, and systematizing ideas; and the presentation stage transforms ideas into innovative products, projects, or

practical solutions. The article highlights the possibilities of applying this model in teaching history, pedagogy, psychology, native language and literature, and philosophy. The research findings confirm that the model contributes to the development of creativity, reflective competence, problem-solving abilities, communication skills, and professional mastery among students. Furthermore, the study substantiates the didactic potential of the model for implementing innovative pedagogical technologies and unlocking students' creative potential in higher education.

Keywords: *neuro-pedagogy, neurocognitive model, generation, integration, presentation, creative activity, creative thinking, divergent thinking, critical thinking, reflection, innovative activity, higher education, pedagogical technologies, competency-based approach, student personality, professional mastery, creative competence, problem solving, neuroplasticity, brain-based learning.*

Kirish. Jahon ta'lim tizimida XXI asr kompetensiyalarini shakllantirish, innovatsion fikrlaydigan, kreativ va mustaqil qaror qabul qila oladigan mutaxassislarni tayyorlash ustuvor vazifalardan biri sifatida e'tirof etilmoqda. Globallashuv, raqamli transformatsiya va sun'iy intellekt texnologiyalarining jadal rivojlanishi oliy ta'lim oldiga nafaqat bilim berish, balki talabalarning ijodiy faolligini rivojlantirish, yangi g'oyalar yaratish va innovatsion faoliyatga tayyorlash vazifasini qo'ymoqda. Shu sababli ta'lim jarayonida talabalarni mustaqil fikrlashga, muammolarni kreativ hal etishga va o'z bilimlarini amaliy faoliyatda qo'llashga yo'naltiruvchi zamonaviy pedagogik mexanizmlarni ishlab chiqish muhim ilmiy-amaliy ahamiyat kasb etmoqda.

So'nggi yillarda pedagogika, psixologiya va neyrofanlar integratsiyasi natijasida shakllangan neyropedagogik yondashuv ta'lim samaradorligini oshirishning istiqbolli yo'nalishlaridan biri sifatida qaralmoqda. Ushbu yondashuv miyaning o'rganish jarayonidagi neyrokognitiv mexanizmlari, neyroplastiklik imkoniyatlari va individual neyrodinamik xususiyatlarini hisobga olgan holda ta'lim jarayonini tashkil etishga xizmat qiladi. Tadqiqotlar shuni ko'rsatmoqdaki, kreativ fikrlash, muammoni hal qilish, refleksiya va innovatsion faoliyat kabi sifatlar miyaning murakkab neyrokognitiv jarayonlari bilan uzviy bog'liq bo'lib, ularni rivojlantirishda maxsus pedagogik sharoitlar yaratish zarur.

Mamlakatimizda ham oliy ta'lim tizimini modernizatsiya qilish, ta'lim sifatini xalqaro standartlar darajasiga olib chiqish hamda talabalarni kreativ va innovatsion faoliyatga tayyorlash bo'yicha keng ko'lamli islohotlar amalga oshirilmoqda. O'zbekiston Respublikasi Prezidentining oliy ta'lim tizimini rivojlantirishga oid farmon va qarorlarida talabalarning ijodiy salohiyatini rivojlantirish, innovatsion fikrlashni qo'llab-quvvatlash va zamonaviy pedagogik texnologiyalarni joriy etish ustuvor vazifalar sifatida belgilangan.

Shu bilan birga, oliy ta'lim amaliyotining tahlili talabalar ijodiy faolligini rivojlantirish bo'yicha mavjud metodikalar asosan pedagogik va psixologik yondashuvlarga tayanganligini, biroq miyaning kreativ faoliyatni ta'minlovchi neyrokognitiv mexanizmlari, neyroplastiklik jarayonlari va individual neyrodinamik xususiyatlarini hisobga oluvchi metodik tizimlar yetarli darajada ishlab chiqilmaganligini ko'rsatadi. Natijada talabalarning kreativ fikrlash, innovatsion g'oyalar yaratish va ularni amaliy faoliyatga tatbiq etish imkoniyatlaridan to'liq foydalanish ta'minlanmayapti.

Mazkur holat talabalarning ijodiy faolligini rivojlantirishning neyropedagogik asoslarini ishlab chiqish, kreativ faoliyatning neyrokognitiv mexanizmlarini aniqlash va ular asosida innovatsion metodik model yaratish zaruratini yuzaga keltirmoqda. Shu nuqtai nazardan, oliy ta'lim jarayonida talabalarning ijodiy faolligini oshirishda "Generatsiya – Integratsiya – Namoyon etish" neyrokognitiv modelidan foydalanish imkoniyatlarini tadqiq etish dolzarb ilmiy-pedagogik muammo hisoblanadi.

Mavzuning dolzarbligi bir qator omillar bilan belgilanadi:

Birinchidan, zamonaviy mehnat bozori kreativ, tashabbuskor, tanqidiy fikrlaydigan va innovatsion faoliyat yurita oladigan mutaxassislarga bo'lgan ehtiyojning ortib borayotganligi bilan xarakterlanadi. Bunday sharoitda oliy ta'lim muassasalari bitiruvchilarida ijodiy faollik ko'nikmalarini rivojlantirish muhim pedagogik vazifaga aylanmoqda.

Ikkinchidan, neyrofanlar sohasidagi so‘nggi ilmiy yutuqlar inson miyasining o‘rganish, ijodkorlik va qaror qabul qilish jarayonlari bilan bog‘liq mexanizmlarini chuqurroq tushunish imkonini bermoqda. Bu esa ta‘lim jarayonini neyrokognitiv qonuniyatlar asosida tashkil etish zaruratini yuzaga keltiradi.

Uchinchidan, oliy ta‘lim amaliyotida talabalar ijodiy faolligini rivojlantirish bo‘yicha mavjud metodikalar kreativ faoliyatning asosan pedagogik va psixologik jihatlariga e‘tibor qaratgan bo‘lsa-da, neyroplastiklik va neyrokognitiv mexanizmlarga asoslangan integrativ metodik tizimlar yetarli darajada ishlab chiqilmagan.

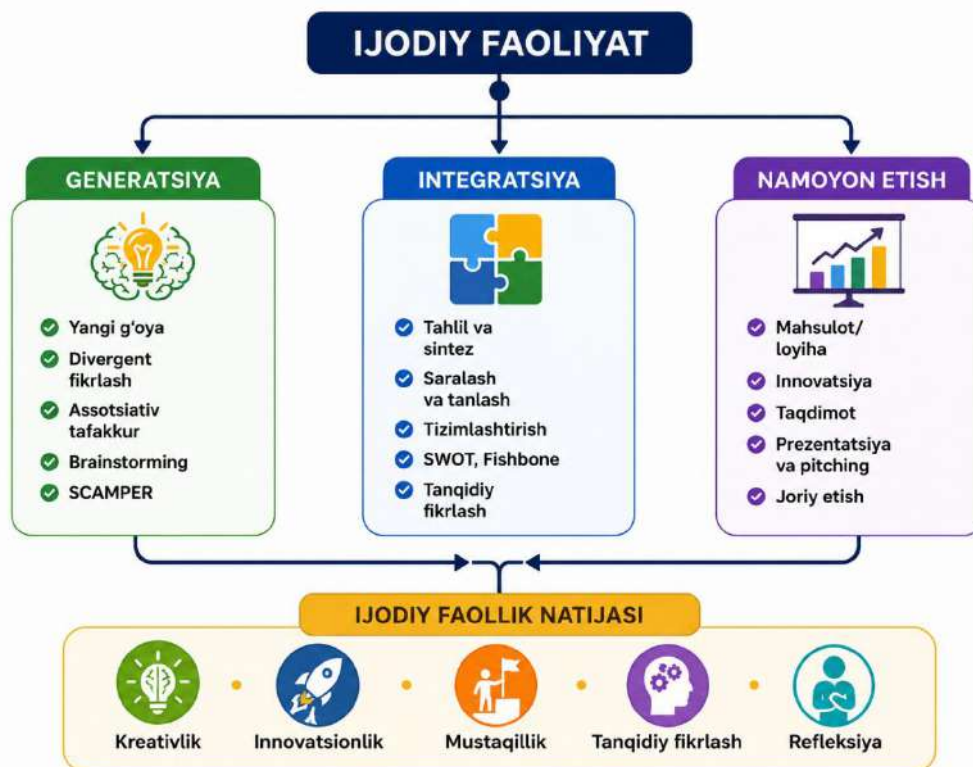
To‘rtinchidan, “Generatsiya – Integratsiya – Namoyon etish” neyrokognitiv modeli talabalarning ijodiy faoliyatini yangi g‘oya yaratish, uni tahlil qilish va amaliy natijaga aylantirish bosqichlari orqali izchil rivojlantirish imkonini beradi. Mazkur modelning oliy ta‘lim jarayoniga joriy etilishi kreativ fikrlash, tanqidiy tahlil, refleksiya va innovatsion faoliyatni rivojlantirishning samarali vositasi bo‘lib xizmat qilishi mumkin.

Beshinchidan, modelni ijtimoiy-gumanitar fanlarni o‘qitish jarayoniga integratsiya qilish orqali talabalarning kasbiy kompetensiyalarini rivojlantirish, mustaqil fikrlashini qo‘llab-quvvatlash va innovatsion salohiyatini yuzaga chiqarish imkoniyati yaratiladi.

Shunday qilib, oliy ta‘lim jarayonida talabalarning ijodiy faolligini oshirishda “Generatsiya – Integratsiya – Namoyon etish” neyrokognitiv modelidan foydalanishning nazariy asoslarini ishlab chiqish va amaliy imkoniyatlarini aniqlash zamonaviy pedagogika fanining dolzarb ilmiy muammolaridan biri hisoblanadi. Mazkur muammoning yechimi oliy ta‘lim sifatini oshirish, kreativ va raqobatbardosh mutaxassislarni tayyorlash hamda ta‘limning innovatsion rivojlanishiga xizmat qiladi.

Mazkur model talabalarning ijodiy faollik ko‘nikmalarini rivojlantirishning neyropedagogik mexanizmlarini tizimli ravishda ifodalashi bilan ahamiyatlidir. Modelda ijodiy faoliyatning tabiiy neyrokognitiv jarayonlari g‘oya yaratish, uni qayta ishlash va amaliy natijaga aylantirish bosqichlari yagona tizim sifatida integratsiyalangan.

Avvalo, model talabaning miya faoliyatini ta‘lim jarayoni bilan bog‘laydi. Unda kreativ fikrlashning shakllanishi tasodifiy jarayon emas, balki diqqat, ishchi xotira, assotsiativ tafakkur, tahlil, sintez va refleksiya kabi neyrokognitiv mexanizmlar asosida yuz berishi ilmiy jihatdan asoslanadi. (1-rasmga qarang)



1-rasm. “Generatsiya – Integratsiya – Namoyon etish” mazmuni

Modelning muhim ahamiyati shundaki, u ijodiy faoliyatni uch bosqichli tizim sifatida talqin qiladi:

- Generatsiya bosqichida yangi g'oyalar yaratiladi va divergent fikrlash rivojlanadi;
- Integratsiya bosqichida g'oyalar tahlil qilinadi, saralanadi va tizimlashtiriladi;
- Namoyon etish bosqichida esa g'oyalar amaliy mahsulot, loyiha yoki innovatsion yechim

ko'rinishida taqdim etiladi.

Shu jihatdan model ijodiy faoliyatning kognitiv, metakognitiv va amaliy komponentlari o'rtasidagi uzviy bog'liqlikni ta'minlaydi.

Pedagogik nuqtai nazardan mazkur model ta'lim jarayoniga Brainstorming, SCAMPER, Mind Mapping, SWOT-tahlil, Design Thinking, Project-Based Learning va reflektiv texnologiyalarni maqsadli integratsiya qilish imkonini beradi. Bu esa talabalarning ijodiy faolligini rivojlantirish uchun ilmiy asoslangan metodik mexanizmni shakllantiradi.

Modelning amaliy ahamiyati shundaki, u:

- talabalarning kreativ fikrlash qobiliyatini rivojlantiradi;
- innovatsion g'oyalar yaratish faolligini oshiradi;
- muammolarni hal qilish kompetensiyasini shakllantiradi;
- mustaqil qaror qabul qilish ko'nikmalarini rivojlantiradi;
- reflektiv va metakognitiv faollikni kuchaytiradi;
- ijodiy faollikni baholash uchun aniq mezon va indikatorlarni belgilash imkonini beradi.

Model neyropedagogika, kognitiv psixologiya va kreativ pedagogika nazariyalarining integratsiyasi asosida ishlab chiqilgan bo'lib, ijodiy faollikning neyrokognitiv mexanizmini tushuntiruvchi yangi konseptual yondashuvni taklif etadi. Model oliy ta'lim muassasalarida talabalarning ijodiy faollik ko'nikmalarini rivojlantirish, innovatsion ta'lim texnologiyalarini joriy etish va ijodiy kompetensiyalarni baholash jarayonlarida metodik asos sifatida qo'llanilishi mumkin.

«**Generatsiya – Integratsiya – Namoyon etish**» **neyrokognitiv modeli** ijodiy faoliyatning miya faoliyatiga asoslangan rivojlanish mexanizmini ochib beradi hamda talabalarda kreativ fikrlash, innovatsion g'oyalar yaratish va ularni amaliy faoliyatga tatbiq etish ko'nikmalarini shakllantirishning ilmiy asoslangan neyropedagogik modelini ifodalaydi.

Mazkur model ijtimoiy-gumanitar fanlarni o'qitishda talabalarning kreativ fikrlashi, tanqidiy tahlil qilish qobiliyati, kommunikativ kompetensiyasi va mustaqil qaror qabul qilish ko'nikmalarini rivojlantirishga xizmat qiladi. Modelning asosiy afzalligi shundaki, u bilimlarni o'zlashtirishni passiv qabul qilishdan faol yaratish va amaliyotga tatbiq etish bosqichiga olib chiqadi.

«Generatsiya – Integratsiya – Namoyon etish» neyrokognitiv modelining ijtimoiy-gumanitar fanlarda qo'llanilishi

Fan	Generatsiya (g'oya yaratish)	Integratsiya (tahlil va tizimlashtirish)	Namoyon etish (amaliy mahsulot)	Natija
Tarix	Tarixiy voqealarga oid muammoli savollar yaratish “Agar siz Amir Temur o'rnida bo'lganingizda...” kabi alternativ ssenariylar ishlab chiqish Brainstorming orqali tarixiy jarayonlarning	Tarixiy manbalarni qiyosiy tahlil qilish Voqea, sabab va oqibatlarini bog'lash SWOT va Fishbone tahlillari	Tarixiy loyiha yaratish Infografika va prezentatsiyalar tayyorlash Debat va tarixiy rekonstruktsiya	Tarixiy tafakkur rivojlanadi Tanqidiy fikrlash shakllanadi Fuqarolik pozitsiyasi mustahkamlanadi

	sabablarini aniqlash			
Pedagogika	Ta'lim muammolariga innovatsion g'oyalar ishlab chiqish Yangi pedagogik texnologiyalar loyihalash	Pedagogik nazariyalarni qiyoslash Ta'limiy vaziyatlarni tahlil qilish	Metodik loyiha yaratish Dars ishlanmasi tayyorlash Amaliy tavsiyalar ishlab chiqish	Pedagogik kreativlik rivojlanadi Metodik kompetensiya shakllanadi Innovatsion fikrlash rivojlanadi
Psixologiya	Psixologik muammolar bo'yicha gipotezalar ishlab chiqish Inson xulq-atvoriga oid g'oyalar yaratish	Nazariyalarni tahlil qilish Psixologik holatlarni izohlash	Keyslar yechimi Psixologik tavsiyalar ishlab chiqish Trening dasturlari yaratish	Refleksiv tafakkur rivojlanadi Empatiya kuchayadi Analitik fikrlash rivojlanadi
Ona tili va adabiyot	Esse va hikoya yozish Obrazlarga yangi talqinlar berish Ijodiy matn yaratish	Badiiy asarlarni tahlil qilish Qahramonlar xarakterini qiyoslash Konseptual xaritalar tuzish	Ijodiy loyiha yaratish Sahnalashtirish Prezentatsiya va portfolio tayyorlash	Yozma nutq rivojlanadi Kreativ tafakkur shakllanadi Kommunikativ kompetensiya rivojlanadi
Falsafa	Falsafiy muammolar bo'yicha g'oyalar yaratish Muqobil qarashlarni ilgari surish	Falsafiy konsepsiyalarni qiyoslash Sabab-oqibat bog'lanishlarini aniqlash	Debat tashkil etish Ilmiy maqola yozish Esse tayyorlash	Tanqidiy fikrlash rivojlanadi Argumentatsiya ko'nikmalari shakllanadi Mantiqiy tafakkur rivojlanadi

Mazkur jadval “Generatsiya – Integratsiya – Namoyon etish” neyrokognitiv modelining ijtimoiy-gumanitar fanlarda qo'llanish mexanizmini aks ettiradi. Model orqali talabalar avval yangi g'oyalarni yaratadi, keyin ularni tahlil va sintez qiladi hamda yakunda amaliy mahsulot yoki loyiha ko'rinishida namoyon etadi. Natijada kreativlik, tanqidiy fikrlash, kommunikativlik va mustaqil faoliyat kompetensiyalari rivojlanadi.

Modelning ijtimoiy-gumanitar fanlar uchun didaktik imkoniyatlari

Didaktik imkoniyat	Amalga oshirish mexanizmi	Natija
Kreativ fikrlashni rivojlantirish	Brainstorming, SCAMPER	Yangi g'oyalar yaratish
Tanqidiy fikrlashni shakllantirish	SWOT, Fishbone, debat	Tahliliy tafakkur
Bilimlarni integratsiyalash	Konseptual xaritalar	Tizimli fikrlash
Kommunikativ kompetensiyani rivojlantirish	Munozara, loyiha ishlari	Muloqot madaniyati
Refleksiv faoliyatni rivojlantirish	Portfolio, self-assessment	O'z-o'zini baholash
Innovatsion faoliyatni rag'batlantirish	Design Thinking, PBL	Innovatsion mahsulot yaratish

“Generatsiya – Integratsiya – Namoyon etish” neyrokognitiv modeli ijtimoiy-gumanitar fanlarni o‘qitishda talabalarni tayyor bilimlarni o‘zlashtiruvchi subyektdan ijodiy g‘oya yaratuvchi va uni amaliy faoliyatda namoyon etuvchi faol shaxsga aylantirishga xizmat qiladi. Model tarix, pedagogika, psixologiya, falsafa, ona tili va adabiyot kabi fanlarda kreativ fikrlash, tanqidiy tahlil, refleksiya va innovatsion faoliyatni rivojlantirishning samarali neyropedagogik vositasi hisoblanadi.

Pedagogik mahorat fanida “Generatsiya – Integratsiya – Namoyon etish” modeli asosida SWOT tahlil namunasi

Mavzu: “Zamonaviy pedagogning kasbiy mahoratini rivojlantirish omillari”

Dars maqsadi: Talabalarda pedagogik mahoratni shakllantiruvchi omillarni SWOT tahlil asosida o‘rganish, tanqidiy va kreativ fikrlashni rivojlantirish.

1-bosqich. Generatsiya

Topshiriq: Quyidagi savol asosida brainstorming tashkil etiladi:

“Bugungi kunda muvaffaqiyatli pedagog qanday kasbiy sifatlarga ega bo‘lishi kerak?”

Talabalar tomonidan yaratiladigan g‘oyalar: kommunikativlik; liderlik; pedagogik texnika; nutq madaniyati; AKT kompetensiyasi; kreativlik; emotsional intellekt; refleksivlik; innovatsion fikrlash.

Neyrokognitiv jarayonlar: divergent fikrlash; assotsiativ tafakkur; kreativ g‘oyalar generatsiyasi

2-bosqich. Integratsiya SWOT tahlil

Obyekt: “Bo‘lajak pedagogning kasbiy mahorati” (2-rasmga qarang).



2-rasm. “Bo‘lajak pedagogning kasbiy mahorati” mavzusida SWOT ni qo‘llash

Integratsion savollar: Qaysi zaif tomonlarni imkoniyatlar yordamida bartaraf etish mumkin? Qaysi kuchli tomonlar xavflarni kamaytiradi? Kelajak pedagogi uchun eng muhim omil qaysi?

Neyrokognitiv jarayonlar: tahlil, sintez, tanqidiy fikrlash, qaror qabul qilish

3-bosqich. Namoyon etish

Guruh loyihasi

Har bir guruh:

- SWOT natijalarini infografika ko‘rinishida tayyorlaydi;
- “Ideal pedagog modeli”ni ishlab chiqadi;

- 5 daqiqalik prezentatsiya qiladi.

Taqdimot natijasi

Ideal pedagog modeli: kreativ; kommunikativ; refleksiv; AKT kompetensiyasiga ega; innovatsion; emotsional intellekti rivojlangan.

Neyrokognitiv jarayonlar

- bilimlarni amaliyotga tatbiq etish
- refleksiya
- kommunikatsiya
- innovatsion yechim yaratish

Yakuniy natija: Modelning ishlash zanjiri (3-rasmga qarang).



3-rasm. Yakuniy natija

Baholash mezonlari

Mezon	Ball
SWOT tahlilining to'liqligi	20
Tahliliy fikrlash	20
Kreativ yechimlar	20
Taqdimot sifati	20
Jamoaviy hamkorlik	20
Jami	100

Ushbu namuna dissertatsiyaning tajriba-sinov qismida **“Pedagogik mahorat fanida neyropedagogik model asosida SWOT metodidan foydalanish texnologiyasi”** sifatida keltirilishi mumkin.

Oliy ta'lim jarayonida talabalarning ijodiy faolligini rivojlantirish zamonaviy ta'limning ustuvor vazifalaridan biri hisoblanadi. Globallashtirish, raqamlashtirish va innovatsion iqtisodiyot sharoitida bo'lajak mutaxassislardan nafaqat kasbiy bilim va ko'nikmalar, balki kreativ fikrlash, muammoni hal qilish, mustaqil qaror qabul qilish hamda innovatsion faoliyat yuritish kompetensiyalari ham talab etilmoqda. Shu jihatdan talabalarning ijodiy faolligini rivojlantirishning yangi pedagogik mexanizmlarini izlash va amaliyotga joriy etish muhim ahamiyat kasb etadi.

Tadqiqot davomida “Generatsiya – Integratsiya – Namoyon etish” neyrokognitiv modeli talabalarning ijodiy faoliyatini rivojlantirishning samarali vositasi sifatida tahlil qilindi. Mazkur model ijodiy faoliyatni uch bosqichli jarayon sifatida talqin etib, yangi g‘oyalarni yaratish, ularni tahlil qilish va tizimlashtirish hamda amaliy mahsulot yoki innovatsion yechim ko‘rinishida namoyon etishning izchil mexanizmini ta’minlaydi.

Tahlillar shuni ko‘rsatdiki, modelning generatsiya bosqichi talabalarning divergent va assotsiativ fikrlashini rivojlantirishga xizmat qiladi. Integratsiya bosqichida esa g‘oyalarni tanqidiy tahlil qilish, sintezlash va baholash jarayonlari amalga oshiriladi. Namoyon etish bosqichida esa yaratilgan g‘oyalar loyiha, taqdimot, infografika yoki amaliy mahsulot ko‘rinishida ifodalanadi. Natijada talabalarning kreativ fikrlashi, refleksiv kompetensiyasi, kommunikativ qobiliyatlari va innovatsion faoliyati rivojlanadi.

Tadqiqot natijalari mazkur modelning tarix, pedagogika, psixologiya, ona tili va adabiyot hamda falsafa kabi ijtimoiy-gumanitar fanlarni o‘qitish jarayonida samarali qo‘llanilishi mumkinligini ko‘rsatdi. Model talabalarning bilimlarni mustaqil yaratish, tahlil qilish va amaliyotga tatbiq etish faoliyatini faollashtirib, ta’lim jarayonini shaxsga yo‘naltirilgan va kreativ rivojlantiruvchi muhitga aylantiradi.

Shuningdek, modelning neyropedagogik asoslari miyaning kognitiv faoliyati, neyroplastiklik imkoniyatlari va kreativ tafakkur mexanizmlariga tayanganligi bilan ahamiyatlidir. Bu esa talabalarning ijodiy salohiyatini rivojlantirishda pedagogika, psixologiya va neyrofanlar integratsiyasidan samarali foydalanish imkonini beradi.

Umuman olganda, “Generatsiya – Integratsiya – Namoyon etish” neyrokognitiv modeli oliy ta’limda talabalarning ijodiy faolligini oshirish, kreativ va tanqidiy fikrlashni rivojlantirish, innovatsion g‘oyalar yaratish hamda ularni amaliy faoliyatga tatbiq etishning samarali neyropedagogik mexanizmi sifatida namoyon bo‘ladi. Mazkur modelni ta’lim amaliyotiga keng joriy etish bo‘ljak mutaxassislarning kasbiy mahorati, innovatsion salohiyati va raqobatbardoshligini oshirishga xizmat qiladi.

ADABIYOTLAR

1. Tokuhama-Espinosa T. *The New Science of Teaching and Learning: Using the Best of Mind, Brain, and Education Science in the Classroom*. – New York: Teachers College Press, 2014. – 320 p.
2. Sousa D.A. *How the Brain Learns*. 5th ed. – Thousand Oaks, CA: Corwin Press, 2017. – 440 p.
3. Howard-Jones P. *Introducing Neuroeducational Research: Neuroscience, Education and the Brain from Contexts to Practice*. – London: Routledge, 2010. – 192 p.
4. Andreev V.I. *Pedagogika: uchebniy kurs dlya tvorcheskogo samorazvitiya*. – Kazan: Tsentr innovatsionnyx texnologiy, 2012. – 608 s.
5. Gardner H. *Frames of Mind: The Theory of Multiple Intelligences*. – New York: Basic Books, 2011. – 528 p.
6. Quronov M., Nishonaliyev U., Sharipov Sh. va boshqalar. *Pedagogik mahorat*. – Toshkent: Iqtisod-Moliya, 2011. – 320 b.

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NEUROLOGICAL AND EDUCATIONAL CONSEQUENCES OF IRANIAN STUDENTS’ EXPOSURE TO WAR CONDITIONS: Chronic Stress, Educational Disruption, Assessment Inequality, and Psychosocial Determinants of Learning and Cognitive Health



Parva Vasli: Primary-school teacher, Esmaeilzadeh School,
District 1 of Qazvin Education Department, Qazvin, Iran.
soleimanii.vikiu@gmail.com

Abstract

War affects education not only by destroying buildings but also by altering the psychological, neurological, social, and economic conditions in which learning occurs. This article examines the

consequences of war-related exposure and prolonged educational disruption among Iranian school students, with particular attention to chronic stress, examination anxiety, educational disorders, cognitive health, psychosocial insecurity, and inequality in assessment. The analysis focuses on a period in which educational classes were conducted virtually for approximately seven months through the Shad platform while access to the global internet was severely restricted or unavailable. Students therefore faced interrupted communication, unstable learning routines, limited teacher–student interaction, reduced feedback, and unequal access to devices and digital materials. These problems were intensified for Grade 12 students, who had to prepare for the nationwide university entrance examination while coping with uncertainty, family anxiety, teacher stress, and the possible loss of educational time.

The article also addresses reports of students, teachers, and family members being killed or injured during the recent armed conflict. Such losses create direct trauma, grief, fear, survivor guilt, and the collapse of perceived safety. In addition, examinations in primary school, lower secondary school, and Grade 10 were conducted online from home. In many cases, students copied answers from textbooks, consulted other people, or collaborated during examinations. Although these practices may be interpreted as adaptations to an emergency, they compromised assessment validity and disadvantaged diligent, capable, and academically honest students. The resulting problem was not merely cheating; it was a crisis of educational justice.

Drawing on developmental neuroscience, education-in-emergencies literature, research on high-stakes testing in Iran, and available reports concerning virtual schooling and war-related casualties, the article proposes a recovery framework. This framework includes trauma-informed schooling, psychosocial support for students and educators, diagnostic assessment rather than punitive ranking, transparent examination reform, targeted support for disadvantaged learners, teacher training, flexible reopening plans, and continuity protocols that do not depend on a single digital platform. The article concludes that educational recovery must be understood as cognitive, emotional, social, and ethical reconstruction rather than a simple return to the classroom.

Keywords: Iran; war exposure; chronic stress; cognitive health; learning; educational disorders; Shad platform; online assessment; university entrance examination; psychosocial support; educational justice; trauma-informed education.

ERONLIK TALABALARNING URUSH SHAROITIGA DUCH KELISHINING NEVROLOGIK VA TA'LIMIY OQIBATLARI: surunkali stress, ta'limiy uzilish, baholashdagi tengsizlik va o'quv hamda kognitiv salomatlikning psixosotsial determinantlari

Annotatsiya. *Qurolli mojarolar va keng ko'lamli inqirozlar bolalarning rivojlanishini, psixologik farovonligini hamda ta'limga kirishini izdan chiqarishi mumkin. Jismoniy xavfsizlikka bevosita tahdidan tashqari, mojarolar bilan bog'liq stressga duch kelish kognitiv faoliyat, emotsional regulatsiya, akademik motivatsiya va talabalarning kelajak haqidagi kutishlariga ta'sir ko'rsatishi ehtimoldan xoli emas. Bu oqibatlar maktablar qayta ochilgandan va rasmiy ta'lim jarayoni tiklangandan keyin ham davom etishi mumkin. Ushbu integrativ sharh urush bilan bog'liq stress, neyrokognitiv faoliyat, psixologik farovonlik va ta'limiy natijalar o'rtasidagi munosabatlarni ko'rib chiqadi. Ta'lim neyronaukasidan, rivojlanish psixologiyasidan, rezilyentlik tadqiqotlaridan va inqiroz ta'limidan olingan izlanishlarga tayangan holda, sharh uzoq muddatli stress ta'siri diqqat, xotira, ijro funksiyalari, emotsional regulatsiya va o'qishga tayyorgarlikka qanday ta'sir qilishi mumkinligini tahlil qiladi. Shuningdek, mojaroning ta'limiy oqibatlari — maktab faoliyatining izdan chiqishi, o'quv yo'qotishlari, akademik ishtirokning pasayishi va kelajakdagi ta'lim yo'llari borasida noaniqlik — ko'rib chiqiladi. Ushbu nuqtai nazarlarni integratsiya qilish uchun maqola **Integrallashgan Neyrota'limiy Tiklanish Modeli (INRM)**ni taklif etadi. Bu konseptual asos mojarolar bilan bog'liq stressdan neyrokognitiv va psixologik qiyinchiliklarga, undan esa ta'limiy izdan chiqishga olib boruvchi ehtimoliy yo'llarni tasvirlaydi. Model, shuningdek, qo'llab-quvvatlovchi munosabatlar, psixologik jihatdan xavfsiz o'quv muhitlari, oilaviy ishtirok, o'qituvchi yordami va rezilyentlikka yo'naltirilgan intervensiyalar orqali tiklanishni osonlashtiruvchi himoya yo'llarini ham belgilaydi. Tadqiqot ta'limiy tiklanishni faqat o'quv vaqtini yoki akademik mazmunni qayta tiklash sifatida tushunmaslik kerakligini ta'kidlaydi. Barqaror tiklanish talabalarning kognitiv tayyorgarligi, emotsional xavfsizligi, ijtimoiy munosabatlari, motivatsiyasi va kelajak imkoniyatlari hissigacha e'tibor qaratishni talab qiladi. INRM mojarolar ta'siridagi sharoitlarda ta'limiy tiklanishga integrallashgan yondashuvlarni ishlab chiqmoqchi bo'lgan tadqiqotchilar, pedagoglar va siyosat yurituvchilar uchun konseptual asosni taqdim etadi. Kelgusida taklif etilgan yo'llarni sinovdan*

o'tkazish va modelning turli madaniy hamda ta'limiy kontekstlarda qo'llanishini o'rganish uchun empirik tadqiqotlar zarur.

Kalit so'zlar: *urush bilan bog'liq stress; neyrokognitiv faoliyat; ta'limiy tiklanish; o'quv yo'qotishlari; akademik motivatsiya; rezilyentlik; talabalar; ta'lim neyrofani.*

**НЕВРОЛОГИЧЕСКИЕ И ОБРАЗОВАТЕЛЬНЫЕ ПОСЛЕДСТВИЯ ВОЗДЕЙСТВИЯ
ВОЕННЫХ УСЛОВИЙ НА ИРАНСКИХ СТУДЕНТОВ: хронический стресс,
образовательные разрывы, неравенство в оценивании и психосоциальные детерминанты
обучения и когнитивного здоровья**

Аннотация. *Вооружённые конфликты и масштабные кризисы могут нарушать развитие детей, их психологическое благополучие и доступ к образованию. Помимо непосредственной угрозы физической безопасности, воздействие стрессов, связанных с конфликтом, способно влиять на когнитивное функционирование, эмоциональную регуляцию, академическую мотивацию и ожидания студентов относительно будущего. Эти последствия могут сохраняться даже после повторного открытия школ и возобновления формального обучения. Настоящий интегративный обзор рассматривает взаимосвязи между стрессом, связанным с войной, нейрокогнитивным функционированием, психологическим благополучием и образовательными результатами студентов. Опираясь на исследования в области образовательной нейронауки, психологии развития, изучения резильентности и кризисного образования, обзор анализирует, как длительное воздействие стресса может влиять на внимание, память, исполнительные функции, эмоциональную регуляцию и готовность к обучению. Также рассматриваются образовательные последствия конфликтов, включая дезорганизацию школьного процесса, утрату учебных достижений, снижение академической вовлечённости и неопределённость в отношении будущих образовательных траекторий. Для интеграции этих перспектив статья предлагает **Интегрированную модель нейрообразовательного восстановления (INRM)** — концептуальную основу, описывающую возможные пути от стрессов, связанных с конфликтом, к нейрокогнитивным и психологическим трудностям, а затем к образовательным нарушениям. Модель также выделяет защитные механизмы, посредством которых поддерживающие отношения, психологически безопасная учебная среда, вовлечённость семьи, поддержка учителей и интервенции, ориентированные на развитие резильентности, могут способствовать восстановлению. В обзоре утверждается, что образовательное восстановление не следует понимать лишь как возобновление учебного времени или академического содержания. Устойчивое восстановление требует внимания к когнитивной готовности студентов, их эмоциональной безопасности, социальным отношениям, мотивации и ощущению перспективы будущего. INRM предоставляет концептуальную основу для исследователей, педагогов и политиков, стремящихся разработать интегрированные подходы к образовательному восстановлению в условиях, затронутых конфликтом. В будущем необходимы эмпирические исследования для проверки предложенных путей и изучения применимости модели в различных культурных и образовательных контекстах.*

Ключевые слова: *стресс, связанный с войной; нейрокогнитивное функционирование; образовательное восстановление; утрата учебных достижений; академическая мотивация; резильентность; студенты; образовательная нейронаука.*

1. Introduction

Education is one of the first public systems disrupted during armed conflict and one of the most important systems for social recovery. Schools ordinarily provide instruction, routine, peer relationships, adult protection, emotional regulation, and a sense of future orientation. When violence, threats, displacement, bereavement, school closures, internet restrictions, and uncertain reopening policies interrupt this environment, students lose more than scheduled lessons. They may lose predictability, concentration, trust in adults and institutions, and confidence that effort will lead to a meaningful future.

The Iranian educational context is especially important because school achievement is closely connected to family expectations, social mobility, and the highly competitive National University Entrance Examination, commonly called the *Konkur*. Research on Iranian adolescents describes the examination as a decisive event affecting perceived future identity, family relationships, and educational

opportunity. A large mixed-methods study of Iranian students and parents reported detrimental effects of the examination on educational, personal, social, physical, and psychological life, and raised concerns about educational justice and the consequences of high-stakes testing (Ahmadi Safa et al., 2023). A qualitative study of female students similarly identified examination outcomes, preparation, self-blame, family expectations, fear of failure, and socioeconomic conditions as major sources of concern (Konkour Giant study, 2017).

These pressures became more severe when approximately seven months of instruction were delivered virtually through Shad under conditions of severe internet restriction or complete interruption of the global internet. Virtual instruction was not experienced as a stable form of distance education. For many students, it meant incomplete lessons, delayed communication, weak feedback, technical failure, limited opportunities to ask questions, and dependence on family devices and digital literacy. Reports concerning Shad have described access limitations, platform instability, and the exclusion or disadvantage of students without suitable devices or reliable connectivity. Earlier evidence also indicated substantial dropout from online education in rural and small-town areas because of internet inaccessibility (International Journal on Responsibility, source report).

The recent war added a qualitatively different layer of risk. Students and teachers were exposed to alarms, fear of attack, bereavement, destruction, injury, displacement, and continuous uncertainty. Reports by UNICEF and other sources described attacks affecting educational facilities in Iran, including the reported killing of 168 children at Shajareh Tayyebbeh School in Minab on 28 February 2026. Reports attributed further deaths and injuries to attacks on schools and surrounding communities. Because casualty figures may change and may be contested, this article treats them as reported figures and calls for independent verification, transparent documentation, and protection of survivors' privacy.

At the time of writing, many families and educators remain uncertain whether the next academic year will begin in person or online. The absence of a reliable timetable is itself a psychosocial stressor. Students cannot plan study schedules; parents cannot plan childcare, transportation, or access to devices; teachers cannot prepare lessons or assessments; and schools cannot establish a stable transition plan. Repeated threats and hostile public communication intensify the perception that danger may return at any moment.

This article has five aims: (1) to explain how chronic war-related stress can affect learning and cognitive health; (2) to examine the educational consequences of prolonged virtual schooling through Shad during internet disruption; (3) to analyze examination anxiety among Grade 12 students and the added burden on families and teachers; (4) to discuss the loss of assessment validity and educational justice when home examinations permit copying or outside assistance; and (5) to propose evidence-informed measures for educational and psychosocial recovery.

2. Conceptual Framework

2.1 War exposure as a developmental stressor

War exposure can be direct, indirect, cumulative, or vicarious. Direct exposure includes injury, bombardment, displacement, or witnessing violence. Indirect exposure includes the death or injury of a relative, classmate, teacher, or neighbor; destruction of a school; loss of housing; or repeated media exposure to violence. Vicarious exposure includes hearing threats, receiving frightening messages, or observing the fear of caregivers. These pathways may overlap and may continue after active hostilities decline.

Children and adolescents are particularly sensitive to prolonged threat because their systems of attention, executive control, emotion regulation, and future planning are still developing. Acute stress can temporarily mobilize attention toward immediate danger. Chronic stress, however, may produce persistent hypervigilance, sleep disturbance, irritability, intrusive memories, avoidance, emotional numbing, somatic complaints, and difficulty shifting attention back to academic tasks. UNICEF guidance on education in emergencies emphasizes that exposure to life-threatening events can produce psychosocial distress and impair learning outcomes and cognition. The educational environment must therefore be included in mental-health and psychosocial-support planning rather than treated as separate from health and protection.

2.2 Neurocognitive pathways

Learning depends on attention, working memory, processing speed, language, motivation, sleep, and the ability to encode and retrieve information. Chronic stress can interfere with these processes through several interacting pathways:

- **Attentional capture:** Threat-related cues may dominate attention, leaving fewer cognitive resources for a lesson or examination question.

- **Working-memory overload:** Worry consumes mental capacity that would otherwise be used to hold instructions, calculate, read, or organize an answer.
- **Sleep disruption:** Fear, noise, displacement, and irregular routines can reduce sleep quality, affecting memory consolidation and emotional regulation.
- **Executive-control fatigue:** Sustained monitoring of danger can reduce the capacity for planning, inhibition, cognitive flexibility, and error correction.
- **Motivational withdrawal:** When the future appears uncertain, students may conclude that effort is futile, producing apathy, hopelessness, and reduced persistence.
- **Somatic stress:** Headaches, gastrointestinal complaints, fatigue, palpitations, and muscle tension can reduce attendance and academic participation.

These mechanisms should not be interpreted deterministically. Stress does not affect every student in the same way. Supportive caregivers, safe relationships, competent teachers, stable routines, peer support, and access to mental-health care can buffer harm. Conversely, poverty, disability, prior learning difficulties, family bereavement, displacement, and limited digital access can magnify it.

2.3 Educational disorders and learning difficulties

The term “educational disorders” should be used carefully. War-related decline in performance does not automatically mean that a student has a neurodevelopmental disorder such as dyslexia, attention-deficit/hyperactivity disorder, or a specific learning disorder. A previously capable student may temporarily show inattention, slow reading, poor recall, writing deterioration, or mathematics errors because of trauma, sleep deprivation, anxiety, or inadequate instruction. Conversely, genuine learning disorders may go unidentified when schools are closed and assessment services are interrupted.

The distinction requires longitudinal and multidisciplinary assessment. Teachers can document changes in performance, attendance, behavior, and participation, but diagnosis should be made by qualified professionals using culturally and linguistically appropriate procedures. A trauma-informed approach avoids both extremes: blaming the student for stress-related difficulties and attributing every difficulty to trauma without assessment.

3. Iranian Educational Disruption During War Conditions

3.1 Seven months of virtual schooling

For approximately seven months, classes were delivered virtually through the Shad platform while the global internet was unavailable or severely restricted. Under ordinary conditions, online learning can provide continuity. Under emergency conditions without dependable connectivity, it may instead create a fragmented and unequal learning environment. Students may be technically enrolled but educationally absent.

The main problems reported or described in this context include:

- interrupted or delayed access to lessons;
- inability to download videos, images, or educational files reliably;
- insufficient opportunities for students to speak and ask questions;
- weak monitoring of attendance and genuine participation;
- dependence on a parent’s or sibling’s smartphone;
- inability of some families to maintain data costs or electricity supply;
- limited accommodation for students with disabilities;
- reduced teacher feedback and assessment of misconceptions;
- lack of practical, laboratory, artistic, and social learning;
- increased household responsibilities and caregiving demand; and
- blurred boundaries between school time, family stress, and emergency news.

Evidence from education-in-emergencies research indicates that continuity is not achieved simply by transferring a timetable to a digital platform. Effective continuity requires communication, accessible materials, trained teachers, psychosocial support, two-way interaction, safeguarding, and alternative routes for learners who cannot connect digitally. When the internet itself is restricted, a single-platform strategy becomes a systemic vulnerability.

3.2 Unequal access and the digital divide

The digital divide is not limited to whether a student owns a smartphone. It includes the quality of the device, the number of family members sharing it, connectivity, electricity, digital literacy, a quiet study space, parental availability, disability access, and the ability to print or obtain materials. A student attending class from a quiet room with a laptop and educated parental support does not experience the same educational environment as a student sharing one phone with several siblings in a crowded or unsafe home.

In rural and economically disadvantaged communities, online schooling may amplify pre-existing inequalities. Students who miss lessons may not have a teacher available to identify the gap. The accumulated deficit then appears later as “low ability,” although the original cause was interrupted access. Such misclassification can lead to inappropriate academic tracking and damage students’ self-concepts.

3.3 Elementary and lower-secondary consequences

Younger learners are especially dependent on direct modeling, repetition, immediate correction, play, classroom routines, and close teacher observation. Early literacy and numeracy are cumulative: a child who does not master phonological awareness, letter formation, reading fluency, or basic number concepts may experience increasing difficulty in later grades. Online instruction at home can support some learning, but it cannot fully replace structured interaction for children who need guided practice.

In primary and lower-secondary grades, virtual instruction also weakened peer interaction and classroom socialization. Students had fewer opportunities to practice turn-taking, cooperation, conflict resolution, oral expression, and shared problem-solving. These social-cognitive skills are educational outcomes in their own right and support later learning.

3.4 Grade 12 and the university entrance examination

Grade 12 students faced a particularly severe combination of disrupted preparation and high-stakes competition. They had to compete nationally for university admission while lessons, review courses, examinations, and teacher access were unstable. The *Konkur* already produces pressure because students and families often regard it as a decisive gateway to professional and social mobility. Under war conditions, the examination became connected to a broader fear: that months of effort might be lost, that the examination might be postponed or changed, or that students might be forced to compete under unequal conditions.

Students’ anxiety was reinforced by parental stress. Families faced uncertainty about safety, finances, internet access, relocation, and future employment. Parents who wanted to support their children might themselves be traumatized, grieving, unemployed, or unable to provide academic assistance. Family expectations can motivate some students, but under chronic threat they may become experienced as blame or pressure. Research on Iranian academic stress identifies examination grades, workload, family expectations, peer competition, and supplementary classes as major stressors.

Teachers were also affected. They had to redesign lessons, respond to distressed students, manage technology, prepare assessments, and answer parents while worrying about their own safety and families. A teacher’s emotional exhaustion can reduce feedback quality and patience, even when the teacher remains deeply committed. Educational recovery therefore cannot focus on students alone; it must include educators as a major population in need of support.

4. War, Bereavement, and Psychosocial Harm

4.1 Deaths of students, teachers, and family members

The killing of students, teachers, and family members transforms the school community into a site of collective bereavement. Reports concerning the recent war in Iran described the deaths of children and education personnel, including the reported massacre at a girls’ elementary school in Minab. Other reports cited further casualties among students, teachers, and educational staff, as well as damage to schools. These figures should be presented with attribution and updated as reliable information becomes available.

For surviving students, the death of a classmate is not an abstract national statistic. It may be the loss of a friend who shared a desk, a teacher who provided safety, or a family member who supported school attendance. Bereavement may produce sadness, anger, guilt, fear, withdrawal, sleep problems, intrusive memories, or a belief that academic success is inappropriate or impossible. Some students may become preoccupied with protecting remaining family members rather than studying. Others may appear outwardly calm while experiencing severe internal distress.

Teachers also grieve. A teacher who has lost students or colleagues may be expected to resume instruction without time for mourning. This can create moral injury: the painful sense that one is required to perform normal educational duties after an abnormal and devastating event. Schools should not interpret grief-related concentration problems as laziness or misconduct.

4.2 Uncertainty and repeated threat

Even where a student has not directly witnessed violence, repeated threats can produce a persistent state of anticipated danger. Uncertainty about whether schools will reopen in person or remain online prevents the restoration of routine. Families may ask: Will transport be safe? Will the building be secure? Will the internet work? Will an examination be held? Will another attack occur?

The absence of clear information can intensify rumors and catastrophic thinking. Daily warnings and hostile communication between groups may keep students' nervous systems activated. In these circumstances, schools need predictable communication: what is known, what is unknown, when the next update will occur, and what practical steps families should follow. Honest uncertainty is less harmful than repeated contradictory announcements.

4.3 Emotional and behavioral manifestations

Possible manifestations among students include:

- loss of motivation and hope;
- persistent examination anxiety;
- irritability, aggression, or conflict with peers;
- crying, withdrawal, or emotional numbness;
- nightmares and sleep disturbance;
- reduced attention and memory;
- school refusal or avoidance of online classes;
- somatic complaints without a clear medical explanation;
- regression in younger children;
- excessive checking of messages and news;
- guilt about surviving when others died; and
- increased risk of depression, anxiety, or post-traumatic symptoms.

These signs are not diagnostic by themselves. They indicate the need for supportive observation, communication with caregivers, and referral when symptoms are severe, persistent, or associated with self-harm risk. Teachers should never promise confidentiality when a child may be in danger; safeguarding procedures must be clear.

5. Online Examinations and Educational Justice

5.1 Home-based examinations

Because classes were virtual, end-of-year examinations in primary school, lower secondary school, and Grade 10 of upper secondary school were conducted online at home. In many cases, students wrote answers from textbooks, consulted other people, or collaborated while answering questions. This practice compromised the ability of examinations to measure individual knowledge and skills.

It is important to understand the context. Students may have used unauthorized help not because they lacked moral values but because the assessment system was poorly adapted to emergency conditions, supervision was weak, instruction had been incomplete, and families feared academic failure. Nonetheless, the consequences were serious. Grades became less comparable, teachers lost reliable information about learning gaps, and students who answered independently could receive no advantage for their honesty.

5.2 The harm to capable and honest students

The central issue is educational justice. When an examination rewards access to textbooks, family assistance, private tutoring, or cooperation with others, it measures resources and opportunity rather than learning. High-performing and academically honest students may feel that their effort has been devalued. They may experience anger, cynicism, and loss of trust in school authority. Students who received inflated grades may later face difficult content without the necessary foundation, producing delayed failure.

This problem is especially damaging when grades are used for promotion, school selection, scholarships, or university preparation. A student who appears successful on an invalid examination may not receive remedial support. A student who performs poorly because of stress, poor internet, or lack of help may be incorrectly labeled weak. Both forms of error have long-term consequences.

5.3 Assessment redesign

Emergency assessment should prioritize learning diagnosis over punishment. Appropriate measures include:

- low-stakes oral interviews or short teacher–student conferences;
- portfolios containing dated work completed over time;
- open-book questions requiring explanation and application;
- locally supervised assessment when safe;
- random follow-up questions to verify understanding;
- multiple assessment opportunities rather than one decisive test;
- accommodations for disability, bereavement, and connectivity problems;
- transparent criteria and moderation across schools; and

- postponement of high-stakes decisions when evidence is unreliable.

An open-book examination is not automatically invalid. It becomes educationally meaningful when questions require interpretation, reasoning, comparison, problem-solving, or application to a new situation. By contrast, questions copied directly from a textbook are highly vulnerable to outside assistance.

6. Educational Disorders and Cognitive Health

6.1 Attention and executive function

Students under chronic stress may seem inattentive, but their attention may be redirected toward perceived danger. In a virtual lesson, this can be intensified by phone notifications, household noise, poor audio, and the passive structure of one-way teaching. Working-memory demands become heavier when students must remember instructions while also monitoring connectivity or family events.

Executive-function difficulties may appear as missed deadlines, disorganized notebooks, inability to begin tasks, poor time management, and impulsive answers. These behaviors can be misinterpreted as irresponsibility. Teachers should first ask what barriers are present: sleep, grief, device access, trauma reminders, language difficulty, or missing prior instruction.

6.2 Reading, writing, and mathematics

Interrupted instruction may produce specific academic gaps. In early grades, incomplete phonics and handwriting practice can affect reading fluency and written expression. In mathematics, missing foundational concepts can create cascading errors. Older students may memorize procedures without understanding them, especially when video lessons and answer sharing replace guided practice.

Diagnostic assessments should identify the precise skill that is missing. A student who cannot solve a Grade 7 equation may need support in arithmetic operations, not repeated exposure to the same equation. Recovery plans should therefore be modular, short, and cumulative, with frequent feedback.

6.3 Motivation, hope, and self-efficacy

Motivation is not merely a personality trait. It depends on whether students believe that learning is possible, effort is recognized, the future has value, and adults can provide support. War and educational injustice can undermine all four beliefs. Students may ask why they should study when the school is closed, the examination is unfair, or their future is uncertain.

Evidence from Iranian interventions suggests that structured stress-management and self-acceptance programs can reduce distress among examination candidates and improve academic optimism or hope. Such interventions should not be presented as substitutes for safety, reliable schooling, or institutional reform. They are complementary supports within a broader recovery system.

7. A Recovery Framework for Iranian Schools

7.1 Stabilization and safety

The first phase is stabilization. Schools and education authorities should provide clear safety information, predictable schedules, and a reliable communication channel. If in-person reopening is unsafe, a multi-channel model should combine printed materials, broadcast lessons, accessible digital content, telephone support, and community learning spaces where appropriate. No student should lose education solely because one application or one internet route fails.

School buildings should be assessed for physical safety before reopening. Emergency drills should be age-appropriate and designed to reduce fear rather than intensify it. Families should receive clear information about attendance, transport, shelter procedures, and what happens if a student cannot attend.

7.2 Mental-health and psychosocial support

UNICEF guidance recommends integrating mental-health and psychosocial support into education-in-emergencies programming, including needs assessment for children, caregivers, and educators, school-based group activities, individual support, inclusive services, and referral pathways. Iranian schools should implement a stepped-care model:

- universal classroom activities that restore routine, safety, emotional vocabulary, and peer connection;
- targeted group support for students affected by bereavement, displacement, or severe anxiety;
- specialized referral for persistent trauma symptoms, depression, self-harm risk, or functional impairment; and
- support and supervision for teachers and school counselors.

Psychosocial support should be culturally respectful, linguistically accessible, confidential within safeguarding limits, and available to students with disabilities. It should not stigmatize children as “damaged.” The goal is to restore functioning, relationships, agency, and hope.

7.3 Teacher preparation

Teachers need practical training in trauma-informed pedagogy. Core competencies include recognizing stress responses, using calm and predictable routines, avoiding humiliating discipline, adapting workload, supporting grieving students, identifying referral needs, and communicating with families. Teachers should also receive peer supervision and opportunities for rest. A teacher who is overwhelmed cannot be expected to provide sustained emotional regulation for an entire class without institutional support.

7.4 Learning recovery

Learning recovery should begin with diagnostic assessment, not assumptions. Schools can use short, low-stakes tasks to determine what students know and what they have missed. Instruction should then focus on essential competencies, with additional time for foundational literacy, numeracy, science reasoning, and language skills.

A practical recovery cycle is:

1. assess essential skills and psychosocial barriers;
2. group students flexibly according to learning needs;
3. provide brief, explicit instruction and guided practice;
4. give immediate, constructive feedback;
5. reassess frequently; and
6. adjust support without permanently labeling students.

The cycle should include accommodations for students who are grieving, displaced, disabled, or unable to attend consistently.

7.5 Fair examination policy

High-stakes examinations should not be used as if educational conditions had been normal. Authorities should publish the basis for grading, acknowledge the limitations of online examinations, and avoid relying on a single invalid score. For Grade 12 students, any national examination policy should consider the unequal loss of instruction, regional connectivity, bereavement, school damage, and the psychological burden of war.

Possible measures include multiple examination dates, regional normalization only when statistically defensible, portfolio evidence, additional attempts, transparent appeals, and free public review materials. These measures should be designed to preserve standards while preventing emergency conditions from becoming an irreversible penalty.

8. Research Agenda and Methodological Considerations

The present article is an analytical and policy-oriented review, not a population prevalence study. Reliable conclusions about Iranian students require systematic data collected with ethical safeguards. Future research should use mixed methods and longitudinal designs.

8.1 Recommended study design

A national or multi-province study could include:

- students from primary, lower-secondary, upper-secondary, and Grade 12 levels;
- teachers, parents, school counselors, and administrators;
- urban, rural, border, and conflict-affected communities;
- students with and without disabilities;
- measures of war exposure, bereavement, displacement, internet access, sleep, anxiety, depression, post-traumatic symptoms, motivation, and executive function; and
- academic indicators based on validated diagnostic tasks rather than emergency grades alone.

Repeated measurement would help distinguish temporary disruption from persistent impairment. Qualitative interviews could document how students understand loss, uncertainty, family expectations, online learning, examination fairness, and their hopes for the future.

8.2 Ethical requirements

Research with children affected by war must obtain informed parental consent and age-appropriate assent, protect confidentiality, minimize traumatization, and establish referral pathways before data collection. Researchers should not ask students to describe traumatic events merely for narrative detail. Data should never be used to punish families, identify vulnerable individuals, or restrict educational opportunities.

8.3 Avoiding overinterpretation

Researchers should avoid claiming that every academic decline is neurological damage. Cognitive performance is shaped by instruction, sleep, nutrition, language, socioeconomic conditions, emotional state, test format, and opportunity to practice. Similarly, a lack of observed impairment does not mean that students are unaffected; some children maintain grades while experiencing severe internal distress. A scientifically responsible approach combines standardized measures with contextual and qualitative evidence.

9. Discussion

The Iranian case demonstrates that educational disruption during war is a layered crisis. The first layer is physical: deaths, injuries, damaged schools, displacement, and unsafe travel. The second is infrastructural: internet restrictions, platform failures, device inequality, and loss of communication. The third is pedagogical: reduced interaction, incomplete curriculum, weak feedback, and invalid assessment. The fourth is psychological: chronic stress, grief, hopelessness, examination anxiety, and teacher burnout. The fifth is ethical: unequal opportunity, loss of trust, and the devaluation of honest effort.

These layers interact. A student who loses a parent may have to share a phone with siblings. The same student may miss online lessons, perform poorly on a home examination, and then be labeled unmotivated. A teacher who lost a colleague may teach through a failing platform while parents demand grades. A Grade 12 student may study for a national examination while hearing that schools may reopen, close, or be threatened again. The educational outcome cannot be understood by examining any single factor in isolation.

The uncertainty about the next school year is therefore not a minor administrative inconvenience. It affects planning, sleep, motivation, family finances, and the perceived credibility of education. A stable plan should include contingencies for in-person, hybrid, and remote learning, but it should not shift responsibility onto families without providing materials, devices, connectivity, and support.

The issue of online examinations also deserves careful treatment. Public discussion may focus on students' misconduct, yet an examination system that makes outside help easy and then treats the resulting scores as precise measures is itself poorly designed. Students should be held to academic standards, but institutions must also accept responsibility for assessment validity. Recovery requires rebuilding trust rather than simply increasing surveillance or punishment.

Finally, war-related educational policy should recognize that schools are protective environments. When functioning well, they offer routine, relationships, identity, and hope. Reopening a school is valuable, but reopening without psychosocial support, safety, teacher preparation, and remedial instruction may reproduce failure. The goal is not merely to restore attendance; it is to restore meaningful learning and the student's belief that education remains worth pursuing.

10. Conclusion

Iranian students exposed to war conditions face intertwined neurological, educational, and psychosocial risks. Approximately seven months of virtual schooling through Shad during severe internet disruption weakened instructional continuity and intensified inequalities. Grade 12 students experienced the additional burden of national university entrance competition, while families and teachers faced their own fear, financial pressure, grief, and uncertainty. Reports of students, teachers, and family members killed or injured during the conflict add a profound layer of bereavement and collective trauma.

Online end-of-year examinations in primary, lower-secondary, and Grade 10 education created a serious assessment problem when students copied from books or received help from others at home. The consequence was not only inaccurate grading; it was the erosion of educational justice and the displacement of honest and capable students' rights. The appropriate response is not to stigmatize students but to redesign assessment, provide diagnostic recovery, and acknowledge the institutional conditions that made invalid testing inevitable.

Educational recovery should combine physical safety, predictable communication, trauma-informed teaching, mental-health and psychosocial support, teacher care, accessible multi-channel learning, targeted remediation, and fair examination reform. If these measures are implemented, education can become a source of stabilization and recovery. If they are neglected, war-related learning loss, cognitive strain, inequality, and hopelessness may continue long after the immediate violence has ended.

References

Ahmadi Safa, M., et al. (2023). *An impact study of the Iranian National University Entrance Examination from students' and parents' perspectives*. *Language Testing in Asia*, 13, article 31. <https://doi.org/10.1186/s40468-023-00254-0>

Bukhara State University. (n.d.). Institutional information and publication context. Buxoro davlat universiteti.

Education-in-emergencies literature. (2019). *Healing and recovery through education in emergencies*. Education Cannot Wait / ReliefWeb.

International Journal on Responsibility. (n.d.). Reports concerning the Shad educational network, accessibility, and online education inequalities in Iran.

Konkour Giant. (2017). *Konkour Giant: A narrative of high school female students from Gorgan, Iran*. PubMed. <https://pubmed.ncbi.nlm.nih.gov/28782346/>

UNICEF. (2023). *Promoting and protecting mental health in schools and learning environments*. UNICEF.

UNICEF. (2025). *Integrating mental health and psychosocial support into education in emergencies: Technical brief*. UNICEF.

UNICEF. (2026, February 28). *Statement on the impact of the military escalation on children in the Middle East*. UNICEF / ReliefWeb.

UNICEF. (2026, March 5). *The brutality of war measured in children's lives as hostilities escalate in Iran*. UNICEF New Zealand statement.

UNICEF. (2026, April 8). *UNICEF statement on hostilities in the Middle East*. UNICEF UK.

World Health Organization. (n.d.). Guidance on mental health and psychosocial support in emergencies.

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XITOY TILINING KOGNITIV-NEYROPSIXOLOGIK XUSUSIYATLARI

	Norbekova Gulira'no Mukhitdin kizi Master's graduate of Zhejiang University, China gulirannno@icloud.com
	Rajabov Alisherjon O'ktamovich Independent researcher of Bukhara state university

Annotatsiya. Mazkur maqolada xitoy tilining kognitiv-neyropsixologik xususiyatlari ilmiy tadqiqotlar asosida tahlil qilinadi. Unda mental leksikon, semantik va fonologik tizimlarning tilni qayta ishlashdagi o'rni, shuningdek, xitoy ierogliflarini o'qish va yozish mexanizmlari ko'rib chiqiladi. Xitoy yozuvining grafik, fonologik va semantik xususiyatlari boshqa yozuv tizimlari bilan qiyosiy jihatdan yoritiladi. Shuningdek, xitoy tilidagi afaziya va o'qish-yozish buzilishlari bilan bog'liq neyropsixologik jarayonlarga e'tibor qaratiladi. Tadqiqot natijalari xitoy tilining o'ziga xos kognitiv mexanizmlarini tushunishda semantik, fonologik va ortografik jarayonlarning o'zaro bog'liqligi muhim ekanligini ko'rsatadi.

Kalit so'zlar: Xitoy tili, kognitiv neyropsixologiya, mental leksikon, semantik tizim, fonologik jarayonlar.

КОГНИТИВНО-НЕЙРОПСИХОЛОГИЧЕСКИЕ ОСОБЕННОСТИ КИТАЙСКОГО ЯЗЫКА

Аннотация. В данной статье анализируются когнитивно-нейропсихологические особенности китайского языка на основе научных исследований. Рассматривается роль ментального лексикона, семантической и фонологической систем в процессах переработки языка, а также механизмы чтения и письма китайских иероглифов. Графические, фонологические и семантические характеристики китайской письменности освещаются в сравнительном аспекте с другими системами письма. Кроме того, уделяется внимание нейропсихологическим процессам, связанным с афазией и нарушениями чтения и письма на китайском языке. Результаты исследования показывают, что для понимания специфических когнитивных механизмов

китайского языка важна взаимосвязь семантических, фонологических и орфографических процессов.

Ключевые слова: китайский язык, когнитивная нейropsychология, ментальный лексикон, семантическая система, фонологические процессы.

COGNITIVE NEUROPSYCHOLOGICAL FEATURES OF THE CHINESE LANGUAGE

Abstract. This article analyzes the cognitive-neuropsychological features of the Chinese language based on scientific research. It examines the role of the mental lexicon, semantic and phonological systems in language processing, as well as the mechanisms of reading and writing Chinese characters. The graphic, phonological, and semantic characteristics of Chinese writing are highlighted in comparative perspective with other writing systems. Attention is also given to neuropsychological processes associated with aphasia and reading-writing disorders in Chinese. The findings demonstrate that the interrelation of semantic, phonological, and orthographic processes is crucial for understanding the specific cognitive mechanisms of the Chinese language.

Keywords: Chinese language, cognitive neuropsychology, mental lexicon, semantic system, phonological processes.

Kirish

Til insonning fikrlashi, bilimlarni shakllantirishi va muloqot qilishi bilan bog'liq murakkab kognitiv tizimlardan biridir. Shu sababli tilning inson miyasida qanday saqlanishi va qayta ishlanishini o'rganish zamonaviy psixologiya va neyrofanlarning muhim yo'nalishlaridan hisoblanadi. Kognitiv neyropsixologiya esa til buzilishlarini tahlil qilish orqali normal til tizimining ichki mexanizmlarini aniqlash imkonini beradi [1]. Xitoy tilini ushbu nuqtayi nazardan o'rganish alohida ahamiyatga ega. Chunki xitoy yozuvi alifboviy tizimlardan farqli ravishda grafik shakl, tovush va ma'no o'rtasidagi murakkab munosabatga ega. Shu bois xitoy tilini qayta ishlash jarayonlarida semantik, fonologik va ortografik mexanizmlarning o'zaro ta'sirini o'rganish muhimdir [1; 2].

Mazkur maqolada xitoy tilining kognitiv-neyropsixologik xususiyatlari mavjud ilmiy tadqiqotlar asosida tahlil qilinadi. Xususan, mental leksikon va semantik tizim, fonologik qayta ishlash, xitoy ierogliflarini o'qish va yozish mexanizmlari hamda xitoy tilidagi afaziya bilan bog'liq kognitiv buzilishlar ko'rib chiqiladi. Tadqiqotning asosiy maqsadi ushbu jarayonlarning o'zaro bog'liqligini aniqlash va xitoy tilining kognitiv mexanizmlariga xos jihatlarni umumlashtirishdan iborat.

2. Xitoy tilining kognitiv-neyropsixologik xususiyatlari

Xitoy tilining kognitiv-neyropsixologik xususiyatlarini tushunishda, avvalo, uning yozuv tizimi va lingvistik birliklari o'rtasidagi munosabatni hisobga olish zarur. Xitoy yozuvi alifboviy tizimlardan sezilarli darajada farq qiladi: bunda yozma belgi tovushning alohida fonemalar ketma-ketligini bevosita ifodalashdan ko'ra, morfema va bo'g'in bilan chambarchas bog'langan birlik sifatida namoyon bo'ladi. Shu sababli xitoy tilida yozma axborotni qayta ishlash jarayonida grafik shakl, fonologik tuzilma va semantik mazmun o'rtasidagi o'zaro munosabat alohida ahamiyat kasb etadi [2; 3].

Xitoy ieroglifining ichki tuzilishi ham uning kognitiv qayta ishlanishiga ta'sir ko'rsatuvchi muhim omillardan biridir. Ierogliflar turli miqdordagi chiziqlardan tashkil topadi va ular muayyan komponentlar hamda radikallar asosida tuziladi. Ayrim komponentlar belgining ma'nosiga, boshqalari esa uning talaffuziga oid ma'lumotni qisman ko'rsatishi mumkin. Shu jihatdan ieroglifni idrok etish faqat uning umumiy vizual shaklini tanib olish bilan cheklanmay, uning tarkibiy qismlarini qayta ishlashni ham o'z ichiga oladi. Zamonaviy tadqiqotlarda aynan chiziq, komponent, radikal, butun ieroglif va so'z kabi turli darajadagi birliklarning o'qish jarayonidagi roli alohida o'rganilmoqda [4].

Xitoy tilining yana bir muhim xususiyati yozma belgi va tovush o'rtasidagi munosabatning alifboviy tillardagidek to'g'ridan-to'g'ri emasligidir. Alifboviy yozuvda grafik birliklar odatda fonologik birliklarga nisbatan muntazamroq mos keladi. Xitoy tilida esa bir xil yoki o'xshash talaffuzga ega bo'lgan turli ierogliflar mavjud bo'lishi mumkin, aksincha, ayrim grafik komponentlar belgining talaffuzi haqida faqat qisman ma'lumot beradi. Shu sababli xitoycha o'qishda fonologik axborotga murojaat qilish bilan bir qatorda, semantik va ortografik axborotni qayta ishlash ham muhim o'rin tutadi [3].

Xitoy tilini kognitiv-neyropsixologik nuqtayi nazardan o'rganishda yozma axborotning bir necha bosqichda qayta ishlanishini nazarda tutish mumkin. Bunda vizual idrokdan boshlangan jarayon ortografik, fonologik va semantik axborotning faollashuvi bilan davom etadi. Avvalgi kognitiv

neyropsixologik modellar xitoy tilida soʻz va ierogliflarni qayta ishlash jarayonida ushbu komponentlarning oʻzaro bogʻlangan holda faoliyat yuritishini koʻrsatgan [1; 2].

Quyidagi jadvalda xitoy tilining kognitiv qayta ishlanishida muhim boʻlgan asosiy komponentlar umumlashtiriladi: Xitoycha oʻqishning yaxlit kognitiv mexanizmini shakllantiradi. Mazkur komponentlar bir-biridan mutlaqo mustaqil emas.

Jadval 1. Xitoy tilini kognitiv qayta ishlashning asosiy komponentlari

Kognitiv component	Asosiy vazifasi	Xitoy tilidagi ahamiyati
Vizual/ortografik qayta ishlash	Ieroglif shaklini tanish	Grafik tuzilmani idrok etish
Fonologik qayta ishlash	Tovush axborotini faollashtirish	Talaffuz va tonni qayta ishlash
Semantik qayta ishlash	Maʼnoni aniqlash	Ieroglif mazmunini tushunish
Komponentlarni qayta ishlash	Tarkibiy qismlarni tahlil qilish	Maʼno va talaffuz haqida maʼlumot beradi
Integrativ qayta ishlash	Axborotni birlashtirish	Oʻqish jarayonini taʼminlaydi

Manba: ilmiy adabiyotlar asosida muallif tomonidan tuzildi.

Aksincha, xitoycha oʻqish jarayonida grafik shaklni tanib olish, fonologik maʼlumotni faollashtirish va semantik mazmunni anglash oʻzaro bogʻlangan jarayonlar sifatida namoyon boʻladi. Shu tomonidan olib borilgan sharhda ham xitoy ierogliflarini oʻqishda yozma shakl, tovush va maʼno oʻrtasidagi munosabat asosiy tadqiqot masalalaridan biri sifatida koʻrsatiladi [4].

Shuningdek, xitoy yozuvining kognitiv xususiyatlarini faqat uning grafik tuzilishi bilan izohlash yetarli emas. Oʻquvchining til tajribasi, diqqat jarayonlari va lingvistik bilimlari ham ieroglifni qayta ishlash samaradorligiga taʼsir koʻrsatadi. Zamonaviy tadqiqotlar xitoycha oʻqish jarayonida nafaqat belgining oʻziga xos strukturasi, balki oʻquvchining tajribasi va lingvistik tayyorgarligi ham muhim ekanligini koʻrsatmoqda [4].

Shu nuqtayi nazardan, xitoy tilining kognitiv-neyropsixologik xususiyatlarini boshqa tillardan ajratib turuvchi asosiy jihat uning grafik, fonologik va semantik axborotining oʻziga xos tarzda birlashishidir. Bizningcha, aynan ushbu oʻzaro bogʻliqlik xitoy tilini oʻrganishda faqat lingvistik tavsif bilan cheklanib qolmasdan, uning ortida turgan kognitiv jarayonlarni ham kompleks ravishda tadqiq etishni talab qiladi. Bu yondashuv keyingi boʻlimlarda mental leksikon, semantik tizim, fonologik qayta ishlash hamda oʻqish va yozish mexanizmlarini alohida tahlil qilish uchun nazariy asos boʻlib xizmat qiladi.

3. Mental leksikon va semantik tizimning kognitiv mexanizmlari

Tilni tushunish va nutqni hosil qilish jarayonining asosini inson xotirasida saqlanadigan lingvistik bilimlar tizimi tashkil etadi. Kognitiv neyropsixologiyada ushbu tizim **mental leksikon** deb yuritiladi. U soʻzlarning maʼnosi, tovush shakli va yozuv koʻrinishiga oid axborotni oʻzaro bogʻliq holda saqlash hamda qayta ishlash jarayonlarida ishtirok etadi [1].

Mental leksikonning muhim tarkibiy qismlaridan biri **semantik tizim** boʻlib, unda soʻz va tushunchalarning mazmuniga oid bilimlar ifodalanadi. Soʻzni eshitish yoki koʻrish jarayonida tegishli lingvistik axborot faollashib, undan keyin uning maʼnosiga oid bilimlar qayta ishlanadi. Shu sababli semantik tizim soʻzlarni anglash va ularni nutqda toʻgʻri qoʻllashning muhim kognitiv asoslaridan biri hisoblanadi [1].

Kognitiv neyropsixologiyaning muhim jihati shundaki, semantik bilimlarning tuzilishini faqat sogʻlom insonlarning xulq-atvor reaksiyalari orqali emas, balki miya faoliyati buzilgan bemorlarda kuzatiladigan selektiv nuqsonlar orqali ham oʻrganish mumkin. Ayrim bemorlarda maʼlum turdagi bilimlar buzilgan holda, boshqa bilimlarning saqlanib qolishi semantik tizim ichida axborotning nisbatan mustaqil komponentlar sifatida tashkil etilgan boʻlishi mumkinligini koʻrsatadi [1].

Xitoy tiliga oid neyropsixologik tadqiqotlarda ham semantik tizimning bunday xususiyatlariga alohida e'tibor qaratilgan. Han, Shu va Bi [1] xitoy tilidagi bemorlarning til faoliyatida kuzatiladigan selektiv buzilishlar orqali semantik bilimlarning ichki tashkil topishini aniqlash mumkinligini ta'kidlaydilar. Bunday yondashuv xitoy tilidagi so'z ma'nosini qayta ishlash jarayonini umumiy til mexanizmlari bilan bog'lash imkonini beradi. Shu bilan birga, semantik tizimni fonologik va ortografik tizimlardan butunlay ajratilgan holda tasavvur qilish to'g'ri emas. So'zni o'qish yoki eshitish jarayonida grafik va fonologik axborot semantik mazmunning faollashuvi bilan o'zaro bog'lanadi. Xitoy tilida bu munosabat ayniqsa muhim, chunki ieroglifning grafik shakli, talaffuzi va ma'nosi o'rtasidagi aloqa alifboviy yozuv tizimlaridagidan farq qiladi [2]. Shunday qilib, mental leksikonni xitoy tilining kognitiv mexanizmlarini tushuntiruvchi markaziy tizimlardan biri sifatida qarash mumkin. Undagi semantik, fonologik va ortografik axborotning o'zaro aloqasi so'zlarni anglash, o'qish, talaffuz qilish va yozish jarayonlarini ta'minlaydi. Bizningcha, xitoy tilining kognitiv xususiyatlarini tadqiq etishda aynan ushbu komponentlar o'rtasidagi munosabatni kompleks ravishda o'rganish muhimdir. Bu masala keyingi bo'limlarda fonologik qayta ishlash hamda xitoy ierogliflarini o'qish va yozish mexanizmlari orqali yanada batafsil ko'rib chiqiladi. Xitoy tilining tonalligi fonologik qayta ishlashni yanada murakkablashtiruvchi omillardan biridir. So'zning tovush shakli nafaqat segmental tarkib, balki ton bilan ham bog'liq. Shu sababli xitoy tilida fonologik axborotni qayta ishlash jarayonini o'rganishda tovushlarning ketma-ketligi bilan bir qatorda ularning tonal xususiyatlarini ham hisobga olish zarur.

Nutq hosil qilish jarayonida fonologik axborot bevosita talaffuz qilinmaydi. U avval qisqa muddatga saqlanadigan fonologik chiqish buferiga o'tadi. Ushbu tizim nutq uchun zarur bo'lgan tovush birliklarini vaqtincha saqlab, ularning to'g'ri ketma-ketlikda amalga oshirilishini ta'minlaydi [1].

Han va hammualliflarining tadqiqotida fonologik chiqish buferi buzilgan bemorlarda turli nutqiy topshiriqlar natijalari tahlil qilingan. Natijalar bunday buzilishlar so'zning ma'nosini yoki umumiy leksik bilimni emas, balki nutqni hosil qilishning keyingi bosqichida fonologik axborotni vaqtincha saqlash va tartibga solish jarayonlarini zararlashi mumkinligini ko'rsatadi [1].

Mazkur mexanizmning ahamiyati xitoy tilida ayniqsa yaqqol namoyon bo'ladi. Chunki xitoycha so'z yoki ieroglifning to'g'ri talaffuz qilinishi uchun tegishli tovush tarkibi bilan birga tonal axborotning ham saqlanishi va to'g'ri ketma-ketlikda amalga oshirilishi talab etiladi. Demak, fonologik chiqish buferini faqat tovushlarni vaqtincha saqlovchi tizim sifatida emas, balki nutq hosil qilish jarayonining izchil amalga oshirishini ta'minlovchi muhim kognitiv mexanizm sifatida baholash mumkin.

Umuman olganda, mental leksikonning semantik va fonologik komponentlari bir-biridan ajralgan holda emas, balki o'zaro bog'langan tizim sifatida faoliyat yuritadi. So'z ma'nosining faollashuvi tegishli fonologik shaklning tanlanishiga olib kelishi, fonologik axborot esa nutq hosil qilishdan oldin qisqa muddatli buferda saqlanishi mumkin [1]. Bizningcha, ushbu bosqichlarning ketma-ketligi xitoy tilidagi nutq ishlab chiqarish jarayonini tushuntirish uchun muhim nazariy asos yaratadi.

Shunday qilib, xitoy tilining kognitiv qayta ishlanishida mental leksikon markaziy tizimlardan biri bo'lib, uning semantik, fonologik va ortografik komponentlari turli vazifalarni bajaradi. Keyingi bo'limda ushbu mexanizmlarning xitoy ierogliflarini o'qish va yozish jarayonida qanday namoyon bo'lishi hamda bu jarayonlarning til buzilishlari bilan qanday bog'liqligi tahlil qilinadi.

4. Xitoy tilida o'qish, yozish va til buzilishlarining kognitiv asoslari

Xitoy tilida o'qish va yozish jarayonlari uning o'ziga xos yozuv tizimi bilan bog'liq murakkab kognitiv jarayonlardir. Ieroglifni qayta ishlashda grafik shakl, fonologik tuzilma va semantik mazmun o'zaro bog'liq holda faollashadi. Shu sababli xitoycha o'qishni faqat grafik belgini tovushga aylantirish jarayoni sifatida izohlash yetarli emas [1; 2].

4.1. Xitoy ierogliflarini o'qish va yozish mexanizmlari

Ieroglifni o'qish avvalo uning vizual shaklini idrok etish va mavjud ortografik bilimlar bilan taqqoslashdan boshlanadi. Keyinchalik tegishli fonologik va semantik axborot faollashadi. Weekes va hammualliflari xitoycha o'qish jarayonida ortografik, fonologik va semantik tizimlar o'rtasidagi o'zaro munosabat muhimligini ta'kidlaydilar [2.]. Zamonaviy tadqiqotlarda ham xitoy ierogliflarini o'qishda grafik shakl, tovush va ma'noning birgalikda qayta ishlanishi asosiy omillardan biri sifatida ko'rsatiladi [4].

Yozish jarayonida esa tegishli so'z yoki tushunchaning ma'nosi faollashgach, unga mos fonologik va ortografik axborot tanlanadi hamda kerakli grafik shakl hosil qilinadi [1]. Shu jihatdan o'qish va yozish umumiy kognitiv tizimlarga tayansa-da, axborotning qayta ishlanish yo'nalishi bilan farqlanadi: o'qishda grafik shakldan ma'no yoki tovushga, yozishda esa ma'no va fonologik axborotdan grafik shaklga o'tish ustunlik qiladi.

4.2. O'qish va yozish buzilishlari

O'qish va yozish mexanizmlarini o'rganishda afaziya, disleksiya va disgrafiya holatlari muhim ilmiy manba hisoblanadi. Ayrim bemorlarda so'z ma'nosi yoki talaffuzi saqlangan holda, uning yozma shaklini to'g'ri hosil qilish qiyinlashishi mumkin. Aksincha, grafik shaklni tanish saqlangan bo'lsa-da, uning fonologik yoki semantik mazmunini aniqlashda buzilish kuzatilishi mumkin [1; 2]. Bunday selektiv buzilishlar mental leksikonning semantik, fonologik va ortografik komponentlarini bir-biridan farqlash imkonini beradi.

Xitoy tilidagi o'qish va yozish buzilishlarini o'rganish shuni ko'rsatadiki, til tizimining umumiy kognitiv tamoyillari turli yozuv tizimlarida mavjud bo'lsa-da, xitoy ierogliflarining grafik tuzilishi va tovush-ma'no munosabati ushbu jarayonlarning o'ziga xos tarzda tashkil topishiga ta'sir qiladi [2; 4].

Umuman olganda, xitoy tilida o'qish va yozish grafik, fonologik va semantik axborotning uzviy hamkorligiga asoslanadi. Bizningcha, aynan ushbu uch komponent o'rtasidagi munosabat xitoy tilining kognitiv-neyropsixologik o'ziga xosligini belgilovchi asosiy omillardan biridir. Shuning uchun xitoy tilidagi o'qish, yozish va ularning buzilishlarini birgalikda o'rganish tilning kognitiv mexanizmlarini yanada to'liq tushunishga imkon beradi.

5. Xulosa

Xitoy tilining kognitiv-neyropsixologik xususiyatlarini o'rganish tilni idrok etish, saqlash va qayta ishlash jarayonlarining murakkab tuzilishga ega ekanligini ko'rsatadi. Tahlil qilingan tadqiqotlar asosida mental leksikon tarkibidagi semantik, fonologik va ortografik axborotlar turli funksiyalarni bajarishi bilan birga, til faoliyati jarayonida o'zaro uzviy bog'langan holda ishlashi aniqlandi.

Xitoy tilining o'ziga xos yozuv tizimi ushbu jarayonlarga alohida ta'sir ko'rsatadi. Ierogliflarni o'qish va yozishda grafik shakl, tovush va ma'noning birgalikda qayta ishlanishi muhim ahamiyat kasb etadi. Kognitiv neyropsixologik tadqiqotlar, ayniqsa, o'qish va yozishdagi selektiv buzilishlarni tahlil qilish orqali ushbu jarayonlarning alohida komponentlarini aniqlash imkonini beradi.

Shuningdek, xitoy tilidagi afaziya, disleksiya va disgrafiya kabi buzilishlarni o'rganish mental leksikonning ichki tashkil topishi va uning faoliyat mexanizmlarini tushunishga yordam beradi. Tahlil natijalari xitoy tilining neyropsixologik mexanizmlari bir tomondan inson tiliga xos umumiy kognitiv tamoyillarga, ikkinchi tomondan esa uning ieroglif yozuvi va fonologik xususiyatlariga bog'liqligini ko'rsatadi.

Xulosa qilib aytganda, xitoy tilini kognitiv neyropsixologiya nuqtayi nazaridan o'rganish nafaqat xitoy tilining o'ziga xos xususiyatlarini tushuntirish, balki inson tilining umumiy kognitiv mexanizmlarini aniqlash uchun ham muhimdir. Mavjud tadqiqotlarni umumlashtirish shuni ko'rsatadiki, kelgusida xitoy tilining semantik, fonologik va ortografik jarayonlarini yagona tizim sifatida o'rganish hamda zamonaviy neyroimaging va eksperimental metodlardan foydalanish ushbu yo'nalishdagi tadqiqotlarni yanada rivojlantirish imkonini beradi.

ADABIYOTLAR

- [1] 韩在柱, 舒华, 毕彦超. 汉语的认知神经心理学研究[J]. *心理科学进展*, 2008, 16(1): 18–25. (Han Zaizhu, Shu Hua, Bi Yanchao. (2008). Cognitive neuropsychological research on Chinese language. *Advances in Psychological Science*, 16(1), 18–25.)
- [2] Weekes B. S., Yin W., Su I. F., Chen M. J. The Cognitive Neuropsychology of Reading and Writing in Chinese[J]. *Language and Linguistics*, 2006, 7(3): 595–617.
- [3] Wu C. Y., Ho M. H. R., Chen C. L. H. A meta-analysis of functional neuroimaging studies of Chinese character reading[J]. *NeuroImage*, 2012.
- [4] Wu J. Neurocognition in the reading of Chinese characters[J]. *Journal of Chinese Writing Systems*, 2022, 6(3): 167–183.

ИСПОЛЬЗОВАНИЕ СОИ С ЦЕЛЬЮ КОРРЕКЦИИ ДИСЛИПИДЕМИИ ПРИ СД 2-ГО ТИПА



Шеров У.Н. кандидат медицинских наук, доцент кафедры «Эндокринология», Бухарский государственный медицинский институт,
Sherov U.N. candidate of medical science, associate professor of the department "Endocrinology", Bukhara State Medical Institute

Аннотация. В статье рассмотрены возможности применения соевых продуктов в комплексной коррекции дислипидемии у пациентов с сахарным диабетом 2-го типа. Представлены сведения о биологически активных компонентах сои, механизмах их воздействия на липидный обмен и состоянии сердечно-сосудистой системы. Показано, что регулярное употребление соевого белка, изофлавонов, пищевых волокон и фитостеринов способствует снижению уровня общего холестерина и триглицеридов, улучшению липидного профиля, повышению чувствительности тканей к инсулину и уменьшению риска развития сердечно-сосудистых осложнений. Использование сои рассматривается как эффективный компонент комплексной диетотерапии при сахарном диабете 2-го типа.

Ключевые слова: соя, сахарный диабет 2-го типа, дислипидемия, общий холестерин, триглицериды, липидный профиль, соевый белок, изофлавоны, фитостерины, пищевые волокна, инсулинорезистентность, диетотерапия.

USE OF SOY FOR THE CORRECTION OF DYSLIPIDEMIA IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

Abstract. This article examines the potential of soy products in the comprehensive management of dyslipidemia in patients with type 2 diabetes mellitus. The biological active components of soy, their mechanisms of action on lipid metabolism, and their effects on the cardiovascular system are discussed. Regular consumption of soy protein, isoflavones, dietary fiber, and phytosterols has been shown to reduce total cholesterol and triglyceride levels, improve the lipid profile, enhance insulin sensitivity, and decrease the risk of cardiovascular complications. The use of soy is considered an effective component of comprehensive dietary therapy for patients with type 2 diabetes mellitus.

Keywords: soy, type 2 diabetes mellitus, dyslipidemia, total cholesterol, triglycerides, lipid profile, soy protein, isoflavones, phytosterols, dietary fiber, insulin resistance, dietary therapy.

2-TUR DIABET MELLITUSDA DISLIPIDEMIYANI TUZATISHDA SOYA MAHSULOTLARINING QO‘LLANILISH

Annotatsiya. Ushbu maqolada 2-tur diabet mellitus bilan og‘rigan bemorlarda dislipidemiya kompleks boshqarishda soya mahsulotlarining imkoniyatlari tahlil qilinadi. Soyaning biologik faol komponentlari, ularning lipid almashinuvi mexanizmlariga ta’siri va yurak-qon tomir tizimiga ta’siri muhokama qilinadi. Soya oqsili, izoflavonlar, oziq tolalari va fitosterollarning muntazam iste’moli umumiy xolesterol va triglitserid darajasini kamaytirishi, lipid profilini yaxshilashi, insulin sezgirligini oshirishi va yurak-qon tomir asoratlari xavfini kamaytirishi ko‘rsatilgan. Soyadan foydalanish 2-tur diabet mellitus bilan og‘rigan bemorlar uchun kompleks parhez terapiyasining samarali tarkibiy qismi sifatida qaraladi.

Kalit so‘zlar: soya, 2-tur diabet mellitus, dislipidemiya, umumiy xolesterin, triglitseridlar, lipid profili, soya oqsili, izoflavonlar, fitosterollar, oziq tolalari, insulin rezistentligi, parhez terapiyasi.

Введение. На основании многочисленных исследований на сегодняшний день установлено, что при сахарном диабете 2-го типа помимо нарушений углеводного обмена имеются отклонения во всех видах обмена, в том числе и в липидном, что существенно увеличивает риск развития осложнений со стороны сердечно-сосудистой системы.

Известно, что одним из путей оптимизации диетотерапии при сахарном диабете 2-го типа является обеспечение адекватного потребления растительных продуктов, в том числе зерновых — источников сложных углеводов, пищевых волокон, растительного белка с одновременным повышением суммарной биологической ценности этих продуктов. В этих условиях с учетом более низкой биологической ценности и усвояемости многих растительных белков перспективным направлением в диетотерапии сахарного диабета может быть внедрение в клиническую практику соевых продуктов.

Нами изучено влияние диеты, содержащей соевый белок, на показатели липидного обмена у больных сахарным диабетом 2-го типа.

Материал и методы

В течение шести месяцев под наблюдением находилось 120 больных СД 2-го типа. Все обследованные были распределены на три группы по 40 человек (I, II, III), которые состояли из двух подгрупп — основной (Iс, IIс, IIIс) и контрольной (Ik, Iк, IIк), сопоставимых по возрасту, длительности заболевания, степени компенсации углеводного обмена.

В I группу вошли больные сахарным диабетом 2-го типа без ожирения. Средний возраст больных в этой группе составил $57,7 \pm 1,9$ года, длительность заболевания — $8,2 \pm 1,5$ года.

Во II группу вошли больные сахарным диабетом 2-го типа с ожирением. Средний возраст этой группы — $54,3 \pm 2,6$ года, средний срок заболевания — $9,5 \pm 1,2$ года.

III группа — больные с впервые выявленным сахарным диабетом 2-го типа, у 80,0% которых имелось ожирение различной степени выраженности. Средний возраст в этой группе составил $59,5 \pm 2,4$ года.

Больные из основных подгрупп ежедневно в составе рациона 9-й диеты получали по 200 г соевого творога или соевого сыра (тофу) и 250 мл соевого молока или соевого кефира, что соответствовало 30 г соевого белка. Таким образом, соевый белок частично заменял традиционные источники белка и равномерно распределялся в течение дня. Больные из контрольных подгрупп соблюдали традиционную диету № 9 без включения соевых продуктов.

У всех больных наряду с общеклиническим обследованием (один раз в две недели), оценкой общего самочувствия и переносимости соевых продуктов проводилось исследование содержания общего холестерина, холестерина ЛПВП и ЛПНП, триглицеридов (исходно, через три и шесть месяцев). По результатам холестериновых составляющих вычисляли КА по Климову. Статистическую обработку данных осуществляли с помощью системы Statgraphics с использованием t-критерия Стьюдента.

Результаты и обсуждение

Сахарный диабет 2-го типа (СД 2-го типа) является одним из наиболее распространенных хронических заболеваний современности и сопровождается развитием различных метаболических нарушений. Одним из наиболее значимых факторов риска сердечно-сосудистых осложнений при СД 2-го типа является дислипидемия, характеризующаяся повышением уровня триглицеридов и липопротеинов низкой плотности (ЛПНП), а также снижением концентрации липопротеинов высокой плотности (ЛПВП). Такие изменения существенно увеличивают вероятность развития атеросклероза, ишемической болезни сердца и инфаркта миокарда.

В последние годы особое внимание уделяется немедикаментозным методам коррекции нарушений липидного обмена, среди которых важное место занимает использование продуктов на

основе сои. Соевые бобы содержат высококачественный растительный белок, полиненасыщенные жирные кислоты, пищевые волокна, изофлавоны, фитостерины и другие биологически активные вещества, оказывающие благоприятное влияние на липидный обмен.

Регулярное включение соевых продуктов в рацион способствует снижению уровня общего холестерина, ЛПНП и триглицеридов, а также может способствовать умеренному повышению уровня ЛПВП. Кроме того, соевые изофлавоны обладают антиоксидантными и противовоспалительными свойствами, уменьшают выраженность оксидативного стресса и улучшают функцию сосудистого эндотелия. Эти эффекты имеют особое значение для пациентов с сахарным диабетом, поскольку хроническая гипергликемия сопровождается усилением процессов перекисного окисления липидов и воспаления.

Соевый белок также положительно влияет на чувствительность тканей к инсулину, способствует более эффективному контролю гликемии и снижению массы тела при соблюдении рационального питания. Благодаря высокому содержанию пищевых волокон замедляется всасывание углеводов, уменьшаются постпрандиальные колебания уровня глюкозы в крови и улучшается метаболический профиль пациентов.

Клинические исследования показывают, что систематическое употребление 20–30 г соевого белка в сутки может сопровождаться умеренным снижением уровня общего холестерина и ЛПНП, особенно у пациентов с исходной гиперхолестеринемией. Однако эффективность соевой терапии во многом зависит от индивидуальных особенностей организма, характера питания, уровня физической активности и соблюдения комплексного лечения.

Таким образом, использование сои является перспективным компонентом комплексной коррекции дислипидемии при сахарном диабете 2-го типа. Включение соевых продуктов в рацион пациентов способствует улучшению липидного профиля, снижению сердечно-сосудистого риска, уменьшению выраженности воспалительных процессов и повышению эффективности профилактики диабетических осложнений. Вместе с тем применение сои должно рассматриваться как часть комплексной терапии, включающей рациональное питание, физическую активность, контроль гликемии и медикаментозное лечение при наличии соответствующих показаний.

Больные, в том числе с сопутствующими заболеваниями органов пищеварения, удовлетворительно переносили соевые продукты. Только трое пациентов из 60, получавших соевое питание, жаловались на метеоризм после употребления соевого молока. У двоих больных это явление на второй неделе наблюдения уменьшилось, у третьего пациента метеоризм прекратился после замены соевого молока на соевый кефир.

Оценивая влияние соевых продуктов на общее состояние больных, можно отметить, что добавление их в лечебный комплекс сопровождалось отчетливым клиническим эффектом. В процессе проводимого курса лечения больные отметили улучшение самочувствия: уменьшение или исчезновение жажды, полиурии, общей слабости, утомляемости, повышение физической активности и работоспособности.

Анализ исходного содержания липидов в сыворотке крови выявил у большинства пациентов наличие различных проявлений дислипидемии. На фоне проводимого лечения произошло достоверное снижение уровня холестерина в крови во всех подгруппах, получавших соевое питание, а также в контрольной с впервые выявленным СД 2-го типа (табл. 1). Однако более выраженная динамика была в IIIc подгруппе — уменьшение уровня ОХС к концу наблюдения у этих больных составило в среднем 21,4%. В Ic, IIc и IIIк подгруппах за весь период наблюдения средние значения холестерина уменьшились на 11,3, 16,2 и 6,5% соответственно. Причем во всех случаях наиболее показателен был сдвиг в течение первых трех месяцев диетотерапии соей. В Ik и IIк подгруппах к концу шестого месяца произошло незначительное (статистически незначимое) увеличение ОХС — на 1,9 и 1,5% соответственно. Отмеченное в нашей работе преимущественное снижение ОХС при наличии исходной гиперхолестеринемии и отсутствие при нормолипидемии согласуется с данными других исследователей [4].

В среднем уровень триглицеридов в крови у больных, употреблявших соевые продукты, к концу наблюдения достоверно снизился в группе с ожирением (на 25,0%) и с впервые выявленным СД 2-го типа (на 26,1%). Вместе с тем достижение целевых значений ТГ удалось только в Шс подгруппе, что связано с исходно более низкими показателями у пациентов этой группы. Наиболее выраженный и быстрый гипотриглицеридемический эффект, так же, как и гипохолестеринемический, наблюдался в первые три месяца диетотерапии. Незначительное уменьшение средних показателей в Ис подгруппе на 5,6%, во Пк — на 7,4% и в Шк — на 9,1% оказалось статистически незначимым.

Таблица 1
Динамика ОХС и триглицеридов у обследованных больных:

Группа	Исходно	3 мес. ОХС	6 мес. ОХС	Исходно	3 мес. ТГ	6 мес. ТГ
Ис	5,3	4,9	4,7	5,3	4,9	4,7
Ик	5,3	4,9	4,7	5,3	4,9	4,7
Пс	5,3	4,9	4,7	5,3	4,9	4,7
Пк	5,3	4,9	4,7	5,3	4,9	4,7
Шс	5,3	4,9	4,7	5,3	4,9	4,7
Шк	5,3	4,9	4,7	5,3	4,9	4,7

Особый интерес привлекают изменения в липопротеидном пектре сыворотки крови при использовании соевого питания. В нашем исследовании соя оказала определенное положительное влияние на содержание ХС ЛПНП (табл. 2), снижение среднего уровня которого наблюдалось во всех подгруппах, получавших сою, а также в Шк подгруппе. Однако статистически значимым оно оказалось только у больных основной подгруппы с впервые выявленным СД 2-го типа лишь к концу шестого месяца диетотерапии соей. Снижение происходило в постепенно нарастающем темпе, достигнув к окончанию наблюдения 4,0% в подгруппе с СД 2-го типа без ожирения, 12,9% — в подгруппе с ожирением, 30,0% — в основной и 19,8% — в контрольной подгруппе с впервые выявленным СД 2-го типа. В Ик и Пк подгруппах, напротив, имело место незначительное, статистически недостоверное повышение ХС ЛПНП — на 1,6 и на 3,5% соответственно.

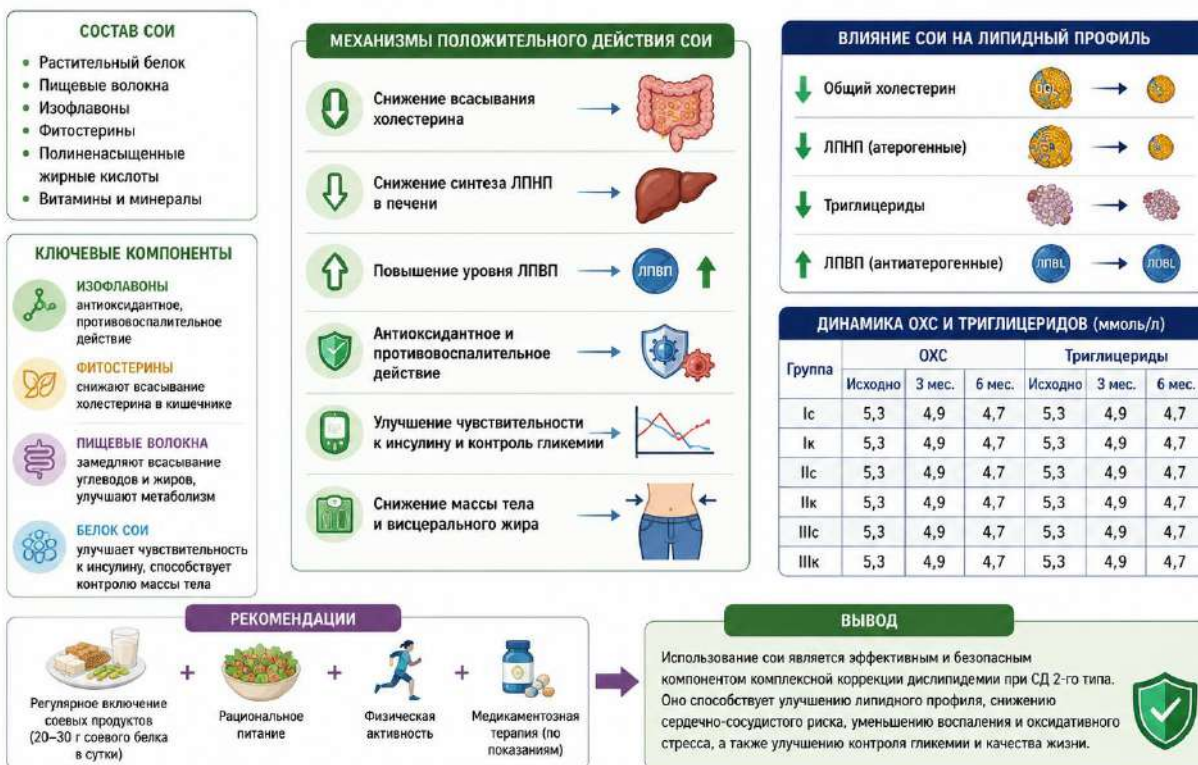


ИСПОЛЬЗОВАНИЕ СОИ С ЦЕЛЬЮ КОРРЕКЦИИ ДИСЛИПИДЕМИИ ПРИ СД 2-ГО ТИПА

Соя – ценный источник растительного белка, пищевых волокон, изофлавонов, фитостеринов и полиненасыщенных жирных кислот, обладающих гиполипидемическими и метаболическими эффектами.



СД 2-го типа



При использовании соевых диет нами не обнаружено достоверных изменений уровня ХС ЛПВП ни в одной из групп.

На фоне вышеуказанных изменений в соотношении липопротеидов сыворотки крови изменялся и КА. В соответствии с динамикой липидограммы в IIIc группе снижение КА к концу шестого месяца было наибольшим — на 26,8% ($p < 0,05$). Следующей по эффективности была Ic группа — снижение на 15,9% ($p < 0,05$). У пациентов с нормальной массой тела из основной группы и из контрольной группы с впервые выявленным СД 2-го типа уменьшение КА на 14,7 и 7,7% соответственно оказалось недостоверным. В I и II контрольных группах КА незначительно повысился (на 3,1%, $p > 0,05$).

Таблица 2

Динамика изменений спектра липопротеидов сыворотки крови у больных СД 2-го типа

Группа больных	ХС липопротеидов	Средние значения, ммоль/л		M _p	m _p	t	P	Средний показатель, ммоль/л (6 мес)	M _p	m _p	T	p
		(исходно)	3 мес.									
Ic	ЛПНП	2,73	2,70	0,02	0,1	0,2	>0,05	2,62	0,1	0,1	1,0	>0,05
	ЛПВП	1,21	1,21	0,01	0,1	0,1	>0,05	1,20	0,01	0,1	0,1	>0,05
Ik	ЛПНП	2,50	2,51	0,01	0,1	0,1	>0,05	2,54	0,03	0,2	0,2	>0,05
	ЛПВП	1,25	1,24	0,01	0,1	0,1	>0,05	1,24	0,02	0,2	0,1	>0,05
IIc	ЛПНП	3,26	3,14	0,1	0,1	1,0	>0,05	2,84	0,3	0,2	1,5	>0,05
	ЛПВП	0,93	0,92	0,01	0,1	0,1	>0,05	0,91	0,02	0,1	0,2	>0,05
IIk	ЛПНП	3,09	3,20	0,1	0,1	1,0	>0,05	3,20	0,1	0,2	0,5	>0,05
	ЛПВП	1,10	1,10	0,01	0,1	0,1	>0,05	1,10	0,01	0,2	0,05	>0,05

Шс	ЛПНП	3,90	3,75	0,15	0,2	0,75	>0,05	2,73	1,1	0,3	3,7	>0,05
	ЛПВП	0,93	0,93	0,01	0,1	0,1	>0,05	0,94	0,01	0,1	0,1	>0,05
Шк	ЛПНП	3,68	3,40	0,3	0,3	1,0	>0,05	2,95	0,7	0,4	1,75	>0,05
	ЛПВП	1,00	1,00	0,01	0,2	0,05	>0,05	1,00	0,01	0,2	0,05	>0,05

Как видно, общая потеря массы тела при использовании рациона с включением сои за весь период наблюдения составила в среднем 8,1% ($p<0,01$) во Пс группе и 7,7% ($p<0,01$) — в Шс группе по отношению к фоновому периоду. Причем более выраженный темп похудения отмечен в течение первых трех месяцев диетотерапии соей. Следует также подчеркнуть, что наибольшее снижение массы тела было зафиксировано у тех пациентов, у которых ее исходные значения также в наибольшей степени превышали идеальные. С другой стороны, у больных, исходная масса тела которых либо мало отличалась от идеальной, либо соответствовала ей (Ис и Ик группа), ее редукции практически не произошло. У тучных больных контрольных групп снижение веса оказалось статистически незначимым: на 1,9% — во II и на 3,9% — в III.

У наших больных, получавших сою, наряду с уменьшением веса отмечено достоверное снижение ИМТ: во Пс подгруппе на 11,8%, в Шс — на 9,0% по сравнению с исходными данными. Достоверное уменьшение ИМТ коррелировало со снижением коэффициента талия/бедро у лиц с висцеральным типом ожирения.

Таким образом, полученные данные свидетельствуют о том, что рацион питания с включением соевых продуктов, редуцируя избыточную массу тела выраженной степени, является достаточным для обеспечения потребностей данной категории населения в энергии и пищевых веществах, т. к. не оказывает существенного влияния на ее величину при практическом совпадении фактической и идеальной массы тела.

Выводы

1. У больных сахарным диабетом 2-го типа дислипидемия является одним из ведущих факторов риска развития сердечно-сосудистых осложнений, что требует своевременной коррекции нарушений липидного обмена.

2. Включение соевых продуктов в состав лечебного питания способствует улучшению показателей липидного профиля, сопровождаясь снижением уровня общего холестерина и триглицеридов.

3. Регулярное употребление соевого белка и содержащихся в сое биологически активных компонентов оказывает положительное влияние на обмен липидов, повышает антиоксидантную защиту организма и способствует улучшению функционального состояния сосудов.

4. Наиболее выраженные положительные изменения липидного профиля наблюдаются при длительном применении соевых продуктов в сочетании с рациональной диетотерапией, адекватной физической активностью и медикаментозным лечением.

5. Использование сои может рассматриваться как эффективный и безопасный компонент комплексной коррекции дислипидемии у пациентов с сахарным диабетом 2-го типа, способствующий снижению риска сердечно-сосудистых осложнений и улучшению качества жизни больных.

- 6.. Соевые продукты обладают хорошей переносимостью, оказывают положительное влияние на клиническую симптоматику сахарного диабета, способствуют снижению избыточного веса.

7. Включение соевых продуктов в традиционную диету № 9 повышает ее лечебный эффект в коррекции нарушенного липидного обмена у больных СД 2-го типа.

ЛИТЕРАТУРА

1. Балаболкин М.И. Диабетология. — М., 2000. — 250 с.
2. Давыдов А.Л. Проблемы эндокринологии, 2000. — 46: 10—13.
3. Fanti P. The Abstracts of the 2nd International Symposium on the Role of Soy in Preventing and Treating Chronic Disease. — Brussels, 1996. — P. 20—23.
4. Burke G.L. The Abstracts of the 2nd International Symposium on the Role of Soy in Preventing and Treating Chronic Disease. — Brussels, 1996. — P. 40.

UDK 81'272

TALABALARNI MA'NAVIY-AXLOQIY TARBIYALASHNING MUHIM YO'NALISHLARI

	Olimov Shirinboy Sharofovich – BuxDU professori, pedagogika fanlari doktori. Olimov Shirinboy Sharofovich – Professor of Bukhara State University, Doctor of Pedagogical Sciences shirinboy71@mail.ru Tel: (90) 718-59-70
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Annotatsiya

Ushbu maqolada barkamol avlod tarbiyasining muhim turi hisoblangan ma'naviy-axloqiy tarbiyaning jamiyatda tutgan o'rni va zaruriyati to'g'risida fikrlar bayon qilingan. Shuningdek, o'quvchi-yoshlarni ma'naviy-axloqiy jihatdan yetuk qilib tarbiyalashning ahamiyati yoritilgan. Ma'naviy-axloqiy tarbiyaning muhim tarkibiy qismlari hisoblangan aql-zakovat, xulq-odob, imon-e'tiqod, sharm-hayo, or-nomus, mehr-shafqatlilik, poklik va halollik odobi kabilarning mazmun-mohiyati ochib berilgan.

Tayanch so'z va iboralar: jamiyat, ta'lim, tarbiya, rivojlanish, ma'naviyat, axloq, aql-zakovat, xulq-odob, imon-e'tiqod, sharm-hayo, or-nomus, mehr-shafqatlilik, poklik va halollik, odob.

ВАЖНЫЕ НАПРАВЛЕНИЯ ДУХОВНОГО И НОРМАТИВНОГО ВОСПИТАНИЯ УЧАЩИХСЯ

Абстрактный

В данной статье высказываются мнения о роли и необходимости духовно-нравственного воспитания в обществе, которое считается важным видом воспитания зрелого поколения. Также была подчеркнута важность воспитания студенческой молодежи зрелой с духовно-нравственной точки зрения. Раскрыто содержание-сущность интеллекта-интеллекта, поведения-порядочности, веры-убеждения, стыда-порядочности, чести-честности, любви-сострадания, чистоты и честности нравов, которые считаются важными составляющими духовно-нравственного воспитания.

Ключевые слова и фразы: общество, образование, воспитание, развитие, духовность, этика, интеллект, манеры, вера, стыд, честь, доброта, чистота и честность, манеры.

ВАЖНЫЕ НАПРАВЛЕНИЯ ДУХОВНОГО И НОРМАТИВНОГО ВОСПИТАНИЯ УЧАЩИХСЯ

Abstract

In this article, opinions are expressed about the role and necessity of spiritual and moral education in society, which is considered an important type of education of the mature generation. Also, the importance of educating young students to be mature from a spiritual and moral point of view was highlighted. The content-essence of intellectual-intelligence, behavior-decency, faith-belief, shame-decency, honor-honor, love-compassion, purity and honesty manners, which are considered important components of spiritual and moral education, has been revealed.

Key words and phrases: society, education, upbringing, development, spirituality, ethics, intelligence, manners, faith, shame, honor, kindness, purity and honesty, manners.

Kirish. Bugungi oldimizda turgan buyuk va ezgu maqsadlarimiz – huquqiy demokratik davlatni rivojlantirish va fuqarolik jamiyatini qurish, obod va ozod Vatan, erkin va farovon hayotni ko‘rish, mamlakatni jahon hamjamiyatidagi obro‘-e‘tiborini yuksaltirish uchun, avvalambor, barkamol avlod, o‘tib-unib kelayotgan farzandlarimizni yuksak ma‘naviy-ahloqiy fazilatli insonlar qilib tarbiyalashdan iborat. Chunonchi, ma‘naviy-axloqiy tarbiyalangan shaxs xalqimizning madaniyatini yuksaltirishda, millat va ona-Vatan oldidagi burch, majburiyat va mas‘uliyatni angalaydi. Ya‘ni, ma‘naviy-axloqiy tarbiya shaxsdagi bunyodkorlik, tashabbuskorlik, ijodkorlik, tadbirkorlik g‘oyalarining yuqori darajada bo‘lishini ta‘minlaydigan va yetuklikka, komillikka yetaklaydigan, aniq maqsadni o‘zida mujassam etgan jarayon hisoblanadi.

Asosiy qism. Ma‘naviy-axloqiy tarbiyaning mazmuni, muayyan kategoriyalar (tarkibiy qismlar) da mujassamlashgan. Bu kategoriyalar odamning inson sifatida shakllana borishi jarayonida uning ma‘naviy-axloqiy kamoloti, tarbiyalanganlik darajasi ushbu kategoriyalar elementlarining qanchalik mujassamlashganligi bilan belgilanadi. Shu o‘rinda bu kategoriyalarning mazmuni ustida to‘xtalib o‘tish joizdir.

Ma‘naviy-axloqiy tarbiyaning eng muhim tarkibiy qismi **aql-zakovatdir**. Aql-zakovat moddiy va ma‘naviy dunyodagi narsa va hodisalarning mohiyat-mazmunini anglash omilidir. Inson o‘z aql-zakovati yordamida fan va texnika yutuqlarini, ijtimoiy tajribalarini o‘rganib, o‘zlashtirib, ma‘naviy-axloqiy hayotning tub mohiyatini tushunib boradi. Natijada o‘z hayotini, ma‘naviy-axloqiy fazilatlarini ongli boshqarishga odatlanadi. Aql-bilimlar yordamida charxlanib qarashlar, tasavvurlar, tajribalarni shakllantiradi. Ularning ijobiy, salbiy tomonlarini anglashga ko‘maklashadi. Aqllilik ilm o‘rganish orqali takomillashib, insonlarning ongli hayoti va rahbari najotini tashkil etadi. Shuningdek, aql-idrokni tantana qilishini ishonchga aylanishini ta‘minlaydi. «Aql insonlarning piri komili, murshidi yagonasidir, - deb yozadi, o‘zbek tarbiyashunosi Abdulla Avloniy, - ruh ishlovchi, aql boshlovchidir. Inson aqli ila din va e‘tiqodini mahkam qilur, shariat hukmlariga bo‘ysunur... Rasuli akram nabiiyi muhtaram salollohu alayhi vassalam afandimiz: «Ey insonlar! Aqlingizga tavoze’ qilingiz. Siz janobi haq buyurgan va qaytargan narsalarni aqlingiz ila bilursiz» [16, 17].

Darhaqiqat inson aqlning quli bo‘lsa o‘z nafsini jilovlay oladi, yomon odatlardan uzoqlashadi. Shu sabab har narsa aql va ilm soyasida ko‘paysa, qimmatbaho va e‘zozli bo‘ladi. Aql ijtimoiy-siyosiy va madaniy hayotda faollik ko‘nikmalarini hosil qiladi hamda insonning jamiyat, davlat, xalq, millat oldidagi burchini, majburiyatini anglashga ko‘maklashuvchi kuch. Aql - zakovat o‘z navbatida ma‘naviy-axloqiy barkamol inson fazilatlarining muhim tarkibiy qismi sifatida insonning mohiyatini teranroq anglash, uning shaxs sifatida shakllanib, jamiyatda o‘z o‘rnini egallashga muhim qurol bo‘lib xizmat qiladi.

Albatta, jamiyatdagi insonlarning hammasini ham bir qolipda aql-zakovatli qilib rivojlantirish mushkul. Shunga ko‘ra jamiyatni o‘zini ham birdaniga ma‘naviy-axloqiy yuksalishga erishtirib bo‘lmaydi. Xuddi shuning uchun unga intilish juda katta qiyinchiliklar bilan bog‘liq holda ro‘y beradi va ana shu intilish, mehnat natijasida umumiy ma‘naviy-axloqiy rivojlanishda ancha ijobiy muvaffaqiyatlarga erishila boriladi. Agar inson aslida yaxshi odam bo‘lsa, ya‘ni hayotda faqat yaxshi niyat, orzu, maqsad bilan yashashni o‘ziga kasb qilib olgan bo‘lsa, uning nasl-nasabi, oilasi, birodarlari, hamkasblari ham aksari shu yo‘ldan boradi, yaxshiliklar, ezguliklarni amalga oshiradi. Chunki, xalqimizning «Qush uyasida ko‘rganini qiladi», degan maqoli bejizga aytilmagan. U hayot tajribalarining nashidasi sifatida insonni, jamiyatni kamolotga yetkazadi.

Ma‘naviy-axloqiy tarbiyaning yana bir tarkibiy qismi **xulq-odobdir**. Xulq-odob ma‘naviy-axloqiy tarbiyaning muhim tarkibiy qismi sifatida har bir insonning o‘zida yoki jamoa bilan muloqotidagi o‘zini tuta bilishida, yurish-turishida, hatti-harakatlarida namoyon bo‘ladigan, jamiyat axloqiy me‘yorlarining kodeksidir.

Xulq-odob bezagi, odob xulq ko'zgusi deydi donishmand xalqimiz. Ular birgalikda yetuklik, ezgulik, insoniylik namunasini tashkil etadi. Xulq-odob aql bilan paydo qilinadi. Ular aqlning suyanchig'i hisoblanadi. Shunga binoan «Odob bozorda sotilmas», «Odobi yo'qning aqli yo'q», «Odobsiz aql - aqlsiz odob yo'q» «naqlari xalq o'rtasida keng tarqalgan.

Odob arabcha adab so'zidan olingan bo'lib, yetuklik, ezgulik, poklik, ma'naviylik mezoni hisoblandi. Odobsizlik axloqiy tubanlashishga olib keladi. Axloqiy tubanlashish insonning o'z faoliyatida o'zgalar bilan munosabatida iymon, andisha, insof, sharmu hayo, diyonat kabi insoniy fazilatlar chegarasidan chiqishdir. Beodoblik tug'ma xususiyat emas, balki tarbiyasizlikning, loqaydlik, elga e'tiborsizlikning natijasidir. Agar inson beodob kishilar ichida o'sib-ulg'aysa, voyaga yetgach uning vujudiga o'rnatilgan axloqsiz, badfe'llik illatini chiqarib tashlash qiyin kechadi.

Abdulla Avloniy ta'kidlaganlaridek, «Xulq inson nafsining ko'zga ko'rinmaydigan, aql bilan boshqariladigan bir suvrati. U shariati Islomiyada «axloqi hasana» - yaxshi xulqlar deb atalib: fatonat, diyonat, islomiyat, nazofat, g'ayrat, riyozat, qanoat, shijoat, ilm, sabr, hilm, intizom, miqyosi nafs, vijdon, vatanni suymak, haqqoniyat, nazari ibrat, iffat, hayo, idrok va viqor, itoat, haqshunoslik, xayrihohlik, munislik, sadoqat, muhabbat va afv» [2,16] kabi sifatlarni o'zida mujassamlashtiradi. Odob-xulqiy go'zallikning namunasidir. Odob insoniyat toji va odamiylik bezagi. Kundalik hayotda axloq qoidalariga rioya qilish – odobdir. Axloqiy barkamol kishilargina odobli bo'lalilar.

Kundalik hayotimizda uchrab turadigan o'zimiz bilib - bilmaydigan, ammo ijtimoiy turmushda har doim qo'llashimiz zarur bo'lgan xulq - odob qoidalari mavjud. Ana shu qoidalarni o'z faoliyatida singdirishi uchun insonga aniq maqsadga qaratilgan harakat zarur. Oddiy voqeadan buyuk kashfiyotni kashf etish mumkin bo'lmas, ammo oddiy harakat, chiroyli xulq-odob yordamida yirik muvaffaqiyatga erishish mumkin. Shuning uchun inson xulq-odob bobida mayda-chuydalarga bee'tibor bo'lmasligi kerak. Mayda-chuydalarni ko'zdan qochirmaslik har bir insonda hushyorlikni oshiradi. Xulq-odobda har bir narsa muhim hisoblanadi.

Tarbiyalangan kishining har bir kichik xulq-odobi boshqalarda unga e'tiborni tug'diradi. Shunga ko'ra tarbiya topgan, odobli, hurmatli bo'lishga intilish har bir yoshning odatiga aylanmog'i lozim.

Xulq-odob insonlarni qalban bir-biriga bog'laydigan ruhiy manba hisoblanadi. Shu bois donolar ta'kidlaydi: Insonda odob bo'lsa, unda aql bo'ladi. Odob aqlga bog'liq. Aql ustiga odob qo'shilsa nur ustiga a'lo nur bo'ladi. Ulug'lik aql-u odob bilan oshadi. Aql ma'naviy meros, odob esa uning amaliy ko'rinishi. Ijtimoiy hayotda, aql va odob bog'liqlikda namoyon bo'ladi.

Shu bois buyuk shaxslarning faoliyati, o'zgalarni o'ziga ergashtirish mahorati, chuqur bilimdonlik bilangina emas balki mukammal axloqi va odobi bilan bog'langanligi hech kimga sir emas. Ilohiy bilim egalari, payg'ambarimiz Muhammad alayhissalom, tasavvuf ta'limoti namoyondalari, buyuk sarkarda Amir Temur, g'azal bo'stonining posboni Alisher Navoiy, Zahiriddin Muhammad Bobur, futuvvat ilmining donishmandi Husayn Voiz Koshifiy va boshqa allomalar, buyuk ajdodlarimiz yetuk xulq-odob egalari bo'lganlar. Ular ibratli xulqlari, yetuk aqlari, odoblari bilan ijtimoiy-ma'naviy hayotimizda hech qachon so'nmaydigan buyuk meros qoldirganlar. Shuning uchun ularning hayot solnomalarini o'rganish, xulq-odob to'g'risidagi ta'limotlaridan xabardor bo'lish, nafaqat bizni barkamollikka yetaklaydi, balki jamiyat ma'naviyatini yuksaltirishga dasturulamal bo'lib xizmat qiladi.

Shunday qilib, xulq-odob ma'naviy-axloqiy tarbiyaning muhim tarkibiy qismi sifatida huquqiy-demokratik davlatni rivojlantirish, fuqarolik jamiyatini qurishning muhim manbai bo'lib hisoblanadi.

Ma'naviy-axloqiy tarbiyaning yana bir tarkibiy qismi **iymon-e'tiqoddir**. Iymon - qalbning duri, insoniy mukammallik, ezgulik, halollik, yaxshilik, poklik kaliti. E'tiqod – bu o'z fikr va qarashlariga mahkam, sobitqadamlik bilan ishonish va o'zgalarni ham o'zidek hisoblab, ularning lavziga samimiyat bilan ishonishdir. E'tiqodli odam eng avvalo yolg'on gapirmaydi. Yolg'on so'zlamagan odam o'zgalarni ham rostgo'y deb biladi. Lafzida turmaydigan kimsani beburd deb hisoblab, undaylardan hazar qiladi.

«... e'tiqod jur'atni, mardlikni, fidoyilikni taqozo qiladi. Bularsiz u quruq g'oya bo'lib qolaveradi» [4,25]. Shu ma'noda iymon va e'tiqod tushunchasi bir-biriga yaqin, chunki ularning har ikkisinining

mazmunida diyonat, vijdon, insof, mehr-oqibat, muruvvat, ezgulik, saxovat, adolat, poklik va halollik, kamtarlik kabi insoniy tuyg'ular mavjud.

Iymon arabcha so'z bo'lib, lug'aviy ma'nosi - ishonchdir. Iymon insonning o'z e'tiqodiga tayangan holda o'zgalarning niyati, qilgan ishlariga, o'zining faoliyatiga, xatolariga, xatti-harakatlariga munosabat bildirishidir.

Tayinki, ma'naviyat axloq, odob, burch va mas'uliyat tuyg'usi, bilim va tajriba asosida shakllanib, inson ruhiy olamining ichki negizini tashkil etadi. U iymon-e'tiqod asosida barqarorlashsa, insonning jamiyatdagi o'rnini, maqsad-muddalari, intilishlarining yo'nalishini belgilovchi omilga aylanadi. Shunday qilib, iymon-e'tiqod insonning insoniyligini anglatadi. Chunonchi, iymon-e'tiqodli kishida halollik, diyonat, mehr-oqibat, saxovat, muruvvat, vijdon, adolat barqaror bo'ladi. Insonning mohiyati uning iymonligi bilan o'lchanadi. U inson umrining ma'nosi, olamdagi o'rnini mukammalroq anglash kuchli bo'ladi.

«Ma'naviyat asoslari» o'quv qo'llanmasida keltirilishicha, Qur'oni karimda iymon mohiyati quyidagicha izohlangan: «Chin ko'nglim ila imon keltirdim: Allohi taologa va uning farishtalariga va uning kitoblariga va uning payg'ambarlariga ham bu dunyo yo'q bo'lib oxirat kuni bo'lmo'g'iga va qadarga, ya'ni yaxshi va yomon ishlar har qaysisi Allohu taolo tomonidan bo'lmoqligiga va o'lgandan so'ng qabrdan tirilib va bularning hammasi haqiqat ekaniga, dilim birla guvohlik berurman, albatta, Allohdan o'zga hech ma'bud yo'qdir. Yana guvohlik beraman, albatta, Muhammad Alloh taoloning bandasi va barcha bandalariga din axkomlarini o'rgatmoq uchun yuborilgan payg'ambardir» [5,171]. Diniy iymonda bandalar mo'min, itoatkor, o'z so'zida turuvchi, poklik va halollikka intiluvchi, itoatga amal qiluvchi, hech qachon yolg'onni tilga olmovchi, shariatni to'la bajaruvchi, namoz o'quvchi, iloji bo'lsa haj safariga boruvchi, ro'zani bekamu-ko'st bajaruvchi, sadaqa beruvchi va h.k bo'lishi darkor. Agar inson diniy iymon egasi bo'la turib, diniy amallarni bekamu-ko'st bajarsa-yu, ammo e'tiqodga samimiylik ko'rsatmasa, ya'ni o'zining diniy shaxs hisoblab, duoni pulga sotish bilan shug'ullanib, boshqalar hisobiga kun kechirib yursa, halol bilan haromning farqiga bormasa, birovlarining haqidan hazar qilmasa, bajargan ishi uchun ta'ma qilsa, aldanchilik, subutsizlik qilib, birovlarni g'iybat qilsa, tuhmatdan tap tortmasa, xo'jako'rsinga namoz o'qib, amallarni yuzaki, riyyakorona bajarsa, yolg'on gapirishdan qo'rqmasa, bunday inson iymonli bo'la olmaydi. Zero, iymon-e'tiqod uning samimiyligida. Namozni, Allohdan jannatni so'rash uchun yoki amallarni gunohlarini yuvish uchun bajarish hech qachon iymonli kishining ishi emas.

E'tirof etish joizki, hech bir kimsa moddiy va ma'naviy manfaatni ko'zlamay biror ishni amalga oshirmaydi. Insonning har ishining mazmunida manfaatdorlik yashiringan. Shuning uchun ham «Hayot – manfaatlar kurashidir» deb aytishga haqqimiz bor, deydi «Saodatga eltuvchi bilim» kitobining muallifi Abdulhay Abduraxmonov. «Insof, adolat, xolisona yaxshilik, bir-biriga yordam, sadaqa, exson-bularning barisi bamisoli – niqob bo'lib, barining chuqur zamirida, yuqorida aytganmizdek, manfaatdorlik, ya'ni boylik, amal-mansab uchun kurash va shon-shuhratga intilish, ta'ma, ba'zan esa riyo yotadi.

Inson, hatto toat-ibodatni, yaxshilik va ezgulikni ham zaruriyatsiz qilmaydi, uni foniyl dunyodagi jannat ta'masida qiladi. Yolg'iz Alloh taoloning diydoriga yetishish uchun ozginagina kamolga yetgan mashoyixlar, aziz-avliyolar beta'ma harakat qiladilar, xolos. Ko'ryapsizmi, ular ham besababdan-besabab emas, balki «Allohning diydoriga yetishish uchun, narigi dunyoda huzur-halovatda hayot kechirish» ta'masida ijobiy, ezgu ishlarni qiladilar.

Bularning barisining zamirida moddiy, ma'naviy manfaatdorlik yotar ekan, «Qachon yo'q bo'lasan, ey nafs!», «Qachon umring tugaydi ey nafs!», «Qachon sendan qutulaman, ey nafs!», deb hayqirgini, keladi.

Ammo bunday deb hayqirmay qo'yaqoling. Barcha narsalarning avvali-oxiri, ibtidosi-intihosi bo'lganidek, nafsning ham oxiri bor, uning ulushi hali qat'iy qilib belgilab qo'yilgan. Nafs degan shaytoniy sifat bu dunyo tugab oxirat - qiyomat ro'y bergandagina tugaydi, dunyo bilan birga o'ladi. O'shandagina unga qarshi urush e'lon qilib, uni butunlay yenga olmasak, u bizga butunlay g'olib bo'lib qolmasligi va unga qurbon bo'lib ketmasligimiz uchun jangni davom ettiraveramiz» [1,551].

Muallifning bu sermulo-haza fikrlariga qo'shilish bilan, insonning iymoni e'tiqodga aylangan taqdirda nafsdan to'la qutulmog'i mumkin deb e'tiroz bildiramiz va fikrimizni quyidagi manbalarda bayon etilgan lavhalar bilan dalillaymiz. Chunonchi, Tohir Malikning «Shaytanat» romanining uchinchi kitobida hikoya qilinishicha buyrak saratoniga chalingan Asadbekni davolash uchun, Abdurahmon tabibning ko'rsatmasi bilan uning do'sti Jalil Buxorodan yamoqchi Xayimdan to'rt kunda Abdullaxon zarb etgan tilloni olib keladi. «Tabib Jalil keltirgan tilla tangani yuvib, artib chiroqqa tutdi. Oltin tovlanib ko'zni oldi. Abduraxmon tabib katta kosada tayyorlab qo'ygan dori bilan kichik egovni olib kelib, tangani ularning ko'zi oldida egovladi. Yetarli miqdorda egovlagach oltin zarralarini doriga aralashtirib chetga olib qo'ydi, tangani Asadbekka uzatdi:

- Olib qo'ying, inim.
- Sizda qolaversin, rozimiz, - dedi Asadbek.
- Yo'q, inim, bu yerda qolmasin.
- Yana birorta kasalga ishlatarsiz?
- Agar lozim bo'lsa, odam jo'nataman, - dedi tabib.
- Buni sotib, masjidga ishlata qolinglar, - dedi Jalil.
- Masjidga peshona teridan topilgan mablag' bo'lsa, tashlab ketarsiz...

Xullas, Abduraxmon tabib tangani ham olmadi, «Xudo yuborgan mehmonlardan pul olsam, qiyomatda Allohning ko'ziga qanday qarayman?» deb, «qo'l haqi», «Nazir» deyilguchi pulni ham olmadi» [7,281-282].

Bu lavhada inson qachonki iymon - e'tiqodni nafsdan, ta'madan yuqori qo'ysa, u komillik sari qadam tashlagan bo'ladi degan fikr yotadi. Yoki A.Muxtorov «Milliy istiqlol g'oyasining ma'naviy omillari va shaxs tarbiyasi» maqolasida keltirgan misolida ham buni kuzatishimiz mumkin. «Chunonchi, - deb yozadi A.Muxtorov, - «Orifnoma» kitobida keltirilishicha «Mashhur tasavvufshunos olim Najmiddin Komilov shunday yozadi. Robiyaiy Avliyo ismli ilohiyat ilmining namoyondasi Allohga murojaat qilib, «Agar men sening jannatingdan umidvor bo'lib, senga ibodat qilayotgan bo'lsam, sen meni do'zaxingning eng tubiga tashlagin». Rivoyat qilishlaricha Robiyaiy Avliyo haj safariga otlangan paytda har o'n ikki qadam yurgandan so'ng joynamoz solib namoz o'qib ketgan. Alloh taolo Robiyaning bu mehnatlarini ko'rib, tavof qilish uchun ka'baning o'zini uning huzuriga keltirgan» degan ekan.

Bu misollardan muddao shuki, agar inson o'z nafsini tiyib, undan iymon-e'tiqodni afzal ko'rsa, u haqiqiy odam, ma'naviy-axloqiy fazilati yuksak, komil insonga aylanadi. Buni biz Hazrat Navoiyning «Farhod va Shirin» dostonidagi Farhod obrazi va «Lison-ut tayr» qissasidagi qahramonlar misolida ham kuzatamiz.

Darhaqiqat, iymon-e'tiqod insonlar qalbida saxovat, muruvvat, urug'larini sepib, ularni saodat va salomatlik bo'stoni sari yetaklaydi. Zero, Rasuli Akram Nabiyii muhtaram, salollohu alayhi vassalam afandimiz: «Allohni ko'z oldindan ko'rib turgandek ibodat qil, zero ki sen uni ko'rmasang ham, ul seni ko'radur, nafsingni o'lgan hisob et demishlar».

Darhaqiqat, inson haqiqiy baxtini iymon-e'tiqoddan topadi. Uning vijdoni, irodasi, aql-idroki toblanib ulug' ishlarga jur'at etadi.

Hammaning qalbida iymon urug'i bor. Bu urug'ni qanday parvarish qilish, o'stirib, ulg'aytirish inson e'tiqodiga bog'liq. Iymonli bo'lish har qanday sharoitda uni e'tiqodga aylantirish, yangi davr taqozo etgan ma'naviy-axloqiy qadriyatlarni fikrlash, uni amalda qo'llay olishga bog'liq.

Iymon tushunchasini dunyoviy mohiyatini teranroq anglash uchun, uning mazmunida ifodalangan sharm-hayo, mehr-shafqat, poklik va halollik, kamtarlik, vatanparvarlik, insonparvarlik, adolat, mehnatga halol munosabatda bo'lish, tafakkur, dunyoqarash kabi fazilatlar mohiyatini tushunib yetib, ularning jamiyatda osoyishtalik va barqarorlikni ta'minlab, insonlarda tadbirkorlik, ishbilarmonlik, tashabbuskorlikni tarbiyalayotganini tajriba ko'rsatayotganini tahlil qilmoq kerak.

Ma'naviy-axloqiy tarbiyaning yana bir muhim tarkibiy qismi **sharm-hayodir**. Sharm-hayo - diniy va dunyoviy iymonlilik belgisi hisoblanib, kishini chinakam, bosh harflar bilan yoziluvchi INSON bo'lib kamol topishiga qaratilgan. Chunonchi, sharm - insonning nojo'ya ishlardan, xatti-harakatlardan o'zini

tiya bilish, o'zgalar qoshida qilgan ishidan noqulaylik sezish hissidir. Muqaddas manbalar (Qur'oni karim, Hadisi Sharif)da yozilishicha, inson eng avvalo o'zidan uyalish hissini tuya olishi lozim. Nojo'ya, yomon ishi, xatti-harakati kishida uyalish hissini uyg'otsa, demak u iymonli hisoblanadi. O'zidan uyalmagan odamda sharm bo'lmaydi. Demak, sharmli odamda diyonat, iymon, vijdon kuchli bo'ladi.

Hayo – iymonlilikning ulug'i bo'lib, nafsni tiyish, uyatli ish qilishdan tortinish, yomon ishlarni tark etish, nomus sharafini saqlash kabilarni anglatadi. Hayo ayollarning ko'rkidir. Erkak kishilar bemalol aytadigan ba'zi gaplarni, ayollar hayo tufayli aytishga iymnadilar. Ularga hayo yo'l bermaydi. Hayo, ibo - barkamol xulqqa ega bo'lgan kishi ruhining tafakkuri, ma'naviy timsoli hisoblanadi. Hayoli bo'lish insonni hayvon kabi tubanlashib ketishdan asraydi. O'z xatti-harakati, nojo'ya ishidan uyalish hissi faqat insonlargagina xos fazilat. Sharm-hayoga o'rgatish oiladan boshlanadi. Bunga ona mutasaddi bo'lishi kerak. Zero, onaning o'zi hayoli bo'lmog'i darkor, shundagina u xonadon gultoji bo'lishi mumkin. Hayotning achchiq - chuchuklariga bardosh bergan, uning sinovlaridan muvaffaqiyatli o'tgan ayolagina hayoli hisoblanadi. Bunday ayollarni xalqimiz hayoli, vafoli deb ulug'laydi. Ular o'z hayolari bilan xonadonga fayz keltiradilar. Hayo – poklik, soflik, sabr-bardosh, qanoat, sadoqat, muhabbat, vafo ramzidir. Ayol kishidan hayo ketsa, oilada sadoqat, muhabbat, or-nomus toptaladi. Ayrim ayollar hayosizlik tufayli, jufti halollari, farzandlari yuzlariga oyoq qo'yib, nojo'ya ishlarga qadam qo'yadilar. Nafs balosiga chalinib, qadrlarini, nomuslarini yerga uradilar, qabohat ishlariga yo'l qo'yadilar. Bu jirkanchlikdir. Hayosizlik vafosizlikni olib keladi. Shu bois ulug' shoir Alisher Navoiy «Hayosizda vafo yo'q. Vafosizga hayo yo'q» deb ta'kidlaydi. Hayo – iymonlilik timsoli. Payg'ambarimiz, «Hayo iymondandir, iymon esa jannatga eltadi», «Hayo bilan iymon bir-birini to'ldiradi va takrorlaydi, biri ketsa, ikkinchisi ham ketadi» deb bejiz aytmaganlar. Hayo yosh nihol qalbida, tuyg'usida, muhabbatida, sadoqatida bezak bo'luvchi, uni insonlikka yetaklovchi qalb ko'zgusi. Hayoli kishi, u erkak bo'ladimi, ayol bo'ladimi, doimo yaxshilikka, ezgulikka, iymonga intilib yashaydi. Hayo – odobli, yaxshi xulqqa ega bo'lgan inson ruhining tafakkuri, ma'naviy olamining timsolidir. Sharm-hayo insonlarni nojo'ya ishlardan saqlab turuvchi iymon kalitidir. Ba'zan ayollar hayosizlik-odobidan chiqib erlariga xiyonat qiladilar. Erkaklar esa hayo, sharm tushunchasini unutib go'zal xotinlari, iymonli ayollari bo'lgan holda foxisha ayollar bilan jinsiy munosabatda bo'ladilar. Bular xayosizlikning insonga xos bo'lmagan holati hisoblanadi.

«Hayo dilni ravshan qiladurgan bir nurdiki, inson har vaqt shul ma'naviy nurning ziyosiga muxtojdir. ...iffatning pardasi, vijdonning niqobi hayodir», - deb yozadi Abdulla Avloniy [16,30].

Ulug' mutafakkir Ibn Sino hayo haqida fikr yuritib shunday yozadi: «Insonda doim porlab turadigan husn va latofat - hayo va iffatdir. Hayosiz yuz jonsiz jasad kapidur». Demak inson go'zalligi, ma'naviy-axloqiy boyligining namunasi sharm va hayo hisoblanadi. Shu sabab jahon xalqlari ham o'zbeklarni shu sharmu-hayolari tufayli e'zozlaydilar, ularga hurmat bajo keltiradilar. Shunday ekan, farzandlarimizni, o'sib kelayotgan yosh o'g'il-qizlarimizni sharmu-hayoga o'rgatish har birimizni, har bir ota-ona, tarbiyachining asosiy vazifasi. Huquqiy demokratik davlatni rivojlantirish, fuqarolik jamiyatini barpo etishda Imon kaliti hisoblanmish sharmu-hayoning ma'naviy-axloqiy darajasiga e'tibor qaratish lozim. Shunday ekan, hayo ostonasi sari borish, hayosizlardan uzoqlashish har bir tarbiyali, iymonli insonning burchidir.

Imonli bo'lib, ma'naviy-axloqiylikni farz etishning yana bir jihati **or-nomus** hisoblanadi. Or-nomusli bo'lish o'ziga nomunosib yoki ep ko'rilmagan ishdan, narsadan xijolat tortish, uyalish, uyat va nomus qilish tuyg'usidir. Or nojo'ya harakatdan hazar qilishni ham anglatadi. Or-nomus insonlarni gunoh va buzuvchi ishlardan saqlaguvchi, harom-harishdan nafsimizni pok qiluvchi olmosdur. Or-nomusli kishida g'urur kuchli bo'ladi, u doimo ibrat nazari bilan ish yuritadi. O'zini mavqeini saqlash, ulug'lash ham or-nomusli kishining fazilatidir. Ko'pincha, biror bir kishini uning ota-onasini yoki aka-ukasini, qarindosh-urug'ini yoki xalqini haqoratlasalar, sha'nini kamsitsalar-u, u kishi beparvo, loqaydlarcha, yoki qo'rqib indamay tursa, undaylarga nisbatan senda or-nomus, oriyat bormi o'zi, deb xitob qilingan, har kimning qadri uning or-nomusi bilan o'lchangan. Odatda oriyatli insonlar o'zlari, oilalarining izzat-nafslarini, qadriyatlarini, urf-odatlarini, xalqlarining erklarini qadrlil tutganlar. Ularning kamsitilishi toptalishiga yo'l

qo'ymaganlar. Bunga misol tariqasida ota-bobolarimiz jasoratlarini ko'rsatish mumkin. Ular qadimda or-nomusli, oriyatli bo'lganlar, o'z yurti, tuprog'i, onalari va farzandlarini o'zgalar tomonidan kamsitilishi, toptalishini o'zlari uchun or deb bilganlar. Shiroq, To'maris afsonalaridagi qahramonlar, Jaloliddin Manguberdi, Amir Temur va ular izdoshlarining ishlari shular jumlasiga kiradi. Bundan shu narsa nazarga tushadi-ki, or-nomus, oriyat mazmunida erksevarlik, xalqparvarlik, vatanparvarlik tuyg'ulari mujassamlashgan. Or-nomusli kishilar, o'zlarini kamsitmaganlar.

Or-nomus e'tiqod darajasida yuksalib insonda, millatda mamlakat oldidagi burch va mas'uliyatni to'g'ri tushunish tuyg'usini uyg'otadi. Insonda g'urur, mardlik, jasorat ko'rsatish hissini rivojlantiradi. Natijada yosh avlod ajdodlari, xalqi, Vatani, Prezidenti oldida burchli ekanini anglab, bilimli bo'lish, fan asoslarini chuqur egallash, texnika taraqqiyotiga, Vatan ravnaqiga, millat rivojiga o'z hissasini qo'shishga shaylanadi.

Men buyuk yurt o'g'lidurman,
Men bashar farzandiman,
Lekin avval senga bo'lsam
Sodiq o'g'lon o'zbekim.
Menga Pushkin bir jahonu
Menga Bayron bir jahon,
Lek Navoiydek bobom bor,
Ko'ksim osmon o'zbekim.
Qayga bormay, boshda do'ppim,
Shuhratim, qadrim buyuk,
Olam uzra nomi ketgan
O'zbekiston, o'zbekim.

– deb g'ururlanadi shoir Erkin Vohidov. [3,337].

Diyonat vijdon ham iymonlilikning muhim jihati va ma'naviylikning zaminidir. «Diyonat alloh huzurina yaqin qiladurgan muqaddas e'tiqoddurki, olamda mendan suyuqli narsa yo'qdur», - deydi Abdulla Avloniy [2,17]. Diyonat insonni to'g'ri yo'lni tanlashni, har doim vijdonini pok saqlash va saodatga erishishga da'vatlovchi kuch. Diyonat va vijdon bir-biriga yaqin tushuncha bo'lib, odamlardagi insof tuyg'usiga hamohangdir. «Diyonat va vijdon kishining kundalik faoliyati, qilmishi, fe'l-atvori uchun avvalo, o'zi oldida, qolaversa, oila, jamoat, jamiyat va vatan oldida ma'naviy mas'uliyat his etishidir» [5,175].

Diyonat Haq tomonidan insonlarga tuhfa etilgan ilohiy fazilatki, u doimo to'g'ri yo'ldan yurish va saodatga erishishni ta'minlaydigan, saxovat, shafqat, muruvvat ko'rsatish, qanoatlanishni ta'minlaydi. Har bir inson o'z qilmishi, fe'l atvori bilan oila, jamoa, jamiyat va Vatan oldidagi mas'uliyatini vijdoni ila his etsa, u ma'naviy-axloqiy fazilatli inson sanaladi. Vijdon ijobiy xatti-harakatlarga undaydi, o'z faoliyatiga o'zi baho berish malakalarini shakllantiradi. Vijdonli kishi hayotda nohaqlik, adolatsizlikka murosasiz bo'ladi. Adolatsiz ishlardan g'azabga keladi. Chunki, nohaqliklardan vijdoni azob chekadi. Vijdon ko'p yoki oz bilimlilikka, oddiy yoki mashhurlikka, kambag'al yoki boylikka bog'liq emas. Vijdon ta'lim-tarbiya vositasida rivojlantiriladi.

Huquqiy demokratik davlat va fuqarolik jamiyati vijdonli, diyonatli insonlarga doimo ehtiyoj sezadi.

Dunyoviy iymonli bo'lishning yana bir jihati - **mehr-shafqatlilikdir**. Iymonli insonlarda mehr-shafqat tuyg'usi kuchli bo'ladi. Zero, bu fazilat o'zbek xalqiga xos xususiyat. Mehr-shafqat mazmunini qarovsiz qolgan otalar va onalarga, yetim-yesirlarga, g'ariblarga, boquvchisini yo'qotgan keksalarga moddiy va ma'naviy yordam ko'rsatish tashkil etadi. Mehr-shafqat bamisoli quyosh, notavonlarning qalbini yoritishga qaratilgan nurdur. Mehr-shafqatli bo'lish, ota-onaga, farzandlarga, Vatanga, qariyalar, nogironlarga yordam ko'rsatish, Qur'oni karim, Hadisi Sharif, tasavvuf ta'limotida ko'p bor takrorlanadi.

Jumladan, Imom Buxoriy, «Kimki rizqim ulugʻ, umrim ulugʻ boʻlsin, desa, qarindosh-urugʻlariga mehr-shafqatli boʻlsin», - deb hadislarida bayon etganlar. Hech qanday moddiy boylikni, mehr-shafqat bilan almashtirib boʻlmaydi. Mehr-shafqat insonlarni har qanday xusumat, adovatdan, gina - qudratdan, fitna-yu adovatdan xolos qiluvchi, uni insoniylik, ezgulik sari yetaklovchi kuchdir. Shuning uchun ham kekxa otaxon-u, onaxonlarimiz mehning ulugʻ, nasibang butun boʻlsin, deb, mehr-shafqatli boʻlishga undaydilar va kishilarni duo qiladilar hamda bemehrlarni laʼnatlaydilar. Mehr-shafqat keksalarga hurmat, yetim-yesirlarga muruvvat, nogiron-u, kasallarga saxovatni tarbiyalaydi.

Diniy va dunyoviy iymon udumlariga amal qilib, respublikamizdagi ota-onasiz qolgan bolalarga, keksalarga, nogironlarga, mamlakatimiz rahbariyati, saxovatli insonlar, xalq tomonidan koʻrsatilayotgan moddiy va maʼnaviy yordam mehr-shafqat namunasi boʻlib hisoblanadi. Shular jumlasiga koʻkrak saratoniga uchragan ayollarga koʻrsatilayotgan yordamlar ham kiradi.

Dunyoviy iymon mazmunidan oʻrin olgan yana bir xususiyat **poklik va halollik odobidir**. Poklik va halollik bu tanani, nafsni, kiyimlarni, xulqni, koʻngilni, lafzni, toza tutishni nazarda tutadi.

Poklik va halollik zehn va idrokni oʻtkir qilib, eʼtibor va shuhratga olib boradi. Tanani pok saqlash esa salomatlik garovi. Nafsni pok saqlash xotirjam va halovatli hayot asosi. Lafzni pok saqlash insonni dard, alam, subutsizlikdan saqlaydi. Inson taʼma molparastlikdan lafz pokligi tufayli yiroq boʻladi. Maʼnaviy poklik goʻzal xulq axloqiylik ziyosidir. Yirtiq, eski kiyimlarni kiyish ayb emas, ammo yangi kiyimlarni iflos, kir holda kiyish katta ayb va gunoh hisoblanadi. Chunki, bu sharoitga nosogʻlikni, nasroniylar koʻziga odobimizni chirkin qilib koʻrsatish demakdir. Poklik harom-harishdan saqlanmoqlik demak.

Shu bois insonning qalbi ham, ishi ham, amali ham, oʻzi ham pok boʻlishi, nopoklikdan yiroq boʻlishi darkor.

Poklik va halollik oʻzbek xalqining azaliy odatlaridan boʻlib, uning ongi, qalbi, gʻururining asosini tashkil etgan. Hayotda poklik va halollik shaxsning insoniyligiga zarracha dogʻ tushishiga yoʻl qoʻymagan, fikri, ishi, qalbi, hayoti pok insonlar xalqning, davlatning, jamiyatning faxri, gʻururi hisoblangan va iymonli kishilar sirasiga yetaklagan. Shu bois xalq oʻrtasida «qalbi pokning – ishi pok» degan naql yetakchi.

Xulosa shuki, poklik, halollik, iymonli kishining muhim maʼnaviy-axloqiy fazilatidir. Insondagi yaxshi va yomon odatlar uning pokligi va halolligiga bogʻliq. Baʼzan gʻalamislar, shaytoniy tuygʻular bilan nafas oluvchi insonni iymonidan judo qilib, uni yomon yoʻllarga, odatlarga undaydilar. Poklik va halollik gʻalaba qilsa, u bu nohalovat yoʻllarga kirmaydi. Oʻzini sobitfikrlilik bilan halol va pok saqlaydi. Ozgina iymondan chekinish boʻlsa, shaytoniy hislar, gʻalamislik qilib, uning qalbini zabt etadi. Shuning uchun poklik va halollik yoʻlida doimo hushyor, sergak turish har bir iymonli kishining, qolaversa, huquqiy demokratik davlat va fuqarolik jamiyatini qurish yoʻlida faoliyat olib borayotgan shaxsning burchidir.

Shunday qilib, yuqorida tahlil etilgan maʼnaviy-axloqiy tarbiya mazmunidan oʻrin olgan fazilatlar mustaqil Respublika rahbariyati orzu qilgan va mamlakatning har bir yosh avlodining shaxsida koʻrishni orzu qilgan xususiyatlar hisoblanadi. Hozir mamlakatda demokratik oʻzgarishlarni yanada chuqurlashtirish va fuqarolik jamiyati asoslarini qurish hamda rivojlantirish sharoitida jamiyatning har bir yosh avlodni mana shunday maʼnaviy-axloqiy kamolotga yetkazish zarur. Bu esa ijtimoiy-iqtisodiy taraqqiyotni va maʼnaviy-madaniy hayotni yanada rivojlantirishni taʼminlashga xizmat qiladi.

Xulosa qilib aytganda, mustaqil Oʻzbekistonda amalga oshirilayotgan islohotlarning koʻp jihatlari mamlakatimiz mehnatkashlarining, ayniqsa, yosh avlodning maʼnaviy-axloqiy tarbiyasini muvaffaqiyatli yoʻlga qoʻyish hamda mazmunli hal qilish bilan bogʻliq. Zero, oldimizda turgan ulkan vazifa, demokratik oʻzgarishlarni yanada chuqurlashtirish va fuqarolik jamiyati qurilishini jadallashtirish buni taqozo etadi. Shunday ekan, respublikamiz aholisi maʼnaviy-axloqiy tarbiyasining vazifalarini samarali hal etishda har bir jamiyat aʼzosi, ayniqsa, pedagog xodimlar jonbozlik koʻrsatishlari hamda bor kuch, bilim va mahoratlarini ayamasliklari zarur.

Foydalanilgan adabiyotlar roʻyxati

1. Abduraxmonov Abdulhay. «Saodatga eltuvchi bilim. – T.: Movarounnahr, 2004.
2. Avloniy, Abdulla. Turkiy Guliston yoxud axloq. – T.: O‘qituvchi, 1992. – 160 b.
3. Vohidov Erkin. Saylanma: 2-jildlik, 1-jild. Muhabbatnoma: She’rlar, dostonlar. So‘z boshi muallifi I.G‘ofurov – T.: Adabiyot va san’at nashriyoti, 1986. – 528 b.
4. Ibrohimov A., Sultonov X, Jo‘raev N. Vatan tuyg‘usi -T.: O‘zbekiston, 1996.-396 b.
5. Nosirxo‘jaev S.H., Lafasov M.F., Zaripov M.Z. Ma’naviyat asoslari //O‘rta maxsus, kasb-hunar ta’limi muassasalari uchun o‘quv qo‘llanma. – T.: Fan, 2002. – 320 b.
6. Olimov Sh.Sh. Ma’naviy-axloqiy tarbiya asoslari. (Monografiya). – T.: Fan va texnologiya, 2015. – 228 b.
7. Tohir Malik. Shaytanat: qissa. 3-K. – T.: Sharq, 1997. – 384 b.

Zamondosh olimlarimiz

ILM OSMONIDA PORLAGAN YULDUZ

Professor Shahriyor Safarovning ilmiy merosi va ilmiy maktabi



E’tirof. Olimlar ko‘p. Ilm ahli safi esa kundan-kunga kengayib bormoqda. Ammo ilm olamida o‘z nomi, o‘z qarashlari, o‘z ilmiy maktabi va o‘ziga xos tadqiqot yo‘nalishini yaratib, avlodlar xotirasida qoladigan olimlar juda sanoqli. Ularning nomi shunchaki ilmiy adabiyotlarda emas, balki muayyan fan taraqqiyoti tarixida alohida sahifa sifatida yashaydi.

Filologiya fanlari doktori, professor Shahriyor Safarov Safarovich ana shunday zabardast olimlardan biridir. U kishining serqirra ilmiy faoliyati o‘zbek tilshunosligining zamonaviy taraqqiyoti bilan chambarchas bog‘liq. Professor Safarov, ayniqsa, kognitiv tilshunoslik, pragmalingsvistika, diskurs lingvistikasi, semantika, qiyosiy-chog‘ishtirma tilshunoslik va lingvokulturologiya yo‘nalishlaridagi tadqiqotlari bilan o‘zbek tilshunosligi rivojiga munosib hissa qo‘shgan.

Ilm yo‘lidagi izlanishlar. Har qanday yirik ilmiy maktab ortida yillar davomida olib borilgan izlanish, tinimsiz mehnat, ilmiy jasorat va yangilikka intilish turadi. Professor Shahriyor Safarovning ilmiy faoliyati ham ana shunday mashaqqatli va samarali izlanishlar bilan yo‘g‘rilgan.

Olimning ilmiy kamolotida Leningrad (hozirgi Sankt-Peterburg) ilmiy muhiti alohida o‘rin tutadi. U yerda nomzodlik va doktorlik dissertatsiyalarini himoya qilgani uning ilmiy dunyoqarashi shakllanishida muhim bosqich bo‘ldi. 1991-yilda «Этносоциопрагматика речевого общения: принципы сопоставительно-типологического описания» mavzusida doktorlik dissertatsiyasini himoya qilgani olimning ilmiy faoliyatidagi muhim voqealardan biri bo‘ldi. Mazkur tadqiqotning o‘ziyiq uning tilni faqat grammatik yoki formal tizim sifatida emas, balki inson, jamiyat, madaniyat va muloqot bilan uzviy bog‘liq murakkab hodisa sifatida talqin qilishga intilganini ko‘rsatadi.

Bu yondashuv keyinchalik olimning ko‘plab tadqiqotlarida yanada rivojlanib, tilshunoslikning yangi va istiqbolli yo‘nalishlariga yo‘l ochdi.

Ilmiy tafakkur va yangi yo‘nalishlar. Professor Shahriyor Safarov nomini tilshunoslikning zamonaviy yo‘nalishlari bilan bog‘lash bejiz emas. Uning «Kognitiv tilshunoslik» (2006), «Pragmalingsvistika» (2008), «Semantika» (2013) kabi fundamental ishlari o‘zbek tilshunosligi uchun muhim ilmiy manbalardan bo‘lib xizmat qilmoqda.

Mazkur asarlarning qimmatli shundaki, ularda til hodisalari an’anaviy lingvistik tavsif bilan cheklanib qolmay, insonning tafakkuri, bilish jarayoni, kommunikativ maqsadi, nutqiy faoliyati va madaniy tajribasi bilan bog‘liq holda talqin qilinadi.

Ayniqsa, kognitiv yondashuvning o'zbek tilshunosligida qaror topishi va rivojlanishida professor Safarovning xizmatlari alohida e'tirofga loyiq. Chunki tilni inson tafakkuridan, inson tafakkurini esa milliy-madaniy tajribadan ajratib o'rganish mumkin emas. Olim tadqiqotlarida ana shu uzviylik izchil namoyon bo'ladi.

Til — tafakkur — madaniyat — muloqot. Professor Safarov ilmiy qarashlarining muhim jihatlaridan biri — til, tafakkur, madaniyat va muloqot munosabatlarini yaxlit tizim sifatida ko'ra bilishidir.

Til insonning fikrini ifodalash vositasigina emas. U insonning borliqni anglash, baholash, idrok etish va boshqalar bilan munosabatga kirishish jarayonida faol ishtirok etadigan murakkab hodisadir. Shu ma'noda professor Safarovning ilmiy izlanishlari zamonaviy tilshunoslikning inson omiliga tobora ko'proq e'tibor qaratayotgan yo'nalishlari bilan uyg'unlashadi.

Uning tadqiqotlarida kommunikativ-pragmatik munosabatlar, nutqiy muloqot, semantik jarayonlar, kognitiv mexanizmlar, madaniy omillar bir-biridan ajralgan holda emas, balki o'zaro ta'sirda ko'rib chiqiladi.

Bu jihat olimning ilmiy qarashlarini o'zbek tilshunosligi doirasidagina emas, balki zamonaviy umumiy tilshunoslik jarayonlari bilan hamohang va dolzarb qiladi.

Diskurs va zamonaviy tilshunoslik. Professor Safarovning ilmiy merosida diskurs tadqiqotlari ham alohida o'rin egallaydi. «Diskurs lingvistikasi» nomli monografiyaning 2018-yilda nashr etilishi o'zbek tilshunosligida diskurs masalasini tizimli o'rganish yo'lidagi muhim qadamlardan biri bo'ldi.

Diskursni faqat nutqning tashqi shakli sifatida emas, balki kommunikativ vaziyat, ijtimoiy munosabat, maqsad, mazmun, kontekst va inson omili bilan bog'liq murakkab hodisa sifatida o'rganish zamonaviy lingvistikaning muhim talablaridan biridir. Professor Safarovning mazkur yo'nalishdagi izlanishlari ana shu ilmiy ehtiyoj bilan uyg'unlashadi.

Qiyoslashdan — chuqur anglash sari. Olimning ilmiy faoliyatida qiyosiy-chog'ishtirma tadqiqotlarning ham salmoqli o'rni bor. Turli tillardagi hodisalarni shunchaki «o'xshash» yoki «farqli» deb belgilash emas, balki ularning milliy-madaniy, kognitiv, semantik va kommunikativ asoslarini ochib berish — professor Safarov tadqiqotlarining muhim jihatlaridan biridir.

So'z yasash tizimlarini qiyoslashga bag'ishlangan izlanishlarida ham kognitiv yondashuv, madaniyat, prototip va lingvistik asimmetriya kabi masalalarning tahlil etilishi olimning an'anaviy qiyoslash metodologiyasini zamonaviy ilmiy qarashlar bilan boyitganini ko'rsatadi.

Shu jihatdan uning ilmiy faoliyatida qiyoslash — maqsad emas, tillarning ichki tabiatini chuqurroq anglash vositasi sifatida namoyon bo'ladi.

Ilmiy maktab — eng katta meros. Har qanday olimning ilmiy darajasi uning nashr etgan kitoblari yoki maqolalari bilangina belgilanmaydi. Chinakam olimning eng katta boyligi — ilmiy maktabi va shogirdlaridir.

Professor Shahriyor Safarovning ko'p yillik pedagogik va ilmiy rahbarlik faoliyati natijasida uning ilmiy g'oyalari, metodologik qarashlari va tadqiqot an'analari yangi avlod tadqiqotchilariga yetib bormoqda. Ko'plab dissertatsiyalarga ilmiy rahbarlik qilgani ham olimning nafaqat tadqiqotchi, balki ilmiy tafakkur shakllantiruvchi ustoz sifatidagi o'rnini ko'rsatadi.

Ilmiy maktab yaratish esa oddiy natija emas. Bu — o'zidan keyin ilmiy yo'l qoldirish, shogirdlarga fikrlashni, savol berishni, izlanishni va ilmiy haqiqatni izlashni o'rgatish demakdir.

Ilmni his qilish va yangilikni ilg'ash. Professor Safarovning ilmiy siymosini ta'riflashda uning yangilikni tez ilg'ashi, ilmiy muammoning tub mohiyatini ko'ra bilishi va turli ilmiy qarashlarni yagona tizimga birlashtirish qobiliyati alohida e'tiborga loyiq.

U kishining ilmiy tafakkurida izlanishning o'ziga xos bir falsafasi mavjud: ilm tayyor xulosalarni takrorlash emas, balki yangi savollarni ko'ra bilishdan boshlanadi.

Olimning ilmiy faoliyatini obrazli tarzda ifodalaganda, u ilmiy yangiliklarni ari asaldek yig'ib, ularni qayta ishlagan va ilmning shirin ta'mini ilmiy jamoatchilikka yetkazgan zahmatkash olim sifatida

namoyon bo'ladi. Bu obraz uning ko'p qirrali ilmiy faoliyati va yangilikka chanqoq tafakkurini juda aniq ifodalaydi.

Ustozga ehtirom. Bugun professor Shahriyor Safarovning nomi o'zbek tilshunosligining zamonaviy taraqqiyoti bilan bog'liq holda tilga olinadi. Uning ilmiy merosi kognitiv tilshunoslik, pragmalingsvistika, diskursologiya, semantika, lingvokulturologiya va qiyosiy tilshunoslik kabi yo'nalishlarning rivojiga xizmat qilib kelmoqda.

Eng muhimi, professor Safarov ilmga faqat o'z asarlari bilan emas, o'zidan keyingi avlodga qoldirgan ilmiy tafakkur an'anasi bilan ham xizmat qilmoqda.

Yillar o'tadi, ilmiy yo'nalishlar yangilanadi, nazariyalar takomillashadi, yangi terminlar va metodlar paydo bo'ladi. Ammo chinakam olim yaratgan ilmiy maktab, uning shogirdlari va ilmga singdirgan g'oyalari yashashda davom etadi.

Shahriyor Safarovning ilmiy faoliyati ham ana shunday davomiylik kasb etgan. Ustozning ilmiy merosi — bir avlodga tegishli emas. U o'zbek tilshunosligining buguni bilan birga uning ertangi taraqqiyotiga ham xizmat qiladigan ma'naviy-ilmiy boylikdir.

Ilm osmonida porlagan yulduzlar ko'p emas. Ammo o'z nuridan boshqalarga ham yo'l ko'rsatadigan yulduzlar bor. Professor Shahriyor Safarov ana shunday yulduzlardan biridir.

Yubiley ayyomi munosabati bilan ustoz olimga mustahkam sog'lik, uzoq umr, oilaviy xotirjamlik, yangi ilmiy kashfiyotlar va shogirdlari kamolini ko'rib yurish baxtini tilaymiz. Ilm yo'lidagi mashaqqatli va sharaflı xizmatlari, yaratgan ilmiy maktabi va qoldirayotgan boy merosi hali ko'p avlodlarga xizmat qilsin!

***Bobokalonov Ramazon Rajabovich, filologiya fanlari doktori
(DSc),
professor (Buxoro davlat universiteti)***

Zabardast tilshunoslar xotirasi

**MUSTAQIM MIRZAYEVICH MIRZAYEV — O'ZBEK TILSHUNOSLIGI VA BUXORO
ILMIY MAKTABINING YIRIK NAMOYANDASI**



XX asr o'zbek tilshunosligi tarixida milliy tilning ichki imkoniyatlarini ilmiy asosda o'rganish, adabiy til me'yorlarini belgilash, xalq shevalarining o'ziga xos xususiyatlarini aniqlash hamda o'zbek tilini boshqa tillar bilan qiyosiy o'rganish jarayoni alohida bosqichni tashkil etadi. Ana shu ilmiy jarayonda Mustaqim Mirzayevich Mirzayevning faoliyati o'ziga xos o'rin egallaydi.

Mustaqim Mirzayevich Mirzayev 1912-yilda Buxoro shahrida tug'ilgan va 1990-yil 21-oktabrda vafot etgan. U Buxoro pedagogika institutini 1939-yilda tamomlagan hamda shu yildan boshlab institutning o'zbek tili kafedrasida pedagogik faoliyat olib borgan. 1944-yildan kafedra mudiri sifatida faoliyat yuritgan. Olim 1965-yilda filologiya fanlari doktori, 1966-yilda professor ilmiy unvoniga sazovor bo'lgan, 1975-yilda esa "O'zbekistonda xizmat ko'rsatgan fan arbobi" faxriy unvoni bilan taqdirlangan.

Mustaqim Mirzayevning ilmiy shakllanishi. Olimning ilmiy faoliyati o'zbek tilshunosligining bir necha yo'nalishlarini qamrab olgan. Manbalarda uning hozirgi o'zbek tili, uni o'qitish metodikasi,

leksikologiya, dialektologiya hamda o'zbek va rus tillarining qiyosiy tipologiyasi masalalarini tadqiq etgani qayd etiladi.

Bu jihat Mustaqim Mirzayev ilmiy merosining ko'lamdorligini ko'rsatadi. Uning faoliyatida nazariy tilshunoslik bilan amaliy til ta'limi bir-biridan ajratilmagan. Tilning grammatik va leksik qurilishini o'rganish bilan bir qatorda, uni ta'lim jarayoniga tatbiq etish, til materiallarini tizimlashtirish va o'quv-uslubiy jihatdan yoritish ham muhim vazifa sifatida qaralgan.

Olimning "Hozirgi o'zbek adabiy tili. Mashqlar to'plami" asari 1958, 1963 va 1968-yillarda nashr etilgani uning ilmiy-metodik qarashlari uzoq vaqt davomida ta'lim amaliyotida foydalanilganidan dalolat beradi. Shuningdek, u "O'zbek va rus tillarining qiyosiy grammatikasi" hamda "O'zbek tili" kabi jamoaviy tadqiqotlarning ham mualliflaridan biri bo'lgan.

Buxoro shevalari tadqiqi — olim ilmiy merosining asosiy yo'nalishlaridan biri. Mustaqim Mirzayevning o'zbek tilshunosligidagi eng muhim ilmiy xizmatlaridan biri Buxoro hududidagi o'zbek shevalarini tizimli ravishda tadqiq etgani bilan belgilanadi.

Manbalarda olimning "O'zbek tilining Buxoro gruppasi shevalari" mavzusidagi doktorlik dissertatsiyasini 1963-yilda himoya qilgani, mazkur tadqiqotning 1969-yilda monografiya shaklida nashr etilgani qayd etiladi.

Mazkur ishni faqat hududiy sheva tavsifi sifatida emas, balki o'zbek dialektologiyasining rivojlanish tarixidagi muhim ilmiy qadam sifatida baholash mumkin. Chunki shevalar xalq tilining tarixiy, geografik va etnomadaniy qatlamlarini saqlovchi muhim manbadir. Buxoro hududi esa tarixiy-madaniy jihatdan murakkab va rang-barang lingvistik makon hisoblanadi.

Shu nuqtayi nazardan, Mirzayev tadqiqotlarining ilmiy ahamiyati ikki yo'nalishda namoyon bo'ladi: birinchidan, Buxoro hududidagi til hodisalarini ilmiy tavsiflash; ikkinchidan, hududiy til materiallari orqali o'zbek milliy tilining ichki differensial xususiyatlarini aniqlash.

"Adabiy til — umumxalq tilidan yasalgan guldasta". Mustaqim Mirzayevning til haqidagi qarashlaridan keng tarqalgan fikrlardan biri adabiy tilga berilgan obrazli ta'rifidir. Keyingi o'zbek tili darsliklari va ilmiy-o'quv manbalarida olimning "Adabiy til — umumxalq tilidan yasalgan guldasta" degan fikri keltiriladi.

Ushbu ta'rifning ilmiy-metodologik mohiyati chuqurdir. Unda adabiy til umumxalq tilidan uzilgan, undan tashqarida mavjud bo'lgan hodisa emas, balki xalq tilining sayqallangan, me'yorlashgan va umumiy kommunikativ ehtiyojlarga xizmat qiladigan shakli sifatida talqin qilinadi.

Mazkur yondashuv bugungi zamonaviy tilshunoslik nuqtayi nazaridan ham ahamiyatini yo'qotmagan. Xususan, adabiy til va sheva, milliy til va adabiy til, til me'yori va real nutq o'rtasidagi munosabatlarni o'rganishda bu qarash muhim nazariy asos bo'la oladi.

Buxoro ilmiy maktabini shakllantirishdagi o'rni. Mustaqim Mirzayevning ilmiy merosini faqat uning alohida asarlari doirasida baholash yetarli emas. Uning faoliyatini Buxoroda o'zbek tilshunosligining institutsional shakllanishi bilan bog'liq holda ham o'rganish lozim.

Buxoro davlat universitetining rasmiy ma'lumotlariga ko'ra, o'zbek tilshunosligi kafedrasini 1944-yilda tashkil etilgan va uni dastlab professor Mustaqim Mirzayev boshqargan. U 1977-yilgacha ushbu kafedraga rahbarlik qilgan. Keyinchalik kafedraga Ergash Qilichev va Hamid Ne'matov kabi olimlar rahbarlik qilgan.

Demak, Mustaqim Mirzayev faoliyatini Buxoro o'zbek tilshunosligi maktabining shakllanishi bilan uzviy bog'lash mumkin. Uning pedagogik va ilmiy rahbarlik faoliyati keyingi avlod tilshunoslarining shakllanishi uchun ilmiy muhit yaratgan.

Ilmiy merosining zamonaviy ahamiyati.

Mustaqim Mirzayevning ilmiy qarashlari bugungi tilshunoslik uchun ham bir qator metodologik ahamiyatga ega.

Birinchidan, olimning dialektologik tadqiqotlari hududiy til materiallarini milliy til taraqqiyoti bilan bog'liq holda o'rganish zarurligini ko'rsatadi.

Ikkinchidan, uning adabiy til va umumxalq tili munosabatiga oid qarashlari hozirgi sotsiolingvistika, dialektologiya va lingvokulturologiya uchun muhim nazariy nuqtalardan biri sifatida qaralishi mumkin.

Uchinchidan, o'zbek va rus tillarining qiyosiy grammatikasiga oid ishlari qiyosiy-tipologik tadqiqotlarning o'zbek tilshunosligidagi rivojiga xizmat qilgan.

To'rtinchidan, olimning til ta'limiga oid ishlari nazariy tilshunoslik va amaliy lingvodidaktika o'rtasidagi aloqaning muhim namunasidir.

Xulosa shuki, Mustaqim Mirzayevich Mirzayev o'zbek tilshunosligi tarixida o'ziga xos ilmiy maktab yaratgan, ilmiy-pedagogik faoliyatni dialektologik, leksikologik, grammatik va metodik izlanishlar bilan uyg'unlashtirgan yirik olimlardan biridir.

Uning Buxoro shevalariga bag'ishlangan fundamental tadqiqotlari o'zbek dialektologiyasi tarixida muhim o'rin egallaydi. Olimning adabiy til mohiyatiga oid qarashlari esa keyingi o'quv va ilmiy adabiyotlarda ham yashab kelmoqda.

Mustaqim Mirzayevning ilmiy merosini qayta o'rganish bugungi kunda, ayniqsa, Buxoro lingvistik maktabining tarixini tiklash, o'zbek dialektologiyasi taraqqiyot bosqichlarini aniqlash, hududiy til materiallarini raqamlashtirish va korpus lingvistikasi asosida qayta tadqiq etish nuqtayi nazaridan dolzarbdir.

Shu ma'noda, Mustaqim Mirzayev nafaqat o'z davrining yirik tilshunosi, balki Buxoro ilmiy muhitida o'zbek tilshunosligining institutsional va ilmiy poydevorini mustahkamlagan olim sifatida tarixda munosib o'rin egallaydi.