

# Computer-Assisted Translation in Teaching ESP

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**Abstract**—Computer-assisted translation (CAT) is the translation from one language into another where a translator uses computer software as an aid in the translation process. Besides the general word processing software, which provides certain tools for facilitating the work on translation, and different online and offline tools, there are specific, dedicated pieces of software intended exclusively for this purpose, which resolve the text into smaller, translatable segments, and organise them in a manner which makes it easier for the translator to translate the text effectively. In the first part of the paper, after a generalised introduction, the main features of CAT will be discussed, as well as wider and narrower aspects of CAT. After that, the using CAT in teaching ESP will be discussed, with special emphasis on the combining of different software and tools to be used in the translation process and on the set of actions to be performed in these lessons.

**Key words**—computer-assisted translation (CAT), English for specific purposes (ESP), teaching, software, application

## I. INTRODUCTION

In the present-time teaching of English for Special Purposes (ESP), translation is an important constituent of the teaching process. Namely, due to the fact that English for Special Purposes presents a linguistically and situationally specific variant of language which is in use within specific, educational, professional or some other discourse communities, it is simply not enough to stick only to general English and its components (grammar, vocabulary, reading, writing, listening, speaking) relating to everyday topics. There is no doubt that these skills are a necessary basis, a ground for acquiring any kind of additional, expanded knowledge in English as a foreign language. However, in order to master the nuances and specificities of the English language used in different, particular fields of human activity and interest, it is necessary to become familiar with such nuances and specificities, so that the process of teaching ESP has to be oriented towards that goal. It is the fact that the specificities of ESP mostly relate to vocabulary (specific formation and meaning(s) of words and phrases within a register (any of the varieties of a language that a speaker uses in a particular social context<sup>1</sup>), existence of collocations and idioms etc.), grammar (noun modification, use of verb tenses in active and passive voice, sentence structure etc.), discourse analysis (paragraph and text organization) and pragmatics (use of language in given contexts, situations, environments and circumstances). On the other hand, although indirectly, it

is also related to the specific, professional knowledge within a certain field of activity or interest, which is, linguistically, based on the mother tongue of the speaker and its linguistic features, rules and patterns. A successful learning of ESP within a specific course dedicated to a particular field (engineering, economy, music, sports, medicine, etc.) occurs when such a knowledge becomes linguistically aligned and harmonised with similar knowledge in the English language. To achieve that, it is necessary to include the lessons in translation within the ESP courses syllabi, and to perform such lessons in an appropriate and efficient manner, in spite of usual problems that a typical ESP course within a higher education institution has to deal with, such as the generally unaligned previous knowledge of students (relating to general English), limited time for work, inappropriate (small) number of lessons per week etc.

Another issue important for teaching ESP is that one of the main outcomes of an ESP course is to make the students, present or future professionals, capable of translating various professional and vocational literature written in the English Language, both for informative or learning purposes and for the purpose of making semi-official or official translations of various documents, papers, manuals, books, studies, websites and other textual materials. The radical disproportion which exists in the field of up-to-date professional and vocational literature written in English and Serbian, based on the fact that the English language is actually a communication standard in the world of today, and, as such, provides a wider reading audience to the authors of textual materials, while, on the other hand, the organised translation of professional and vocational textual materials from English to Serbian aiming at their official publication is not even closely as intensive and cost-effective as, for example, the translation of popular, belletristic literature or the works of classics. That is why, at a modern market and in contemporary occupational climate, the individuals with higher education in specific professions or vocations are often expected to be able to deal with different translation assignments, either formal or informal, and that provides one more reason for paying special attention to the teaching of translation within ESP courses.

In modern world and society, where information technologies are included in all aspects of human existence, it is a common, more reliable, precise and time-saving practice to perform the process of translation with the assistance of computers, as a so-called computer-assisted translation (computer-aided translation).

<sup>1</sup> The definition taken from the Merriam-Webster dictionary, available online at: <https://www.merriam-webster.com/dictionary/register>

## II. COMPUTER-ASSISTED TRANSLATION

In modern terminology in the field, computer-assisted translation implies the use of contemporary information technologies, i.e. computer hardware and software, in the process of translating a text from one language to the other. A more precise definition refers to the computer-assisted translation as a “selection of tools for alignment, data analysis, project management, quality control, terminology management, and translation memory management, to increase the productivity of professional translators” [1]. Alotaibi uses a broader definition, initially stated by L. Bowker, in the study *Computer Aided Translation Technology: A Practical Introduction* (2002), observing the computer-aided translation as “a variety of computerized tools to help [translators] to complete their tasks and increase their productivity” [2]. On the other hand, while discussing the issue of computer-based translation, Li and Xia start from the fact that translation is a process which involves three layers of thinking of a human brain, which can be related to the linguistic notions of semantics (understanding of vocabulary without a contents), syntax (sentence structure and understanding of vocabulary at the level of a sentence) and pragmatics (understanding of vocabulary within a situational context). Their opinion is that the computers can deal with the first two mentioned layers, while the third layer is “still within the scope of human brain” [3]. In such a context, and on the basis of objective needs, they have identified the basic functions which were implemented within different pieces of software for computer-aided translation: “the management of terminology of translation projects; the storage of the translated sentences in the form of the source language and the target language for the reference later; the automatic search of terminology and database; the check of the translation outcome and the guarantee of the translation quality” [3]. Pursuant to the mentioned, during a process of translation, a computer-assisted translation software performs the three following operations: “1. search the terminology database and offer the translator advice. 2. Search the memory database of translation and get access to the same or similar translated sentences. 3. Store what the translator has finished into the relevant database and the terms designated by the translator into the terminology database” [3]. Qian observes the computer-aided translation technologies through four categories: “Internet information tools, E-dictionaries and reference books, corpus and computer-aided translation tools (translation memory and terminology management)” [4], while Yao, within the scope of definitions of computer-aided translation already mentioned in this text, expresses a partially idealistic and exaggerated opinion that, in the case of computer-based translation, “translators do not need traditional dictionary or specialized book for reference, and they just key in the content into the translation program and the draft translation product will appear on their computers screen” which makes such a translation process “faster and sometimes more accurate compared with the slow and expensive human-based translation” [5]. Finally, within the range of the definition mentioned in [2], Erwen and Wenming see the computer-assisted translation tools as something which provides support for a human translator in his/her work to speed up the translation and provide consistent terminology” [6].

All the mentioned definitions and observations encompass the possible and applicable meanings of

computer-assisted translation and make it possible to understand the term in two ways, the wider and the narrower one.

If the term is understood in a wider way, it includes all types of computer software, offline and online tools and actions which help and may help to the process of translation (text editing software/word processors, spelling and grammar checkers, e-dictionaries and online dictionaries, online translation tools, online translation memories, forums on translation, etc.). However, in a narrower way, it includes the specific, dedicated software for computer-assisted translation, containing different tools which directly assist the translator and facilitate the translation process, such as the translation memory, spelling and grammar checker, terminology manager, full-text search and support for numerous formats of text documents, as well as various project management tools, which make the entire process of translation, from the receiving of documents to the delivery of finished translations, much more efficient.

Both meanings will be briefly discussed in the following chapter.

## III. WIDER AND NARROWER ASPECTS OF COMPUTER-ASSISTED TRANSLATION

As it has been mentioned in the preceding text, the wider meaning of the term computer-assisted translation includes different types of computer software, tools and actions which provide assistance in the process of text translation. Among them, the most important ones are different types of text editing software/word processors, because they are, essentially, the most common tools used for textual realisation of a translation. However, in the entire process of computer software development, they have lost the initial role of advanced digital typewriters which they had in the beginning and became complex, user-friendly and customisable tools with versatile options for their use. Due to the localization and global availability, such software provides, by default, very useful proofing tools for the checking of spelling and even grammar in both Serbian and English (as well as in numerous other languages, including the very similar Croatian language), while for the English language, due to its availability, popularity and prevalence, there are excellent tools for grammar checking, such as Grammarly (<https://www.grammarly.com/>) which can be used either online or as a plugin within a text editing software (such as MS Word) and perform a thorough and detailed grammar check of a written piece of text.

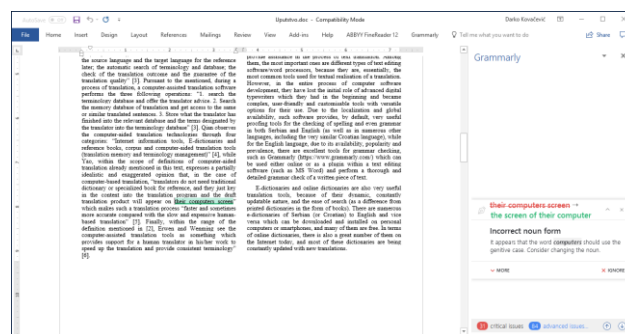


Figure 1. Grammarly plugin within an MS Word window

E-dictionaries and online dictionaries are also very useful translation tools, because of their dynamic, constantly updatable nature, and the ease of search (as a difference from printed dictionaries in the form of books). There are numerous e-dictionaries of Serbian (or Croatian) to English and vice versa which can be downloaded and installed on personal computers or smartphones, and many of them are free. In terms of online dictionaries, there is also a great number of them on the Internet today, and most of these dictionaries are being constantly updated with new translations.

A great number of online dictionaries is actually based on the translation databases of online translation tools, such as Google Translate. As an online translation tool, in terms of translation from English to Serbian (or Croatian) and vice versa, it is becoming more and more serious during time, because of a large number of contributions by different participants (users, translators, language professionals), so that it has become capable of translating even greater parts of text, even at the level of paragraph(s) with a relatively high accuracy in terms of word choice and grammar.

Online translation memories are websites which store parts of texts in forms of sentences or sentence parts and their translations into a language, enabling the search based on keywords, both in the source and target language. For the speakers of Serbian (or Croatian) language who want to translate to or from English, probably the most comprehensive and useful translation memory exists within the multilingual online dictionary Glosbe (<https://glosbe.com/>)

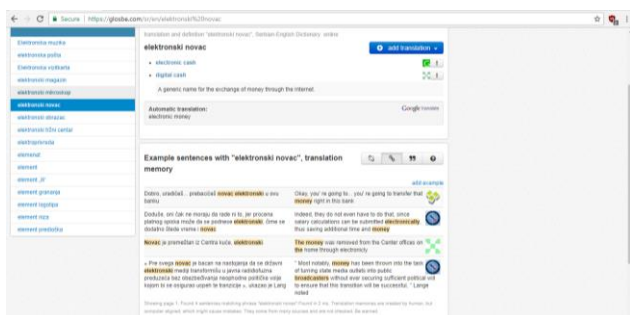


Figure 2. Search results in Glosbe

Finally, there are numerous forums on translation on the Internet, discussing on translation issues relating to probably all the languages in the world, but the forum with probably the most relevant, reliable and up-to-date information and advice, given by numerous competent translation experts and professionals and language specialists is ProZ (<https://www.proz.com/>).

As it has already been mentioned, the narrower meaning of computer-assisted translation encompasses the software especially designed for textual translation from one language to another. There are numerous pieces of such software, both commercial (SDL Trados Studio, Wordfast) and free (Felix), but most of them share the similar features.

Some of these features will be presented on the example of SDL Trados Studio, probably the most used computer-assisted translation software of today.

Probably all the existing formats of text documents may be imported in SDL Trados and converted into a format which makes them ready for translation. The documents may be imported as single files or as parts of a project, together with numerous settings for a more precise customisation of the translation process. In that format, the text is divided into translation segments, usually on the basis of the sentence organization of the text, denoted by the full-stop and space (.), so that each of the segments is translated separately. When a translation of a segment is finished, it should be confirmed by the translator, and only such, confirmed segments may become the parts of a translation memory, into which the user-translator saves the segments and their translations, so that they can be automatically identified and used in future translations, on the basis of full or partial similarity. When a translation is finished and fully confirmed by the translator, it can be saved in the format which is the same as in the original document, with the full preservation of formatting.

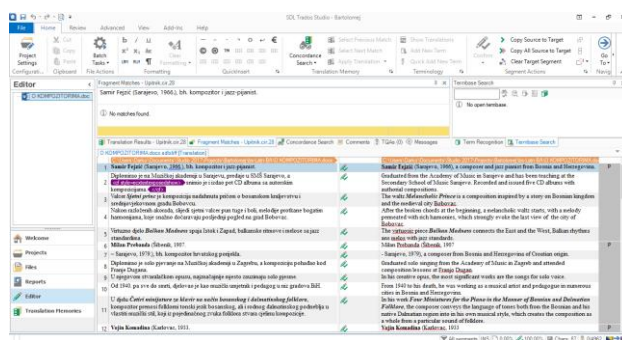


Figure 3. Translation editor window in SDL Trados Studio

Besides these options, directly relating to the translation, there are numerous other options which enable the translator to control and monitor the entire process of translation, such as the setting of translation submission deadline, showing of percentage of completion of translation, information relating the number of words and characters in a segment and numerous other features.

Spelling checker is also provided for the translation, i.e. for the target language into which the translation is performed, as well as the text search tool, both in the translation editor and within a translation memory, by which a word or a phrase may be searched for in the original document or in its translation.

#### IV. COMPUTER-ASSISTED TRANSLATION IN TEACHING ESP

In both of its aspects mentioned in the previous chapter, computer-assisted translation may have a significant and versatile place and application in teaching ESP, i.e. in the parts of ESP courses dedicated to theoretical and practical approach to the process of translation. Of course, the previous, general knowledge on the use of computers, internet, operating systems and word processing software is a necessary precondition, and a good thing is that the existence of such a knowledge has become a common thing among the students of today.

To be used to the maximum, computer-assisted translation, in both mentioned aspects of the term, must be based on the work and assignments directly related to the translation of textual materials from English into Serbian

and vice versa, both in lessons and in students' extracurricular time. Also, the emphasis on particular software and tools relating to the term largely depend on the available resources, both in the classroom and the higher education institution in general, and in the possession of students.

For that reason, the biggest emphasis must be put on the combination of software and tools which is more-less available to everyone today, comprising a text editing software, online dictionaries, translators and translation memories. In giving a translation assignment in which a set of the mentioned tools must be used, it is very important to define and precise the order of actions (procedures) which will have a successful, relevant and quality translation as their result.

The selection of an appropriate text for translation is surely the first necessary action, and that should be done both with great care of its general linguistic features (choice of tenses, sentence construction, paragraph and text organization) and its professional/vocational characteristics (vocabulary, word formation, register-specific phrases, idioms and collocations, characteristic sentence patterns). Some other parameters which should also be taken into account are the length of the text, the relevance and of its theme(s), its topicality and general "roundness" or "openness".

When the textual material is delivered to the students, another important issue is to decide to which degree and in which way it should be discussed and processed the classroom, in an interaction of all the students guided by the teacher, and what should be left for each of them to translate at home (where the computer-assisted translation can and should be fully applied, through the independent work of every student). Together with general discussing and processing of the translation, its parts or fragments, the characteristics, advantages and principles of computer-assisted translation should be introduced, to be used at a few levels of the translation process at the same time. In terms of the text processing software (the students mostly use Microsoft Word for that purpose) the students should be instructed and obliged to activate and use the spelling checker and other proofing tools in the target language in which the translation is made, so that every word is written correctly and appropriately, interpunction marks are used correctly and other typing errors are identified and corrected. In the case of translating into English, the students should also be instructed and obliged to use Grammarly in order to check and fix a wide range of grammatical errors which it may identify, even proposing the alternative, correct solution for the given situations.

When it comes directly to the translation process, the first thing to be done by the students is the identification of unknown words or expressions and the selection of appropriate and relevant tool for their translation. The teacher should inform the students about the relevant online resources for translation, as well on other resources, such as official (or only good) translations of certain webpages, manuals, papers, texts or books where appropriate translation equivalents may be found for specific words. At this stage, it is necessary to ask the students to use their background professional/vocational knowledge in mother tongue to be able to find the most appropriate translation, and not to give up until they have found it. The awareness on the necessity of finding the

appropriate translation must always be emphasised in the work with students, and from the beginning of the course, the students should be encouraged to keep and maintain a list (glossary) of accepted translations, based on the translation results agreed upon as the most appropriate ones. It is very important to mention that a great deal of words belonging to professional/vocational terminology has its regular, well-established translation equivalents which are common and easy to find, so that the translation problems usually occur at the level of phrases, construction of syntagms and sentences and particular, customised register-based usages of certain words and terms, and such translations should be included in the list.

To control the students, and the way in which they perform their computer-assisted translations, in a stage preceding the delivery of final translations, they should be given the assignment to make a written or oral explanation and presentation of arguments for the selected translations of particular terms and expressions (previously singled out for the purpose of the assignment during the lessons) together with the description of the procedures for finding each of the translations and the mentioning of online and offline software and tools used for that purpose. If different translation solutions for the same term or expression occur within the group, a teacher-guided discussion among the students should lead to the finding and acceptance of the best possible solution(s), and such solution(s) should be included in the list (glossary) of accepted translations. The final translation should be delivered as a text document, formatted identically to its original, completely checked and examined.

In the case that there exist the conditions for using a special, dedicated computer-assisted translation software, the mentioned order of actions is pretty much the same, except the fact that the translation is not performed in a text editing software, but in the computer-assisted translation software instead. Due to that, the students must be introduced to the important features and tools of the software, with special emphasis on the creation, maintenance and use of translation memories and the need on taking care of its content quality by correcting previous translation solutions if some new, better ones, occur.

## V. CONCLUSIONS

Computer-assisted translation has become a standardised way of doing translation today. Because of that, and taking into account the unquestionable global status, position and importance of the English language in all aspects of human activities in the present time, the role of teaching translation within any kind of ESP courses is very important and necessary for the completion of education of future professionals in different fields. At the same time, it is important to show the students the way in which a translation may be done in the most quality and appropriate manner though the use of modern information technologies, i.e. through the computer-assisted translation tools, both more general and more specialised ones. This paper shows only one possible scenario of their introduction and use within the teaching and subsequent learning of ESP. There are numerous other options available as well, strongly depending on the available classroom time and resources, and the position of an ESP course within the entire curriculum of a higher education institution.

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