EOC
EUROASIAN ONLINE CONFERENCES

ENGLAND CONFERENCE

INTERNATIONAL CONFERENCE ON MULTIDISCIPLINARY STUDIES AND EDUCATION

Google Scholar zenodo OpenAIRE doi digital object identifier

INTERNATIONAL CONFERENCE ON MULTIDISCIPLINARY STUDIES AND EDUCATION: a collection scientific works of the International scientific conference – London, England, 2026. Issue 6

Languages of publication: Uzbek, English, Russian, German, Italian, Spanish

The collection consists of scientific research of scientists, graduate students and students who took part in the International Scientific online conference **«INTERNATIONAL CONFERENCE ON MULTIDISCIPLINARY STUDIES AND EDUCATION»**. Which took place in London 2026.

Conference proceedings are recommended for scientists and teachers in higher education establishments. They can be used in education, including the process of post - graduate teaching, preparation for obtain bachelors' and masters' degrees. The review of all articles was accomplished by experts, materials are according to authors copyright. The authors are responsible for content, researches results and errors.

NEUROPSYCHOLOGICAL APPROACHES TO FOREIGN LANGUAGE TEACHING: COGNITIVE MECHANISMS AND PEDAGOGICAL STRATEGIES

Gazieva Oydin Djamoldinovna
Lecturer at the Department of Language Teaching in Medicine
Andijan Branch of Kokand University
Email: turayev.ali01@mail.ru

Abstract. The growing integration of cognitive science and educational research has led to increased interest in neuropsychological approaches to foreign language teaching. These approaches emphasize the role of brain functions, memory systems, attention mechanisms, emotions, and neuroplasticity in language acquisition. The present study explores the cognitive mechanisms underlying foreign language learning and identifies pedagogical strategies that align with neuropsychological principles. Using an analytical review of contemporary literature, the study examines how working memory, attention control, emotional regulation, and neural adaptation contribute to successful language acquisition. The findings suggest that brain-based teaching strategies, including multisensory learning, contextualized repetition, cognitive load management, and emotionally supportive classroom environments, can significantly improve language learning outcomes. The study concludes that integrating neuropsychological knowledge into foreign language pedagogy enhances learners' cognitive engagement, motivation, and communicative competence.

Keywords: neuropsychology, foreign language teaching, cognitive mechanisms, working memory, attention, neuroplasticity, language acquisition.

Introduction. Foreign language acquisition is a complex cognitive process that involves the interaction of multiple neural and psychological systems. Traditional language teaching methods have often focused on linguistic structures and communicative practices, while recent developments in cognitive neuroscience have highlighted the importance of understanding how the brain processes, stores, and retrieves language information. Neuropsychology, which studies the relationship between brain functioning and human behavior, provides valuable insights into the mechanisms underlying language learning.

Research indicates that successful language acquisition depends on various cognitive functions, including attention, working memory, executive control, and emotional regulation. These functions enable learners to perceive linguistic input, process information, store knowledge in long-term memory, and use language effectively in communication. Furthermore, advances in neuroscience have demonstrated that language learning stimulates neuroplasticity, allowing the brain to form new neural connections throughout life.[1]

Given these developments, educators increasingly recognize the need to design instructional strategies that align with cognitive and neuropsychological principles. This study aims to examine the cognitive mechanisms involved in foreign language learning and discuss pedagogical strategies that support effective language instruction from a neuropsychological perspective.

Methods. This study employs a qualitative analytical review of scholarly literature related to neuropsychology and foreign language education. Academic publications from cognitive neuroscience, educational psychology, and second language acquisition research were analyzed to identify key cognitive mechanisms influencing language learning.

The analysis focused on four major neuropsychological domains: working memory, attention control, emotional processing, and neuroplasticity. Additionally, pedagogical strategies associated with these domains were examined to determine their effectiveness in supporting language acquisition. Through synthesis and interpretation of existing research, the study proposes practical implications for foreign language teaching.

Results. The analysis revealed that working memory plays a central role in foreign language learning. Working memory enables learners to temporarily store and manipulate linguistic information while performing language tasks. During speaking or writing activities, learners must simultaneously process vocabulary, grammar, pronunciation, and meaning. Individuals with stronger working memory capacities generally demonstrate better performance in vocabulary acquisition and language comprehension.[2]

Attention control emerged as another critical factor. Language learners must selectively focus on relevant linguistic input while suppressing distractions. Effective attention regulation supports listening comprehension, pronunciation development, and grammatical processing. Studies indicate that learners who maintain sustained attention during instructional activities acquire language structures more efficiently than those with limited attentional control.[4]

Emotional factors also significantly influence language learning outcomes. Anxiety, fear of making mistakes, and low self-confidence can negatively affect language performance by limiting cognitive resources available for learning. Conversely, positive emotions, motivation, and supportive learning environments facilitate cognitive engagement and language retention. Neuropsychological research demonstrates that emotional states directly affect memory consolidation and information processing.[4]

Another important finding concerns neuroplasticity. The brain possesses the capacity to reorganize itself by forming new neural pathways in response to learning experiences. Foreign language acquisition stimulates neural adaptation in areas associated with auditory processing, memory, and executive functioning. Continuous exposure to meaningful language input strengthens neural networks and enhances linguistic competence.[5]

These findings suggest that successful language instruction should not only focus on linguistic content but also consider the cognitive and emotional processes involved in learning.

Discussion. The findings provide important implications for foreign language pedagogy. First, multisensory learning strategies should be incorporated into language instruction. Since the brain processes information through multiple sensory channels, combining visual, auditory, verbal, and kinesthetic activities enhances memory formation and retention. For example, introducing new vocabulary through images, gestures, audio recordings, and contextual dialogues allows learners to create stronger neural associations.

Second, contextualized repetition should replace rote memorization. Neuropsychological research indicates that meaningful repetition within authentic communicative contexts promotes long-term retention more effectively than isolated memorization exercises. Teachers should therefore encourage learners to use newly acquired vocabulary and structures in discussions, role-plays, and problem-solving activities.

Third, managing cognitive load is essential. Excessive information presented simultaneously can overwhelm working memory and reduce learning efficiency.

Educators should organize instructional materials into manageable units, gradually increasing complexity as learners develop competence. Scaffolded learning activities help learners process information without cognitive overload.

Fourth, classroom environments should support emotional well-being. Because emotional states influence cognitive functioning, language teachers should foster positive and low-anxiety learning atmospheres. Constructive feedback, collaborative activities, and encouragement reduce fear of failure and increase learner participation. Positive emotional experiences strengthen neural pathways associated with language learning and motivation.

Fifth, attention-enhancing activities should be integrated into lessons. Interactive tasks, multimedia resources, and problem-based learning activities help sustain learner attention and engagement. By maintaining attention, learners process linguistic input more effectively and improve language acquisition outcomes.

Overall, neuropsychological principles offer a scientific foundation for designing learner-centered teaching methods that optimize cognitive performance and language development.

Conclusion. Neuropsychological approaches provide valuable insights into the cognitive and neural processes underlying foreign language acquisition. Working memory, attention control, emotional regulation, and neuroplasticity play essential roles in determining language learning success. Understanding these mechanisms enables educators to develop instructional practices that align with the natural functioning of the human brain.

The study demonstrates that brain-based pedagogical strategies-including multisensory instruction, contextualized repetition, cognitive load management, and emotionally supportive learning environments-enhance language acquisition and communicative competence. As research in cognitive neuroscience continues to advance, integrating neuropsychological knowledge into foreign language teaching will become increasingly important for improving educational outcomes.

Future studies should investigate the practical implementation of neuropsychological methods in diverse educational contexts and explore their long-term impact on language proficiency development.

References

1. Kuhl, P. K. (2010). Brain mechanisms in early language acquisition. Neuron, 67(5), 713–727.
2. Wen, Z. (2022). Working memory models and measures in language learning. Frontiers in Psychology, 13, 878076.
3. Posner, M. I., & Rothbart, M. K. (2007). Educating the human brain. Washington, DC: American Psychological Association.
4. Dörnyei, Z. (2009). The Psychology of Second Language Acquisition. Oxford: Oxford University Press.
5. Rodríguez-Fornells, A., Cunillera, T., Mestres-Missé, A., & de Diego-Balaguer, R. (2009). Neurophysiological mechanisms involved in language learning in adults. Philosophical Transactions of the Royal Society B: Biological Sciences, 364(1536), 3711–3735.