

# Problems Encountered in the Process of Translation and their Possible Solutions: The Point of View of Students of Technical Translation

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# Problems Encountered in the Process of Translation and their Possible Solutions: The Point of View of Students of Technical Translation

Vertimo proceso problemos ir galimi jų sprendimo būdai.  
Techninį vertimą studijuojančių studentų požiūris

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**Abstract:** This research investigates the opinions of novice translators—35 students of the Institute of Applied Linguistics, in Bachelor’s and Master’s Programmes of Technical Translation at Riga Technical University—regarding the problems encountered while translating. Data for the research were drawn from the students’ essays and then explored using content analysis. According to the views of technical translation students, knowledge of the type and nature of translation problems helps the translator solve them and provide adequate, quality translations.

**Keywords:** content analysis, students’ essays, technical translation, translation problems.

**Summary:** Kadangi vertimo procesas reikalauja puikių kalbos įgūdžių ir išsamių dalykinių žinių, vertimas jau savaime kelia daug klausimų, kuriuos reikia spręsti čia ir dabar. Tyrime apibendrinama būsimų vertėjų – 35 Rygos technikos universiteto Techninio vertimo programos bakalauro ir magistro studijų programų studentų – nuomonė apie problemas, su kuriomis jie susiduria versdami tekstą, t. y. vertimo procese. Tyrimo duomenys surinkti iš studentų rašinių ir nagrinėti taikant turinio analizės metodą. Techninio vertimo studentų nuomone, turėdami žinių apie problemų tipą ir pobūdį vertėjai gali lengviau rasti problemų sprendimus ir pateikti tinkamus, aukštos kokybės vertimus.

**Keywords:** turinio analizė, studentų rašiniai, techninis vertimas, vertimo problemos.

## 1. Introduction

The process of translation is often considered to be fun, an assumption common among people who have never actually tried to translate a text that could be reasonably considered to be of a technical or literary nature. Translation, however, can cause many difficulties because of the differences between languages (morphological, phonological, lexical and others). Therefore, the process of translation includes several steps, and a translator has to be very accurate, organized and precise in applying translation strategies/approaches, methods and procedures in practice.

The aim of this research was to learn the opinions of the students of the Institute of Applied Linguistics (IAL), studying in Bachelor’s and Master’s Programmes of Technical Translation at Riga Technical

University (RTU) on the most widespread problems encountered in the process of translation that hinder translators from conveying the message in the most effective way. The objectives of the research were to provide a study of the students' essays based on the examples from the students' translations, which can help highlight the best methods and procedures for solving the aforementioned problems. The data of the research were drawn from the students' essays and then explored using content analysis.

## 2. Theoretical Background

Like representatives of any other profession, translators encounter challenges as well. There are numerous problems faced by experienced professionals in the field and novice translators find them considerably more challenging. A well-known metaphor by John Dryden compares translation with dancing on ropes with fettered legs (Dryden in Ross 2012), while other sources compare translation to turning wine into water or to decanting which cannot be done without spilling, while translators are compared to gladiators in pyjamas. Finally, Robert M. Grant states that there can never be an absolutely final translation (Baker and Saldanha 2007). All the aforementioned comparisons are an expressive and/or humorous way characterizing translation as a sophisticated and challenging occupation. Moreover, 'the complexity increases when the text in question is a specialized one' (Costeleanu 2009: 2), such as the texts the students of the Institute of Applied Linguistics, RTU deal with.

To provide an adequate-quality translation, one of the most important tasks for translators is to be aware of the problems they may face while translating and be ready to solve them. Opinions might differ what an adequate-quality translation is, however, according to Hatim and Munday (2004: 10), the consensus would be 'the literal rendering of meaning, adherence to form, and emphasis on general accuracy'. As one of the students participating in this research stated, 'A reader of your translation should not put too much effort to get its message, so the translation should be simple and understandable.' However, it is a very complicated task to make a translation simple enough and easily understandable for the target readers while also including all the specific details that refer to the area or field of the text, i.e. to make the translation precise and appealing at the same time. The reader should understand the logic of the text.

As stated by Enoch Ajunwa, translation problems may be classified into two basic categories – external and internal or self-inflicted (cf. Ajunwa 2015).

External challenges can, firstly, arise due to the nature of the source-language text itself, for instance, when it is relatively large, complex, highly scientific and technical. Secondly, they may be caused by the ambiguity of the meanings of polysemantic terms or by a lack of terminology in the target language. Researcher Aiga Dukate relates these problems to translation *per se* due to its hybrid nature. According to Dukate (2007:

27), any translation possesses some features of a hybrid text 'due to the nature of translation as a hybrid text anchored in the two relevant cultures – the Source Culture and the Target Culture'. Text hybridity might be one of the main reasons why the translator encounters problems in text comprehension, which is the basic precondition for an adequate and comprehensible translation. To cope with the hybrid nature of translation, domestication and foreignization are the main translation strategies suggested by scholars and applied by the professionals of the field (Dukate (2007: 27)).

As the students of IAL specialize in the fields of telecommunications, construction and economics, there is a wide range of translation problems related to the terminology used in these fields. Among the basic terminology problems the following should be mentioned:

- meanings of existing polysemantic terms are ambiguous and/or synonymous;
- one term refers to several concepts;
- several terms refer to one concept;
- there is a lack of consistency in term creation;
- lack of an appropriate term in the target language (cf. Pūtele 2013).

These terminology problems may be encountered both by experienced and novice translators. In Latvia, the Terminology Commission of Latvian Academy of Science is responsible for solving these problems; it approves the created terms and adopts new ones. The terms created are:

- new words of Latvian origin;
- transliteration or transcription of foreign words;
- calques (Veisbergs 2001).

Furthermore, to provide an accurate, faithful and reliable translation, the translator should possess basic knowledge of a particular field, which would help him fully understand the text. Therefore translators have to follow the latest information related to their field of specialization and be ready to expand their vocabulary and terminology knowledge, even though it is not easy even for specialized translators to keep up with the constantly increasing amount of terminology. Besides, the translator should be aware of the related documents and materials that might help in the process of translation, as dictionaries may fail to offer solutions to technical terminology problems (cf. Costeleanu 2009).

It should be also admitted that frequently the challenge faced by translators is intensified when they encounter both types of problems (internal or self-inflicted and external), for instance, a problem of limited vocabulary acquired by a novice translator is intensified by a lack of terms in the target language concerning advanced technology or new social phenomena.

### 3. Methodology of the Research

To find out the opinions of translation students concerning translation problems they encounter most often, we conducted a study with 35 students: 30 local students and 5 foreign students from Uzbekistan, China, Japan and Germany participated in the research. These were students of different study years: 1st, 2nd, 3rd and 4th year students of the Bachelor Programme and Master Programme.

The data of the research were drawn from the students' essays and then explored using content analysis.

The translation challenges identified by the students may be classified into two basic categories - external and internal, or self-inflicted problems. The majority of student-perceived problems fall under the category of external problems, including the complexity of the source language text, a lack of terminology in the target language and the ambiguity of the meanings of polysemantic terms.

Furthermore, the following student-perceived translation challenges that belong to the category of internal, or self-inflicted, problems were identified: the limited vocabulary/terminology knowledge of novice translators, insufficient background knowledge, grammar and spelling mistakes, mistakes of style as well as tight deadlines.

The main findings of content analysis regarding student-perceived solutions to the encountered problems include: reading books, articles and texts related to their specialization, being consulted by experts of the field and adapting all above-mentioned information to a specific type of text and topic.

The novice translators – students of the IAL - tried to deal with the issue in detail, focusing on tendencies and trends in technical translation terminology. Translation problems highlighted by them are analysed in the next section. All the examples mentioned have been encountered by the students of IAL and taken either from their essays or copied from the students' translations by their translation lecturers, the authors of the present article.

### 4. Results of the Research: Students' Opinions, Examples and Ways of Solving Translation Problems

#### 4.1. External problems

A translator is an artist who uses language to paint a picture. If the translator is a dedicated specialist, then the effort that he/she invests into translation is close to the effort the author has invested when writing the source text. Mastering translator's skills may take years and there is always room for improvement. Finding solutions to the problems encountered in the process of translation is the key to a translator's development.

The most characteristic external problems of translation mentioned by the students in their essays are the complexity of the source language

text, a lack of terminology in the target language and the ambiguity of the meanings of polysemantic terms.

Students experience difficulties in translating the texts that are relatively large, complex, highly scientific and technical. Concerning the complexity of the source language text, it should be emphasised that English is a very rich language with a great number of expressions, phrases, idioms, sayings, synonyms, antonyms, compound nouns, metaphors, slang, “false friends”, etc. It is complicated to find a translation of a specific word or expression in Latvian and preserve its colourful details. These comparatively small details often create serious problems within a translation; in the end, the whole text can sound artificial and far from natural (mentioned in 20 essays). This can be best illustrated by the following extract from an essay:

It is difficult to translate an idiom if you do not have its equivalent in your native language. Some of the idioms may have a different meaning and also cannot be translated word-for-word. Also, some sayings are common only in the original language. It takes time to make a translation that is not direct but also captures the meaning of the saying. It is very important not to lose the main idea of the sentence or paragraph. Therefore, a translator has to find a definition of the specific word or expression and use an explanatory translation, so the translation is understandable for a reader. I try to translate in an indirect way using phrases or substitute words with synonyms, abbreviations or antonyms.

Moreover, speaking about the complexity of the source language text and a lack of terminology in the target language, the students also state that terminology is expanding and changing, with new terms being invented (mentioned in 12 essays). Most of the time, languages either simply adapt to foreign terms via domestication or zero translation. When the term is new and an official translation does not yet exist, multiple translation versions can appear. Of course, over time one variant will become the accepted one, but it is possible that the audience accepts one version, while the officials accept another. This puts a translator in a dilemma – technically, he has to use the officially accepted term, but if he does it, the audience will not understand the term as they expect the other variant, the one used on a daily basis. In their essays, the students state that they have experienced some situations when they had to translate officially accepted terms in a specific field that are not actually used. For instance:

It is widely known by specialists of the field that the terms are substituted for jargon and borrowings from other languages (in Latvia, most jargon words that are now substitutes for terms come from either Russian, English or, more rarely, the German language). I was able to use all online and printed dictionaries, so I selected an official term as the most appropriate one. However, the client was unfamiliar with the selected term due to his professional knowledge in the field and professional jargon that he is used to. For a translator, there is a minimal possibility to find such jargon in any dictionaries, which is a serious disadvantage.

Therefore, in the students’ opinion, dictionaries of a specific field do not always help in this case (mentioned in 6 essays). Reading books, articles and texts related to their specialization and being consulted by

experts of the field could be one of the means to enrich and replenish vocabulary (mentioned in 8 essays). For example:

We simply need to read more. It is good for students to read books which have been written by other translators who have shared their experience or have developed some theories to improve or make the process of translation easier.

Indeed, terms in scientific and technical texts may be confusing and awkward. In some languages, there are terms and words which carry a particular meaning, but when a translator is conveying them from the source language into the target language, he may find that there is no appropriate term and it is hard to render its meaning. Internet offers a wide range of various online dictionaries and databases; however, some fields, for example, civil engineering, lack specific terminology in the target language. The students have stated that this was the case when they were translating texts related to church architecture. Thus, there exists a problem of finding the right term equivalent in the target language (mentioned in 2 essays). Students have also mentioned that they cannot translate the text word-for-word; for some words, terms or expressions they have to think 'outside the box' and figure out how to translate them into the target language.

For example, recently a new collocation a *driverless car* has been introduced. According to the online machine translator *Tildes Tulkotājs*, the suggested term in Latvian is *bezpilota automašīna* (a pilotless car), not *bezvadītāja automašīna* (a driverless car) as it is sometimes phrased in mass media. This might have caused ambiguity due to the term *pusvadītājs* (semi-conductor) in Latvian.

One more example is the term *hemcrete*. At first, the term *hemcrete* was rendered into Latvian as *hemcrete* or *spaļu-kaļķu betons* (shovelime concrete) and *spaļu bio-kompozītmateriāls* (shovel bio-composite material). In the first case, both the English term is preserved in Latvian (zero translation) and a translated term; however, in the Latvian translation the presence of *hemp* in the material is not at all implied, so the problem of ambiguity appears. In the second case, a hyphenated word is created, which is not characteristic of the Latvian language. Later on, the term *kaņepju vieglbetons* (hemp aerated concrete) was introduced, and it seems to be a considerably more precise term (used, for example, in the newspaper *Neatkarīgā Rīta Avīze* in 2014).

With the new millennium, a new term - Millennials – has come into use. As this term is abundantly used in articles related to economics, the students of IAL have faced the term and, consequently, the challenge of rendering it into Latvian. The road to translation was difficult for the new term. In the opening sentence of an article on <http://www.delfi.lv/news>, 22.02.2018, three variants of translating the term were provided: *Tūkstošgades paaudze (milēniāļi) jeb bērni, kas dzimuši no 1980. līdz 2000. gadam* (The Millennium Generation, *milēniāļi* or the children born between 1980 and 2000), the third variant being a rather lengthy description of what the collocation means. Judging from recent publications, in translations into Latvian the loanword *milēniāļi* is mainly

used. Interestingly, no term for the word ‘Brexiters’ has been created in Latvian yet, even though it is also a widely used term in articles dealing with Brexit-related economic problems.

The students have mentioned that to translate terms that do not yet exist in the Latvian language, new words of Latvian origin are created. Here are some successful examples which have taken roots in the Latvian language:

- (1) Glitch – klupe
- (2) Malware – ļaunatūra
- (3) Mining – datizrace
- (4) Hash tag – mirklbirka / tēmturis
- (5) Carbon footprint - ekoloģiskā / klimata pēda
- (6) Start-up – jaunuzņēmums

Transliteration or transcription of foreign words is one more method of finding ways how to translate the terms that do not exist in Latvian. A successful example of transliteration is the above-mentioned term *mileniāļi* for Millennials.

The students point out that they try to solve the problem of a lack of the term in the target language by searching for previous translations on the internet and choosing, to their mind, the most appropriate one or, in case no previous translation can be found, by applying zero translation or loan translation (transliteration or transcription).

Another external problem mentioned by the students is the ambiguity of the meanings of polysemantic terms. In their essays, the students state that they have problems finding the translation for some words with multiple meanings (mentioned in 19 essays). It is not possible for novice translators to know and understand all nuances and apply these words in a specific context. An example illustrating the complexity of choosing the appropriate meaning of polysemantic terms is the term ‘efficiency’, which is widely used both in articles on economics and technical issues. Students acknowledge that their vocabulary/ terminology has proved to be insufficient to translate this term. English-Latvian dictionary provides six possible translations: 1. *efektivitāte, iedarbīgums* (effectiveness); 2. *lietpratība, prasme* (proficiency); 3. *produktivitāte, ražība* (productivity); 4. *lietderības koeficients* (efficiency); 5. (*mat.*) *derīgās darbības koeficients* (Math – efficiency); 6. AmE (also: e. apartment) – *vienistabas dzīvoklis ar virtuves nišu* (AmE - one-room apartment with a kitchen recess). As seen from approximate back-translations into English, the meanings differ considerably, and it might take a while for a translator to choose the most appropriate meaning according to the context.

A similar problem of term polysemy may occur when translating from Latvian into English; there are some words in Latvian whose meanings students found ambiguous. To illustrate, let us take the word *putas* in Latvian. When looking for its translation into English, letonika.lv online dictionary provides: 1. *foam, spume*; 2. (*beer, wine*) *froth*; 3. (*soup*) *scum*. When inexperienced students have to translate, for example, the phrase *siltumizolācijas putas* (heat insulation foam), they see it as a problem to

make the right choice. *Siltumizolācijas putas* should be translated as *heat insulation foam*, not *heat insulation froth* or *scum* whose meaning is also *putas* in Latvian.

The students also emphasize that it is very important for them to work with texts that contain arguable parts where more than one variant of translation can be acceptable. It is also significant to work with texts that contain new terms and terms that have no translations yet. The explanations provided with useful examples by teachers, some situations shared from teachers' own experience and recommendations how to handle complicated expressions and terms are the best tools to solve these problems. Moreover, it also gives students more confidence (mentioned in 5 essays).

#### 4.2. Internal or Self-inflicted Problems

Internal or self-inflicted problems mentioned by the students most often are as follows: a limited amount of vocabulary/terminology acquired by novice translators, a lack of background knowledge, a lack of grammar knowledge, spelling mistakes, mistakes of style as well as tight deadlines.

A lack of vocabulary in the target language as an external problem is closely related to a limited range of topics and a lack of vocabulary of novice translators as an internal or self-inflicted problem.

Another widespread internal or self-inflicted problem mentioned by the students is a lack of background knowledge. It is important for a translator to know the topic or the field and relate it to the context (mentioned in 14 essays). A translator should not pay all his/her attention to the significance of separate words, translating them exactly, word-for-word, forgetting that those words are particles of a bound text. The solution to this problem is a deeper understanding of the source text (mentioned in 6 essays). This can be best seen from the following examples:

I usually go through the text at least twice before I start translating. You need to understand the text completely. And when you read the text, you very often need to search for additional information. The main thing is to understand the idea of the text. And then to convey this idea into a different language as clearly as possible.

I have to spend some time to learn about the topic. Obviously, I can substitute the term with an explanation or a description, but if the term is used repeatedly in the text, it is time consuming and sometimes no matter how hard you try to describe it or substitute it with something different, it is still not good enough.

An example from *www.forbes.com* where the translator needs to possess some background knowledge as well as has to be creative and flexible, is the following one: 'Operators got off the bus before the Big Board rallied meaningfully'. To translate the sentence related to economics adequately, first of all, it is necessary to identify the idiom used in it - got off the bus - as well as what the Big Board means. After finding out that the meaning of the idiom 'got off the bus' is 'to leave, go away', whereas 'Big Board' is a nickname for the New York Stock Exchange, it is possible to provide an adequate translation of this sentence: *Brokeri pārdeva Ņujorkas Fondu*

*biržā kotētās akcijas, pirms to cena būtiski pieauga.* - ‘Operators sold shares listed on the New York Stock Exchange before their price rose significantly.’

Therefore, according to the students’ opinion, a translator has to look through multiple information sources to find the most appropriate equivalent. If a translator does not do that, there is a risk of making a mistake and then the target text may differ from the source text in such a way that a different idea may be delivered to the target audience (mentioned in 4 essays). For instance:

Therefore, doing a lot of research in the specific field, reading various internet sources, chat forums, blogs, etc. and just being on the top of things happening in the world and in the field, one specializes in solving the problems.

The following instances to exemplify the problem were mentioned in the students’ essays:

(1) Bull market and bear market: *augošu cenu (vēršu) akciju tirgus un krītošu cenu (lāču) akciju tirgus* ‘Market of growing prices (bull) stock market and falling prices (bear) stock market’

(2) Red-eye flights: *nakts lidojumi* ‘Night flights’

(3) A unicorn (a company valued at \$1 billion or more): *vienradzis* ‘Unicorn’

(4) Gross margins are north of 10%: *bruto peļņa ir virs 10%*. ‘Gross margins are above 10%’

A lack of background knowledge is closely related to cultural issues. Especially, if the source text and target text come from different cultures, religions or backgrounds. There are texts, collocations and situations that do not exist or cannot be explained and perceived correctly for the Latvian/Russian speaking audiences (mentioned in 7 essays). In most cases the specific words and expressions dealing with food, festivals and events appear only in the source language, so there is no equivalent in the target language.

The students believe that the same problem may be encountered when translating placenames and names of the streets in articles related to the architecture of Latvia (mentioned in 3 essays): ‘For example, in Latvia we have a lot of names of streets with a historical background. So we need to make the reader able to understand it and also find the street in a real life situation.’

This problem was encountered when the students were translating texts related to Riga’s buildings and architecture from Latvian into English: *“Interesanti fakti par Purvciemū”, “Interesanti fakti par Ķengaragu”, “Interesanti fakti par garāko māju Baltijā”* (‘Interesting facts about Purvciems / Kengarags / the longest building in Baltics’).

Students may also face difficulties while trying to translate someone’s name, surname, a title or appellation from the source text into the target language. Then they have to search for the right variant for translation (mentioned in 4 essays). In dubious cases, the gender should be checked,

e.g., *Zaha Hadid*, *Tallulah Bankhead*, as well as the pronunciation of surnames, for example *André Gide*, *Xi Jinping*.

Some students mentioned other internal or self-inflicted problems which could be encountered in the process of translation – insufficient grammatical knowledge, spelling mistakes and mistakes of style (mentioned in 17 essays). The source language sentence structures are not always the same in the target language. For example, a to-infinitive clause usually precedes the principal clause in English, while it is vice versa in Latvian. There are differences also in the morphological structure of words, for instance, in Latvian hyphenated words are hardly ever used. Students state that they often do not know the proper sentence structure or word order or have doubts how to incorporate the right adjectives, verbs, articles, etc. in the text. To illustrate:

You cannot just go and translate the sentence from the beginning to the end. It also needs to sound logical and appealing to a reader. It takes time to build a completely different structure of the sentence in another language whereas the meaning remains the same.

To make their translation more comprehensible, the students try to eliminate the use of complicated grammatical constructions (mentioned in 3 essays). Another effective solution to the problem could be a careful proofreading (mentioned in 7 essays).

One more important problem mentioned by several students is tight deadlines (mentioned in 9 essays), for example:

I do not have enough time to translate the whole text and the translation might be rushed. If I face difficulties while trying to find the translation for a particular and unfamiliar term, a lack of time could be a very topical issue. Sometimes finding the most appropriate meaning of the word may be very time consuming.

The above-mentioned example of not checking, for instance, a person's gender in many cases might be the result of a lack of time. However, the students (mentioned in 6 essays) also have given a solution to this problem saying that 'it is necessary to foster your translation skills. The more you translate, the faster and easier it will be for you with every time. We need time and experience.'

Thus the research has provided an insight into the problems encountered during the process of translation from the point of view of novice translators. According to the students, to solve these problems a translator needs versatile experience and he/she must use it to his/her benefit to be able to translate the message from the source text into the target text.

## Conclusion

According to the research, the problems identified by the students mainly belong to the category of external problems. Being aware of problems and discussing them helps solve the problems and provide adequate, quality translations. All problems of translation can be identified and thus avoided or minimised. Sometimes there might be conflicting solutions

and no clear best answer. That is when a translator's own experience or just gut instinct can lead him/her through.

## References

- Ajunwa, Enoch. 2015. Fidelity Challenges in Translation. *Translation Journal*, January 2015. <https://translationjournal.net/January-2015/fidelity-challenges-in-translation.html> [Accessed 12 July 2019].
- Costeleanu, Mirela. 2009. Difficulties in Translating Specialized Texts. Editura Eiroplus. <http://www.diacronia.ro/ro/indexing/details/A3362/pdf>. [Accessed 28 March 2018].
- Baker, Mona and Gabriela Saldanha (ed). 2009. *An International Encyclopedia of Translation Studies, Volume 2*. [Online] Berlin, New York.:C:/Users/asus/Contacts/Downloads/Routledge\_Encyclopedia\_of\_Translation\_Studies.pdf. [Accessed 27 March 2018].
- Dryden, John. 2012. Dancing on ropes with fetter'd legs. <https://jacket2.org/commentary/dancing-ropes-fetter%E2%80%99d-legs> [Accessed 15th March 2018].
- Dukāte, Aiga. 2007. *Manipulation as a Specific Phenomenon in Translation and Interpreting*. Riga.
- Hatim, Basil and Jeremy Munday. 2004. *Translation. An advanced resource book*. London/ New York: Routledge.
- Letonika.lv. Vārdnīcas. Latviešu – angļu un angļu - latviešu vārdnīca. <https://www.letonika.lv/> [Accessed 2 March – 6 May 2018].
- Pūtele, Iveta. (ed.) 2013. *Aktuālas tendences terminoloģijas teorijā un praksē. Rakstu krājums*. Rīga: Latvijas Universitātes Latviešu valodas institūts.
- Tildes Tulkotājs (online) Dictionary. <https://translate.tilde.com/lv> [Accessed: 2 March – 6 May 2018].
- Veisbergs, Andrejs. 2001. *Word-Formation in English and Latvian. Contrastive Analysis*. University of Latvia, Riga.