Features of Translating Scientific Texts into English

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Abstract

The theoretical significance lies in the fact that the article makes a certain contribution to the development of theoretical and practical aspects of translating humanitarian texts in the scientific style. The research aimed to address the following specific tasks, namely, to consider ways to achieve equivalence and adequacy in the translation of scientific texts in the humanities. An equally important task was to show and analyze translation transformations, in particular the methods of translating metonymies, abbreviations, metaphors, and phraseological units. It was noted that the difficulty in translation was caused by non-equivalent words, terms, and phrases, for which it was necessary to find a counterpart in the target language or at least to convey the meaning of the word so that the foreign reader could understand what was being said. The exact genre of the text was explained by the fact that, at first glance, the text is not a scientific one. It is noteworthy, that firstly, it is a text in the field of foreign language teaching, and secondly, it contains stylistic techniques, metaphors, metonymies, and phraseological units that are not typical of the scientific style of the Ukrainian language. In English, this is permitted. There is a problem with choosing the most appropriate translation technique for conveying the stylistic, lexical, and grammatical features of the text. The analysis of translation in the humanities has led to the following conclusions. Professional translation requires a good knowledge of the field of activity in which the translation is to be performed. Equally important is the knowledge of the source language and the ability to express one's thoughts competently in the target language. Moreover, when translating humanitarian texts, adequate, descriptive, metonymic, metaphorical, antonymic, and substitutional translations are often used. Accuracy, brevity, conciseness, clarity, literary quality, and equivalence are the main requirements for translating scientific humanitarian texts.

Keywords: scientific text, humanitarian scientific text, scientific term, translation, translation transformations, scientific discourse

1. Introduction

The translation process is one of the most significant yet simplest phenomena in the global life of mankind. The language of mankind has changed its existence due to a large number of different circumstances. The main one is the diverse development of society, which subsequently leads to interlingual differences, namely translation transformations in both oral and written forms, which occur in all spheres of human activity. Since the second half of the last century, translators have been working on simplifying the process of translating a foreign language, and various studies have given definitions of the phenomenon of transformations in translation. Attempts have been made to use open geographic information systems for the study of translation based on computer modeling (Iatsyshyn, A., Iatsyshyn, A., Kovach, V., Zinovieva, I., Artemchuk, V., Popov, O., Turevych, A., 2020). Models for the transmission of characters' inner speech based on psycholinguistic projection were made (Shytyk, L., & Akimova, A., 2020)

Since each translation is subject to a different degree of conventionality, the theory of linguistic meanings and word meanings is carefully developed. Accordingly, translation theory should not consider any relationship between texts in the source and target languages, but only regular, i.e. typical, regularly repeated relationships. Because of this, one of the results of building a theory of complex systems is the emergence in the practice of interlingual transformations, different methods or techniques of translation that are widely used by professional linguists. A competent specialist should not consider them separately but in their overall complexity.

The translation process is a creative activity. For inexperienced professionals, it can cause difficulties, since there are original approaches, i.e. going beyond certain limits, leading to the loss of the translation status. In ambiguous cases, translation techniques allow one to act within the framework of the relevant rules. At the same time, a single model (approach) can't reflect all aspects of the phenomenon under study in all its complex interconnections and relationships. Each model carries out the modeled process in a different way; they are not mutually exclusive. On the contrary, there is a lot of overlap, models partially intertwine and only in their totality give an idea of the translation process in all its complexity and diversity.

The main pursop of this article is to showcase the various translation techniques that were employed during the translation of a chapter from Scott Thornbury's book titled "How to teach speaking?" from English into Ukrainian.

2. Literature Review

In this paper, we relied on works on the theory and practice of translation written by well-known authors, namely Guck (1979), Retsker (1974), Barkhudarov (1975), Schweitzer (1988), Miniar-Beloruchev (1996), Komissarov (1975, 1990), Parshin (2000), and Breus (2001). Special attention should also be paid to studies in linguistics related to scientific discourse and discourse in particular (Buyssens, 1943), (Cushing, 1984), (David, 2014), (Lewis, 1952). The scientific interpretation of translation and the translation of scientific texts in particular, as well as the nuances of its implementation, is reflected in the works of many scholars (Palumbo, 2009), (Pinheiro, 2014, 2015), (Shuxin, 2009), (Wilss, 2001), (Newmark, 1988), (Kusfajarini, 2013), (Lvovska, 1985), (Munen, 1978), (Neubert, 1968), (Chuzhakin, 2002), (Baudinet, 2020) etc.

The main task of a translator in achieving adequate translation is to be able to apply the necessary translation transformations (Liu et. al., 2022). This is necessary for a more accurate transmission of all the information contained in the source text while observing the relevant norms of the target language.

In this study, we relied on V.M. Komissarov's classification, according to which translation transformations are divided into lexical and grammatical. Furthermore, there are also complex lexical and grammatical transformations. In these cases, the transformations either affect both lexical and grammatical units of the source language or are inter-level, i.e., they make a transition from lexical to grammatical units and vice versa. Lexical transformations can be used in translation when the source text contains a non-standard linguistic unit at the word level, such as a term in a particular professional field. In our case, these are the terms found in scientific texts in English.

Lexical transformations used in the translation process involving different foreign languages and target languages include the following translation techniques:

- translation transcription and transliteration;
- calque;
- lexical and semantic substitutions:
- a) specification;
- b) generalization;
- c) modulation.

Lexical and grammatical transformations include:

- antonymic translation;
- explication (descriptive translation);
- compensation.

Grammatical transformations include:

- syntactic similarity (literal translation);
- partitioning of sentences;
- integration of sentences;
- grammatical substitutions (forms of a word, part of speech, or sentence member).

Let us take a closer look at some of these techniques.

Transcription and transliteration are methods of translating a lexical unit of the source language by reproducing its form using the letters of the target language. Transcription reproduces the sound form of a foreign language word, and transliteration reproduces its graphic form (letter composition). Most scientific terms containing the suffix *-tion* are formed by transliteration, with the suffix *-ації(й)*: *operation – операція; transaction – операція (господарська); amortization – амортизація; distribution – реалізація; consolidation – консолідація; corporation – корпорація.* Examples of transcription are *holding – холдинг; outsourcing – аутсорсинг; goodwill – гудвіл, etc.*

Calque is a way of translating a lexical item in the source language by replacing its constituent parts – morphemes or words (in the case of stable phrases) – with their lexical equivalents in the target language. This technique is often used when translating composite terms, such as *exchange differences – курсова різниця.*

Concretization is the replacement of a word or phrase of the source language with a broader subject-logical meaning with a word or phrase of the target language with a narrower meaning. Cases of application of this transformation can be found in the following examples, which show that it is the combination of the meanings of the components that determine the meaning of the composite term: *credit facilities (кредитні кошти) – кредитні інструменти.*

Generalization is the replacement of a source language unit with a narrower meaning with a translated unit with a broader meaning, i.e. the conversion that is the opposite of specification. For instance: *foreign exchange losses* (literally: валютні збитки) - *втрати курсової*

різниці (from the difference between exchange rates).

Explication, or descriptive translation, is a lexical and grammatical transformation when a lexical unit of the source language is replaced by a phrase with an explicit meaning, i.e., it gives a more or less complete explanation or definition of this meaning in the target language. Explication can be used to convey the meaning of any non-equivalent term, however, this method of translation is cumbersome. Let us look at some examples: equity method of accounting – метод обліку за власним капіталом (also may also be used the term – метод пайової участі); significant accounting policies – основні засади облікової політики.

According to this classification, syntactic equivalence (literal translation) is a translation method in which the syntactic structure of the original is transformed into a similar structure of the target language. This translation technique is actively used when translating the names of international standards for naming indicators: *IFRS 10 "Consolidated Financial Statements" – МСФЗ 10 "Консолідована фінансова звітність"; other comprehensive income/(loss) – інший сукупний дохід/(збиток); intangible assets other than goodwill – нематеріальні активи, крім гудвілу; other long-term liabilities – інші довгострокові зобов'язання.*

Grammatical substitution is a method of translation in which a grammatical unit in the source language is transformed into a unit of the target language with a different grammatical meaning. This technique is the most commonly used when translating the compound terms in our sample. Let us consider some examples: *accounting policy – облікова політика; market requirement – ринковий попит; tax base – податкова база.*

Thus, we can see that the translation transformations we have discussed are actively used in the translation of scientific texts from English into Ukrainian, as well as in the transmission of the unique terminological information contained in them.

In our opinion, scientific terms thematically reflect all the changes taking place in various spheres of modern life. At the same time, they also contribute to the interpretation of real phenomena and understanding of the specifics of their perception in a particular linguistic and cultural community. The peculiarities of scientific terminological nominations, as well as words that have become entrenched in the language, are related to the uniqueness of the national culture since their use reflects the national and cultural outlook (Crystal, 1990, 1992), (Bowker, 2003). Realities seem to be the most important information for the translator, while also acting as a limiting factor. The accuracy of conveying the realities of scientific discourse is sometimes compromised by the lack of equivalence or lack of awareness of the recipient of objective differences in the scientific climate in different countries.

3. Method

General scientific methods, namely descriptive, analytical, deductive, inductive, and comparison methods were applied while working on the analytical material. Following the purpose and objectives, descriptive and analytical, contextual and interpretive methods, and the method of comparison were used.

4. Results and Discussion

The translation of texts in the humanities stands at the intersection of literary, socio-political, scientific, and technical translation. When translating humanitarian texts, there are higher requirements for the translation of terms and accuracy of meaning, and lower requirements for style (Sterkenburg, 2003), (Ilson, 1987), (Abraham, 1996), (Agricola, 1972), (Benson, 1986).

It should be noted that the correct determination of the genre of the text and the problem of conveying stylistic, lexical, and grammatical devices into the target language is particularly difficult. The informational function of the text is cognitive since the text contains many patterns and expressions characteristic of the scientific style. Even though the scientific text we have chosen for analysis contains both rational concepts (terms, quotes, examples from the experience of other people) and stylistic means (alliteration, epithets, idioms, phraseological units, quotations, inversions, introductory sentences), this text can be attributed to the scientific style, which is characterized by the language of scientific and humanitarian literature. The substyle is academic since it is intended for a prepared addressee. According to Komissarov, emotional epithets (dramatic, successful, excellent, etc.), pictorial and figurative expressions, rhetorical questions, and other stylistic techniques that are not typical of Ukrainian scientific texts are still found in English scientific texts. Nevertheless, we tried to preserve the author's narrative style in the translation without violating the norms of the Ukrainian scientific language. If all stylistic means were removed from the text, the language would be very dry, and the author's "I" would be violated.

It should be mentioned that while translating, special attention was paid to the false friends of the translator, for instance, *data* is translated as *отримані відомості*, *simulation – штучно створена ситуація*, *learning context – середовище навчання*.

We used such translation methods as adequate, descriptive, metonymic, metaphorical, and antonymic to achieve equivalence of translation. An adequate translation is used when the source and target languages have parallel syntactic structures. We used this type of translation in easy-to-understand syntactic structures to convey the meaning of the original text precisely:

Don't over-praise. – Не перехвалюйте.

The pauses marked with vertical lines. – Паузи відзначені вертикальними лініями (Thornbury, 2002).

However, sometimes the use of this technique can be accompanied by some changes in structural components (articles, prepositions, and other serving elements are omitted, and morphological forms and some lexical units are changed):

A radical re-thinking of the relative importance of accuracy and fluency fuelled the evolution of the communicative approach. – Повне переосмислення значущості правильності та побіжності мовлення сприяло розвитку комунікативного підходу (Thornbury, 2002).

And of course speaking always assumes a listener, whether physically present or at the other end of the line. – Говоріння завжди передбачає наявність слухача, який знаходиться безпосередньо перед вами або на іншому кінці телефонного проводу (Thornbury, 2002).

The structural part of the sentence is not changed, and the same number of sentence members and word order in the text is preserved in the Ukrainian translation. The word *relative* is omitted in the translation of the first sentence, the morphological basis of the words has been changed, and some words that do not correspond to the English text have been used. In the second sentence, the word *наявність (presence)* was added, to the listener, who is *at the other end of the line* is translated as *кінець телефонного проводу* meaning *the end of a telephone wire*. Otherwise, the meaning is unclear, however, the sentence structure is preserved and appropriate substitutions are made.

In cases where there was no equivalent or variant Ukrainian word, descriptive translation was often used:

● *Post-course evaluation – оцінка рівня знань учнів після закінчення курсу*

● *Early childhood services – послуги, що надаються дітям раннього віку*

● *Integrating skills – взаємопов'язане навчання різних видів розмовних навичок* (Thornbury, 2002).

The substitutional translation was used to convey neologisms, where a word that has a sufficient commonality of meaning with a foreign word is used in the translation.

● *Target culture – культура мови, що вивчається*

● *Chalk-and-talk type instruction – навчання за методом "крейда, урок та монолог"*

● *Turn-taking – зміна комунікативних ролей* (Thornbury, 2002).

The metonymic translation is a translation based on the transfer of the meaning of adjacency:

● *Remedial teaching – корективне навчання*

● *Field-work – практична робота*

● *L1 accent – акцент рідної мови* (Thornbury, 2002).

Let us consider examples of antonymic translation as a complex lexical and grammatical substitution. Its essence lies in the transformation of an affirmative syntactic construction into a negative one or, vice versa, from a negative to an affirmative one by replacing one of the words of the sentence translated by its antonym.

● *Learners who needed to achieve a functional degree of communicative competence as soon as possible were becoming impatient with the accuracy-fixated approach. – Студенти, які бажали досягти функціонального рівня комунікативної компетенції за короткий термін, хотіли займатися за методикою, орієнтованою на формування правильності мовлення.*

● *In the end, it is not that difficult to marry the two approaches, the task- based one and the genre-based one. – Насамкінець, досить легко поєднати методи комунікативних завдань та жанрово-смисловий підхід у єдине ціле* (Thornbury, 2002).

As part of the antonymic translation, we replaced words not only with antonyms but also with other words and combinations that express the opposite idea.

● *Such interviews are not without their problems, though. – У цього тестування теж є свої недоліки.*

● *It has been a constant theme in this book that the skill of speaking is much more than the oral production of grammar or vocabulary items. – У цій книзі постійно йдеться про те, що навички говоріння – це не просто відтворення в мові граматичних і лексичних структур* (Thornbury, 2002).

Metaphorical translation plays an important role in translation, as it is the means of conveying the beauty of the original expression. Three techniques are distinguished: metaphorization, remetaphorization, and demetaphorization.

Metaphorical translation means replacing a non-metaphorical expression with a metaphorical one:

● *He should never be required to do anything which is beyond his capacity. – Не можна вимагати, щоб він стрибав вище за свою голову* (Thornbury, 2002).

Another type of metaphorical transformation is remetaphorization when one metaphor is replaced by another:

● *Finally, by foregrounding the analysis of texts, there is a danger that teaching can become somewhat academic, with a preponderance of 'chalk-and-talk' type instruction. – Дуже велика увага до аналізу текстів таїть у собі небезпеку: викладання може перетворитися просто на формальний процес, де переважає навчання за методом "крейда, урок та монолог".*

● *Keep the number of display questions (i.e. teacher's questions that are aimed at getting learners to 'display' their knowledge, such as 'What's the past of go?') to a minimum. – Зведіть до мінімуму питання, які потребують демонстрації знань, тобто, вчитель ставить учням питання, які змушують студентів виставляти свої знання напоказ, наприклад, "яка друга форма дієслова to go?"* (Thornbury, 2002).

The essence of demetaphorization means that a metaphor in a foreign text is replaced by a non-metaphorical one:

● *It should be obvious that a quick paper-and-pencil test, such as a grammar multiple choice test, is totally inadequate in terms of assessing a learner's speaking ability.* – Зрозуміло, що письмовий тест, наприклад, граматичний тест з вибором з декількох варіантів відповіді, абсолютно не застосовний для оцінки сформованості навичок говоріння.

● *A casual chat at the beginning can help put candidates at their ease.* – Невимушена бесіда на початку розмови допоможе кандидатам заспокоїтись (Thornbury, 2002).

5. Conclusion

Thus, we can say that the following groups were difficult to translate in the course of the study, and the following problems were faced:

● Non-equivalent words, terms, and phrases needed to be matched in the target language or at least conveyed the meaning of the word so that a foreign reader could understand what was being said.

● The exact genre of the text was explained by the fact that at first glance the text is not scientific. Firstly, it is a text from the field of foreign language teaching, and secondly, it contains stylistic techniques, metaphors, metonymies, and phraseological units that are not typical of the scientific style of the Ukrainian language. This is, however, acceptable in English.

● The problem of choosing the most appropriate translation technique for conveying the stylistic, lexical, and grammatical features of a text.

The analysis of translation in the humanities allows us to draw the following conclusions:

– Professional translation requires a good knowledge of the field of activity in which the translation is to be performed;

– proficiency in the source language and the ability to express thoughts competently in the target language;

– When translating humanitarian texts, adequate, descriptive, metonymic, metaphorical, antonymic, descriptive, and substitutional translations are often used.

Accuracy, brevity, conciseness, clarity, literariness, and equivalence are the main requirements for the translation of scientific humanitarian texts. Thus, the analysis of the translation of a scientific humanitarian text demonstrates the relevance of the further study of this topic.

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