

THE PSYCHOLINGUISTIC BASIS OF THE LINGUISTIC CONCEPTUALIZATION

LA BASE PSICOLINGÜÍSTICA DE LA CONCEPTUALIZACIÓN LINGÜÍSTICA

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ABSTRACT

The object of this article is the methodology of psycholinguistics concerning analyzing concepts. The article's relevance is due to the need to apply new approaches to linguistic phenomena analysis, for which a purely linguistic methodology is not enough. The compilation method, a comparative method, and a linguistic modeling method are utilized to fulfill the study's aim. The author describes in detail the research gaps that exist at the moment in psycholinguistics, in particular, the structure of the relationship between sensory, short-term and long-term memory is still not fully defined, and therefore the basis for a deep analysis of conceptualization is not fully clear. The author concludes that the psycholinguistic methodology has the greatest explanatory power concerning the cognitive process of conceptualization. At the same time, in the case of comparative analysis of various linguistic cultures, the need for additional use of the conceptual and methodological apparatus of cultural studies and ethnology is actualized.

Keywords: Concepts; psycholinguistics; short-term memory; long-term memory; conceptualization.

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RESUMEN

El objeto de este artículo es la metodología de la psicolingüística en relación con el análisis de conceptos. La relevancia del artículo se debe a la necesidad de aplicar nuevos enfoques al análisis de los fenómenos lingüísticos, para los cuales una metodología puramente lingüística no es suficiente. El método de compilación, un método comparativo y un método de modelado lingüístico se utilizan para cumplir con el objetivo del estudio. El autor describe en detalle los vacíos de investigación que existen en este momento en psicolingüística, en particular, la estructura de la relación entre la memoria sensorial, a corto y largo plazo aún no está completamente definida, y por lo tanto la base para un análisis profundo de la conceptualización no es del todo clara. El autor concluye que la metodología psicolingüística tiene el mayor poder explicativo sobre el proceso cognitivo de conceptualización. Al mismo tiempo, en el caso del análisis comparativo de varias culturas lingüísticas, se actualiza la necesidad de un uso adicional del aparato conceptual y metodológico de los estudios culturales y la etnología.

Palabras clave: Conceptos; psicolingüística; memoria a corto plazo; memoria a largo plazo; conceptualización.

INTRODUCTION

The conceptualization process sequence of mental constructs is one of the main problems of linguistics. The anthropocentric paradigm, which acquired a primary role in modern science, allowed linguists to use the conceptual and methodological apparatus of such sciences such as ethnography, ethnology, cultural studies, and even neurology. In the context of this article, the most important item is the inclusion in the linguistics of the conceptual-categorical apparatus of psychology, since only with the help of it, in our opinion, one can reliably explain such a complex linguistic phenomenon as conceptualization.

The purpose of this article is to consider the psycholinguistic apparatus for analyzing concepts. We note that in our work we do not touch the method of a psycholinguistic experiment, since the object of our study in this case is the process of studying the content of «offline» concepts (Balganova, 2021), while a psycholinguistic experiment is a method that can clarify the meaning of this or that concept of «online», that means «here and now», in a particular audience (Pogosyan, 2019; Isaikina et al., 2021).

This gives the basis to qualify a psycholinguistic experiment as a private method that clarifies particularities, but is not able to identify the importance of concepts to the full extent, and moreover – giving no possibilities for a diachronic analysis, which, in turn, is able to recreate the structural links with a lexemes included in this or that concept (Otts et al., 2021; Panova et al., 2021).

The term «concept" entered the scientific use not so long ago, about 30 years ago. Researchers note that its borders are blurred so far, consumption is often arbitrarily, as a result of which this concept is mixed with "with a similar value and / or language form of terms" (Shulyatikov 2015, p. 98; Karasik 2004, p. 75). It gives rise to serious difficulties in the specific concepts practical analysis, since it is not always clear what is possible to call the concept, and what is a lexema, etc.

METHODOLOGY

The material of this article was the theoretical works of Russian researchers in the field of conceptology, psycholinguistics and cognitive linguistics. Working methods served as a compilation method, a comparative method, a linguistic modeling method.

Concept can be analyzed from the point of view of lexical filling. In this case, the study will focus on problems relating to the meanings of certain lexemes and possibly their etymology. Of course, this approach has the right to exist, however, in our opinion, in this case there is a mixing of the term "concept" with the term "lexeme", and the differences between them are obviously leveled.

The second approach is the so-called "syntax", which focuses on the study of the sentence. From this point, the interpretation of a matter of one or another concept in the aspect of its value, which allows its status in a particular case as a syntax unit. Obviously, it also has limitations, since the proposal is only part of the text, and it is impossible to consider it in detachment of context, especially in artistic texts. Moreover, the syntax, based on its specificity, analyzes only links between lexical units in specific cases (we denote them as "online"), and, accordingly, does not understand the meaning of concepts in general, or "offline" - and they are undoubtedly exist both in a specific and in abstract perspective. That is, the syntactic approach of IPSO FACTO significantly depletes the understanding of concepts.

Therefore, more reasonable is the approach, which we would call "discursive", because it considers concepts in the context of coherent discourse, which includes the study of joint references between different concepts and lexemes, establishing links between ideas and creating a macrostructure for polysemantic texts. However, in the case of this approach, the question of how to analyze specific concepts arises, that is, methodological difficulties appear (Kim et al., 2021).

And here the researcher inevitably faces the problem of the insufficiency of purely linguistic methodological techniques that are traditionally applicable to lexical analysis, but do not have sufficient explanatory power for concepts.

The validity and reliability studies of the scale were performed by the researchers, and the KMO (Kaiser-Meyer-Olkin Measure of Sampling Adequacy) value was 0.715, Bartlett Test 1968.711 and

RESULTS

From the point of view of psycholinguistics, conceptualization is the cornerstone of human cognitive activity. It consists in a person's understanding of the information coming to him in its entirety – that is, it includes both the identification of a concept and the formation of its conceptual structure, which, in turn, consists in connections with the entire conceptual system of the human psyche. In recent years, many researchers have considered concepts as the minimum units of the linguistic picture of the world. However, according to Y. L. Vorotnikov, such an approach to describing the picture of the world seems doubtful: "firstly, every word of the language is the name of the concept. Therefore, we must recognize that the number of elements of the linguistic picture of the world is the number of words of the language. Secondly, the concepts vary greatly in their complexity (the concepts of "soul" and "apple"). In addition, there are unequal power relations between different concepts such as "whole - part" and others" (Vorotnikov, 2001).

There is a huge variety of definitions of the term "concept". Scientists point out that objective reality is reflected in our consciousness in concepts, and concepts are put into words (Garrone-Shufran, 2021). The content of concepts as forms of cognition of objective reality is the same for all people, regardless of what language they speak. However, the ways of verbal expression of concepts in different languages are not identical: different images-symbols can be used to express the same concepts. Different languages do not just denote the same subject in different ways, but reflect different visions of this subject, i.e. national vision of the world (Badrutdinova, Ziatdinova, 2014).

The existing definitions of the term "concept" can be divided into three types: culturological, purely linguistic and psycholinguistic. The quintessence of the cultural definition of the term "concept" is the point of view of V.I. Karasik. According to him, the concept is a multicomponent network of meanings that has lexical, phraseological, dialogical, etc. dimensions. The key here is the fact that, according to V.I. Karasik, the concept must necessarily be associated with manifestations of social life (Karasik, 2004).

The purely linguistic direction can be attributed to the opinion of V.V. Kolesov, who emphasized the semantics of a word, or rather, on the nuclear semes of the semantic field. At the same time, the most important, from our point of view, is the scientist's reservation about the immutability of the meaning of the concept: "the concept is not expanded by any question, because it is the starting point and the completion of the process at a new level of semantic development of the living in the language" (Kolesov, 2002). This reservation, in fact, brings the discussion about the semes of the concept from the linguistic to a higher level - mental formations. However, the scientist does not develop this idea further.

In the context of the topic of our article, the definitions of the concept given by Z.D. Popova and I.A. Sternin, as well as A.P. Babushkin, are the most interesting. These scientists understand the concept of "discrete mental education, which is the basic unit of a person's mental code, having a relatively ordered internal structure, representing the result of informative (cognitive) activity of the individual and society and carrying complex, encyclopedic information about the reflected object or phenomenon, about the interpretation of this information by public consciousness and the attitude of public consciousness to this phenomenon or subject" (Popova & Sternin, 2006). A.P. Babushkin supplements this definition with the idea that the existence of a concept is impossible without a word designation (Babushkin, 2006).

At the same time, V.N. Telia emphasizes that a concept cannot be called a concept if it is not based on a frame – that is, knowledge structured into an image, a mental representation that is not always associated with a specific verbalization. This, according to the researcher, is the difference between the "concept" and the "notion": "it reflects not just the essential features of the object, but all those that in this language community are filled with knowledge about the essence" (Telia, 1996). Frames in the framework of sociology are interpreted as ordered sub-systems of knowledge and ideas about the phenomenon under study (Minsky, 1979). From the point of view of linguistics, frames are a kind of schematized constructs that fill the semantic field of the studied image. Frame structures, in turn, have several layers (Glushkova & Zaitseva, 2017). The base layer represents the most common and basic concepts, such as geography, demography, history, economy, culture, etc. They can be defined as subframes. Subframes are characterized by invariant slots similar in meaning, which contain symbols and knowledge about the subject under study. An example of the frame structure is shown in Figure 1.

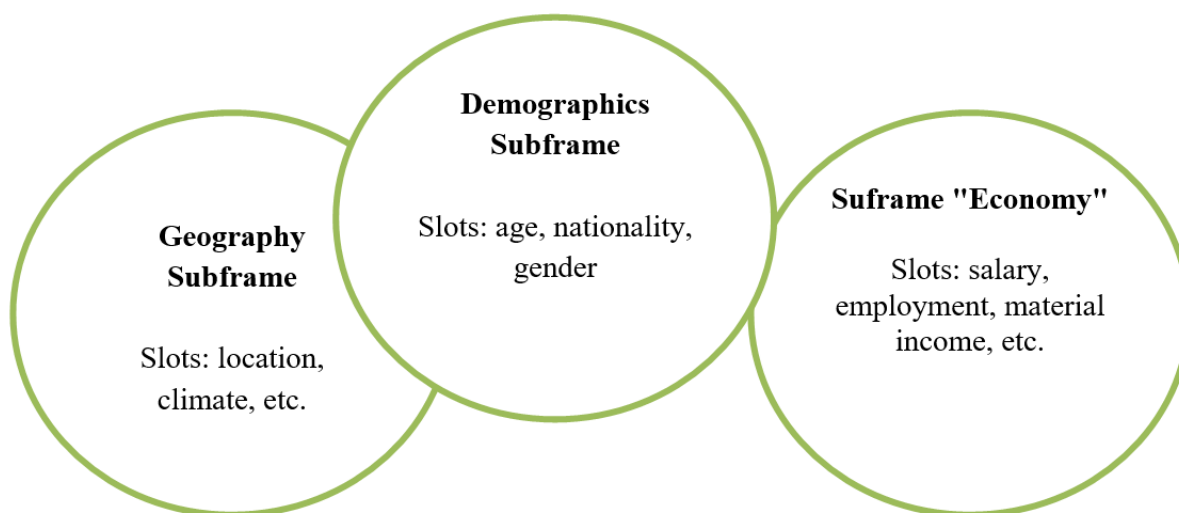


Figure 1. An example of the frame structure

Of course, Figure 1 shows a simplified frame structure, which does not display all the subframes that may be included in the description of a particular image. Their final number is determined based on the objectives of the study and the amount of empirical material, since the detail also has its limitations (Shmalko & Rudakova, 2021; Saenko et al., 2020).

From the point of view of cognitive psychology, the most important ability of the human brain is the classification and categorization of objects and phenomena of life: "Categorization products - categories - are part of our cognitive apparatus and can be understood as mental concepts stored in the field of long-term memory" (Gelyaeva, 2002). Thus, in cognitive linguistics, categorization is understood as a way to organize the perceived world, systematize the observed and see the similarities and differences of different phenomena.

The mental process of information processing by a person consists of several important stages and is schematically shown in Fig. 2.

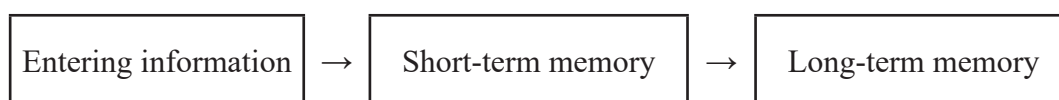


Figure 2. The process of human information processing

This process is certainly presented only in general terms, since it is not possible to describe all the specifics of this cognitive phenomenon within the scope of the article. Therefore, we would like to focus on several important points for further understanding of the object of study, which represent a significant research problem. However, first let's define the initial concepts.

Within the framework of the psychology section studying memory, a person is presented as a kind of information storage, a kind of computer capable of using basic stimulus and reaction processes to hold, store and process a certain amount of information (Kulikova, 2021). According to the ideas of leading foreign psychologists D. Broadbent, D. Norman, L. Peterson, R. Atkinson and R. Shiffrin, introductory information is first stored in temporary storage, that is, in short-term memory (hereinafter also STM), and then goes into permanent storage, in long-term memory (hereinafter also LTM) (Broadbent 1958; Norman 1969; Peterson 1966; Atkinson, Shiffrin 1968). B. Murdock

refined and expanded this schematic model by adding sensor storage as a stage (hereinafter also SS) (Murdock, 1972).

It is important to note that stimuli can be introduced into sensory storages regardless of the fact whether the subject pays attention to this stimulus or not, that is, against the will of the subject, "automatically"; that is, sensory storages are "presensitive". Input data in SS is encoded into auditory-verbal-linguistic terms.

Returning to the definition of the concept given by V.N. Telia, we note: in psychology there is empirical evidence that images which are not always verbalized can also be stored in SS, that is, the relationship between SS and verbalization is not clearly defined.

In our opinion, this is an important circumstance that can prove the nonverbal essence of the concept, which is a multicomponent phenomenon that is not always amenable to accurate and complete verbalization - unlike concepts or lexemes, which are always verbalized.

The next research problem is the differences and specific relationships between STM and LTM. It is generally accepted that the main difference between them is capacity – the STM has a limited capacity, which is constantly "overwritten" with new and new input data, while the LTM has a much larger capacity, and the data in it, presumably, are not overwritten, but are stored throughout life, constantly and invariably. However, if there are more or less accurate, empirically verified figures regarding the capacity of the STM, no such accurate empirical calculations have yet been revealed regarding the LTM - obviously due to the difficulty of determining the methodology and the lack of technical ability to explore the depths of memory. According to the latest data, forgetting information in the STM is completed within 30 seconds or less, while forgetting information from the LTM is either very slow, or the material is not forgotten at all – there is no definite answer to the last question yet.

In addition, the difference is the fact that STM operates with phonemes, while LTM converts these phonemes into semes.

The distinctive features of the three levels of information storage (SS, STM and LTM) in memory are summarized in Table 1.

Table 1. Common differences between the three stages of verbal memory

Peculiarity	sensor storage	Short-term storage	Long-term storage
Entering information	Attention	Requires attention	Rehearsal
Information content	It is impossible to determine	Constant at tention	Repetition
Information format	An exact copy of the input signal, image visualization	Phonemic Partially Visual	Largely semantic To some extent auditory and visual
Capacity	Relatively large	Small	The limit is unknown
Loss of information	Overwriting	Moving to LTM	Possibly without loss
Duration	1-2 seconds	Up to 30 seconds	It is not known for sure
Search	Reading	Probably automatic	Search signals

Source: Craik and Lockhart (1972)

However, the most difficult problem in cognitive psychology is the relationship between STM and LTM. How does the interaction between them occur? Is this connection unidirectional and one-time (only STM ---- LTM) or not (STM --- LTM)? If (and most likely) both options are true, then in which cases is the appeal a one-time, and in which - multiple? The answer to this question depends on how to interpret the levels of information processing. Most modern psychologists believe that the analysis of stimuli, that is, quanta of incoming information, occurs at several levels, sequentially or simultaneously. At the first stage, visible physical characteristics (shape, brightness, etc.) are analyzed in SS and STM. This process is called perceptual analysis in psychology, and its result is the so-called "memory trace". In general, the dependence is as follows: the stronger the stimulus, the stronger the memory footprint.

At the second stage (apparently, in LTM), these data are compared with the individual's past experience, which helps to extract meaning. At the same time, and this is extremely important, consciousness can turn to the stimulus several times to clarify the information, and this implies an active constant interaction between SS, STM and LTM, which, quite possibly, is multilateral. Moreover, according to researchers, such a complex connection is found in the conceptualization of complex, abstract concepts. Since the concept is an abstraction, this kind of connection is most interesting for linguists – and it is, unfortunately, the least studied in modern psychology. At the same time, the strength of the memory trace, among other things, depends on the depth of analysis and the speed of its processing in LTM. The stronger the memory footprint – the deeper the analysis and the faster it is carried out, since consciousness perceives it as highly relevant at the moment, setting the highest priority. It is also important to note that visual images are usually processed with greater intensity and speed than words or numbers.

In the process of "deep processing", implying a sufficient degree of semantic or cognitive analysis, the initial stimulus can be repeatedly refined and enriched, depending on the context or purpose of a particular analysis. Enrichment and refinement implies, among other things, associations connected with this concept. It is not difficult to see that in this case verbal material is not enough to determine the understanding of a particular concept.

The final stage of processing within the framework of linguistic analysis is the output of information, since, obviously, for any linguocognitive process there is a specific goal that results in words or actions. However, in psychology, the ultimate goal is memorization. There is a direct relationship between memory trace and memorization: a deeper analysis of the concept leads to a more stable memory trace and, as a result, to stronger memorization.

DISCUSSION

Returning to the research gaps in the field of psycholinguistics, the criteria for filtering information are not completely clear, since the target approach is not always reliable, as empirical data show.

The problem of the capacity of both LTM and STM has not been completely solved, at the moment we can only talk about the approximate capacity of the STM. For example, it was found that STM volume indicators usually range from 5 to 9 elements, depending on whether these elements are words, letters or numbers. In addition, the memory capacity also depends on the age.

Finally, the choice of encoding units is not always clear – that is, the fragmentation of input information: it is proved that even in SS and STM, such fragments can be both simple signs and semes. Any word can be encoded at different times in visual, phonemic or semantic form, in the form of its verbal associates or image. Different coded representations appear to persist for different time periods.

That is, psychology does not yet give an unambiguous answer to a fairly wide range of important questions.

However, based on the available empirical data, part of the conceptualization process can be presented as follows (Figure 3):

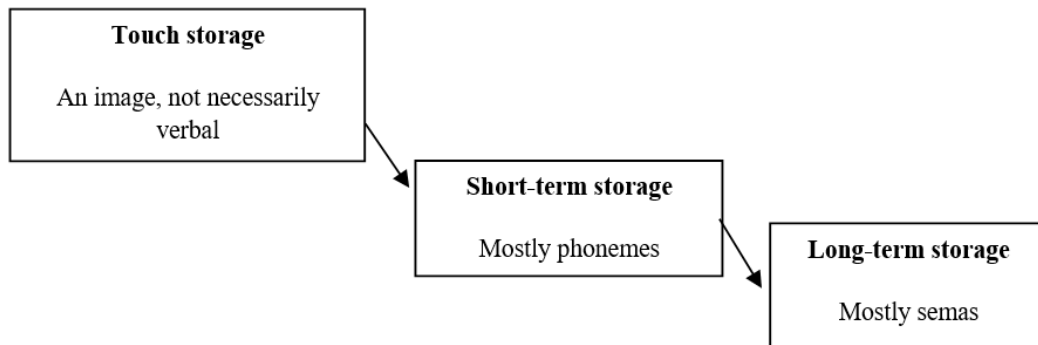


Fig. 3. Levels of human information processing

Despite the fact that the presented model is very convenient for the researcher, due to its simplicity and the opportunities it provides for empirical verification of the theory, this model is also criticized, not unreasonable. For example, E. Tulving and R. Patterson opposed the idea of transferring information from one storage to another (Tulving, Patterson 1968). Worthington presented evidence against the idea that information must necessarily pass through the checkpoint to enter the STM (Warrington, 1971).

This controversy reflects the imperfection of modern methodological practices, however, in our opinion, this imperfection is due to an objective lack of technical capabilities for the study of such elusive cognitive processes. Therefore, due to the lack of a methodology with greater explanatory power, it makes sense to use the presented model, if possible taking into account its shortcomings outlined above.

Thus, the concept within the framework of psycholinguistics is a distributed network in the brain associated with the categorization of the environment or experience, and, most importantly, it is a dynamic network, that is, information is always multimodal (Barsalou). When analyzing the concept, information is aggregated from various states, which can be both actions and emotional perception of these actions, as well as previous experience. At the same time, this aggregation may be limited by ethno-cultural or even epigenetic factors on which associative connections depend (Simmons & Barsalou, 2003). As an example, researchers cite biologically based neural circuits that can anticipate the conceptual structure of evolutionarily important concepts, such as, for example, intelligence.

Psycholinguists, relying on the above conceptualization cognitive process model, often focus their attention on a combination of concepts (Gagné & Spalding, 2014; Hampton & Jönsson, 2012; Kudinov 2018; Werning et al. 2012; Borovkova, 2021). According to view point of researchers it is

the combination of concepts is of fundamental importance for explaining a particular concept in real conditions. This is due to the fact that the distributed network, which is the concept, creates a kind of coordinate system that supports further analytical cognitive activity.

CONCLUSION

When conceptual knowledge is needed to solve a specific cognitive task, concepts produce situational modeling of the corresponding category dynamically, during which cognitive modeling tries to reproduce the kind of neural and bodily states associated with category processing.

It is important to note that most often, this is an unconscious process, in any case, a person is not always aware of the sequence of the logical chain, including the case of high speed of the process. This determines its affectivity, especially in relation to important, evolutionary concepts ("home", "family", "homeland", "love", etc.), since emotionality is both the cause and consequence of the speed of analysis and its depth, as we indicated in the previous section of the article. Affectivity, in turn, determines further cause-and-effect relationships associated with awareness, or, more precisely, with the process of thinking over the concept. When, at the last stages of the conceptualization process, such cognitive simulations become conscious, they turn into mental images (abstractions, ideals), which are then, in turn, verbalized.

Consideration of the psycholinguistic methodology of concept analysis shows that within the framework of psycholinguistics concepts are presented as dynamic formations representing distributed conceptual chains.

Based on the combination of these chains components, the content of a particular concept in a particular situation is determined.

However, this does not at all negate the possibility of presenting concepts as some idealized abstract categories, choosing the most important ones from the total number of components of these chains. The question is which components should be considered important, that is, in the criteria for their selection.

It is also of primary importance to establish the principles of the composition of conceptual connections, namely: the priority of concepts in different situations. In our opinion, in the case of certain types of analysis (for example, comparative), not only purely linguistic methods are not enough, but also psycholinguistic ones - it is also necessary to turn to cultural studies and ethnology, since in the situation of comparing two linguistic cultures, cultural studies are the main factor in determining priorities.

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