ENGLISH WORD FORMATION: STRATEGIES FOR COGNITIVE TEACHING TO LANGUAGE STUDENTS

Ekaterina A. Bolotina (a), Marina V. Vlavatskaya (b)*
*aCorresponding author

(a) Department of Foreign languages, Humanities, Novosibirsk State Technical University, Novosibirsk, Russia, bolotina.ktr@yandex.ru
(b) Department of Foreign languages, the Humanities, Novosibirsk State Technical University, Novosibirsk, Russia, vlavatskaya@list.ru

Abstract

The manifestation of scientific interest in the provisions of cognitive science in both linguistics and foreign language teaching methodology entails the introduction of the cognitive approach to the process of professional education and makes the learning of the lexical side of language including word formation more qualitative and meaningful. To form linguistic students’ word-formation competence using a cognitive approach, it is necessary to follow specially developed methodological strategies. The purpose of the paper is to substantiate the acceptability of the cognitive approach in teaching English word formation to language students through an organization of educational activities, including sets of tasks and exercises aimed at developing students’ word formation competence, cognitive and creative abilities. The use of a cognitive approach and digital tools is an absolute necessity in modern professional language education. This approach is based on the universal knowledge and cognitive skills acquired by students when mastering their native language. It intensifies the educational process and enables the students to develop their mental abilities through solving non-standard creative tasks. The strategies of learning activities that we propose in teaching word formation including affixation, conversion, compounding, contraction, semantic derivation, etc. allow a language student to independently reveal the meanings of unknown words with familiar word-formation elements, provide the formation of word-building competence, and develop linguistic creative thinking, language guessing, lexical memory. In general, the proposed strategies are aimed at the formation of cognitive, professional and language competencies, which are so necessary for students of linguistics and future teachers of English.

Keywords: Cognitive approach, development of cognitive abilities, methodological strategies to teaching word formation, professional language education, word-building competence
1. Introduction

The study focuses on teaching English word formation to language students using a cognitive approach and digital resources.

1.1. Relevance

The relevance of this study is due to the recent manifestation of scientific interest in the provisions of cognitive science, not only in linguistics, but also in the methodology of teaching foreign languages, which led to the introduction of a cognitive approach in the process of professional education. The use of cognitive strategies in the educational activities of students makes it possible to consider the process of learning any foreign language, including teaching the lexical side of the language as well as word formation, not only more successful and effective, but also more meaningful.

1.2. Object and Subject of the Study

To form the word-building competence of language students using a cognitive approach to teaching English, it is necessary to determine the object and subject of this study.

1.2.1. The object of consideration in this paper is the process of teaching word formation.

1.2.2. The subject of the study is cognitive approach strategies in teaching English word formation within a digital environment.

1.3. The Theoretical Basis of the Study was Research in the Field of:

- word formations in English: (Arnol’d, 2012; Bauer, 2020; Cook, 2010; Povargo & Ryabkova, 2008; Pozdnjakova et al., 2017; Zykova, 2006);
- applications of the cognitive approach in teaching English: (Abrosimova, 2014; Kubryakova, 1988; Pozdnjakova et al., 2017; Solov’yanova, 2014; Shamov & Chernyshev, 2022; Zykova, 2006);
- formation of professional and creative competence: (Matienko, 2016; Lewis, 2000).

1.4. Research Material

The material of the study is the vocabulary of the English language, formed by productive models.

1.5. Methods of Analysis

The research methods in the work are teaching design and forecasting, as well as linguistic, methodological, definitional, word-formation, and conceptual analysis.
1.6. Novelty

The novelty of the research lies in the developed and proposed organization of educational strategies in terms of training activities based on a cognitive approach and digital resources, including tasks and exercises aimed at developing students’ word-formation, cognitive competence, and creative ability.

2. Problem Statement

In professional teaching of foreign languages, the application of the cognitive approach is considered as an organization of the cognitive actions of students, which correlates with their natural cognitive process. In other words, information about the laws of language is subject to the same cognitive laws as information in general, which must be assimilated and previously understood and analysed.

3. Research Questions

To achieve the goal, it is necessary to solve the following tasks:

i. to study the features of professional word formation training for students of language universities;

ii. to consider the cognitive approach concept in teaching linguistics in general and English word formation in particular;

iii. to identify the peculiarities of classes organization using a cognitive approach with digital resources;

iv. to propose specially developed strategies of language students’ learning activities aimed at forming their word-building competence.

4. Purpose of the Study

The purpose of the study is to substantiate the acceptability of the cognitive approach using digital resources in teaching English word formation to language students through thoroughly designed strategies of educational activities’ organization aimed at developing students’ word formation and lexical competence, as well as creative ability.

5. Research Methods

“Word formation” as a part of linguistics is traditionally included in the course of English lexicology at a linguistic university. Using the cognitive approach, the main emphasis in teaching is placed on semantics, understanding, and awareness of the use of one or another method of word formation in English.

The basic educational standards of higher education for the Bachelor's degree in “Linguistics” state that during the period of study a student should form a word-building competence when mastering theoretical information about word-formation models as well as the semantics of individual word-
formation morphemes of the English language (order of the Ministry of Education and Science of the Russia dated 12.08.2020 N 969).

5.1. Professional Training in Word Formation Within the Cognitive Approach

Today, the cognitive approach is becoming one of the leading modern methodological approaches to professional linguistic education, in which the main focus is on the laws of the cognitive process of learning foreign languages and the characteristics of students' mental work. It is well known that cognitive processes are controlled by the human brain, and knowledge is a product of cognition. Thus, the main idea of the cognitive approach is that the student learns the main stages of the cognitive process and then develops basic lexical and word-formation skills, as well as language sense and critical thinking. The cognitive approach in teaching word-building models to student-linguists is manifested in the formation of a conscious correlation between cognitive and linguistic structures expressed by certain parts of a derived word.

Professional training of word formation within the cognitive approach is caused by the importance of studying word formation phenomena in order to identify their main characteristics as a part of professional education, the close connection and interdependence of the language laws functioning and speech-thought operations of a person, and consequently, the correlation of language reflection of the real world and objectifying knowledge about language as a reflection of thought operations in the brain (Abrosimova, 2014; Kubryakova, 1988).

At the same time, when teaching vocabulary and word formation according to the requirements of the cognitive approach, it is important to use specially developed types of exercises aimed at (Solovyanova, 2014):

- creation of a cognitive image of a word;
- formation of stable associative connections of a word with the situation, subject and with other lexical units, i.e., development of lexical memory;
- development of students' skills to predict lexical material, ability to encode lexical information in different ways, and formation of lexical creativity;
- actualization of the cognitive image of the word in order to express the speech intention;
- the ability to distinguish in the structure of word meaning the semes associated with the culture of the people, and skillfully use this type of vocabulary, etc.

5.2. Strategies for Cognitive Teaching of English Word Formation to Language Students

When considering the methods of word formation in the English language, Arnold's (2012) classification by language levels was taken as a basis, supplemented by the classification of new words by Algeo (1991).

When teaching English word building using the cognitive approach, we follow the principle that all word formation models in the language are analogues in the human knowledge representation system, i.e., cognitive representations of knowledge about the language. Most of the words in English are formed
Based on our main idea, i.e., planning educational activities for teaching word formation to linguistic students, we offer the following types of educational activities based on cognitive principles. At the same time, in our opinion, it is important to differentiate between such actions as exercises and tasks; the former have a purely linguistic orientation and are performed individually; the latter are aimed at achieving both linguistic and communicative results and are performed jointly, i.e., in pairs or in small groups (Lewis, 2000).

1. From the cognitive point of view, affixational word production or adding word-forming elements (affixes) to the base is not only a way of forming a new word but also a way of forming new senses and meanings of a given word. Following this setting, students can be offered the following block of tasks:

1) Look up in the Mariam-Webster dictionary the meanings of the noun-suffix-age (Mariam-Webster dictionary). Is this suffix mono-or polysemantic?

2) Sort out the words below with the suffix -age into their corresponding groups according to its meanings: adjustage, barrelage, coverage, forestage, greenage, herbage, knightage, luggage, manufacturage, overage, parsonage, peerage, stockage, toolage, voltage. Have you identified any additional senses?

3) Make nouns from the following words by adding the suffix -age, which occurs in nouns formed from usually from bases of adjectives or verbs and denoting (a) an action or the result of an action (drainage, leakage); (b) states (bondage); (c) a specific object (bandage) (Povargo & Ryabkova, 2008):

1. Any ___________ must be paid for. (break)
2. These books give very good grammar __________. (cover)
3. She has two daughters by her first __________. (marry)
4. There is a __________ of food and shelter in the refugee camps. (short)
5. The __________ of the car was scattered over the roadside. (wreck)

The most complete list of words with the suffix -age is presented in "Category: English words suffixed with -age (Pages in category "English words suffixed with -age").

The same principle can be used to develop other blocks of tasks concerning the meanings, for example, of the polysemic suffixes -ment or -cy (Pages in category "English words suffixed with -ment & -cy").

When performing such tasks, in our opinion, language students gradually create a cognitive image of the word, develop the ability to encode and decode lexical information in different ways, and, accordingly, develop the ability to manifest lexical creativity. In addition, such tasks are aimed not only at forming linguistic, or rather, word-formation competence, but also increase the student's motivation, as they are performed on a group basis and in the form of a game. As our experience shows, such learning activities stimulate students to get additional scores on the topic "Word Formation".

2. When students master the models of word composition in English, the cognitive approach suggests studying the formation of compound words based on the addition of several meanings into one whole, i.e., by concepts corresponding to categorical meanings and directions of their relations. The
elements combined in compound words, as it is known, can be separated by a hyphen, or written as one word (Compound Words Vocabulary Word List, Enchanted Learning, n.d.).

The following block of learning activities can be offered for mastering the models of English word formation.

Considering the study of theoretical foundations of cognitive word formation (Pozdnyakova et al., 2017) by language students, the core structure of a word consisting of such concepts as ‘Actor’, ‘Object’, ‘Place’, ‘Time’, ‘Instrument’, ‘Means’, ‘Group’, ‘Event’, etc. can become the basis for word formation exercises. The relations between the concept ‘Actor’ and the other selected concepts, as well as the direction of these relations are formed and implemented by such atomic predicates as deal with, live, act, make, have, be, as well as the operational concepts themselves (Pozdnyakova et al., 2017).

Taking the cognitive concept of word-formation patterns in English as the basis for teaching, we offer the following block of exercises and tasks for language students.

1. Insert into the table below (Table 1) the compound words from the list below*, corresponding to the word-formation models that implement the concepts according to the given meanings and directions of their relations:

   Compounds*: cameraman, guardsman, pilot-navigator, bricklayer, gun-fighter.

<table>
<thead>
<tr>
<th>Models</th>
<th>Word meanings</th>
<th>Formulas combining categorical meanings</th>
<th>Concepts, corresponding to categorical meanings, and the direction of their relations</th>
<th>Compound words * (insert)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N1 + N2</td>
<td>Man who works with camera</td>
<td>N+V(atomic)+N</td>
<td>ACTOR – WORK WITH – INSTR</td>
<td>* cameraman</td>
</tr>
<tr>
<td></td>
<td>Man who works in guards</td>
<td>N+V(atomic)+N</td>
<td>ACTOR – WORK – GROUP</td>
<td>* guardsman</td>
</tr>
<tr>
<td></td>
<td>One who is a pilot and a navigator</td>
<td>N+V(copulative)+N</td>
<td>ACTOR1 – BE – ACTOR2</td>
<td>* pilot-navigator</td>
</tr>
<tr>
<td>N1 + N(v)2</td>
<td>One who lays bricks</td>
<td>N+V+N</td>
<td>ACTOR – OPER – OBJ</td>
<td>*bricklayer</td>
</tr>
<tr>
<td></td>
<td>One who fights with a gun</td>
<td>N+V+N</td>
<td>ACTOR – OPER – INSTR</td>
<td>*gun-fighter</td>
</tr>
</tbody>
</table>

2. Form words according to the following concepts, corresponding to the given word-formation meanings and the directions of their relations:

   1) ACTOR – OPER – TIME: ‘One who guards (watches) property during the night’ (*night-watcher);
   2) ACTOR – ACT – TIME ‘Nurse who works in day-time’ (*daynurse);
As part of the cognitive approach, such word-composition exercises contribute not only to the creation of a cognitive image of the word but also to the development of lexical memory, the ability to form lexical units in different ways, to use them in speech, and to identify national and cultural semantic components in the structure of lexemes.

3. Considering the cognitive approach in the study of conversion or changing the grammatical paradigm of words, where the absence of a formal indicator is significant, students are offered such educational activities that are aimed at developing not only lexical memory, but also learning syntactic position in the conversion of a word in a sentence. As you know, inter-part-of-speech conversives in English do not have a formal word-formation expression as in affixation. Nevertheless, the speaker must know the paradigmatic means of expressing notional parts of speech in English and their syntactic roles. This linguistic knowledge should be contained in the speaker's cognitive memory and contribute to the understanding of messages and foreign speech in general. From a cognitive point of view, the learning activities that make up the next block can become effective in teaching conversion models.

1. Learn the definition of ‘conversion’ in Meriam-Webster dictionary.
2. Study the semantic types of Conversion in English and identify them in the following word pairs (Semantic Types in Conversion, n.d.).

A) between the denominal verb and the derived noun (Zykova, 2006):
1) nose – to nose ‘to sniff smth.’;
2) dinner – to dinner ‘to have dinner’;
3) wolf – to wolf ‘to devour greedily’.

B) between the deverbal substantive and the derived verb:
1) to walk – a walk ‘a place for walking’;
2) to move – move ‘to change a position’;
3) to cheat – cheat ‘a person who cheats’.

Each type of inter-part-of-speech transposition includes several submodels that correspond to the cognitive structures, which the speaker operates for conversion related to the property of human thinking to perceive and comprehend objects, processes, qualities, and properties of the surrounding world. It allows making characteristic changes in the conceptual structure of the conversion, entailing a change in lexical meaning.

3. In the following sentences find the conversions and explain the nature of their formation (Zykova, 2006):
1) I was a good buy.
2) He doesn’t like chemistry practician.
3) The path is steep and dangerous in the wet.

What characteristics of italicized words make it possible to conclude that a word in a sentence is another part of speech?

The cognitive basis of such exercises contributes to the formation of stable associative connections of a word with a certain extralinguistic situation, on the one hand, and other lexical units, on the other hand. At the same time, students develop the ability to encode lexical information in different ways, as well as actualize the cognitive image of the word to express the speaker's intention.
4. Learning such a morphological way of word formation as blending (the result of combining parts of existing words) is very relevant from the cognitive point of view because of the recent emergence of a lot of, for example, covidual vocabulary formed on this model (words-telescopes). Acting as a proposition, the cognitive scheme of "telescope words" is transformed into a linear sequence of signs. A block of learning tasks for studying blending may include the following.

1. Study information in the table below: explain the principle of telescoping words formation. How do they differ from compound words?

<table>
<thead>
<tr>
<th>Neologism</th>
<th>Stems</th>
</tr>
</thead>
<tbody>
<tr>
<td>caremongering</td>
<td>care</td>
</tr>
<tr>
<td>coronasplaining</td>
<td>corona</td>
</tr>
<tr>
<td>mansplaining</td>
<td></td>
</tr>
</tbody>
</table>

* A movement that has emerged in Canada to help those who are at greater risk of health complications from a new coronavirus infection. Its goal is to spread concern, not panic.

** mansplaining is the condescending manner of a man when he explains something to a woman using simplified language;

***coronasplaining is a situation when a person tries to explain something related to COVID-19 but does not understand the subject himself.

2. Determine the original components of the following blended neologisms that emerged during the Covid-19 pandemic and try explaining their meaning (table 2): covidiot, covidiotic, caremongering, covident, quarantini, panicdemic, zumping, coronabond, quarantrend, quarantech, coronabond, quarantrolling, quarantipple, loxit, maskhole, lockstalgia, quarantrolls, etc.

How does the cognitive nature of the entity they denote change?

For extra information see coronavirus Glossary (Coronavirus COVID-19 Vocabulary, English Club, n.d.).

Considering the cognitive approach underlying the training, it can be argued that such tasks are aimed at developing students' lexical creativity as well as developing the ability to actualize the cognitive image of a word for the linguistic representation of their intention.

5. In our opinion, such ways of word formation as acronyms, abbreviation, and shortening are also cognitively productive. Their differences lie in the fact that acronyms are read as words: FIFA [fiːfa] - Fédération Internationale de Football Association, abbreviations are pronounced using the alphabetical name of the letters: VIP [ˌviːˌaɪpiː], and shortening is the abbreviation of a word without changing its lexical and grammatical meaning: rona (corona), sanny (sanitizer), pando (pandemic), iso (isolation), and etc.

From the position of cognitive science, we can offer the following block of exercises for mastering these ways of word formation. We find it helpful to use such a resource as the “Abbreviations and Acronyms Dictionary.” (Find out what any acronym, abbreviation, or initialism stands for).

1. Read the following shortenings, decode them, and write their full names: NASA, soccer, vac, UFO, Coke, MP.
The task for differentiating acronymy and abbreviation based on a cognitive approach, can be the following.

2. Sort out the given shortenings according to: 1) fields of activity, 2) their pronunciation: a) those read as ordinary English words (acronyms); b) the alphabetic reading (initialisms):

USA (United States of America), BBC (British Broadcasting Corporation), WHO (World Health Organisation), St (Street), Dr (Doctor), memo (memorandum), Tim (Timothy), Fred (Frederick), NATO (North Atlantic Treaty Organisation), SATs (standard attainment tests (tests taken by schoolchildren in the UK)), scuba (self-contained underwater breathing apparatus), AAMOF (As a Matter of Fact), BTW (By the Way), ALAP (As Late as Possible), ASAP (As Soon as Possible).

Such exercises are aimed at developing lexical memory and creating a cognitive word by reducing the complex names of objects of real reality, which contributes to the birth of a fundamentally new way of sign formation, because of which new cognitive structures emerge in the individual's conceptual system.

6. From the cognitive point of view, semantic derivation, or the way of forming new words, due to which a new lexical-semantic variant is added to the already existing ones in the semantic structure of a lexeme, closely correlates with the learning goal of forming stable associative semantic links with the already known polysemantic unit. To implement this setting, the following block of learning activities is proposed.

A cognitively significant example is the semantic development of the meanings of the lockdown lexeme, the initial meaning of which is “the strict isolation of prisoners who were put behind bars because of riots or other unrest.” Due to the coronavirus, the lexeme has changed its meaning to the strict restrictions imposed because of the coronavirus. It is a vivid example of semantic development, the study of which contributes to understanding how new senses and meanings can be formed in a well-known word.

1. Read the sentences below and try to identify the connections between different meanings of the lexeme lockdown. Whit is its semantic development?

1) They have accepted that they cannot defeat the 99%. Now, there is a lockdown on Earth, so they are unable to escape.

2) Lockdown shouldn't cut off our communications or jam our radio and phone signals.

3) She's in lockdown in the mental ward at East End General.

4) Another is the country's increasing financial lockdown.

5) The authors considered two types of restrictions: so-called “mitigation measures,” which include things like school closures and restrictions on large public events; and stricter “suppression measures,” i.e., “lockdowns,” which include more stringent social-distancing rules.

2. Study the semantic development of the collocation social distance (Mariam-Webster Dictionary). Read the sentences below and try to identify the connections between different meanings of this lexical item:

1) In sociology, “social distance” describes the distance between individuals or social groups in society, including dimensions such as social class, race or ethnicity, gender, or sexuality.

2) Social distancing is a public health practice that aims to prevent sick people from coming into close contact with healthy people in order to reduce opportunities for disease transmission.
3) Historically, social distancing was also used interchangeably to indicate physical distancing, which is defined below. However, social distancing is a strategy distinct from physical distancing behaviour.

Learning activities based on the logic of their performance and the cognitive principle contribute to students’ better understanding of semantic connections in the formation of new senses and meanings in the existing lexical unit, as well as the formation of new cognitive structures in the conceptual system of the individual. Based on the existing characteristics of the system of word meanings, it is possible to predict how it will develop in the future.

6. Findings

To teach English word formation to language students, the application of a cognitive approach and the use of digital tools is an absolute necessity. The practice of teaching the English lexicology course in general and word formation in particular allowed us to develop and offer for discussion the author's organization of learning activities in terms of the strategies for cognitive teaching of English word formation to students of language departments, which is currently being successfully tested in the training experiment.

To implement the strategies of professional training in word formation in practice, the following should be noted. The advantages of the cognitive approach are manifested in several aspects. First, the cognitive approach is based on the universal knowledge and cognitive skills acquired by students when mastering their native language. The cognitive approach in teaching contributes to the intensification of the educational process within the framework of professional linguistic education, greater students’ awareness, and the emergence of the possibility of developing their mental abilities through solving non-standard creative tasks. In addition, its application using digital means allows us to increase the efficiency and productivity of the educational process. This is especially true for teaching foreign language vocabulary and word formation, which have a system-forming value and become an important part of the student's cognitive activity and, thus, contribute to laying a solid lexical foundation in language learning.

We believe that the cognitive-digital synthesis ensures the successful assimilation of knowledge, improvement of abilities and skills, as well as the formation of a holistic picture of the world within the framework of the language being studied.

7. Conclusion

Consequently, the proposed strategies of learning activities based on the cognitive principle, including exercises and tasks on word formation, allow the student to independently discover the meaning of unknown words with familiar word-formation elements as well as provide the formation of word-building competence and develop linguistic and creative thinking, language guessing, and lexical memory. In general, they are aimed at forming linguistic, cognitive, and professional competencies, which are essential for language students and, above all, for future teachers of English.
References


