

# Linguistic and methodological prerequisites for teaching scientific vocabulary

Mukaddas Ahmedova<sup>1\*</sup> and Olga Kalinina<sup>1</sup>

<sup>1</sup> National University of Uzbekistan named after Mirzo Ulugbek, 100000 Tashkent, Uzbekistan

**Abstract.** The development of the information society requires appropriate professional training of the student at the university. The level of training is directly proportional to the ever-increasing need to involve the future specialist in professional communication, i.e. involves effective teaching of professionally oriented vocabulary. In the article the definition of terminological vocabulary and its features is defined. Analysis of the structural form of lexical units made it possible to identify a five-level typology of terminological professional vocabulary.

## 1 Introduction

The effectiveness of the assimilation of linguistic material is largely determined by its characteristic linguistic features. In this regard, it becomes necessary to take into account the features of the form, meaning and use of linguistic material. These characteristics are especially important when determining the ways of working on scientific terminological vocabulary.

The lexical composition of scientific speech is a special system, which consists of three parts:

- a. special (terminological),
- b. general scientific,
- c. commonly used.

Special lexical units, the meaning of which is expressed through definitions, are called terms. Terminological vocabulary includes words that are understandable only to a narrow circle of specialists in this industry. The most common way to determine the meaning of terminological vocabulary is its definition.

To increase the effectiveness of teaching scientific terminological vocabulary, a differentiated approach to the selection of vocabulary material, its presentation and consolidation is necessary. This approach is carried out on the basis of a linguo-methodological typology, which provides for the gradation of learning difficulties.

Under the linguo-methodological typology in traditional science is understood the classification of language units by (groups) in terms of the difficulty of their understanding.

---

\* Corresponding author: [muyassarxmedova1968@gmail.com](mailto:muyassarxmedova1968@gmail.com)

## 2 Literature review

In modern methodology, there are numerous approaches to the development of a typology of vocabulary.

M.S. Latushkina builds a typology based on the features of the form of words. She proposes to take into account the length of words, their belonging to the class of concrete or abstract, as well as the ability to call the image of words in the mind [1]. However, among these typological features there is no word compatibility, the volume of meanings is not taken into account (polysemy).

A description of the quantitative approach to identifying lexical difficulties is given by A.A. Zalevskaya. As a unit of word difficulty, this work considers the word-formation structure of the word, in particular, its three elements: prefix, root and suffix. The degree of difficulty of a word is calculated as the sum of the information loads of its individual elements. Only unknown elements of the word are counted, and the information load of any familiar element is zero [2].

M.A. Pedanova determines the quantitative characteristics of words, taking into account their qualitative features. She reduces them to a set of five opposing pairs: a) noun (adjective) - verb; b) fame - unknown; c) concreteness - abstractness; d) match - mismatch of the volume of values; e) small - large length of words [3].

The essence of a quantitative characteristic built on these features is that the replacement of one feature in the set with the opposite one increases the difficulty of mastering words. A quantitative characteristic of the difficulty of mastering a word is a summary characteristic obtained on the basis of five separate estimates of the difficulty of memorizing words according to the selected features. [3]

Attempts to create a methodological typology of the terminological vocabulary of individual sublanguages were made by various researchers. Some authors consider the ratio of the meaning and form of lexical material, as well as the nature of the emerging interlingual interference, as the basis for the gradation of learning difficulties. [4, 6]

Other researchers use an integrated approach to creating a methodological typology, taking into account such criteria as: a) the ratio of the meaning and form of a word in the native and foreign languages, taking into account possible interference; b) the nature of the word itself in the target language [6, 5,].

This approach helps to understand the nature, sources of errors, and, consequently, to eliminate the possibility of their occurrence. In methodological science, there are typologies for the terminological vocabulary of various sublanguages: construction, technology, electronics, mathematics, biology, medicine, chemistry [7, 8, 9].

Terms and terminological lexical units are not isolated from general literary words.

Special vocabulary (in our case, ICT vocabulary) can be considered as a type of vocabulary, the features of which create conditions that facilitate its memorization. It can be considered at the same time as a group within which the terms can be distributed according to the relative difficulty of their memorization, which also occurs when memorizing the words of a general literary language. When developing a methodology for explaining and primary consolidation of terms, it is necessary to take into account: 1) the connection of terms with the system of concepts of infocommunication technologies as a logical support that facilitates its memorization; 2) features of the form and meaning of terms that affect memorization [10:109].

The linguo-methodological typology of terms is usually carried out according to the same parameters as the typology of non-terminological vocabulary. Some papers note that not all of these parameters are equally important for ranking terms according to the difficulty of understanding. [12, 4, 13]

### 3 Research methodology

Based on the analysis of the texts of the ICT sublanguage, we have identified factors that can cause difficulties in understanding the terms of this sublanguage.

These include:

- a. the scope of the use of concepts;
- b. linguistic means of expressing concepts (word form and lexical content of the form);
- c. cognitive activity, manifested through the structure of activity with linguistic material and due to the ratio of the conceptual meaning of the term and the complex lexical meaning of the word;
- d. the use of the word of the term in a specific text [10:109].

In the process of analyzing ICT vocabulary, we identified 5 groups of terms and terminological units:

Group 1 - international terms and phrases, an element of which has an analogue in the Uzbek language;

Group 2 - terms that are on the periphery with commonly used vocabulary;

Group 3 - phrases, one of the components of which is a term;

Group 4 - vocabulary that arose on the basis of the commonly used metaphorization;

Group 5 - complex lexical units.

Accordingly, on the basis of linguistic means expressed by these lexical units of concepts, we define the following typology of levels of complexity of understanding terminological lexical units in the communication process.

So, the 1st level of complexity consists of international terms with an analogue in the Uzbek language:

- 1) the most frequent words are terms, for example: model - model, script - skript, traffic - trafik, hosting - hosting, etc.;
- 2) phrases, the element of which is a term that has an analogue in the Uzbek language, for example: passive server - passiv serveri, local terminal - mahalliy terminal, program files - dasturiy fayllar.

This is the easiest level. Terminological units of this level are characterized by the fact that their conceptual meaning requires minimal effort to comprehend and the further use of these lexical units in professional communication does not cause difficulties.

The 2nd level of complexity is made up of terms that are on the periphery with commonly used vocabulary. Their conceptual meaning is formed by a complex lexical meaning, but the recognition of the conceptual meaning is already based on the establishment of new connections between denotations for students, namely: a digital channel, an automated system, a service node, an access network, etc.

The 3rd level of complexity includes lexical units represented by phrases, one of the components of which is the actual term. The conceptual meaning of these terms is derived from the complex lexical meaning. For example: telecommunications network, subscriber station, voice path, etc..

The 4th level of complexity is represented by lexical units that arise on the basis of commonly used vocabulary. Understanding these terms is based on rethinking the meanings. These lexical units can be represented as word-terms, for example: switching, blocking, flow, blocking, system, function, and phrases, for example: signal label, check flag, cold start, dialog box, et. [1-7]

The 5th level of complexity consists of complex lexical units represented by different lexical layers, for example: cellular communication networks, automatic telephone exchanges, digital data transmission standard, etc. Thus, in the overall system of work on the formation of lexical skills for understanding ICT vocabulary, the following features should be taken into account : the connection of this vocabulary with common, general

technical vocabulary and other terminological systems; the presence in the lexical structure of terms of non-terminologized terminological elements, i.e. common language words that have not changed their meaning.

## 4 Analysis and results

Lexico-stylistic analysis of ICT terms, level classification of their complexity can become the basis for improving lexical skills in operating with ICT vocabulary, forming lexical skills in reading, speaking, writing and listening [10:109].

Lexico-stylistic analysis of ICT terms, level classification of their complexity can become the basis for improving lexical skills in operating with ICT vocabulary, forming lexical skills in reading, speaking, writing and listening.

Analysis of the structural form of lexical units made it possible to identify the following models in the ICT terminology system: the most frequent are the phrases “adjective + noun”; the second most frequent type of phrases “noun + noun in gender. p.”; other types of phrases occupy the peripheral part. Another essential feature of the ICT vocabulary is the presence of complex terms of a descriptive type [8-16].

## 5 Conclusion

Taking into account the linguistic features of the terminological vocabulary of ICT and the analysis of the structural form of terms made it possible to create a typology of this layer of vocabulary. The typology is based on a five-level system of complexity of understanding terms in the process of communication:

- 1) international terminology with an analogue in the Uzbek language;
- 2) terms that are on the periphery with commonly used vocabulary;
- 3) phrases, one of the components of which is the actual term;
- 4) lexical units arising on the basis of commonly used vocabulary through transparent metaphorization;
- 5) lexical units represented by different lexical layers.
- 6) The use of active methods and interactive technologies in teaching ICT vocabulary develops creative initiative, encourages the acquisition of knowledge and practical skills aimed at improving communication in a professional environment.

## References

1. M.S. Latushkina, Vocabulary work in English in grades 5-6 (Moscow, 1992)
2. A.A. Zalevskaya, Psycholinguistic studies of the principles of organization of the human lexicon (Sciences, Leningrad, 1980)
3. M.A. Pedanova, Methodical classification of vocabulary and its use in teaching a foreign language in a technical university (Sciences, Moscow, 1970)
4. E.Yu. Dolmatovskaya, Methods of teaching terminology in a specialty in a non-linguistic university (English) (Sciences, Moscow, 1976)
5. I.R. Akhmedov, *On professional communication in teaching the Russian language* Materials of the international scientific conference (NUUz, 2008)
6. V.I. Andriyanova, D.I. Ruzieva, The Development of Russian Speech of Uzbek Schoolchildren in the Conditions of Individualization and Differentiation of Education (on the Material of Temporal Relations) (Ukituvchi, Tashkent, 1996)

7. K.A. Tsoi, The study of special (economic) vocabulary on the basis of word-formation nesting in national groups (Sciences, Tashkent, 1992)
8. N.E. Sharipova, Linguistic and didactic foundations for teaching the legal vocabulary of the Russian language in the Uzbek audience (based on texts in the specialty) (Sciences, Tashkent, 2007)
9. P.M. Shore, Some questions of the methodology of working on foreign vocabulary at the II stage of a non-linguistic university (Sciences, Moscow, 1973)
10. S.Kh. Abdullaeva, Talim tizimida ijtimoiy humanitar fanlar **4**, 108-110 (2009)
11. S.V. Panyukova, Information and communication technologies in student-centered learning (Progress, Moscow, 1988)
12. G.O. Vinokur, On some phenomena of word formation in Russian technical terminology (Nauka, Moscow, 1993)
13. M.N. Evstigneev, Questions of teaching methods at the university: an annual collection **3(17)**, 198-211 (2014)
14. Yu.N. Baboshko, On the methodology for the study of terminological systems. In: Theoretical questions of the Romano-German. Philology (Rep. Sat., Gorky: GPI im. Gorky, 1976)
15. A.N. Antyshev, Issues of special text analysis: Interuniversity. Subject scientific Sat. (Ufa, 1989)
16. V.I. Baidenko, Higher education in Russia **11**, 3-13 (2004)