IMPACT OF COMPUTER-ASSISTED TRANSLATION TOOLS BY NOVICE TRANSLATORS ON THE QUALITY OF WRITTEN TRANSLATIONS

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INTRODUCTION

The relevance of the study is due to the increasing importance of ICT in the modern translation service market. Traditional ideas about translation as a professional activity are changing, and the professional model of a translator's professional activity becomes more complex. Scientific and technological progress undoubtedly influences translation activity.

The latest technology often determines the types of text to be translated. In addition to the demand for translation of texts in traditional industries, for example, economic or technical, new areas are constantly emerging, in which the volume of translations is increasing. A modern translator masters a certain industry (or several branches) in which they specialize and must constantly replenish their knowledge in the chosen field – study not only new terminology but also modern software, used in the translation process and constantly updated and improved (RISKU, 2013).

A translator must be competent in many aspects, and ability to work with specialized software is extremely important in the implementation of translation activities. A special place among ICT in the professional activity of a translator is occupied by computer-assisted translation (CAT) tools, which greatly simplify and speed up the translation process (HUANG et al., 2013). In the translation industry, machine translation systems are widely used by both large translation companies and freelance translators. According to the estimates of the PROMT company, use of CAT tools can increase the efficiency of translations up to 80% (ALCINA, 2008).

However, the ability to use CAT tools is not enough to perform a quality translation. The translator must know the vocabulary and terms specific to a particular industry, which will significantly improve the quality of the final result. In the absence of the necessary knowledge, editing a text translated with a CAT program becomes more difficult since the translator is somewhat disoriented (LI, ZHANG, 2010).

LITERATURE REVIEW

According to researchers, machine translation systems, or CAT tools (computer-assisted translation, computer-aided translation), are software that help to translate faster (GARCIA, 2014). The importance of mastering the skills of using machine translation systems is convincingly evidenced by the fact that a translation course in European or American universities necessarily provides for teaching the use of CAT tools since higher education institutions strive to provide students with the necessary and relevant professional skills (ZHONG, 2010). Abroad, active scientific work is carried out to develop foundations for creating teaching methods for these programs (YANFU, 2010; ROSTOVSKAYA et al., 2020; VINICHENKO et al., 2019) and developing such methods (SONG, ZHANG, WANG, 2010; DYGANOVA, YAVGILDINA, 2020; OBEDKOVA et al., 2020). Researchers' opinions on the benefits of CAT tools are presented in Table 1.

Table 1. Key benefits of CAT tools

Source	Key benefits of CAT
Barrachina S. et al. *(2009)*	ability to reuse translations, CAT systems automatically perform a search in memory and offer reuse of found matches, not only at the level of sentences but also at the level of phrases and individual words, which is useful in texts containing repetitions of phrases
Krüger R. (2016)	dictionary autosearch: CAT tools highlight terms in the text that are known to the terminology management component
Vargas-Sierra C. (2019)	check for completeness of translation: CAT systems do not allow skipping untranslated segments, which greatly simplifies the work
Dragsted B. (2006)	ease of editing and proofreading: use of CAT tools by editors and proofreaders helps to optimize the work that occurs after translation
Bing, X., Hongmei, G., Xiaoli, G (2007)	optimization of joint activities: ensuring stylistic and terminological uniformity through the joint use of the CAT system by the translation team
Dillon S., Fraser J. (2006)	improved translation quality control: several CAT systems contain translation quality control modules; there are also specialized quality control programs that perform an automatic comparative analysis to identify errors in terminology, translation inconsistencies, etc.

Source: Search data.

However, according to scientific research, when translating, students mainly focus on the superficial structure of the original text (OT), while professional translators analyze the meaning of the OT and try to recreate the essence of the original message. When starting to translate texts on various subjects in CAT programs, they trust the machine and do not pay attention to some mistakes made during translation (CHUNZHI, 2014).

In this regard, we conducted an experiment that would show how much novice translators rely on machine translation systems and whether they have a correct level of vocabulary that is typical for texts on a certain subject. The purpose of the study is to conduct an experiment on the impact of machine translation systems (in terms of using termbases) on the efficiency of future translators. Implementation of formulated purpose requires the solution of several tasks:

- to select participants of the experiment; select the OT; compose a term base for OT, which contains errors;
- to organize the translation of OT and divide participants into two groups where one group uses the proposed termbase and the other does not;
- to determine the principles by which translation texts will be analyzed and analyze them, based on these principles;
- to carry out quantitative processing, analysis, and interpretation of the data obtained;
- to formulate conclusions and prospects for further research based on the results.

We formulated the following hypotheses of the study.

Hypothesis 1. When translating the OT with a CAT tool using a termbase with erroneously translated lexical units, the quality of student translation will decrease.

Hypothesis 2: When translating the OT with a CAT tool without using a termbase with erroneously translated lexical units, the quality of student translation will increase.

The study consists of an introduction, literature review, methods, results, their discussion, and conclusion.

METHODS

The material of the study is 24 texts of the translation of an article on sociopolitical topics, translated using CAT tools by novice translators. The study purpose and objectives led to the use of several methods, including theoretical: analysis, generalization, and systematization of data from Russian and foreign works on translation studies, methods of teaching translation, current trends in the translation services market, ICT tools for translators. We used system-structural analysis and synthesis to compare the available range of machine translation systems and establish the best for conducting an experimental, as well as empirical study, determining the effect of CAT tools on the quality of the translation of texts. We used quantitative methods

for processing experimental data. The experimental study on the impact of machine translation systems (in terms of the use of termbases) on the quality of written translations of novice translators was carried out in three stages:

- preparatory stage, during which hypotheses were formulated and an experimental plan was developed,
- main stage, which consisted of the practical implementation of the experiment and
- final stage, which provided for the analysis and interpretation of experimental data.

To test the hypotheses, we selected 26 students of the translation department studying French, divided into two experimental groups (EG-1 and EG-2), including 6 men and 20 women aged 21-22 years. The experimental study was carried out in the course of teaching the basics of working with CAT tools within the discipline "Translation Practice". Students were acquainted with the basics of working in machine translation systems. They translated texts from French into Russian and vice versa, using machine translation module, translation memory bases, and termbases. As an OT, an excerpt of an article in French on sociopolitical topics from a French online magazine was borrowed.

The text consists of 14 sentences, 373 words, 2,288 printed characters (with spaces). It was shortened so that the students could complete the translation in class in 80 minutes. During the translation, the students used the cloud-based machine translation system Memsource, as well as a termbase compiled specifically for the experiment, which contained translation errors for 26 lexical units. All students fully translated the text into Russian. Students of the first experimental group (EG-1) used a termbase with errors in the process of translating, while students of the second experimental group (EG-2) relied only on their knowledge. When checking student translations, we relied on the following grading system:

1) errors in which the content of the OT is significantly distorted and/or wrong translation option is chosen, which is proposed in the termbase (1 penalty point is charged);

2) errors in which the meaning of the OT is partially lost and/or translation offered in the database is partially selected (0.5 penalty points are charged);

3) errors that insignificantly or hardly affect the maintenance of the OT (0.1 penalty point is charged).

RESULTS

The results of the experimental section of the EG-1 group are shown in Table 2.

Table 2. Results of the experimental section performed by the EG-1 group using the termbase with errors (in penalty points)

Student	Type 1 errors	Type 2 errors	Type 3 errors	Total number of penalty points
Student 1	8.0	1.0	0.1	9.1
Student 2	9.0	0.5	0.2	9.7
Student 3	13.0	1.5	0.0	14.5
Student 4	6.0	0.0	0.2	6.2
Student 5	5.0	1.0	0.2	6.2
Student 6	5.0	0.5	0.2	5.7
Student 7	3.0	3.0	0.2	6.2
Student 8	7.0	1.5	0.1	8.6
Student 9	9.0	1.0	0.0	10.0
Student 10	8.0	0.0	0.1	8.1
Student 11	4.0	0.5	0.3	4.8
Student 12	7.0	0.5	0.1	7.6
Average value	7.0	0.9	0.1	8.1

Source: Search data.

As follows from Table 2, in the group, the average value of the penalty score was 8.1, while the average value of errors of the first type, to which we attribute a significant distortion of the

content or the choice of a certain word or phrase proposed by the termbase, was 7.0. The indicator of errors of the first type varied from 3.0 to 13.0 penalty points. The high score for errors of the first type in EG-1 is explained by the fact that the students were mainly guided by the base, rather than their knowledge and context.

The average penalty point for errors of the second type was 0.9, which can be explained by the fact that lexical units, the content of which was slightly changed, were generally familiar to the students. The maximum penalty point was 3.0, which can be explained by the fact that some lexical units were unknown to the students, in contrast to other subjects. The average penalty point for errors of the third type, which includes those that do not affect the content of the message, in EG-1 was 0.1 (with the highest indicator being 0.3 penalty points).

Thus, we conclude that, most likely, the students who used a termbase with translation errors relied on the version proposed in it, instead of a critical analysis of the resources provided, thoughtful analysis of the meaning of the original message, and an attempt to reproduce its essence. Table 3 presents the results of the experimental section of the students from the EG-2 group, which did not use the termbase with errors.

Table 3. Results of the experimental section performed by the EG-1 group without using the termbase with errors (in penalty points)

Student	Type 1 errors	Type 2 errors	Type 3 errors	Total number of penalty points
Student 1	4.0	0.5	0.3	4.8
Student 2	7.0	0.5	0.1	7.6
Student 3	2.0	2.0	0.1	4.1
Student 4	4.0	2.0	0.2	6.2
Student 5	2.0	1.5	0.1	3.6
Student 6	3.0	2.0	0.0	5.0
Student 7	4.0	1.0	0.1	5.1
Student 8	5.0	2.0	0.1	7.1
Student 9	5.0	2.5	0.2	7.7
Student 10	5.0	1.5	0.1	6.6
Student 11	2.0	2.5	0.2	4.7
Student 12	4.0	0.5	0.3	4.8
Student 13	7.0	1.5	0.1	8.6
Student 14	11.0	1.0	0.1	13.1
Average value	4.6	1.8	0.2	6.4

Source: Search data.

According to the data presented in Table 3, the total penalty point was 6.4, which was less than the same indicator in the EG-1 group. Group total scores ranged from 3.6 to 13.1 penalty points.

In EG-2, the students also made mistakes of the first type, but there were much fewer of them than mistakes of the second and third types. The average indicator of errors of the first type was 4.6, which was much less than the same indicator in EG-1. The highest penalty score (11) most likely indicates that lexical units were unknown to the students and, therefore, caused certain difficulties in translation. Three students made only two mistakes of the first type, which was the best result in the group. Interestingly, the indicator of errors of the second type in EG-2 was almost twice as high as the results in EG-1 (1.8). It can be concluded that EG-2, which did not use a termbase with errors, did a better job with the translation. The students relied on their knowledge, were critical of the text, analyzed its deep meaning, carefully checked and edited it, and, therefore, received better results. Thus, EG-1 made a significantly greater number of errors of the first type than EG-2. The total number of errors was also higher in EG-1.

After a detailed analysis of the translations of the two groups, we conclude that EG-1, which used the termbase with errors, made a greater number of errors of the first type, while the errors of the second and third types were not significant in terms of their number concerning the errors of the first type. EG-2, which did not have a termbase, made a greater number of errors of the second type, which can be explained by the choice of stylistic synonyms that were

unsuccessful for the proposed context. Both groups as a whole did not always carefully edit and proofread the translation.

DISCUSSION

The results of the study partially confirmed the opinion that in the conditions of professional training of future translators, in some cases the use of CAT tools is not justified since:

- CAT systems do not provide acceptable source quality. Higher quality can be achieved by presetting the system, which is completely unacceptable for small volumes of translated texts, and/or by subsequent editing, and this only slows down the work if the translator uses blind typing (CAMPBELL et al., 2013);
- CAT systems do not guarantee that terminology is consistent, especially when a team of translators is working on a large project. Rather, they can be guaranteed, provided that user dictionaries are treated very carefully, and this is not always worth counting on (TARAVELLA, VILLENEUVE, 2013).

However, as some methodologists believe (ERWEN, WENMING, 2013), in some cases, the use of CAT systems helps to reduce time costs. This happens if the text is long and contains uniform terminology that allows relatively quickly customizing the CAT system for it. Then editing the text will not take too long. However, in this case, one should be especially careful about the style of the text. Machine translation is formal; therefore, there is a high probability of tracing the syntactic structures of the original language, which is typical for translation in general, and, therefore, it may be missed during editing.

Generally speaking, CAT systems may be used wherever the most standardized language is used, with simple grammar and relatively small vocabulary. The German program Meteo, which translates weather forecasts from French into English and vice versa, is considered a fairly successful project of the CAT system (KOEHN, 2009). To facilitate the work of translators and technical writers, Boeing once developed a language standard for writing technical documentation known as Boeing English (LEBERT, 2011).

Currently, the most popular translation memory system in the world is TRADOS, which, according to Imperial College (London), occupies 35% of the market (WANG, 2012). In addition to the main module (Workbench), in which the work is performed, it contains several additional, equally useful modules: MultiTerm – a program for creating termbases that connects to the Workbench, which increases labor productivity; WinAlign – a program for creating TM (Translation Memory) (or blocks of pairs) using existing translations; TagEditor-program allows working in various formats and performing formatting and many other useful options (XU, 2010). According to researchers (BOWKER, 2015), in terms of functionality, WordFast is practically as good as TRADOS but more stable and cheaper.

Speaking about the most promising ways of developing machine translation systems, researchers (ÇETINER, 2018) propose to focus on creating more efficient electronic dictionaries with the most efficient search and indexing mechanism and the most integrated system of dictionary entries. If we consider the development of CAT systems, then the most promising direction is the improvement of the subsystems of grammatical analysis and synthesis, as well as an increase in the volume of contextual coverage of the text and improvement of semantic chains to select meanings of words more accurately.

CONCLUSION

Today, given the rapid development of information technology and steady growth in the volume of information, translation activities are becoming more and more popular. The consequence of technical progress is an increase in requirements for the training of future translators, in particular, for the features of using machine translation, in their professional training. Therefore, training future translators to use CAT tools and the ability to correctly and present information obtained from the source is becoming increasingly important and very relevant.

The results of the empirical research carried out confirmed the hypothesis that, firstly, when translating the OT with a CAT tool using a termbase with erroneously translated lexical units, the quality of student's translation will decrease and, secondly, when translating the OT with a CAT tool without using a termbase with erroneously translated lexical units, the quality of student translation will improve.

Our experiment proved that when using a termbase, novice translators tend to actively rely on it without critical analysis of the offered resources. This, in turn, testifies that machine translation systems can harm the professional activities of novice translators. Therefore, it is important to have a special organization of training in modern translation technologies, which would consider the results obtained and have a goal of developing a critical attitude of students to the mentioned software provision and resources provided. However, due to the small number of subjects in this experiment, conclusions cannot be final. Therefore, in the future, they should be tested on a larger sample of students.

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Impact of computer-assisted translation tools by novice translators on the quality of written translations

Impacto das ferramentas de tradução assistidas por computador por tradutores iniciantes sobre a qualidade das traduções escritas

Impacto de las herramientas de traducción asistida por ordenador por traductores novatos en la calidad de las traducciones escritas

Resumo

A principal especificidade do mercado de tradução moderna é a tradução de grandes volumes de textos técnicos e documentos de negócios no menor tempo possível. O objetivo do estudo é realizar um experimento sobre o impacto dos sistemas de tradução automática (em termos de uso de bases de termo) sobre a eficiência dos futuros tradutores. O estudo fornece uma revisão de literatura sobre o problema em estudo e apresenta as vantagens das ferramentas de tradução assistidas por computador na prática de tradução. Com base no estudo experimental, foi realizada a análise da influência das ferramentas de tradução assistidas por computador na qualidade das traduções escritas dos tradutores estudantis.

Palavras-chave: Sistemas de tradução automática. Língua francesa. Qualidade de tradução.

Abstract

The main specificity of the modern translation market is the translation of large volumes of technical texts and business documents in the shortest time possible. The purpose of the study is to conduct an experiment on the impact of machine translation systems (in terms of using term bases) on the efficiency of future translators. The study provides a literature review on the problem under study and presents the advantages of computer-assisted translation tools in translation practice. Based on the experimental study, the analysis of the influence of computer-assisted translation tools on the quality of written translations of student translators was carried out.

Keywords: Machine translation systems. French language. Translation quality.

Resumen

La principal especificidad del mercado de la traducción moderna es la traducción de grandes volúmenes de textos técnicos y documentos comerciales en el menor tiempo posible. El propósito del estudio es llevar a cabo un experimento sobre el impacto de los sistemas de traducción automática (en términos de uso de bases de términos) en la eficiencia de los futuros traductores. El estudio proporciona una revisión de la literatura sobre el problema en estudio y presenta las ventajas de las herramientas de traducción asistida por computadora en la práctica de la traducción. A partir del estudio experimental, se realizó el análisis de la influencia de las herramientas de traducción asistida por ordenador en la calidad de las traducciones escritas de los estudiantes traductores.

Palabras-clave: Sistemas de traducción automática. Francés. Calidad de la traducción.