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Qabul qilingan sana: 07.12.2025
Nashr etilgan sana: 30.01.2026

UDK: 81-114.4.

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O'ZBEK TILIDA SENSOR AFAZIYDA RASMLARNI NOMLASH VA MOSLASHGA OID TAJRIBA TAHLILI

Annotatsiya

Sensor afaziya o'zbek tilida tadqiq etilmagan yo'nalishlardan biri hisoblanadi. Ushbu maqolada ona tili o'zbek bo'lgan sensor afaziyali to'rt nafar ishtirokchi bilan o'tkazilgan tajriba natijalari tahlil qilinadi. Sensor afaziyadagi leksik-semantik jarayonlar o'zbek tili materiallaridan foydalanib, tasvirlarni nomlash va moslashtirish vazifalarini bajarish orqali o'rganildi. Tajriba davomida sensor afaziyada leksik kirish bilan bog'liq qiyinchiliklar mavjudligi aniqlandi, biroq semantik tizimning buzilmaganligi kuzatildi.

Kalit so'zlar: sensor (Vernike) afaziya, nutq buzilishi, nomlash, moslash, leksik-semantik jarayon, A.Luriya.

АНАЛИЗ ЭКСПЕРИМЕНТА ПО НАИМЕНОВАНИЮ И СОПОСТАВЛЕНИЮ ИЗОБРАЖЕНИЙ НА УЗБЕКСКОМ ЯЗЫКЕ ПРИ СЕНСОРНОЙ АФАЗИИ

Аннотация

Sensory aphasia has not yet been studied in the Uzbek language. This article analyzes the results of an experiment conducted on four participants with sensory aphasia, whose native language is Uzbek. Lexical-semantic processes in sensory

https://wordlyknowledge.uz/index.php/gpble
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Nashr etilgan sana: 30.01.2026

aphasia were analyzed through image naming and matching tasks using materials from the Uzbek language. During the experiment, it was observed that there are difficulties associated with lexical access in sensory aphasia, but the semantic system is not disrupted.

Ключевые слова: Сенсорная (афазия Вернике), расстройство речи, называние, сопоставление, лексико-семантическая обработка, А. Лурия.

ANALYSIS OF NAMING AND MATCHING IMAGES IN SENSORY APHASIA: AN EXPERIMENTAL STUDY IN THE UZBEK LANGUAGE

Abstract

Sensory aphasia has not yet been studied in the Uzbek language. This article analyzes the results of an experiment conducted on four participants with sensory aphasia, whose native language is Uzbek. Lexical-semantic processes in sensory aphasia were analyzed through image naming and matching tasks using materials from the Uzbek language. During the experiment, it was observed that there are difficulties associated with lexical access in sensory aphasia, but the semantic system is not disrupted.

Key words: Sensory (Wernicke’s aphasia), speech disorder, naming, matching, lexical-semantic processing, A. Luria.

Introduction. Aphasia [1] [2] is an important subject of study in neurolinguistics. Sensory aphasia [3] is one of its main types. Unlike Broca's aphasia, sensory aphasia arises from damage to the area of the brain responsible for phonological analysis, which disrupts the phonemic level of speech production [4].

In scientific literature, the preservation of fluent speech, impaired repetition within a single word, and the inability to name objects are cited as characteristics of sensory aphasia.

However, recent research has also identified the disruption of semantic “access” in sensory aphasia as an additional problem.

https://wordlyknowledge.uz/index.php/gpble
Qabul qilingan sana: 07.12.2025
Nashr etilgan sana: 30.01.2026

Although sensory aphasia has been documented as a result of damage to the superior temporal gyrus of the left hemisphere, recent neuroimaging results have shown that the middle and superior temporal gyri are affected to the same extent in sensory aphasia. There is strong evidence that Wernicke's area, where sensory aphasia occurs, is associated with several neural regions, which in turn are linked to

various linguistic functions.

H. Robson proposed three hypotheses to clarify the nature of comprehension impairment in sensory aphasia [5] (1) impairment of acoustic and/or phonological analysis; (2) semantic disturbance; or (3) combined phonological-semantic disturbance (referred to here as the dual hypothesis). According to the conclusions of the research conducted, sensory aphasia is characterized by a three-way impairment of acoustic analysis, phonological representations, and the controlled use of semantic representations.

Methods. We examined the process of lexical-semantic processing in sensory aphasia based on Uzbek language materials. To access the lexical system, participants were given a task to name images. In contrast, access to the semantic system was evaluated through tasks that required selecting images corresponding to verbally presented words and sentences.

Our study involved 4 patients diagnosed with sensory aphasia resulting from stroke. All participants were male with Uzbek as their native language.

Thirty-four pictures were shown to the participants in the naming task. During the experiment, clinically accessible materials were required that considered the psychological and physiological state of the subjects. Kentucky Aphasia Test Samples were used for this purpose. These pictures consisted mainly of words belonging to the category of nouns.

https://wordlyknowledge.uz/index.php/gpble
Qabul qilingan sana: 07.12.2025
Nashr etilgan sana: 30.01.2026

Participants diagnosed with aphasia	Total	%
NO	2/34	5.8
NI	4/34	11
MA	12/34	35
YF	17/34	50

Results of healthy participants on the picture naming task.

Control group participants	Total	%
AB	33/34	97
AD	32/34	94
AJ	34/34	100
AX	34/34	100
SHB	34/34	100
PD	33/34	97

As evident from the table, patients with sensory aphasia demonstrated low performance on the indicator related to naming.

The next experiment on Wernicke's aphasia in the Uzbek language aimed to examine semantic access.

At this stage, the subjects were asked to indicate pictures that matched the words spoken by the experimenter. The BAE (Bilingual Aphasia Examination) and Kentucky Aphasia tests were used in this stage of the experiment. Participants were presented with 35 lexemes and asked to indicate the corresponding image.

All images were found correctly by the NO and the highest result was recorded, while the lowest result was recorded by the YF. All patients, except for the NP, made mistakes in adapting the forms to the word. When asked to show the shape of the cone, then the shape of the rhombus, he could not distinguish them from other shapes. The same deficiency was observed in the YF. He also failed to

https://wordlyknowledge.uz/index.php/gpble
Qabul qilingan sana: 07.12.2025
Nashr etilgan sana: 30.01.2026

show the shapes of the rhombus and the cone. Even when words such as knee, plate, ball were read, they could not find pictures that corresponded to these words.

Results. As can be seen from the table, the indicator associated with naming in patients with sensory aphasia showed low results.

The following errors were observed when searching for the lexeme corresponding to the image: a) verbal paraphasia; b) lexemes representing other objects similar in form; c) providing an explanation of the object rather than its exact name; d) a combination of phonemes that do not convey meaning.

NO first noticed a balloon image in the sequence on the picture sheet. During the experiment he named all the pictures shown to him as balloons. With the help of the examiner he was able to express the lexemes for flower and circle. However, this was not considered a correct answer. The square shape was named as a corner. From the given pictures, the images representing the lexemes for bear and hat were correctly named.

During this stage of the experiment with NI images representing lexemes such as bear, box, person and balloon were correctly named. The ball image was referred to as an “object” and the circle image was described as “nothing there”.

The image depicting a car tire was named as a tire. These two words (balloon and tire) are considered frequently used active words and in colloquial speech, they are practically indistinguishable.

At the time the image was shown, the word "tire" was activated and emerged in the patient's lexicon.

Satisfactory results were observed in MA and YF participants compared to the two previously mentioned participants.

MA could not directly name the image of the ball, but responded that "it looks like a globe." Another instance of naming based on formal similarity is the square image being called a window. It is known that windows are typically rectangular or square in shape. When the stimulus image was shown, the name of

https://wordlyknowledge.uz/index.php/gpble
Qabul qilingan sana: 07.12.2025
Nashr etilgan sana: 30.01.2026

an object with this shape was activated, rather than other members of the shape-related paradigm.

In naming the car image-stimulus, the lexemes “damas” and “skoriy” which belong to this paradigm, were activated. This patient represented the image of a hat as a radio, and the image of a (paper) bag as a scarf, using unrelated lexemes. When these images were shown, the patient could not find the exact word for the picture and named it with any word that came to mind.

The next experiment on sensory aphasia in the Uzbek language aimed to examine semantic access.

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All images were found correctly by the NO and the highest result was recorded, while the lowest result was recorded by the YF. All patients, except for the NP, made mistakes in adapting the forms to the word. When asked to show the shape of the cone, then the shape of the rhombus, he could not distinguish them from other shapes. The same deficiency was observed in the YF. He also failed to show the shapes of the rhombus and the cone. Even when words such as knee, plate, ball were read, they could not find pictures that corresponded to these words.

The indicators show that the participants showed high results in word and image compatibility.

The results of the study confirm the hypothesis that patients with sensory aphasia may encounter difficulties in naming images, but they can understand the meaning of the image and adapt it to a semantically related alternative.

Participants showed a low result in sentence and image compatibility. The following sentences were read to the patients and they were asked to show the corresponding pictures:

1. The young man holds the girl.

https://wordlyknowledge.uz/index.php/gpble
Qabul qilingan sana: 07.12.2025
Nashr etilgan sana: 30.01.2026

2. A girl holds a girl.

3. The young man nudged the girl.

4. The girl nudged the guy.

5. The cat pushes the dog.

6. The truck is not pulling the passenger car.

A light car is not pulling a truck.

The results show that participants struggled to understand syntactic structures. Units such as “The girl held the girl” (2) and “The girl pushed the boy” (4) were better understood compared to other units.

Syntactic units like “The truck is not pulling the car” (6) and “The car is not pulling the truck” (7) require answers based on logical thinking. Participants were first expected to choose the image of a car pulling a truck (6), then the image of a truck pulling a car (7).

NO did not pay attention to the negative form of the sentence and selected incorrect answer options for both questions. Even when the sentence was simplified and presented in a positive form to patient NI as “The big car is pulling the small car” they failed to comprehend the meaning and indicated the wrong answer.

MA and YF also had difficulty understanding these same units and were unable to identify the picture corresponding to the heard unit.

Discussion. A. Luria cites impaired naming ability as an important characteristic of sensory aphasia: “The patient finds it very difficult to find the names of necessary objects, while at the same time, commonly occurring, spontaneously appearing names (table, book, telephone, coat, knife, etc.) can sometimes be easily found, attempts to find names for unfamiliar and less established objects put the patient in a very difficult situation”[6]. In such cases, he notes the search for words through context, literal paraphasia, the slight appearance of auxiliary words (phonetically similar or semantically related), and that the

https://wordlyknowledge.uz/index.php/gpble
Qabul qilingan sana: 07.12.2025
Nashr etilgan sana: 30.01.2026

patient recognizes these words as inadequate but cannot replace them with the necessary words.

The table shows that specific cases were also noted in YF's naming task. The representation of the ball (koptok) image as a bridge (ko'prik) can be explained by the common phonemes in both words. Both lexemes have the same back (k) and bilabial (p) phonemes. When forming the first syllable, the back vowel (o) was replaced by the central vowel (o'), leading to the emergence of an unrelated lexeme.

Instances of providing explanations rather than exact names of images are seen in the expression of the flower image-stimulus as "crops in a pot".

There were cases of mutual substitution of object names belonging to the same paradigm: the bear image-stimulus was named as a deer, the desk image-stimulus was named as a table-chair, and the square image-stimulus was named as a rectangle.

The creation of a neologism was also observed during this patient's search for the necessary lexeme. An example of this is the circle image being named as "dumaloqchang" (roundish).

One of the gross impairments of naming ability in sensory aphasia can be seen in YF naming the person image-stimulus as a house.

Naming is essentially a complex process. The models in this process were investigated by Nazbanou Nazari and colleagues. In the two-stage model of lexical access they proposed, both semantic and phonological stages are involved in the naming process [7].

In a study on sensory aphasia conducted by Burju Aydin in Turkish, patients with sensory aphasia also recorded low results in the naming experiment [8]. The main reason for this is the presence of a problem with lexical retrieval in patients. Lexical processing involves the listener recognizing the phonological forms of words, determining their meaning, perceiving them and accessing other features stored in their mental lexicon. However, due to a deficit associated with

https://wordlyknowledge.uz/index.php/gpble
Qabul qilingan sana: 07.12.2025
Nashr etilgan sana: 30.01.2026

phonological processing in sensory aphasia, the patient cannot find the necessary phonemes to express the word, resulting in disruption of the naming process. However, this does not necessarily indicate that they have a problem with semantics.

It was observed that the results of the naming experiments correspond to A. Luria's classification.

The above situation demonstrates that there is a problem with lexical access in sensory aphasia in the Uzbek language.

Lexical-semantic activation in sensory aphasia was studied by Eyling Yee and colleagues based on eye movements [9]. According to the conclusion of the study, the entire speech-lexical processing system (speech-lexical processing system) in a healthy person occurs in several stages. In the first stage, gradual activation occurs. In the second stage, there is competition between potential lexical candidates, that is, one lexeme competes with another lexeme related to it to be expressed in speech. In the third stage, the stages of processing interact with each other in such a way that the laws of activation at one level affect those at other levels, that is, lexical activation, in turn, creates a semantic-conceptual and syntactic sequence, as a result of which a sentence is formed. This study by E. Yee et al. proposes the hypothesis that lexical-semantic activation in a patient with sensory aphasia occurs in the following order: patients with sensory (Wernicke) aphasia show undisturbed semantic primer. It is also identified that semantic activation is unimpaired in most people with aphasia [10].

This experiment, along with the results of the aforementioned research, also corresponds to the conclusions of the following research.

N. Hashimoto and K. Thompson (2010) studied the naming abilities of individuals with aphasia [11].

According to the results, the patients' results did not differ significantly from those of the control group. Deviations in phonological processing were observed.

https://wordlyknowledge.uz/index.php/gpble
Qabul qilingan sana: 07.12.2025
Nashr etilgan sana: 30.01.2026

Meyer et al. (2016) investigated the nature of semantic and phonological penetration in aphasia [12].

The results showed distorted phonological processing and preserved semantic processing.

However, they faced difficulties in adapting the sentences to the picture.

Reconstructing meaning from a sentence requires understanding words and identifying correct connections between them [13].

In the Uzbek language, simple syntactically sentences were used in the image and sentence matching experiment with patients with sensory aphasia. Although the involvement of the upper temporal part in understanding the meaning of the sentence has been identified, we can present the hypothesis that its damage caused the misunderstanding of the sentence.

The above results support the hypothesis of severe impairment in understanding complex syntactic structures in sensory aphasia.

Conclusions. More complex cognitive tasks involve distributed neural networks that require full utilization of cognitive resources [5]. Although access to the lexical-semantic system is possible in sensory aphasia, there is a deficit in lexical access due to impaired phonological processing. This may cause the misunderstanding of judgments expressed in syntactic structures.

Another conclusion is drawn from A. Luria's scientific perspective. He notes that even if patients do not know the lexical composition of speech, they retain the ability to perceive its intonation-melodic aspect and guess its meaning. As a result, patients who do not correctly understand the meaning of certain words continue to grasp the general structure of the sentence they are told and begin to make assumptions about its overall meaning, by passing difficulties associated with the inability to understand the meaning of specific lexical units.

https://wordlyknowledge.uz/index.php/gpble
Qabul qilingan sana: 07.12.2025
Nashr etilgan sana: 30.01.2026

References.

1. Na, Y., Jung, J., Tench, C. R., Auer, D. P., Pyun, S. (2022). Language systems from lesion-symptom mapping in aphasia: A meta-analysis of voxel-based lesion mapping studies. NeuroImage Clinical, 35, 103038. https://doi.org/10.1016/j.nicl.2022.103038
2. Krason, A., Vigliocco, G., Mailend, M., Stoll, H., Varley, R., Buxbaum, L. J. (2023). Benefit of visual speech information for word comprehension in post-stroke aphasia. Cortex, 165, 86–100. https://doi.org/10.1016/j.cortex.2023.04.011
3. Roelofs, A. (2023). Cerebral atrophy as a cause of aphasia: From Pick to the modern era. Cortex, 165, 101–118. https://doi.org/10.1016/j.cortex.2023.05.004
4. Na, Y., Jung, J., Tench, C. R., Auer, D. P., Pyun, S. (2022). Language systems from lesion-symptom mapping in aphasia: A meta-analysis of voxel-based lesion mapping studies. NeuroImage Clinical, 35, 103038. https://doi.org/10.1016/j.nicl.2022.103038
5. Luria, A. R. (2002). Writing and Speech: [a textbook for psychology students]: neurolinguistic research.
6. Robson, H., Keidel, J. L., Ralph, M. a. L., Sage, K. (2011). Revealing and quantifying the impaired phonological analysis underpinning impaired comprehension in Wernicke's aphasia. Neuropsychologia, 50(2), 276–288. https://doi.org/10.1016/j.neuropsychologia.2011.11.022
7. Nozari, N., Kittredge, A. K., Dell, G. S., Schwartz, M. F. (2010). Naming and repetition in aphasia: Steps, routes, and frequency effects. Journal of Memory and Language, 63(4), 541–559. https://doi.org/10.1016/j.jml.2010.08.001
8. Aydın, B. (2019). Wernicke Afazisinde Semantik ve Fonolojik İşlemleme Bozuklukları. Dilbilim Araştırmaları Dergisi, 221–239. https://doi.org/10.18492/dad.560784
9. Yee, E., Blumstein, S. E., Sedivy, J. C. (2007). Lexical-Semantic Activation in Broca's and Wernicke's Aphasia: Evidence from Eye Movements. Journal of Cognitive Neuroscience, 20(4), 592–612. https://doi.org/10.1162/jocn.2008.20056
10. Dyson, L., Morgan, J., Herbert, R. (2020). Semantic processing in aphasia: evidence from semantic priming and semantic interference. Language Cognition and Neuroscience, 36(4), 491–516. https://doi.org/10.1080/23273798.2020.1849749
11. Hashimoto, N., Thompson, C. K. (2009). The use of the picture–word interference paradigm to examine naming abilities in aphasic individuals. Aphasiology, 24(5), 580–611. https://doi.org/10.1080/02687030902777567
12. Meier, E. L., Lo, M., Kiran, S. (2015). Understanding semantic and phonological processing deficits in adults with aphasia: effects of category and typicality. Aphasiology, 30(6), 719–749. https://doi.org/10.1080/02687038.2015.1081137