

Speech Problems And The Issue Of Their Classification

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Speech activity is a complex process that occurs in the interaction of cognitive, psychological, physiological and social mechanisms of a person. In this regard, the term speech disorder (rechevoye narusheniye) refers to a set of conditions characterized by a violation or functionally unhealthy state of any component of the speech process. These conditions manifest themselves in the form of deviations from normal speech development, ineffectiveness or complete speech blockade.

The concept of a speech problem from the point of view of neuropsycholinguistics is explained by disruptions in the central mechanisms that control the speech process - the central nervous system, cognitive functions, memory, attention, speech processing systems, and their interconnections. That is, a speech problem is not only a malfunction in the phonetic, morphological, or lexical components of speech, but is a verbal expression of defects in the general cognitive system of a person.

Experts describe speech problems based on several approaches:

1. Clinical approach – here, speech problems are studied based on specific medical diagnoses: aphasia, dysarthria, alalia, logoneurosis, etc. For example, in aphasia, a person's ability to form, understand, or use speech is impaired due to damage to the central nervous system.

2. Psycholinguistic approach – in this approach, speech problems arise as a result of discrepancies between a person's speech competence and speech performance. For example, a person may have knowledge of grammatical rules, but the inability to correctly apply them in

practical speech is considered a speech problem.

3. Neuropsychological approach - in this direction, speech problems are analyzed from the point of view of the functional localization of brain activity. That is, whichever area of the brain is damaged or malfunctions, the associated speech function disorder is observed.

4. Speech therapy-pedagogical approach - here the speech problem is assessed in the context of educational underdevelopment, lagging behind in speech development, and difficulties in social adaptation.

Let's look at the main characteristics of speech problems (Figure 1).

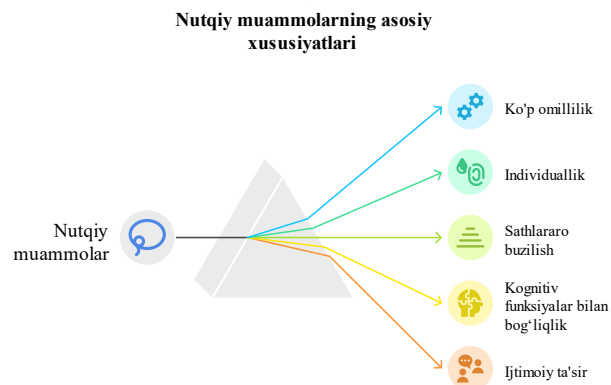


Figure 1. Main characteristics of speech problems

Multifactorial (polyfactorial) - the causes of speech problems are formed under the influence of various: genetic, neurological, psychological, social and pedagogical factors;

individuality – each subject's speech problem has its own specific form and degree; it depends on their overall developmental status, age, experience, and environment;

cross-level impairment – speech problems can manifest themselves at several language levels (phonetic, lexical, morphological, syntactic) simultaneously;

cognitive functions - speech disorders are often accompanied by changes in memory, attention, thinking, perception, and other cognitive processes;

Social impact – speech problems have a serious impact on a person's personal relationships, learning process, professional activities, and social adaptation.

it is appropriate to study the speech problem not only from a linguistic point of view, but also from a complex psychophysiological and cognitive-neuropsychological approach. Such an approach serves as the basis for finding solutions to speech problems and effectively organizing diagnostic and correction processes.

arose at the intersection of various fields - linguistics, psychology, neurology, speech therapy and neuropsychology, and in each field these problems are systematized differently according to their own goals and methods. Although at first glance these different approaches may seem contradictory, in fact they serve the comprehensive study of speech disorders.

A) Medical-neurological classifications.

In classical medical classifications, speech problems are considered mainly in terms of central and peripheral lesions. For example, types of aphasia (Broca's aphasia, Wernicke's aphasia, global aphasia, etc.) are mainly associated with damage to specific areas of the brain. Dysarthria, on the other hand, occurs due to damage to the neuromuscular system that controls the articulatory apparatus. Although these classifications are important for clinical diagnosis, they do not take into account the cognitive and civic-communicative characteristics of speech processes.

B) Psycholinguistic and cognitive approaches. In psycholinguistics, speech problems are evaluated, first of all, as a violation of speech activity as a creative, intellectual and communicative process. For example, scientists such as AA Leontyev and NI Jinkin see speech problems as a violation of social activity, an

ineffective form of speech-oriented activity. Here, as classification criteria:

- organizational structure of speech (direction, coherence);
- the degree of clarity and expressiveness of expression;
- full or partial expression of the speech purpose;

etc. This approach allows for the assessment of both the individual's speech competence and performance.

C) Neuropsychological classifications.

In the neuropsychological school of AR Luria, the classification of speech problems is carried out taking into account the functional localization and dynamics of higher mental functions. For example, the activities related to the reception, processing and creation of speech are divided into separate functional blocks:

Block 1: reticular activity (awakening, attention);

Block 2: reception and processing of information (auditory means);

Block 3: Programming, controlling, and expressing speech (motor bases).

In this approach, a speech problem is a functional defect that occurs due to a disruption in the functioning of a specific block or a disruption in the communication between blocks.

D) Speech therapy and pedagogical classifications.

In speech therapy, speech problems are more often systematized from the point of view of speech development defects in children. For example, specialists such as R.E. Levina and TB Filicheva distinguish the following types:

general speech development deficiency; phonetic-phonematic developmental disorders; motor and sensory alalia; logoneurosis, etc.

these classifications are convenient in the correctional work process, they do not adequately take into account cognitive and neurodynamic factors in adults.

D) Modern composite approaches. Some researchers (for example, SN Seyitlin, Yu.B. Korneychuk, etc.) propose to classify speech problems simultaneously based on

several criteria - etiology, mechanisms, age, degree of influence and speech levels. This method is complex, but allows for a comprehensive description of real speech processes.

The above classifications allow us to group speech problems according to different criteria. However, each of them is suitable for a specific area or purpose. In practice, a multidisciplinary approach is required to fully understand and solve speech problems. Therefore, in the next section, a classification model developed by the author is proposed, which is based on theoretical foundations and is associated with practical observations.

Although the above classifications cover different aspects of speech problems, each of them is aimed at a specific field of study and is often associated with a specific age group, mechanism of action, or type of pathology. In practice, speech problems often arise as a result of a complex of factors, and a more universal, but functionally based system is required to analyze this process.

The classification system proposed by the author involves dividing the problems that arise into 5 main groups, based on the psycholinguistic and neuropsychological characteristics of speech activity (Figure 2)

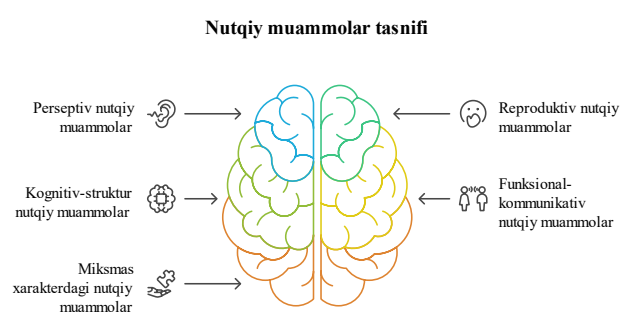


Figure 2. Classification of problems arising in speech activity based on psycholinguistic and neuropsychological characteristics

1. Perceptual speech problems (problems with reception). This group includes problems with hearing, understanding, and discrimination. They are often associated with sensory aphasia, phonemic deficits, cognitive developmental

delay, or attention deficit disorder. Examples of observed conditions include: hearing sounds but not understanding the meaning of words, not being able to distinguish between words, and difficulty understanding fluent text.

2. Reproductive speech problems (problems with expression). This type of problem is characterized by difficulties in finding words, creating grammatical constructions, or in speech motor skills. They can be the result of motor aphasia, dysarthria, motor alalia, and neuromotor dysfunctions. For example: inability to complete a thought, speech rich in grammatical errors, impaired articulation.

3. Cognitive-structural speech problems (problems with meaning and coherence). In this group, the main role is played by the logical order of speech, its relevance to the context, its retention on the topic, and the implementation of speech intentions. They are mainly observed in cases of damage to the frontal areas of the brain, insufficiency of cognitive functions, and age-related dementia. For example: frequent topic changes, excessive or unnecessary information in speech, lack of coherence in the expressed thought.

4. Functional-communicative type of problems. In such cases, although the grammatical or phonetic aspect of speech is well preserved, it does not function effectively as a means of communication. A person cannot fully express his needs, thoughts, and situations through speech. This type is often associated with autism spectrum disorders, pragmatic speech disorders, and functional impairments in interpersonal communication. For example: speech that does not correspond to the communicative goal, inconsistency in word choice, misunderstanding of the social context.

5. Speech problems of a mixed nature (mixed forms). In practice, in most cases, a mixture of the above types is observed. In such situations, an integrated approach is required: as a result of speech therapy, neuropsychological and linguistic

examinations, a general picture of the problem is formed. For example: inability to formulate thoughts and lack of explanatory speech; simultaneous presence of difficulties in understanding someone else's speech and expressing oneself.

This classification model proposed by the author provides a systematic and functional approach from a civic-communicative perspective to the identification and analysis of various speech problems in practice. Such an approach paves the way for studying each problem based on linguistic, cognitive, and neuropsychological criteria and creates a theoretical basis for the analysis presented in the next section.

Based on the classification model proposed by the author, five types of speech problems were identified. This paragraph presents an analysis based on practical materials for each type. Observations were conducted in preschool educational institutions, special speech therapy centers and general schools during 2024-2025. In some cases, additional information was obtained based on neuropsychological findings.

Perceptual speech problems: difficulties in hearing and understanding.

Observation 1: A 5-year-old child (A.) is studying in a speech therapy group in a preschool educational institution. He listened to audio materials appropriate for his age group and then failed to complete the task of retelling words. His speech mainly contained unclear sounds and phoneme substitutions («kop» instead of «top», «shuv» instead of «suv»). The level of cognitive and intellectual abilities was confirmed by tests.

In this case, the main factor is the lack of phonemic hearing and the ability to distinguish between means of flight. This is a clear example of a perceptual type of speech problem.

Reproductive speech problems: difficulty in expression.

Observation 2: An 8-year-old student (B.), a 2nd grade student of a comprehensive school, shows speech activity in

communication, but his vocabulary is limited, words are often repeated. In the text-compilation task, he wrote short thoughts consisting of 3–4 sentences, grammatically incorrect and not logically connected. For example: *“I went to school. I read a book. I wrote with a pen. I am a good student.”*

In such cases, there is a high probability of motor deficits in expressive speech, delayed speech development, or low activity in neural connections related to motor functions of the brain.

Cognitive-structural speech problems: problems with logical coherence.

Observation 3: During the interview with a 10-year-old student (V.), he could not fully express a certain idea when answering questions, quickly deviated from the topic, confused personal impressions with real facts. For example, to the question “What do you like about school ?” he answered: *“School... that's where I play. My sister went to school yesterday. My sister is a good person. She has a white shirt .”*

In this case, there is a defect in the development of higher cognitive functions - attention, memory, logical reasoning, and focused speech intention. This condition indicates a neuropsychological developmental delay associated with the frontal zone. Functional-communicative speech problems.

Observation 4: A 6-year-old child (G.) does not want to answer questions asked in speech therapy sessions, does not initiate communication, and only responds in a way that is in keeping with his own wishes. Sentence construction and vocabulary are sufficient, but he responds in the wrong context. For example, the answer to the question “What is the weather like today ?” is: *“I am eating cake. Red cake .”*

In this case, there is a problem with the functional, social use of speech. This is associated with a pragmatic speech development deficit , which may be present in symptoms on the autism spectrum.

Mixed (mixed) speech problems.

Observation 5 : An 11-year-old student (D.) has applied to a speech therapy center. He has problems with both comprehension and expression in his speech. This student has difficulty understanding simple tasks, and has problems with choosing words when answering. He also makes mistakes when performing speech tasks, for example: *"The book is under the table, the grandfather is full. Mama is not at home... an injection ."* there is a simultaneous deficit in perceptual, expressive , and cognitive mechanisms, which is considered a mixed speech disorder. Neuropsychological tests have confirmed that general cognitive functions are at a low level.

Based on the above observations, it can be concluded that each type of speech problem is associated with neuropsycholinguistic factors, the degree of their manifestation varies individually. Such an analysis serves as the basis for determining the exact type of problem, conducting a comprehensive diagnosis, and developing an individual correction program.

In order to scientifically analyze speech problems, identify their causes, and develop appropriate corrective measures, it is necessary to rely on certain diagnostic criteria. Neuropsycholinguistics, as a science that studies language in relation to brain activity, has developed a set of important criteria for such analysis. These criteria cover the perceptual, expressive, cognitive processing, motivational, and pragmatic functions of speech.

The criterion of phonemic hearing and discrimination ability. The ability to distinguish and differentiate phonemes is crucial in the process of correctly perceiving and processing speech material. This criterion is determined by the child's: the ability to distinguish close phonemes (m/n, p/b, t/d);

words correctly;

It is assessed based on the repetition of briefly heard words (exo-speech).

For example , if substitutions such as "eye - eye", "water - water", " foot - foot" are

detected, there is a problem with phonemic hearing.

Criterion of lexical-semantic activity. Vocabulary and the ability to selectively use lexical units in a semantically appropriate manner are one of the main criteria determining speech activity. This criterion is assessed as follows:

be able to use synonyms to express the same subject; word selection in accordance with general lexical rules; correctly placing words in context .

For example, saying "to eat a pencil" instead of " *to write with a pencil* " is a *sign of lexical-semantic inconsistency.*

Grammatical construction ability criterion . The ability to follow syntactic rules when constructing sentences, the correct arrangement of words in a sentence, and the ability to coordinate their forms of case, tense, gender, and number are assessed within the framework of this criterion. This criterion includes:

the ability to construct simple and complex sentences;

grammatical connection of members in a sentence ;

includes cases of agreement between the verbs and nouns used .

For example : "*I am reading a book*" , "*Mother has gone to the market*" - indicates a grammatical error .

The criterion of logical-pragmatic consistency. The logical consistency and semantic coherence of speech, as well as its ability to adapt to socio-communicative goals, play an important role in neuropsycholinguistic analysis. This criterion:

the qualities of initiating, developing and concluding an idea;

the relevance of the speech to the topic;

It is based on the ability to understand the purpose of communication and express it verbally accordingly.

For example: "*My friends at school. My mother is a potato. The car is a toy*" - logical coherence is lost, thoughts are discontinuous.

Kinetic and praxis criteria. Criteria of motor speech activity related to the ability to speak, that is, articulation movements, the correct pronunciation of sounds, and processes related to speech motor skills. incorrect pronunciation of sounds in oral speech;

to say words in parts;

haste or slowness in speech, repetition.

For example: "Hello. I... I... I'm... I'm..." is evidence of a delay in the motor-kinetic mechanism.

Emotional-motivational criterion. This criterion assesses the ability to initiate speech, engage in dialogue, enjoy communication, or, conversely, avoid it. This criterion:

speech motivation (initial intention);

level of speech activity;

reaction to social signals (questions, appeals).

For example, if a child does not want to engage in communication, does not answer questions, and looks indifferently, then there are violations in the pragmatic and motivational mechanisms.

In the neuropsycholinguistic analysis of speech problems, the above criteria are used in conjunction. These criteria help not only to identify speech errors, but also to reveal their causal basis, to link them with neurostructural mechanisms, and to individualize corrective work. Practical studies show that in each child, a speech problem is manifested not in isolation, but in violation of several criteria. Therefore, an integrated approach to analysis is the most effective method.

It is not enough to assess speech problems only from a formal linguistic perspective. A neuropsychological approach is necessary to fully understand the mechanisms of their emergence, manifestation and maintenance. This interpretation is carried out in connection with the brain structures, functional blocks and cognitive processes that control speech activity.

The issue of localization of speech disorders.

The results of practical analysis have shown that various speech problems are directly related to specific areas of the brain. For example:

- *Phonemic hearing problems* are associated with a disruption in the functioning of the auditory centers (Wernicke's area) located in the upper lobe of the dominant hemisphere.

- *Problems with expressive speech* are due to functional weakness of Broca's center, located in the frontal lobe, that is, the structures that control speech motor skills.

- *Semantic and pragmatic disorders* are caused by higher cognitive processes, prefrontal areas, and their connections with other centers.

This interpretation suggests that not only mechanical factors, but also disruption of functional neural connections, may play an important role in the emergence of speech problems.

cognitive processes and speech activity.

Speech activity functions as part of the cognitive system and relies on processes such as recall, concentration, thought planning, logical connection, and organization of semantic space. The results of the practical analysis showed that:

Speech errors are often associated with *processing speed*, *attention span*, and *working memory deficits*.

typically exhibit semantic deficits in speech also have difficulties in visual and verbal memory tests.

Therefore, the root causes of speech problems encompass not only the familiar language units, but also the general cognitive processes associated with them. The impact of motivational and emotional blocks.

Practical observations have shown that speech difficulties in some children are associated not only with physiological or cognitive causes, but also with motivational blocks. In particular:

low desire to communicate, poor response to social signals; insult or criticism;

Emotional interruptions (laughing at, punishment) exacerbate speech disorders. In these cases, neuropsychological interpretation requires taking into account the connection of speech with internal personal and social motivations.

Interpretation based on the complex mechanisms model.

The analysis revealed that each speech problem is manifested as a disorder of the entire speech-motivational-communicative system, not a separate brain center or function. For example:

- Phonemic disorders ↔ auditory analyzer + working memory.
- Grammar problems ↔ cognitive planning + motor activity.
- Lexical problems ↔ semantic field + ability to refer to information.

Such an interpretation requires an individual approach to each clinical case, that is, the development of a therapeutic strategy based on local and active mechanisms, rather than general ones.

In conclusion, it can be said that neuropsychological interpretation is an important factor not only in classifying speech problems, but also in determining their source, the process of their spread, and methods of working on them. This approach allows us to form a universal analytical model that is widely used in the fields of correctional pedagogy, speech therapy, and neuropsychology.

The analysis of speech problems on a neuropsycholinguistic basis has shown the need to focus on their multifactorial nature. It has been found that such problems are closely related not only to disorders in the language system, but also to brain activity, cognitive processes, and motivational states.

showed that when classifying speech disorders, it is necessary to take into account not only linguistic, but also neuropsychological criteria. This approach allows you to identify the true causes of the problem, select effective correction methods, and take an individual approach to each case.