Section A -Research paper

THE IMPORTANCE OF STUDY OF THE TRANSLATION OF SCIENTIFIC AND TECHNICAL TERMINOLOGY

Kosimova Dilfuza Kurganovna, docent, department of Uzbek (rus) language

Tashkent state transport university, Tashkent, Uzbekistan

Tashkenbayev Tashtemir Tashkenbayevich, docent, Department of Foreign Languages,

Tashkent state transport university, Tashkent, Uzbekistan tashtemir6026@gmail.com

Abdurakhmonova Zebo Yuldoshevna, assistant, Department of Foreign Languages,

Tashkent state transport university, Tashkent, Uzbekistan

Abdurakhmanova Sahibakhon Abdusalamovna, assistant, Department of Uzbek (rus) language

Tashkent state transport university, Tashkent, Uzbekistan

Abdukadirova Shakhnoza Bakhtirovna, assistant, Department of Uzbek (rus) language

Tashkent state transport university, Tashkent, Uzbekistan shahnozagafurovna1970@gmail.com

Akhrarova Nigora Sabirovna, assistant, Department of Uzbek (rus) language

Tashkent state transport university, Tashkent, Uzbekistan nigoraahrarova9@gmail.com

Abstract: Due to the rapid development of modern technologies, the translation of scientific and technical terminology is especially relevant recently. To date, scientific and technical translation is not only a type of translation activity, but also a separate applied discipline. A distinctive feature of scientific and technical texts is the abundance of terms and various phrases, formulas, graphs, the translation of which can cause a number of difficulties. And the main task of scientific and technical translation is a concise and accurate presentation of information and the absence of any emotional coloring. Due to the rapid development of technology, new terms (neologisms) are constantly appearing in the scientific language, which even the latest dictionary does not have time to fix, which also presents great difficulties in translation. Thus, the relevance of our work is determined by the lack of knowledge of the translation of terminology from Russian into English, especially on the material of such narrow fields of knowledge as opt informatics. The relevance of our research work is also due to the increasing role of the importance of adequate translation of scientific terminology.

Keywords: phrases, formulas, graphs, translation, definition, scientific, technical texts, terminology, research, knowledge.

As for the purpose of this work, it can be defined as the identification of difficulties encountered in the translation of scientific and technical terminology. Moreover, one of the goals is also to create an electronic dictionary that would be able to include multicomponent terminology

applicable in narrower, little-studied areas of knowledge. In accordance with the purpose of the work, the following tasks were formulated, the solution of which is aimed at a comprehensive disclosure of the topic and achieving the goal:

1. Familiarization with the basic concepts of the scientific and technical field

2. Selection of materials and tools for analysis and research

3. Extraction of multicomponent terms for further research

4. Search for an algorithm and construction of a translation hypothesis for translation

5. Creating a dictionary

The theoretical significance of this work is due to the importance of research and study of the specifics of the translation of scientific and technical terminology. As for the practical significance, it consists in the fact that, one way or another, sometimes a translator has to deal with scientific and technical terms, and at the same time with the difficulties of technical translation, without knowledge of which many mistakes can be made, even if they speak a foreign language well. In this regard, this research paper can become a good guide for the translation of terms of varying degrees of complexity. Russian - Russian and Russian–English terminological technical dictionaries, as well as scientific and technical texts, as well as electronic English–Russian and Russian-English terminological technical dictionaries, were used as research materials. In the practical part, the corpus of the text is considered, which includes annotations to articles of a scientific and technical nature, and in particular, opt informatics. Economic and state relations between different countries, the continuous development of science and technology, as well as modern technologies in various fields of activity increase the importance of a foreign language, which acts as a "bridge" between representatives of different cultures and languages. There is an increasing need for specialists who understand various fields of scientific and technical translation, specialists who are familiar with the terminology of texts of such a plan and are able to competently and adequately carry out both written and oral translation of not only general scientific, but also narrow-profile technical terms. But first let's figure out what a "translation" is.

There are many definitions. Komissarov V. N. defines translation as a type of language mediation, which is entirely focused on the foreign-language original [7]. If we mean translation from one language to another, then here translation can be considered as a process and as a result. In the first case, it is an action that makes the translation text appear. Translation as a result, in turn, implies a ready-made translated text. Barkhudarov L. S. gives the following definition: "Translation is the process of converting a speech work in one language into a speech work in another language while maintaining an unchanged plan of content, that is, meaning" [2].

The Scottish linguist John Catford, who is the founder of the theoretical concept of translation, argues that translation is the replacement of text material in one language(s) with equivalent text material in another [18]. Based on this definition, it can be concluded that the main problem of translation is the establishment of the nature and conditions of translation equivalence. To date, the vast majority of research is aimed at studying the specifics of translation from English into Russian. There are very few studies concerning the peculiarities of translation from Russian. V. S. Russian - Russian Translator's Handbook, by Slepovich, says that translation from Russian to English is a much more complex process than from English to Russian, since it requires a more in-depth knowledge of linguistic and national realities [19]. Based on this definition, we can fully assess how difficult and time-consuming the translation of scientific and technical literature is, especially from Russian into English.

In this paper we are dealing with the translation of texts of scientific and technical style. In this regard, it is necessary to find out what style is, what texts of this subject are and what features they have. The style of a language is a set of linguistic means. The style of scientific and technical literature, in turn, is distinguished by the presence of special characteristics. First of all, it's vocabulary. In scientific and technical texts, special terms are used, which are selected in accordance with the field of knowledge to which a particular text belongs for the accurate transmission of thought. As for grammar, scientific and technical texts abound in the use of passive, impersonal and vaguely personal constructions. Most of the sentences are compound and compound. Consequently, conjunctions, compound prepositions and various phrases are widely used in the language of scientific and technical style. In addition, it is worth noting that the author of the text, trying to convey information and explain certain facts, discoveries, processes, avoids personal verb forms, replacing them with a passive voice. In this regard, it becomes obvious that all processes and phenomena in the text act as subjects, while eclipsing the author of the text. The style of presentation of information.

The main feature of the scientific and technical text is the brevity of the presentation of the material and the clarity of the formulations [17]. Zhidkov A.V., in turn, highlights the following features of the style of scientific and technical translation: strict consistency and consistency of all components of the idea presented by the author, the content of the text, accessibility to a specialist of a particular field in terms of understanding the information presented, as well as a statement of scientific fact [5]. Having found out what the style of scientific and technical texts is, we should proceed to the definition of scientific and technical translation. There is an urgent need to create and substantiate scientific and technical translation as a separate discipline. According to A.I. Melnikova [15], scientific and technical translation is the translation of special texts of a scientific and technical nature, carried out by specific methods other than the translation of fiction. As for the purposes of translating scientific and technical texts, the main ones are to achieve adequacy and equivalence. This means that the translation must convey the content of the text in English, while observing all the norms of the translating language. The monograph "Scientific and Technical Translation" [10] deals with the important role played by scientific and technical translation in the international exchange of scientific information in recent years. In the 1930s and 1950s, special attention was paid to the translation of literary texts, and later, the creation of a general linguistic theory of translation and a more detailed study of scientific and technical began to occupy leading positions among scientists and translators. The authors of this monograph define scientific and technical translation as dynamic and diverse. This is due to the fact that science does not stand still, information requests change, which has a great impact on the ways of translation, as well as the conditions under which scientific and technical translation is carried out change. New forms of translation are beginning to play an increasingly important role, which, unlike all of us known written and oral translations, impose special requirements, as well as put forward their own conditions and criteria according to which the quality of the translation is evaluated [22].

After familiarizing yourself with the basic definitions in the field of translation, you should move on to translation problems. It is very important to pay attention to the difficulties that a specialist may face when translating scientific and technical literature. All the difficulties that a translator may have, I. D. Lyutkin [14] divides into two large groups: linguistic and organizational and legal, which are closely related to each other. Linguistic difficulties cover a number of important problems related specifically to translation:

1. Achieving the adequacy of the translation.

2. The discrepancy in the linguistic means of two languages when expressing the same concepts.

3. The variety of topics of translated materials from different fields of knowledge, with which the translator should be well acquainted. As for the organizational and legal difficulties, I. D. Lyutkin claims about the weak development of the categorization of full-time translators, its isolation from other difficulties and the peculiarities of the work of translators. Some difficulties in translating scientific and technical texts are given attention in the journal "Young Scientist", in the section "Philology" [1]. Due to the rapid development of technology, new terms are constantly appearing in the scientific language. In other words, neologisms. Based on this fact, we can conclude that the translator is obliged to replenish the vocabulary not only in his native language, but also in the target language. In addition, the translator should be interested in the field in which he works, use all possible dictionaries, reference books, special literature and contact a specialist in a particular field as needed.

In his article entitled "Features of translation of scientific and technical texts" Pavel Alexandrovich Elin, President of the ABC-Translations Group of Companies, identifies three main points that can cause difficulties in translating scientific texts [11]: 1. The presence of only linguistic, but not technical knowledge. It's all about special terminology, an adequate translation of which is impossible for a person who knows the language, but does not have technical competence and vice versa. 2. Translation of terms that are characteristic of a particular field of science and technology. The author gives a remarkable example from the field of ecology, when a translator, not having the necessary knowledge in this area and, when faced with the word "indicator", most likely mistakenly translates it into English as indicator. Rather, this is not a mistake, but there are words, such as spike, guide, directly related to environmental terms, the use of which in this particular case will be the most correct [8]. The enormous responsibility placed on the shoulders of translators of scientific and technical literature and documentation. And this is not surprising. It is easy to imagine the awkwardness of a situation in which the translator made a mistake adapting the operating instructions of the washing machine from English into Russian. Moreover, it is not profitable for companies to hire an employee who is incompetent in this area, while risking their reputation. Having considered some general features of the translation of scientific and technical texts, it is worth saying that the most important and important feature of scientific and technical texts, which can also cause a number of difficulties in translation, is the presence of specific terminology that requires the translator to know the terms of a specific field.

The concepts of "term" and "terminology" A sharp leap in the development of science and technology was the result of the fact that the main layer of all new words that appear in different languages every day is a special vocabulary. In this regard, there is a need to study and organize the units of special vocabulary. What is the scientific and technical terminology? Scientific and technical terminology, or NTT, can be defined as a complex and very important component of science and technology; as a group of terms functioning in a certain field. According to I.D. Lyutkin, the value of the NTP depends on the accuracy of the term and on the accuracy of its translation into another language [14] Due to the fact that the features and behavior of a term are determined by the field of knowledge to which it belongs, terminology - a set of terms used in a certain field of knowledge - acts as the main object of terminology (a science that studies special lexical units). Despite the fact that linguists have been studying issues related to terminology for decades, there is still no generally accepted definition for the concept of "term" [23]. The search for a definition of the concept of "term", the most adequate to the essence of the corresponding object, in the science of terms has not stopped for decades [23]. According to Leychik [13], each of them reveals its own shortcomings, logical blunders and inconsistency of the properties and signs of the term established by definitions with its real, linguistic and speech appearance [12]. Such a number of different definitions is due to the fact that by the time these definitions were formulated, the scientific discipline in which the term would have been in the first place simply did not exist. Moreover, the term is associated with a

number of sciences and each of them highlights only those features and features of the term that are directly related to it. R. F. Pronina defines the term as a word or phrase that has a special, strictly defined meaning in a particular field of science and technology. In his work, the author considers the term as a word with a certain technical meaning, which varies depending on the use in texts of different fields of knowledge. Moreover, Raisa Fedorovna points out that each term has an exact concept, and the term itself tends to be unambiguous. L. V. Shcherba characterized compound terms as combinations of words that have structural and semantic unity and represent a dissected terminated nomination [24]. Taking into account the provisions discussed above, it seems to us that the definition of the term given by S. V. is exhaustive. Grinev, in which he characterizes the term "as a nominative special lexical unit (word or phrase) of a special language, accepted for the exact naming of special concepts" [4]. According to V.P. Smekaev [21], the term is an emotionally neutral word or phrase that is used to accurately define the concept or purpose of objects.

The term is always precise, stylistically neutral and implies a strictly defined meaning, which is revealed by logical definition. The same terms may have different meanings if they are used in texts of different fields of knowledge. In this case, the translator must be able to freely and competently operate with special terminology specific to a particular industry. D. S. Lotte [13] argues that the advantage of each term is its accuracy, intelligibility, easy memorization and mastering. From this point of view, it is particularly necessary to focus on borrowing foreign or, more precisely, foreign-language terms. In his work, the author pays attention to Russian technical terminology, which is distinguished by a huge number of foreign terms borrowed in literal or distorted sound form or, finally, representing a translation of a foreign term (often without taking into account the specifics corresponding to foreign terminology) [3]. As mentioned above, terminology is a group of terms that functions in a certain area. Based on this definition, it becomes necessary to find out what the terms are in terms of form, as well as what difficulties may arise when translating scientific and technical terms.

Classification of scientific and technical terms: The question concerning the classification of scientific and technical terms has always been and remains relevant today. The constant replenishment of dictionaries with new terms is the main confirmation of this. As a rule, all terms are divided into [20]:

1. *Simple (consisting of one word).* For example, baffle visor- козырек, щиток.

2. *Complex (consisting of two or more words and, as a rule, written together or hyphenated).*

For example, electromagnetic — электромагнитный. 3. Complex terms - phrases. For example, block-schematic diagram (BSD), translated into Russian as a block diagram. In my opinion, the most accurate and complete classification of scientific and technical terminology, and, in particular, multicomponent terms, is presented in his work "The Craft of a technical translator" by Boris Nikolaevich Klimzo, who has extensive experience as an engineer and translator. B. N. Klimzo gives the following classification of terms [6]:

1. **Tracing paper terms.** By name, it is not difficult to guess that the way to translate this group of terms is calcification, in other words, literal translation. According to Klimzo, tracing papers are often found in scientific and technical texts. For example, the term elastic solution can be translated as "elastic solution" (and not "elastic theory solution"). But it is worth noting that if the frequency of using the same term in the text is high, it would be best to apply the calculus method in the first case of using the term, but the second, more detailed version should be indicated in parentheses.

2. **“Tricky” two-component terms.** The author calls two-component terms those terms that contain two words. A distinctive feature is that when they are translated, they change places, i.e.

the definition becomes definable and vice versa. Boris Nikolaevich Klimzo proves this by giving a number of examples, such as schedule estimate – a two-component term that we will translate into Russian as "indicative schedule", not "planned assessment"; example problems – "examples of problem solving", not "sample tasks" and a number of others.

3. **Multicomponent terms.** By name, it is easy to guess that multicomponent terms are called terms consisting of several words, which at the same time do not have grammatical connections among themselves. Moreover, an important role in the translation of a multicomponent term is given to the context. Pronina R. F. offers a more detailed classification of multicomponent terms, dividing this group into [16]: 1. Phrases, the way of communication between two or more words is adjunction. For example, load governor - регулятор мощности; 2. Phrases whose components are connected by a preposition. For example, rate of exchange - валютный курс.

The author divides the terms - phrases into 3 groups. The first group. Both elements are taken from a special dictionary, but each of them individually does not lose its semantic load and can be used independently of the other. For example, brake – тормоз; gear – привод, шестерня. But in this case, if both of these terms occur in the same phrase, the meaning changes radically: we will already translate brake gear as "тормозное оборудование ". The second group is represented by a combination: a technical term + a word of common vocabulary. Pronina R. F. he calls this method of formation of scientific and technical terms the most productive than in the first case. Consider the example of back coupling - feedback. We see that the first component is a common vocabulary, since the word is used in its usual meaning. Also, the second component may be a term applicable in many fields of science and technology. For example, safety switch – аварийный выключатель, locked switch – закрытая стрелка. In both cases, the two components are the same word. But due to the fact that each of them together with the first component gives a different translation from each other, we can conclude that special terms very often directly depend on the words of common vocabulary. When translating terms, you should not use computer programs for translation, since even they are not able to provide a full translation. The main disadvantage of electronic resources for translation today is insufficient coverage [9].

This is due to the fact that scientific and technological progress gives life to new sciences that require competent translation. Even electronic translators do not keep up with the constant updating of terminology in various fields of knowledge. Terminology based on the material of opt informatics presents a number of difficulties in translation, especially from Russian to English. In this regard, it makes sense to talk about creating lexicon dictionaries that will be able to accurately translate scientific and technical terminology in a certain field or area of knowledge, and the most important advantage of such dictionaries will be the automatic updating of multicomponent vocabulary for 100% coverage and correctness of the dictionary. The practical part of our work is based on working with the corpus of text compiled from annotations on opt informatics. The next stage was the work in the Lana key program in order to identify the most frequent multicomponent terms, which were then checked in the text in order to make sure that they do not have a continuation in the text. Next, the translation hypothesis and the main problems of translating multicomponent terms are considered. The main difficulties include a variety of translation options for the same nominal group, the search for an English equivalent for a Russian term, as well as the translation of attribute groups. Thanks to our research, we have determined that most often when translating from Russian to English, most of the terms are constructed using prepositions, we have established differences in grammatical forms, which may cause difficulties in translating. The hypothesis of our research was confirmed by the formulation of specifics, problems of translation of scientific and technical texts in general, and scientific terminology in particular. The relevance of creating a dictionary with a higher level of coverage, which could include multicomponent terms of various fields of knowledge, is proved.

Conclusion: In this paper, the problems of translation of scientific and technical terms were considered, among which the problems of translation of multicomponent terminology aroused particular interest. To date, issues related to the translation of scientific and technical literature are of great interest to specialists. The first chapter is entirely devoted to the consideration of such concepts as translation, scientific and technical translation, terminology and terminology. We paid special attention to the peculiarities of scientific and technical texts in terms of vocabulary, grammar and style of presentation of information. They demonstrated the important role of scientific and technical translation in the international exchange of scientific information in recent years. It was mentioned that the translator should not only have knowledge of the language, but also be a specialist in the field in which the translation is carried out. A sharp leap in science and technology has led to the fact that every day there are more and more new terms that require highquality translation, and therefore difficulties arise. The variety of definitions of the concept of "term" is due to the enormous variety of fields of knowledge in which the main layer of vocabulary is the term. The main advantages of each term is its accuracy, intelligibility, easy memorization and mastering. Moreover, each term has an exact concept attached to it, and the term itself tends to be unambiguous. In addition, various classifications of scientific and technical terms are considered, which once again confirms the diversity of research on this topic. A separate paragraph indicates the models and methods of the formation of scientific terms in both English and Russian, and also discusses the problems of translation of technical terms. Scientific terminology can be represented by different parts of speech, but the main layer is nominal terminology, in particular multicomponent, which is of the greatest interest in our work. The second chapter discusses the translation of scientific and technical multicomponent terms in practice. Our research was conducted on the material of texts on opt informatics, since this field is a relatively new field based on mathematics, IT and optics, dealing with the processing and transmission of information and energy using electromagnetic field quanta - photons. Opt informatics is actively developing in Russia, which suggests that the translation of scientific and technical terminology in this field from Russian into English is of great interest to specialists, and every study aimed at identifying translation problems finds its place in science. The first stage was the processing of a body of text consisting of annotations of articles on opt informatics, with a total volume of more than 150,000-word usage, in the Lana key program. In our study, we considered four-component terms, since they are the main difficulties in translating from Russian into English. Russian is a result of the difference in the syntactic structures of the two languages, the variety of equivalents in the English language that fall on one Russian term, as well as the appearance of new components in the English equivalent when translated from Russian. Further, a translation hypothesis was developed, which makes it easier for the translator to solve the problem and increase the chances of finding a more accurate equivalent of the term in English. Each term was translated using this technique, and also checked in Internet search engines in order to identify the use of a particular term in the texts of technical fields of knowledge. Dictionaries such as Transit, Google and Prompt were among the main assistants in the translation of terms. When performing practical work, the absence of dictionaries capable of giving a 100% qualitative equivalent of the desired term was revealed, and the need to create lexicons – dictionaries of multicomponent terms of highly specialized vocabulary was also found. A Russian English dictionary has been compiled, which can be useful for students, specialists and translators. Recommendations on the use of dictionaries are given.

Examples:

Terms (Rus)	**(frequency of use)**	**Terms (Eng)**
решение скалярного волнового уравнения	143	solution of the scalar wave equation
ступенчатый профиль показателя преломления	136	refractive index profile
градиентный профиль показателя преломления	21	graded profile of the refractive index
неограниченная площадь попе речного сечения	9	unlimited cross-sectional area
поле локальных плоских волн	8	field of the local plane waves
поле мод высших порядков	7	the higher-order постоянная
постоянная распространения направляемых мод	7	propagation constant of guided modes

References:

1. Ахметова, Г. Д. (2015). Некоторые сложности перевода английских технических терминов. Молодой ученый. Ежемесячный научный журнал, (4), 84.

2. Бархударов, Л. С. (1975). Язык и перевод.

3. Danilenko V. P.

1977 Russian terminology. The experience of linguistic description.Moslwa: Nauka publisher

4. Гринев, С. В. (1993). Введение в терминоведение. Московский лицей.

5. Жидков, А. В. (2014). Понятие “научно-технический перевод”. Science Time, (4 (4)), 99-102.

6. Климзо, Б. Н. (2011). Ремесло технического переводчика.

7. Комиссаров, В. Н. Теория перевода (лингвистические аспекты) : учеб- ник для ин-тов и фак. иностр. яз. / В. Н. Комиссаров. – М. : Высшая школа, 1990. – 253 с.

8. Konyayeva L. A.

2015 “On some difficulties in scientific and technical translation”. Translation and comparative linguistics no.11: 50-54

9. Kosarevskaya T. A.

1989 Structural and semantic characteristics of three-component terminological formations (wased on the material of the language of computer technologies). Moskwa:Kiyev Publisher

10. Марчук, Ю. Н., & Ванников, Ю. В. (1987). Научно-технический перевод. Наука.

11. Елин, П. А. (2012). Особенности перевода научно-технических текстов. Научная периодика: проблемы и решения, (4), 11-13.

12. Лейчик, В. М. (2009). Терминоведение. Предмет, методы, структура, 287.

13. Лотте, Д. С. (1941). Некоторые принципиальные вопросы отбора и построения научно-технических терминов. Л.: Издательство Академии наук СССР.

14. Люткин, И. Д. Научно-технический перевод с русского языка на анг- лийский. Методическое пособие для переводчика-практика / И. Д. Люткин; под ред. А. Я. Шайкевича. – М. : Изд-во ВЦП, 1991. – 125 с.

15. Мельникова, А. И. (2015). Научно-технический перевод и его виды. Язык и культура (Новосибирск), (17), 116-120.

16. Пронина, Р. Ф. (1986). Перевод английской научно-технической литературы: Учебное пособие для вузов. Высшая школа.

17. Пумпянский, А. Л. (2013). Введение в практику перевода научной и технической литературы на английский язык. Рипол Классик.

18. Раренко, М. Б. (Ed.). (2013). Основные понятия англоязычного переводоведения. Терминологический словарь-справочник. Directmedia.

19. Слепович, В. С. (2013). Настольная книга переводчика с русского языка на английский= Russian–English Translation Handbook.

20. Смекаев, В. П. (2014). Современный технический перевод. Учебное пособие. Английский язык. М.: Валент.

21. Смекаев, В. П. (2006). Учебник технического перевода (английский язык). М., Н. Новгород, НГЛУ им НА Добролюбова, Вектор ТиС, 316.

22. Швейцер, А. Д. (1988). Теория перевода: статус, проблемы, аспекты. Наука.

23. Шелов, С. Д. (2010). Еще раз об определении понятия «термин». Вестник Нижегородского университета им. НИ Лобачевского, (4-2), 795-799.

24. Щерба, Л. В. (1974). Опыт общей теории лексикографии.