

Fundamental cognitive-semantic theories in linguistics

Teorías cognitivo-semánticas fundamentales en lingüística

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Abstract

The article studies fundamental cognitive-semantic theories (Langacker, Lakoff, Fillmore, Croft) used in linguistics. The paper shows the use of ideas that can change the educational system with the aim of improving the teaching of linguistic disciplines in higher education. The relevance of the study is to improve the education quality for linguistics specialists and the possibility of implementing the study results to improve the teaching methodology. Particular focus is on the theories, tools, and methods of teaching foreign languages, which are essential components of quality learning and the formation of knowledge and skills among students of linguistic specialties. The study aims to systematize the theoretical foundations and directions of the cognitive-semantic theory in linguistics to determine the relevance of

teaching this theory to the educational process. In the course of the study, general scientific methods of knowledge are applied, in particular analysis and synthesis of theoretical and practical information, as well as methods of questioning and statistical methods of analysis. The hypothesis of the study: the system of basic theoretical innovations used in the complex of cognitive-semantic theories is effective in the field of humanities research. It is an effective tool in the learning process in process of learning foreign languages. The result of the study is to determine the need to study theories of linguistics, which represent effective directions in the postmodern mainstream. The article shows the place of cognitive-semantic theories in the modern practice of teaching foreign languages. The study's practical significance lies in the possibility of applying the results in constructing foreign language learning methodologies in higher education institutions.

Keywords: linguistic theory, cognitive semantics, cognitive linguistics, concepts, categorization, frames, semantic fields, prototypes, metaphor.

Resumen

El artículo estudia teorías cognitivo-semánticas fundamentales (Langacker, Lakoff, Fillmore, Croft) utilizadas en lingüística. El artículo muestra el uso de ideas que pueden cambiar el sistema educativo con el objetivo de mejorar la enseñanza de las disciplinas lingüísticas en la educación superior. La relevancia del estudio es mejorar la calidad de la educación de los especialistas en lingüística y la posibilidad de implementar los resultados del estudio para mejorar la metodología de enseñanza. Se presta especial atención a las teorías, herramientas y métodos de enseñanza de lenguas extranjeras, que son componentes esenciales del aprendizaje de calidad y la formación de conocimientos y habilidades entre los estudiantes de especialidades lingüísticas. El estudio tiene como objetivo sistematizar los fundamentos teóricos y las direcciones de la teoría cognitivo-semántica en lingüística para determinar la relevancia de la enseñanza de esta teoría para el proceso educativo. En el curso del estudio, se aplican métodos científicos generales de conocimiento, en particular análisis y síntesis de información teórica y práctica, así como métodos de cuestionamiento y métodos estadísticos de análisis. La hipótesis del estudio: el sistema de innovaciones teóricas básicas utilizado en el complejo de teorías cognitivo-semánticas es efectivo en el campo de la investigación en humanidades. Es una herramienta eficaz en el proceso de aprendizaje en el proceso de aprendizaje de lenguas extranjeras. El resultado del estudio es determinar la necesidad de estudiar teorías de la lingüística, que representan direcciones efectivas en la corriente principal posmoderna. El artículo muestra el lugar de las teorías cognitivo-semánticas en la práctica moderna de la enseñanza de lenguas extranjeras. La importancia práctica del estudio radica en la posibilidad de aplicar los resultados en la construcción de metodologías de aprendizaje de lenguas extranjeras en instituciones de educación superior.

Palabras clave: teoría lingüística, semántica cognitiva, lingüística cognitiva, conceptos, categorización, marcos, campos semánticos, prototipos, metáfora.

1. Introduction

One of the essential subjects of cognitive semantic theory is meaning. The concept of cognitive linguistics is conventional, and it summarizes several theories that belong to this term: semantics, phonology, metaphor theory, cognitive grammar, semantic prototype theory, frame semantics, etc. Each of the ideas listed above has its characteristics, but they also share many features. In particular, they all adhere to common cognitive-functional positions and views on the nature of language, where the main criterion of its application are algorithms and sequences. Moreover, this approach to foreign language learning is conceptually new and innovative in the organization of translations, rapid learning of phrases, frames, cultural scripts, and other forms of expression of thought.

One of the main approaches of cognitive theory is the assumption that speech is not a separately isolated and inborn characteristic. Instead, it is a mode of expression acquired, even though the genetic manifestations of the need to communicate are weighty enough. But at the same time, mastering language to express one's needs is an acquired characteristic that involves learning. Language acquisition completes many factors, including physiological and socio-cultural factors.

This understanding of the communication nature forms the empirical question if learning grammar is a natural or acquired property (Tomasello, 1995; Levinson, 2003) or if it is related to the acquisition of collective experience, a set of cognitive abilities justifies cognitive-semantic theories.

If we talk about the methodological study of a foreign language, cognitive semantics is used in the pedagogical process to make the study of vocabulary and phraseology easier. The works of some researchers (Langacker, 1991; Lakoff, 1993; Taylor, 2012; Lemmens, 2015) aim to develop such language learning practices. In general, however, cognitive semantics is used in education to study semantics, poetics, and stylistics.

But there is another view, in particular, that the theory of cognitive semantics is at the root of cognitive linguistics, which denies the traditional formal pressure of linguistics on phonology, pragmatics, and syntax. Semantics, in this case, as the study of words' meaning, is perceived through constructed content that is conveyed verbally to convey perceptions of the world. This breadth of scientific interest in cognitive semantics is why such areas, which traditionally belong to pragmatics and semantics, are studied from a new perspective. For example, Tendahl, Gibbs (2008), and Fried (2010) point out the importance of using cognitive to simplify the study of stylistic and phraseological language features, which should be actively used in educational materials. This approach is currently unconventional, modern, and innovative.

In general, cognitive-semantic theories are based on the thesis that the lexical meaning is basic. The lexical meaning is not an explanation of reality; it can be related to reality, explain or express it. The connection is not assumed to be with reality but human

consciousness, experience, or attitude to the phenomenon. It means that semantics is not objective by itself, but semantic meaning allows us to explain meaning in terms of an encyclopedic dictionary. In this light, semantic theories are based on the idea that semantics is not a constant or a standard but changes according to the development of human thinking. Thus, the views acquire an interdisciplinary basis and are connected with cognitive anthropology and psychology. On the same basis, the prototype theory and the mental model appear, which interpret the meaning of a word not as a primary but as a secondary and changeable phenomenon.

Thus, a new approach in education is created, based not on the purely theoretical and narrowly sectoral study of language but on the possibility of applying linguistic tools in interdisciplinary research.

2. Objectives

This study aims to determine the main theoretical foundations and directions of cognitive-semantic theory in linguistics, as well as the effectiveness of studying the basics of cognitive linguistics, the feasibility of applying cognitive-semantic methods, and higher philological education:

- to achieve the goal in the course of the study, the following tasks will be solved;
- to determine the main cognitive-semantic theories within the framework of the course “Cognitive approaches to the semantics of linguistic units” relevant for modern education;
 - to evaluate the effectiveness of the methodology application through the study of changes in students’ academic performance;
 - to determine the degree of interest and positive evaluations of respondents involved in learning a foreign language using the cognitive-semantic approach.

3. Materials and Methods

For the purpose of empirical research, an experiment was set within the framework of the pedagogical process among first-year students studying the specialty 035 Philology. Seventy-two students took part in the study. Data collection took place between September 2020 and April 2021. Coverage of the audience – from different universities of Ukraine, in particular Kamyanyets-Podolsky National University named after Ivan Ogiienko (Faculty of Foreign Philology), Kharkiv National University named after G. Skovoroda (Faculty of Foreign Philology).

The pedagogical experiment was conducted in three stages. First, the teaching process involves a lecture, “Cognitive approaches to the semantics of linguistic units”, where the emphasis is placed on the practical application of the methods of cognitive-semantic theory in metamodernist linguistics.

The preparatory stage consisted of testing students to ascertain students initial knowledge of cognitive linguistics.

The first stage involved:

- Collecting personal data and determining the students' involvement in the study.
- Making a curriculum and collecting teaching and learning materials.
- Creating thematic sessions that allow for a better practical understanding of the material.

To systematize the analytical data, students were divided into four groups. KG1 and KG2 – control groups that did not have the course “Cognitive approaches to the semantics of language units” in their programs, so the hours were used to study the theory of translation and the basics of language communication.

The groups EG1 and EG2 are experimental groups with the course “Cognitive approaches to the semantics of language units” in their curricula.

Respondents' answers were voluntary; the research team provided written assurances of survey confidentiality. The information collected was provided anonymously and was not shared with others nor distributed or disclosed by the research team.

The second phase of the experiment took place at the end of the first semester. This phase measured respondents' success in the theory and practice of using cognitive approaches and language learning, particularly in the course of foreign language translation. The test consisted of 20 questions, five dealing with translation skills and knowledge of phraseology, and 15 having a theoretical and methodological aspect. At this stage, observation and questioning methods were used. The research team collected and analyzed data on students' successful learning in the experimental and control groups. According to the study's results, the data were collected, which allows for making a conclusion about the program's effectiveness.

The third stage is the final stage, which consists of evaluating the success of knowledge acquisition in the control and experimental groups; final analysis of the results is carried out, which involves processing the data and forming conclusions about the problematic issues that show the effectiveness of the program. To get a complete picture of the analysis, the group resorted to several theoretical studies and the use of the statistical analysis methodology, the results of which are shown in this study.

4. Literature Review

Researchers began actively studying cognitive-semantic theories in the middle of the 20th century. General features of the theory development are described by the researchers: Croft (2015), Fillmore (1988), Fried (2010), and Goldberg (1995). This theory's root is that

language provides a system of constructions, which are perceived as conditional language signs. The combination of these forms explains their meaning and use. Each structure is the holder of a specific meaning, which is not always the sum of the meanings of the component words. For example, A. Goldberg (1995) indicated that any type of construction is valuable for understanding the nature of language and types of social behavior. Such an assumption allows the development of unique methods of studying idioms, party, and phraseology. In learning a foreign language, the cognitive-semantic approach will enable building phrase semantic fields not according to the nuclear and peripheral principle but based on a deeper understanding of speech. This approach, in general, makes it possible to simplify significantly learning a foreign language, as confirmed by researchers Hapsari, Wirawan (2018), and Ko et al., (2013). If we talk about the research context, this approach is used to construct atypical constructions (Fillmore et al., 1988).

Separate from the other theories stand out the experimental direction, which is associated with the prototype theory and natural categorization, which is provided in the studies of Croft (2015) and Perek (2015). This direction is based on standard features of cognition through language and describes cognitive activity and human capabilities. The approach centers on concepts such as categorization and conceptualization. Categorization provides the intuitive ability to group words and speech components and use them to form a definite network based on the human experience. Categorization makes it easier to understand grammar, morphology, and phonology when learning foreign languages. Furthermore, the definition of categorization in linguistic knowledge allows us to form notions of effective mechanisms of language use depending on the situation.

Model of cognitive semantics is also based on the idea of prototypical meaning and emphasizes the basis of schema networks. Such constructed structures are low-level, involving attributes and relationships between them. Each constructed schema leads to prototypes. Such studies stand at the base of the field of cognition (Fuchs et al., 2019), and cognitive linguistics (Hapsari & Wirawan, 2018). They allow the building of constructions that have unifying characteristics for categories. Separately, algorithms are being developed to use such theories to create methodological materials for foreign language learning in international university programs (Kiki-Papadakis & Chaimala, 2016).

Recent research shows that generalization as a way of language learning can be applied within high-level schemas and at a lower level, which allows for determining the content and nature of generalization in a language construct (Perek, 2015; Vykhreshch et al, 2019). There are also cognitive constructions that can combine elements into one type. For example, an utterance like Tanya caught a ball; she ate an apple; Dan opened a window, semantically generalized verbs and are integral units of the utterance, having their semantic properties.

5. Results

The main theories of new age linguistics are based on the relationships between human consciousness and mental characteristics, which are represented by the structure of the collective mind, and are also the collective experience and constituent elements of the linguistic system. Educational materials, which are devoted to cognitive-semantic theories, allow systematizing new linguistic research problems and successfully applying them in educational programs. Therefore, the theoretical and practical orientation of the course has a systematic nature, which students should perceive as a holistic project.

The educational components should provide an overview of the main cognitive-semantic theories of contemporary linguistics. In particular, students should understand the basics of categorization, frames, semantic fields, dominants, prototypes, metonymies, metaphors, and semantic relations. An essential element of basic knowledge is an introduction to cognitive grammar (Langacker), metaphor theory (Lakoff), frame semantics (Fillmore), and constructive grammar (Croft). These theories can be used in systemic statutes in the structure of language and cross-lingual systems. A significant component of such learning is the application of knowledge to independent and practical work. Such assignments take the form of brief research based on specific outgoing data that students receive as a result of processing fiction texts, translations, and other text assignments, which have a comparative nature and are chosen by students.

Before beginning the experiment, the research team assessed students' level of understanding of the main cognitive-semantic approaches that are used in linguistics. For this purpose, students were offered a test.

Table 1.

Awareness level of students in the experimental and control groups based on the author's technology

	Unsatisfactory	Satisfactory	Good	Excellent
EG1	2 %	58 %	29 %	10 %
EG2	0	72 %	20 %	8 %
CG3	2 %	65 %	23 %	10 %
CG4	1 %	63 %	25 %	11 %

According to the study results, we can see that the first test result is relatively low, and the majority of respondents directly understand the subject of the study. The average score for the two groups is 65 %, which corresponds to a "satisfactory" grade. However, it should be noted that some students do not have a basic understanding of the methodology at all. Therefore, approximately 1.5 % of students have an unsatisfactory score.

At the first stage of the educational program, students got acquainted with the course’s objectives, main tasks, and components “Cognitive approaches to the semantics of language units”. According to the authors’ team, this part of the education is quite essential, as students learn about the role of the verbalization process in the structure of communicative and speech development courses. It is especially important for linguistics students who develop so-called soft skills based on character formation and approach to acquiring new knowledge. Since this approach is a priority part of this course, the teaching relies on several essential components of cognitive semantics, which are presented in Figure 1.

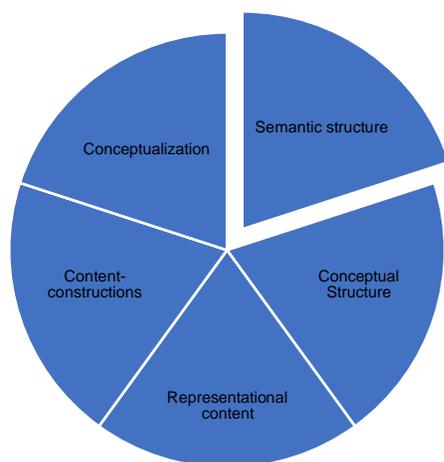


Figure 1. The components of cognitive semantics

The second stage of the study involved testing students’ knowledge of the main theories of cognitive linguistics, as well as their ability to use them on a practical level. Based on the testing results, which falls at the end of the first semester, there was a control of knowledge and analysis of success rates.

Table 2.
Success rates in the experimental and control groups

	Unsatisfactory	Satisfactory	Good	Excellent
EG1	0 %	50 %	34 %	16 %
EG2	0	62 %	26 %	12 %
CG3	0 %	63 %	26 %	11 %
CG4	0 %	60 %	28 %	11 %

According to the data in Table 2, we can see that the performance of the experimental group after the students passed half of the course on average is higher than the performance of the control group. For EG1, the highest marks rate is 50 %, and for EG2 – 38 %, there are no unsatisfactory marks in the group. According to the second stage

results, we can see positive dynamics in academic performance in the groups which took the course Cognitive Approaches to Semantics of Linguistic Units.

The third or final stage is devoted to evaluating productive knowledge, which includes several indicators. The control tests made it possible to evaluate the theoretical knowledge level and the students' ability to apply it in practice. Thus, the main criteria for the quality of education are students' ability to make a high-quality translation, independent text editing, selection of lexical and stylistic features of the text, and analysis of the artistic and stylistic components. Also, an important criterion is the ability to implement different cultural scenarios and discursive practices using various statements and the whole arsenal of text-forming means. Finally, the use of idioms is an important criterion of success, confirming theoretical knowledge and a high level of practical use.

Table 3.
Progress in the experimental and control groups

	<i>Unsatisfactory</i>	<i>Satisfactory</i>	<i>Good</i>	<i>Excellent</i>
EG1	0 %	48 %	36 %	16 %
EG2	0	58 %	26 %	16 %
CG3	0 %	60 %	28 %	12 %
CG4	0 %	59 %	30 %	11 %

According to the results of the completion of the pedagogical experiment in order to evaluate the effectiveness of the cognitive-semantic theory course, we can conclude about a high level of success among students. In particular, high scores received 52 % in the first experimental group and 42 % in the second experimental group. On the other hand, the control group received 40 % and 43 %; at the same time, it should be noted that the success rate on average increased by 6 %.

The final stage of the study is devoted to which of the proposed techniques and pedagogical materials were the most effective and exciting for students. To determine the most effective methods, students put a plus or minus next to the line with the question. The resulting figure is provided as a percentage.

Thus, during the discipline, students were asked to focus on the possibility of obtaining several skills and assess how important they are for students' practical activities. For this purpose, we created a survey, the results of which are systematized in Table 4.

Table 4.
Survey results on teaching method effectiveness

Main thematic blocks	EG1 yes (+)	EG2 yes (+)	CG1 yes (+)	CG2 yes (+)
Cognitive grammar: theory, case studies	42 %	38 %	24 %	18 %
Frame semantics: theory, case studies	58 %	57 %	27 %	32 %
Radical construction grammar: theory, case studies	48 %	42 %	23 %	20 %
Metaphor theories: theory, case studies	52 %	50 %	41 %	44 %

Processing of the survey results showed that the received knowledge is positively evaluated by 16 % of the respondents, who believe that the provided material is effective. Therefore, it is possible and convenient to use it in practice. Active implementation of technologies allows to realize the full pedagogical potential and create a platform for high-level training professionals with critical thinking skills and developed communicative competencies. As a way of human mental activity verbalization, the cognitive-communicative approach contributes to the development of knowledge and obtaining high results in the course of learning. This approach solves a number of problems related to foreign languages and is especially valuable in acquiring the skills of text translation and literary creativity.

6. Discussion

The meaning of cognitive semantics theories is a well-studied issue (Lemmens, 2015; Findik & Ozkan, 2013) but, in turn, remains debatable. All published theories rely on a set of basic concepts of conceptualization, categorization, and construction, and the generalization of theories is implemented in a system of prototypes. This conceptualization is based on encyclopedic knowledge, which provides an explanation of a word. Categorization allows us to understand a word through its alternative explanations. Constructing will enable one to understand variants of use on the basis of patterns of models of practical experience. The above principles should not be limited to the consideration of lexical units, they should work at the core of language structures at the level of lexeme, morpheme, and idiom. In their research, Goh & Burns (2012) shows many different projects in the field of cognitive semantics, where the methods of activation and improvement, translation skills acquisition, comparable research, in which the main components are verbalism, which allows finding meaning by applying experience, cognitive and communicative skills, etc.

The use of drawer-type schemes and dependency trees is a positive experience. They allow focusing not only on the form of the linguistic unit but also on prosodic, semantics, and pragmatics (Syta, 2015). The results of this study show the effectiveness of introducing the main theories of cognitive semantics into the foundation of linguistics students' education. The basic concepts, techniques and attitudes were positively evaluated by both experimental and control groups. Furthermore, the development of cognitive semantics theory, along with cognitive pragmatics and relevance theory

(Tendahl & Gibbs, 2008), allows the evaluation of the compatibility of stylistic labeling patterns of metaphors. Such views form a new approach in understanding metaphors and its relation to real-life situations (Takimoto, 2020). Thus, a separate area of application of the course is textual formation, text translation, comparative research, and the formation of students' own research projects.

7. Conclusion

Active application of the ideas of cognitive-semantic theory is an essential component of the professional development of a linguistic specialist, as well as an important component of the pedagogical process, which aims to educate professionals in linguistics. The course Cognitive approaches to the semantics of linguistic units address the following theories in linguistics: cognitive grammar, metaphor theories, frame semantics, and construction semantics.

To define the essence of the cognitive-semantic theory, we first studied the concepts of the frame, metaphor, categorization, conceptualization, prototype, and concept. Then, to apply cognitive-semantic ideas in practice, several methods allow the specialist to form texts, study texts and correctly interpret metaphors, metonymies, and semantic fields. As a result of the new course, students have improved the dynamics of their performance in mastering the program with the application of cognitive linguistics theory and successfully began to apply the theory in solving practical assignments. According to the results of the application of this course, the academic performance in the experimental group increased by 16 % due to the increase in good and excellent grades. At the same time, there were no unsatisfactory grades in all groups after the end of the course.

In general, students were optimistic about the fundamental theories of the course. The conducted seminars were aimed at developing skills to enhance the professional level of future specialists. Especially the students appreciated the thematic blocks to improve translation skills, the basics of editing, and the use of phraseology. In the future, the theory methods will be improved and directed to practical application in work with foreign languages. This contributes to preparing highly qualified specialists among university graduates and pedagogy specialists who can achieve high-efficiency results.

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