ASSOCIATIVE EXPERIMENT AS MODERN MEAN OF LINGUISTICS STUDIES

Abstract. The article deals with viewing different approaches of associative experiment usage in the study of linguistic problems and analyzing concepts within their linguistic culture. Associative experiments conducted in the nineteenth and early twentieth centuries were designed to elucidate general patterns in the associative process, and the task of the researchers was to find the optimal procedure for conducting them. Experimenters sought to understand the parameters by which reactions of subjects would differ from one another, for which they applied various classifications, which were mainly associated with the psychophysiological features of personality, the existence of three types of psyche. There were no clear criteria for determining reactions to a particular type when developing classification principles. Modern views to the associative experiment distinguish several types of associative experiment: free associative experiment (where there are no restrictions on reactions); directed associative experiment (where subjects are asked to associate a certain grammatical or semantic class); chain/chain associative experiment (where subjects are asked to react to a stimulus with several associations). The results of the associative experiment reflect universal cognitive structures behind linguistic meanings and individual characteristics of the subjects, the content of their personal meanings, i.e. they allow to obtain knowledge about the specificity of ethnic/professional consciousness. One of the ways to study the systemicity of the world image using the materials of the associative experiment is to identify the core of linguistic consciousness, i.e. those units of the semantic network that have the largest number of connections with other units of a given semantic network.

In a chain associative experiment, subjects give any individual words that come to their mind over a certain period of time. This results in a chain of associative reactions made up of individual words. These words are combined into specific semantic groups, or semantic nests, irrespective of the subjects’ wishes.
These nests, according to their content, are subsumed under a more general category - a name. This method is used by specialists in psychoanalysis.

Associative experiment in modern psycholinguistic research is a reliable and effective tool for studying and modeling linguistic consciousness and language picture of the world, revealing patterns of their changes in the course of development. Currently, the practice of using associative experimental techniques is expanding, they are used in various scientific fields, including the study of cognitive processes, mechanisms of speech and text generation and perception, conceptual level of knowledge representation, as well as to solve urgent problems in culturology, political science, sociology and other fields of knowledge.

Keywords: associative experiment, psycholinguistics, lingue-cultural study, stimulus, association, concept.

Introduction. Each natural language reflects a particular way of conceptualising the world, and the meanings it expresses are put together into a kind of unified system of views, a kind of collective philosophy, which is proposed as obligatory for all native speakers. Language fixes collective stereotypical and reference representations, objectifies the interpretive activity of human consciousness.

Nowadays, modern anthropocentric linguistics is characterised by an interest in the subjective factor in language, in the everyday consciousness of a linguistic personality, in the speech-thought processes manifested in the meta-linguistic reflection of this personality. Language becomes an object of study in researches of various directions, the subject of scientific interest of which is the specificity of individual consciousness of a person. At the same time, language is considered as a means of communication and cognition, reflecting specific features of mentality of its speakers, expressing the system of views and values that form the linguistic picture of the world. The study of language as a means of communication and a way of expressing the understanding of reality draws the attention of researchers to those components of the language system, which are able to convey the speaker’s attitude to reality.

It is difficult to overestimate the importance of the associative experiment. Its results can be used in various fields of linguistics: for the study of lexical systematics, semantic structure of words, cultural and linguistic comparisons, in lexicography, diachronic linguistics. An important area of linguistic research in this direction is the study of linguistic consciousness using data from psycholinguistic experiments. Among them, the associative experiment is considered to be the most effective. The experimental direction of psycholinguistics is based on the assertion that one of the main mechanisms of speech and thinking activity is the associative mechanism, which is responsible for the establishment of involuntary probabilistic connections, i.e. associations. Proceeding from the fact that the main properties of
the associative mechanism are non-arbitrariness and probability, it can be argued that the associative mechanism provides non-arbitrariness and spontaneity of speech activity, arising from the cognitive and speech experience of a native speaker. The study of the associative mechanism in speech activity reveals the role and importance of involuntary connections between non-verbal «contents of consciousness» as well as between linguistic units for speechmaking processes.

**Analyses of latest researches and publications.** A number of fundamental works are devoted to the problem of studying the sociolinguistic features of concepts. In particular, the supporters of the sociocultural approach to the analysis of concepts are Y.S. Stepanov, G.G. Slyshkin, V.I. Karasyk, and the linguocultural approach can be traced in the studies of V.M. Telia, S.G. Vorkachov, V.A. Maslova. The necessity of using the associative experiment in linguistic research was substantiated by scientists O.O. Leontiev, O.O. Selivanova. T. Hobbes, J. Locke, D. Gurley, F. de Saussure made a significant contribution to the description of the mechanisms of association and the problems of reaction classification.

**Purpose of the article** is to carry out analysis of scientific literature by way of comparing different modern views on the issue of associative experiment, its value in the concept study and in the psycholinguistics as well. What are its advantages while analyzing concepts in specific linguistic culture.

**Presentation of the main material.** When considering the associative experiment, it is worth noting that this method is the most common technique of psycholinguistic analysis, in which subjects are «asked to respond to a list of stimulus words with the first words that come to mind» [2]. «An associative experiment is a technique that seeks to identify associations formed by an individual in his or her previous experience». The Dictionary of Psychology defines the associative experiment as a special method for studying personal motivation. An associative experiment allows us to find out how fragments of language consciousness are arranged in native speakers [1].

Associative experiments conducted in the nineteenth and early twentieth centuries were designed to elucidate general patterns in the associative process, and the task of the researchers was to find the optimal procedure for conducting them. Experimenters sought to understand the parameters by which reactions of subjects would differ from one another, for which they applied various classifications, which were mainly associated with the psychophysiological features of personality, the existence of three types of psyche. There were no clear criteria for determining reactions to a particular type when developing classification principles. A.A. Zalevskaya defined this as a mixture of logical, linguistic and psychological classification bases [16, P. 42]. «One of the controls in these experiments was reaction time. The problem at the time was the connection between the associative behaviour of the subjects and both their individual psychophysiological
characteristics and their affiliation with a certain social group. It was found that associations may be influenced both by the experimental conditions and by word-stimuli eliciting certain «grammatical reactions»» [1].

There are several types of associative experiment: free associative experiment (where there are no restrictions on reactions); directed associative experiment (where subjects are asked to associate a certain grammatical or semantic class); chain/chain associative experiment (where subjects are asked to react to a stimulus with several associations).

Y.I. Alferova notes that some authors consider the chain associative experiment to be a kind of free experiment, and there they have directed associative experiment, in the terminology of A.A. Leontiev, which is called a controlled experiment. Sometimes associative chain experiments are called «continuous reaction experiments» [10, P. 32]. It is also possible to say that each associative experiment has its own advantages and disadvantages. For example, a directed associative experiment does not allow enough freedom in the associative process, but rather encourages respondents to react according to the research objectives. The «directionality» of the experiment and the imposition of certain frameworks on the associative process seriously reduces the validity of the results obtained in these experiments, and distorts the real picture of the associative process itself. The main advantage of the associative experiment is its simplicity, and its ease of use, as it can be carried out with a large group of subjects at the same time. The subjects work with the meaning of a word in «usage mode», which makes it possible to identify some of the unconscious components of meaning [1, P. 10].

A.N. Leontiev states that «experimental data do not allow to consider an associative experiment as a simple sum of separate associations», the presence of a complex interaction of separate moments of the associative process is noted, which transforms associative series into some unities, understanding of which is possible only on the basis of special analysis of their general structures [10, P. 35]. A.N. Leontiev concluded from his experiments that under certain experimental conditions, depending on the type of stimulus, the repetition of the experiment, the rate of association, etc., the reactions of the chain reaction may acquire several properties. On the formal side the intervals of a series may change. On the content side, the associations become deeper, and their discontinuity is observed. An analysis of the dynamics of associative series structure helps to understand what lies at the heart of intellectual thinking processes [10, P. 351].

A.A. Zalevskaya suggests that the associative experiment can be a useful source of information about the degree of relevance of different lexical-semantic variants of the same word to the group of people under study [16]. A.A. Leont’ev reckons that «if we have to find a method that allows us to uncover the «cultural» specificity of the word units with the greatest objectivity and uncover those incidental semantic links that are not immediately relevant to generalisation, which
the word has, its semantic «overtones» - undoubtedly, this method is the associative experiment» [10, P. 20].

E.I. Goroshko notes that the method of a summary associative experiment consists in having the subject respond as quickly as possible with the first word (reaction) that comes to mind in response to the stimulus presented to them. The free association experiment is the simplest of all association experiments, but it is quite effective. The association experiment records reaction type, frequency of similar associations etc. This data allows «an insight into the latent drives and «affective complexes’ of the subject, his attitudes» and his socio-biographical data. It is believed that associations obtained in a free association experiment are influenced by a «linguistic» factor (certain characteristics of the stimulus word itself) and a «pragmatic» factor (influence of the subject’s personality) [2, P.10].

The researcher also claims, that there is another factor to these two ones - the conditions of the experiment itself [7, P.119].

The results of the associative experiment reflect universal cognitive structures behind linguistic meanings and individual characteristics of the subjects, the content of their personal meanings, i.e. they allow to obtain knowledge about the specificity of ethnic/professional consciousness. One of the ways to study the systemicity of the world image using the materials of the associative experiment is to identify the core of linguistic consciousness, i.e. those units of the semantic network that have the largest number of connections with other units of a given semantic network [1].

N.V. Ufimtseva and E.F. Tarasov understand under the kernel of language cognition a set of words that have the largest number of connections with other words in the associative-verbal network that is constructed according to the results of a mass associative experiment with a large number of subjects (from 100 to 1000) [15, P. 340].

A.A. Zalevskaya says that «linguistic units with concrete, sensual meaning form the basis for the successful use of other linguistic units» and the presence of a «core lexicon is one of the reasons for the repeated overlap of the associative fields of different, seemingly unrelated, words » [16, p. 43]. This helps explain the phenomenon described by Yu.N. Karaulov [5] as the «six-step rule»: the connection between any two words within a named number of transitions is established through the most capacious units of the lexicon belonging to the core» [5]. A.A. Zalevskaya also refers to a study of the individual vocabulary of a person carried out by Kyiv psychologists, which has shown that «the words that are of special significance to the subject as a person have the maximum number of connections. They are the most capacious concepts that have the maximum likelihood of being remembered, and the number of words with the maximum associative power is at most 2% of the total vocabulary» [16, P. 43]. Associative dictionaries (thesauruses) are created based on the data of associative experiments. The content and meaning of associative dictionaries continue to be analyzed and studied in connection with a
variety of fields of psycholinguistic (and linguistic) research. Above all, it is related to problems of language awareness, worldview, and intercultural communication. There are many possibilities for interpreting the results of the association experiment [1].

The language-activity relationship in our case is described by means of a semantic gestalt. The semantic gestalt is constructed on the basis of semantic classification of associates (reactions) included in the field and consists of several semantic zones that unite typical features of an object or concept corresponding to the field name (=stimulus) in a given linguistic consciousness. Following Y.N. Karaulov, we consider it convenient to use place-names that are able to convey the most common meanings [5, P. 94].

Thus, the problem of classification of associations is directly related to determination of the essence of associative relation. Obviously, the processes of association actualization that took place during a free association experiment cannot be described unambiguously by linguistic, logical, psycholinguistic or philosophical categories. The responses obtained in the association experiment are individual in their concreteness, and universal as a principle of connection between stimulus and response, and as a type of association. Using an approach that includes descriptions of the results using different classifications and at different levels has allowed us to trace the representation of the stimuli of interest in the linguistic consciousness of the younger generation in the world in the most complete and objective way. The effectiveness of the associative experiment method in various fields is ensured by the low level of ability to manipulate people; the automatic nature of associations; and the conjunction of the associative experiment process with human physiological reactions.

It is difficult to overestimate the importance of the associative experiment. Its results can be used in various fields of linguistics: for the study of lexical systematics, semantic structure of words, cultural and linguistic comparisons, in lexicography, diachronic linguistics. An argument in favour of the use of associative experiment is the statement of I. Sternin that «Experimental methods of meaning research require more expenses than the logical analysis of meaning, but they prove to be incomparably more effective and economical way to determine the psychologically real meaning of a word than the contextual analysis» [5, P. 102]. In linguistics, the importance of using the associative experiment can be seen in the following:

The results of the associative experiment can be interpreted as the objectification of national-cultural specificity of images of linguistic consciousness, because when applying the associative experiment, it is possible to obtain data indicating the national-cultural marking of the language sign and the peculiarities of ethno-linguistic consciousness. The research potential of associative experiments lies in the fact that their data, bearing the imprint of the culture of the people,
provide rich material for cross-cultural research, allow to draw conclusions about the forms of value understanding of the world and the factors determining human behavior.

The associative experiment allows us to find out how fragments of linguistic consciousness are arranged in the minds of native speakers. On the basis of a free associative experiment, it is possible, by comparing the responses of different subjects, to find the most frequent, common ones, which can lead to the construction of associative norms of any language. The associative experiment serves as valuable material for studying the psychological equivalents of what in linguistics is called the semantic field, and reveals the semantic relations of words that objectively exist in the mind of a native speaker.

The particular importance of the associative experiment lies in the identification of the psychological component in the meaning of a word or object. Thanks to this there is a real opportunity to construct the structure of a word. On the basis of experiments carried out in this way it is possible to obtain the most valuable material, the so-called linguistic field, which is hidden in the mental state of a native speaker and determines the semantic connection of words.

The value of using the associative experiment in modern linguistics also lies in the fact that the associative experiment captures the actual meaning of a word, reveals the difference between its real semantics and the meaning presented in the dictionary. It reveals the space of association, which goes far beyond the boundaries of dictionary entries, as there are significant discrepancies between the psychological reality of the word for a native speaker and the representation of the content of the word in the dictionary entry. The practical value of using the results of the associative experiment is found, in particular, in translation activities, as detailed knowledge of the associative content of the field of the translated word significantly contributes to its more accurate translation.

It should be noted that associative experiments reflect a certain linguistic reality, which is that a wide variety of associations exist between vocabulary words. Various types of associative experiments are used in scientific experimental practice to investigate them, among which we can name free (direct), directed and chain associative experiments.

The free associative experiment provides the researcher with a wide range of possibilities for studying the functioning of individual consciousness and the psyche as a whole in the course of cognitive processing of a single fragment of information presented in the form of a verbal sign. A distinctive feature of the free (direct) associative experiment is the absence of any restrictions on reactions.

In a directed associative experiment, restrictions are imposed on the choice of appropriate words at their disposal. Participants are asked to give associations of a particular grammatical or semantic class, e.g. selection of reactions-antonyms or synonyms. That is, the directed associative experiment differs from the various free
variants in that responses to stimulus words are given in accordance with the experimenter’s instructions.

In a chain associative experiment, subjects give any individual words that come to their mind over a certain period of time. This results in a chain of associative reactions made up of individual words. These words are combined into specific semantic groups, or semantic nests, irrespective of the subjects’ wishes. These nests, according to their content, are subsumed under a more general category — a name. This method is used by specialists in psychoanalysis.

According to E. Goroshko, «the study of associations in our century has taken two directions: firstly, it is holding mass associative experiments and studying associative norms or associative fields collected with their help.... Secondly, development and approbation of individual associative experiments, connected with establishment of certain facts from life of a subject». By associative field of a word the scientist understands a set of associations to a word-stimulus and notes that associative field has a core (the most frequent reactions) and periphery [10, P. 23].

B. Dolinsky believes that «the psychological reality of a word in a person’s internal lexicon is ensured by the presence of stable patterns of associative fields, explicated in associative experiments with speakers of natural languages. There are no «complete» lexical equivalents in different languages, just as there are none among speakers of the same language of different ages, occupations, etc.» [10, P. 29].

The associative field can be seen as a model which reveals the significance of a given word for a given language. Therefore, the resulting associations can be analysed primarily from the perspective of the influence of meaning on meaning in the language and the identification of factors that change meanings in speech. In this context, M. Patsis notes: «The associative field manifests the virtual meaning of a word along with the usual meaning, which allows us to talk about the possible dynamics of the word meaning, taking into account the associative meaning». The scientist in his research work also proved that comparative and comparative interpretation of associative fields from the position of psycholinguistics helps to model the mentally real for an individual content of a word; the content of the stable core of the associative field of a word; the nature of the ratio of semantic components in the structure of associative (semantic) field; possible strategies of word understanding in the text; national specifics of the organization of the semantic field [11, P. 132].

One of the founders of the psycholinguistic schools, A.A. Zalevskaya, studying and modelling the structure of a linguistic personality’s lexicon (in her terminology «the inner lexicon of a linguistic personality»), relied on free associative experiment data with speakers of different languages, bilinguals and monolinguals. In her concept the internal (mental, subjective) lexicon is «a lexical component of the speech organization of an individual which possesses the same properties as are specific to the speech organization as a whole. <...> it is not a
passive repository of information about language, but a dynamic functional system, self-organizing due to constant interaction between the process of processing and ordering of speech experience and its products». [16, P. 43].

There are several types of associative dictionaries created based on the analysis of the results of associative experimental research: partial and thesaurus; general comprehensive and individual socio-cultural and age groups; individual and mass; bi- and multilingual (comparative); aspect (thematic, functional, branch); educational; direct (stimulus-response direction only) and bilateral («stimulus-response» and «response-stimulus»).

According to Y.N. Karaulov, dictionaries based on associative experiment of this scale reproduce in the most general form «the mental and emotional state of the average speaker, a state peculiar to a certain historical period of his life (and therefore of the life of society) and reflected in his language (speech, pre-verbal readiness), i.e. in his associative-verbal network». [5, P. 91].

One of a very important Ukrainian dictionaries based on the associative experiment is considered to be «Ukrainian associative dictionary. From stimulus to reaction» by Svitlana Martinek. Some of the others examples of associative dictionary could be the «EAT – The Associative Thesaurus of English» and «Das deutsche Wörterbuch – wordassociations».

Net Stressing the importance of associative experiments and associative lexicography for the development of modern linguistics, G.A. Cherkasova writes: «The use of materials of associative dictionaries allows to outline new ways in the study of semantic laws in language in general, principles of correlation of semantics and syntax in speech and language. A comparative study of several associative dictionaries of the Russian language, formed in different time periods, allows us to study the systematics and content of the world image of the Russians in the dynamics of the last decades, the integral language picture of the world of speakers of Russian language-culture, analyze the patterns of socialization of individual semantic changes and the establishment of new typical associative links». [1, P. 411].

Considering the types of psycholinguistic dictionaries created on the basis of the analysis of associative experiment results, A.V. Rudakova distinguishes: psycholinguistic semantic dictionary (word meanings and list of objectifying associative reactions), psycholinguistic semantic dictionary (word meanings and semes), psycholinguistic semantic dictionary (semantic and semantic dictionary of psycholinguistic meanings). The psycholinguistic semantic dictionary (associative-semantic dictionary) «contains not just an enumeration of semantic or other meanings of a lexeme actualised in the experiment by native speakers, but more or less coherent definitions of a given lexeme. Each meaning is formulated separately, the total number of subjects who actualized this meaning is indicated; for each seme, the number of subjects who objectified this seme during the experiment is indicated». [10, P. 139].
When compiling psycholinguistic dictionaries, it is now very important to take into account age, gender, social, territorial, temporal (temporal), professional and other factors. In addition, work is being done to create psycholinguistic synonymic and antonymic dictionaries (in the terms of A.A. Zalewska, dictionaries of similes and opposites).

The analysis of associative experiment data makes it possible to determine the «semantic distance» («semantic proximity») between words, the indicator of this «distance» being the distribution of respondents’ answers (coincidence of results) for each pair of word-associations. Researchers call this indicator «overlap coefficient», «overlap measure», «association coefficient», «similarity index».

The results of this kind of research are necessary for a more precise definition of the so-called synonymic status of words close in meaning, elucidation of structural-semantic regularities of synonymic series and synonymic nests, studying the manifestations of general lexical systematics in synonymy. At present, the applied use of the obtained data is relevant, in particular, they are important for the development of effective software support for computer information retrieval using synonymic substitutions and the application of semantic search technology.

**Conclusions.** The associative experiment is the most developed technique of psycholinguistic analysis of semantics. Psychosemantics aims to reconstruct the individual system of meanings through the prism of which a subject’s perception of the world, others, and himself occurs, and the associative experiment is used to experimentally investigate the subjective semantic fields of words formed and functioning in human consciousness, as well as the semantic relationships of words within the semantic field.

The associative experiment provides extensive material for suggesting what information may lie behind a word as such in individual consciousness and, therefore, what fragments of this information may be used by consciousness if the word is to be included in a variety of contexts.

Thus, experimental associative techniques are widely and multidimensionally applied in psycholinguistics. Currently, a methodological psycholinguistic basis for describing the processes of association and theoretical foundations of the associative direction has been created. Modern information technology provides great opportunities for data collection and processing, presentation of associative experiment results, effective ways to create lexicographic materials in the form of a variety of electronic dictionaries and databases.

Associative experiment in modern psycholinguistic research is a reliable and effective tool for studying and modeling linguistic consciousness and language picture of the world, revealing patterns of their changes in the course of development. Currently, the practice of using associative experimental techniques is expanding, they are used in various scientific fields, including the study of cognitive processes, mechanisms of speech and text generation and perception, conceptual
level of knowledge representation, as well as to solve urgent problems in culturology, political science, sociology and other fields of knowledge.

References: