

Linguistic Abilities and Their Neuropsychological Support

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Introduction

In order to successfully master the language in natural conditions, certain abilities are necessary. Note that the very term linguistic (linguistic) abilities is conditional. In this case, we do not mean the actual ability to master any of the national languages in ontogenesis, but a predisposition to learning languages. Susceptibility to languages does not exist separately, in isolation from other abilities. [7]. T.M. Rumyantseva defines language ability "as a mental and psychophysiological function of a person, biologically and genetically incorporated, but formed and developed socially on the basis of the anatomical and physiological and neuropsychological organization of a person; a function that provides the ability of the human psyche to reflect and generalize external language material, translating it into special internal codes in the form of unconscious and conscious rules of the language" [6, 170]. The key in this definition, in our opinion, is the recognition of the combination of biological and social; this combination provides the possibility of generalizing and "translating" the result of processing the input into a set of rules both with the participation of consciousness and unconsciously.

The main part

Language abilities are mental and psychophysiological functions formed in the course of evolution due to the need for social interaction and the importance of socialization for an individual. Of great importance for the development of language talent are the psychological characteristics of a person, his readiness to realize and develop this mental and psychophysiological function; a decisive quality for the manifestation of a talent for languages is extraversion as an attitude to communication [3]. It is more difficult for an introvert to learn a language, since an introverted attitude does not contribute to rapid adaptation in society, active interaction with others. Meanwhile, introverts have another advantage that allows them to compensate for the duration of socialization, namely, developed reflection, which involves the use of a different strategy for language acquisition: cognitive instead of communicative [5]. For susceptibility to languages, such mental functions as memory and attention are essential. The key role is attributed to verbal memory (the ability to memorize what was heard and process the flow of speech signals), the amount of RAM (the ability to operate simultaneously with a large number of units) and imitative abilities [5]. If we talk about the main components of linguistic abilities necessary for mastering a foreign language in conditions of purposeful learning, then they are considered: phonetic coding ability.

The ability to encode incoming sound signals for storage in long-term memory allows a person to store perceived sequences of sounds associated with a certain content plan and reproduce them as needed;

- grammatical sensitivity, which is associated not so much with mastering grammar directly, but with the ability to recognize dependencies between words in a sentence, thereby determining the syntactic functions of language units [2, 324]. Grammatical sensitivity is based on the analytical ability to single out segments in a speech stream and establish their

variability both in comparison with stored standards and in terms of their location in the speech signal chain;

- the skill of mechanical memorization (rote learning ability), which is necessary when associating an expression plan with a plan of the content of a language sign, which are arbitrarily linked. Mechanical memorization ensures vocabulary replenishment;
- inductive language learning abilities, which are in demand for systematizing empirical material, recognizing patterns of relationships and deriving more general rules that are relevant to language material.

As you can see, the distinguished abilities are associated both with long-term memory and with the processing of current information, that is, with operational and short-term memory. According to R. Schmidt, the most significant contribution to the mastery of L2 in the conditions of purposeful learning is made by a conscious linguistic approach to the material and developed voluntary selective attention [2]. Linguistic abilities are provided by the activity of both the right and left hemispheres of the brain. For grammatical susceptibility, inductive processing of incoming language signals, analysis and systematization of incoming signals are necessary, provided by the work of the left hemisphere, while mechanical memorization of speech segments and association of sound with denotation are provided by the work of the right hemisphere of the brain.

Meanwhile, in the practice of social interaction, cognitive abilities do not act as an independent factor, remaining the property of the individual.

Cognitive abilities are manifested and developed in the process of solving current problems of social interaction. For their manifestation, an intention is needed - a motive to realize, formulate and solve the problem. In the activity of an individual, the cognitive component manifests itself simultaneously and as a result of the formed motivation: "It is proposed to recognize that the cognitive cannot exist except in a triad, i.e. it participates in the work of a well-coordinated ensemble, which includes perceptual, cognitive and emotional-evaluative as constantly interacting aspects of an individual's life" [4, 17]. Motivation stimulates the mobilization of the cognitive sphere, which is necessary for mastering R2. The origin of the motive is influenced by the attitude towards bilingualism in society and the attitude towards a particular language. According to V. Cook, the attitude to the very fact of bilingualism in the social environment and the personal perception of this phenomenon can contribute (or, conversely, interfere) with the successful mastery of the language [1]. Awareness of the goals of language learning and the motivation to join a socially attractive language community favor its assimilation. T.M. Rumyantseva believes that in order to master speech in the target language, the success of generating and perceiving speech, it is necessary not to know general linguistic patterns and an understanding of the language system, but, first of all, an emotionally positively colored experience of communication in this language [6]. In other words, cognitive abilities and metalinguistic knowledge play a secondary role compared to motivation and emotional involvement.

Conclusion

Emotionality and motivation are provided by the limbic-reticulatary system of the brain. The formations included in the limbic system are located in the telencephalon, they include the cingulate gyrus and the hippocampus (we will discuss their significance for bilingual speech activity later).

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