

Design and Implementation of a CAT Training Course

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Abstract

The article discusses the integration of computer-aided translation (CAT) technologies into the process of training translators. The aim of the project is to develop a training module to master CAT-tools, implement and test it. The analysis of modern trends in labor market requirements and the demand for operational skills to work with professional software is carried out. Best European practices in training CAT-tools are considered. A brief analysis of the available software with the description of relevant functional characteristics is given; the choice of specific utilities for the use in the training process is substantiated. Appropriate training principles and focal skills are specified. On this basis, the content of the training module has been developed. Different forms of assessment are used to analyze the training, students' performance and the degree to which CAT operation skills have been formed. Challenges in introduction of computer translation technologies in the educational process are analyzed, and the ways to cope with them are proposed. The results of the study suggest that the introduction of CAT-technologies in the process of teaching translation should be based on a comprehensive approach of enhancing the quality of education through integration of traditional place-based and e-based learning, improvement of psychological and educational support for students, and collaboration between the university, the teaching staff and IT-infrastructure specialists.

Keywords ¹

CAT technologies, translation training, computer-aided translation, translation software

1. Introduction

Nowadays the translation process, workstations, translation principles and practices are subject to transformation under the influence of a number of factors, which, on the one hand, pose a challenge for translators, and on the other hand, shape the requirements and standards of the professional market. Largely, the ongoing changes are due to the introduction of information technologies into professional activities. The development of the Internet, along with the use of computer technologies, has radically changed the way of obtaining information, communication with clients and colleagues, the process of translation itself, and contributed to the emergence of new types of translation: localization of games and software, web translation, translation of multimedia materials, etc. In many ways, it has strengthened the diversification and specialization processes in the translation market. The expansion of outsourcing and the digitalization of economic and social life directly predetermine the need to use translation information technologies in professional activity.

According to the Federal State Educational Standard of Higher Education in the specialty 45.05.01 "Translation and Translation Studies" (specialty level), the graduate is expected to be competent in performing a number of professional tasks, including "the use of information

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technology in professional (special activity)” [1]. The requirement directly determines the integration of a course or a module on CAT-tools (Computer Aided Translation or Computer Assisted Translation) into the study program of a specialist. However, in many cases, the experience of training in information technology is limited to the course “Fundamentals of Information Security in Professional Activity”, while its content does not imply training with professional software. Yet CAT skills not only enhance the efficiency of translation activity, but also strengthen the competitiveness in a dynamically developing industry.

CAT incorporates a wide range of utilities and resources to streamline, automate and manage translation. The functionality of the tools ranges from a simple spell checker to management of complex projects. CAT systems are universal and suitable for work with all types of pragmatically oriented texts (scientific, technical, business and official). The skills to operate with these technologies, the ability to assess practical rationality of their application in a specific context and with a specific text are one of the key qualification requirements for a specialist in the field of translation in the current labor market. It implies the necessity to develop and test an academic course on CAT-tools or to integrate the corresponding modules into already existing courses on translation practice.

2. Purpose and objectives of the research

The purpose of the study was to develop a training module to master CAT-tools and its field-testing in the study process of specialty “Translation and Translation Studies”.

The goal has defined the scope of tasks to be solved:

- to outline the key objectives of the training module
- to conduct preliminary assessment of CAT-tools functionality and choose of the most appropriate software for academic purposes
- to develop the course content based on the functionality of the selected CAT-tools
- to test the developed module
- to carry out a critical analysis of the efficiency of the module as regards the practical use of the selected CAT-tools in the training process, the acquired skills and the productivity of the translation process

3. Literature review

As a number of studies show, current trends in the labor market requirements reflect a significant transformation of the translator’s work [2, 3, 4]. Thus, within the framework of the annual forum “International Standing Conference of University Institutes of Translators and Interpreters” (CIUTI), the main qualification expectations for a translator were outlined. Along with traditional generic language and cultural skills, experts specified the techniques for data searching on the Internet and development of databases, as well as the skills to make use of generic and special translation software, including Translation Memory (TM) and CAT, to facilitate the translation process [5].

The above-mentioned developments are reflected in the recruitment criteria and translation orders, which also provide insight into customer expectations and employer requirements [4]. The analysis of job offers, translators’ working environments and task outlines allowed D. Gouadec to identify the translator recruitment profile or the set of general and specific skills that a translator should possess to be eligible for a position:

1. language skills (relevant in 100% of job offers, detailed by language pairs and directions of translation)
2. proficiency in the use of translation applications (mentioned in almost all contexts and can be specified both in terms of a specific tool / tools and in the degree of mastery)
3. qualification (the criterion is stated in 90% of job offers, in rare cases peculiar requirements as regards translation specialization or qualification level (specialist or master in a particular subject area are mentioned)
4. knowledge of translation quality control procedures (indicated in 60% of requirements)

5. specific competencies (the criterion is mentioned in 40% of offers; it includes such competencies as technical writing, post-editing of a text, work with terminological corpora, pre-translation analysis, network management, web design, etc.)
6. project management skills (less than 30% of offers)
7. ability to handle non-standard materials for translation (less than 20% of offers, including work on localization)
8. experience in translation (15% of job offers) [4].

Given the present labor market conditions, it is equally important for a translator to have language skills and the skills to use general-purpose computer applications and translation-dedicated technologies.

The curricula of leading foreign universities that train interpreters and translators include courses that, to one degree or another, touch upon the issues of machine translation. Thus, Bachelor and Master training programs in translation studies at the Leopold and Franz University of Innsbruck (Austria) contain modules to master professional CAT toolkit [6]. Similar courses have been introduced at the University of Vienna (Austria) [7]. Special attention should be paid to the training program for translators at the Ruprecht Karl University of Heidelberg (Germany), which provides for hands-on experience in using peculiar specialist tools, e.g. “Multilingual software localization”, as well as organizational and managerial skills in the relevant subject-area, e.g. “Terminology management”, “Project management”, etc. [8]. Some universities develop complex modules that address a wide range of specific issues related to the application of information technologies in translation. For example, the University of Manchester (the UK) offers a module on technologies for project management in translation, machine translation, translation quality assurance and joint translation projects [9].

Literature review suggests that TM and CAT teaching methodology does not have an established basis and, as a rule, it incorporates a number of approaches [10, 11, 12]. In many cases, educational institutions offer highly specialized courses, for example, the use of CAT in localization, training of specialists in a specific field, or using unique software [5, 13, 14, 15]. In most cases, the choice of specific CAT-tools for an academic course / courses is determined by the resource base of educational institutions (including technical equipment), the degree of desired and potential specification (types of software programs and acquired skills) and the training level of the academic staff.

4. Methodology

The methodology for the development of the module is based on two leading didactic methods: 1) competence-based approach, implying the acquisition of specific skills and abilities directly through the experience of their application; 2) personal activity approach, providing for the interaction of all participants in the learning process as subjects of cooperative activity [16, 17, 18]. A combination of these approaches makes it possible to form the skills of goal-setting, critical analysis, independent decision-making in terms of methods and means of fulfilling a professional task, tracking the results according to a set of contextually relevant criteria [19, 20].

The selected approaches set out a number of methodological and linguodidactic principles that predetermine the content of the module and the training process. These principles include:

- the principles of development training (development of awareness as regards the training goals and the ways of solving professional problems)
- the visual aids principle (demonstration of techniques to operate the software program, etc.)
- the consistency principle (integrative consideration of all stages of work on translation using CAT-tools, a set of exercises and practice-oriented tasks)
- the communicative principle (aimed at solution of intellectual and communicative challenges)
- the principle of contextuality (simulation through case studies and typical situations)
- the interactivity principle (student-teacher, student-student interaction)
- the modularity principle (an opportunity to expand and specify relevant components of the curriculum, types of CAT-tools and other professional tasks)

The analysis of CAT-skills relevant for the translation market, as well as the best practices of teaching modules on CAT-technologies in leading foreign universities, made it possible to compile a list of skills that should be trained in the learning process, namely:

- to assess the appropriateness of using CAT-tools to solve a specific translation task
- to import and export of files of different formats
- to create a TM database with relevant working materials
- to update, integrate, import and export TM
- to translate using CAT functionality
- to perform post-editing, quality assurance and final processing of the target text
- to carry out teamwork on the project

Based on the need to form the indicated skills and abilities, the general content of the training module for 36 academic hours was designed:

- an introductory overview of CAT-tools, advantages and limitations for solving various translation tasks
- importing and exporting files of different formats
- creation of a TM database for specific purposes or working material
- updating, integration, import and export of TM
- work on translation using CAT-tools
- post-editing, quality control and final processing of the target text
- teamwork on a project or the implementation of a practical test task

The proposed set of psychological and pedagogical conditions along with the above-mentioned principles provide a wide range of methods to streamline the training process and master CAT-tools in the academic context.

5. Results

The choice of software as a base to gain skills in operating CAT-tools required a preliminary analysis of their functionality. CAT programs fall into single-functional (single-task utility – spell check, grammar check, e-dictionary, TM software, indexing and search, contextual search), and multifunctional or universal ones, which, in turn, are subdivided into programs and resources that require installation on computer / server, and cloud service: all data is stored in the cloud storage, and the work is done in the browser. Multifunctional programs are in greater demand, since along with purely translation tools, they are provided with built-in editors.

The most common single-function programs are SDL Multiterm (terminology base management), Verifika (translation quality assurance) and TMX Editor (translation memory database editor). In terms of training, the chief drawbacks of this software are limited compatibility, installation on a computer and the need for separate consideration.

A distinctive advantage of single-functional CAT programs is a wide range of functions to solve specific tasks, however, such diversification is not required for every translator, and therefore, within the framework of the training course in question, an introductory examination of these products appears to be sufficient. Universal programs, in turn, allow one to solve the entire range of translation tasks and do not require constant export / import of data. Thus, SDL Trados, MemoQ, DejaVu are installed on a computer or server and have a set of tools to manage memory bases and terms, fulfill single-purpose tasks and organize projects. A comprehensive nature of these tools requires special training.

For both professional and educational purposes, cloud-based software solutions seem to be most adequate. Some of the most popular ones are SmartCAT, Memsources and MateCAT. Processing on the system server and access from any computer are the distinctive features of these utilities. The translation toolkit is supplemented with the functions of accounting and payment of orders. The undoubted advantage of cloud programs is the support of project teamwork. Provided this software is used in the training process, it can contribute to the development of teamwork skills. They typically have an intuitive interface and are easier to learn. The core functional characteristics of cloud solutions predetermined the choice of one of them as a basis for the training module.

Special mention should be made of Wordfast Classic. Unlike other CAT- tools, Wordfast Classic is not a standalone program, but an add-on for MS Word. This feature makes the package most suitable for beginners with no previous CAT experience. Presumably, the use of Wordfast Classic, which is an add-on in a widely used text editor, can provide user-friendly conditions for learning machine translation, since it represents an extension of the functionality of a program that is actively used at all stages of education (both in secondary / high school and higher educational institutions).

The analysis of CAT tools functionality and their affordability (availability of free versions) made it possible to choose two alternative options: SmartCAT and Wordfast Classic. The utilities selected are fully consistent with the CAT skill acquisition task and meet most of the criteria relevant for course content and the ease of use.

Table 1

SmartCAT and Wordfast Classic: the main criteria for compliance with the objectives of the course

No	Criterion	SmartCAT	Wordfast Classic
1.	Familiar and friendly interface for first-time users	-	+
2.	An option to create TM based on previous translations	+	+
3.	Dictionaries and glossaries available	+	+
4.	Simultaneous work of several translators on the same text / project	+	-
5.	Morphological search in glossaries and dictionaries	+	+
6.	Work with multilingual and multidirectional TM	+	+
7.	Supported formats	.docx, .doc, .txt, .rtf, .odt, .html, .htm, .xlsx, .xls, .ppt, .pptx, .potx and other; bilingual formats .xliff, .xlf	.docx, .doc, .txt, .rtf, .xlsx, .xls, .ppt, .pptx, .inx, .pdf, .mif
8.	Built-in quality assurance function	+	+

Table 1 shows that the selected software solutions correlate in the majority of criteria, yet they have several essential differences. Firstly, Wordfast Classic is an add-on in the familiar electronic environment, which can significantly simplify the learning process at the initial stage, while SmartCAT is a cloud-based program that requires learning from fresh start. At the same time, Wordfast Classic does not imply team (simultaneous) work on the same text.

The approbation of the developed module was carried out in several subgroups studying in the third year of the specialty “Translation and Translation Studies”. They were conventionally divided into two large groups “Wordfast Classic” and “SmartCAT” in accordance with the selected software (25 students each). The training course was almost identical, with the exception of some aspects preconditioned by the unique functionality of each program. The average level of language proficiency was Upper-Intermediate / Advanced.

The content of the training course was developed in line with the selected methodological, linguodidactic principles, and the target skills. The process was arranged as a step-by-step guidance and further training on solving the tasks and making translation decision. To focus on CAT functionality only one subject area was chosen, namely texts on artificial intelligence technologies. The fundamental distinction of computer-aided translation consists in text segmentation. While in written translation a specialist divides the text into segments with the reference to the immediate context (the narrow or the wide one), computer-aided translation requires preliminary setting of text segment length. This, in turn, involves analytical translation preview in order to choose the most appropriate segment length. A set of introductory tasks was designed almost on each CAT operation and trained with the same text. A change in the segment length, terminology settings, post-editing, etc. resulted in the final version of the target text and provided the material for cause-effect analysis.

It made the students aware of the flexibility of CAT-tools adjustment and prompted them to develop the analytical skills.

The final part of the course was a project aimed at consolidation of already required skills and teamwork enhancement. The groups were subdivided into subgroups and were given a translation task within the scope of the focus subject area. The teams got the task and were assessed according to five criteria, one grade each in case of successful completion: efficiency of teamwork, glossary compilation (at least 50 terms), translation process (proof reading, quality assurance, spelling check, etc.), interaction with the client (a teacher), final version of the target text submitted to the client.

Throughout the pilot course, monitoring of the learning process of two groups was carried out. To organize ongoing and final assessment of CAT-tools training, different types of progress control were used. They were focused mainly on the analysis of how efficiently the relevant skills were developed. Each skill was assigned a grade ranging from 0.25 to 2, with the total of 5 grades for the course. The skills 1-9 are shown in the table below.

The results of assessment procedures stipulated by the training process were compiled into a table. During the training course and on its completion the students were assessed in terms of the level to which the target skills had been formed. Evaluation outcomes are given in Table 2. The “+” symbol indicates the degree of formation of an ability or skill. Accordingly, “+++” corresponds to a high level (a student is able to independently and promptly implement the task in accordance with quality requirements); “++” – a medium level (a student carries out the task independently, yet experiences some difficulties with the promptness of its implementation and the compliance of the translation text with quality requirements); “+” – a low level (a student experiences difficulties with the implementation of the given task in the time available and does not have a clear idea of the course of action, the translation text features significant violation of quality requirements).

Table 2

Comparative indicators of target skills / abilities as formed with students in “Wordfast Classic” and “SmartCAT” groups

№	Ability or skill	“SmartCAT” group	“Wordfast Classic” group
1.	Critical assessment of a CAT-tool to be used to solve a specific translation task	++	+++
2.	Import and export of files of different formats	+++	+++
3.	Creation of a TM database with relevant working materials	+++	+++
4.	TM updating, integration, import and export	++	++
5.	Work on translation with CAT	++	+++
6.	Work on translation of a technically or pragmatically challenging text with CAT	++	++
7.	Post-editing of a target text	++	+++
8.	Quality assurance of a target text	+++	+++
9.	Final processing of a target text	+++	+++
10.	Project teamwork	+++	+

Table 2 shows that students on the whole demonstrate a high level of target skills and abilities formed during the course. However, it should be noted that the SmartCAT cloud solution requires more time to master and develop the skill of a confident user, and this concerns both general aspects, e.g. work on immediate translation, the choice of a translation solution among the ones suggested by the program; and more specific features, e.g. text post-editing. In this regard, the use of the Wordfast Classic add-in in the learning process, as a rule, simplifies the mastering of basic CAT functions and poses challenges only when students work with texts of increased complexity (highly specialized, combined, creolized texts, etc.). The same challenges were noted in SmartCAT based learning. A significant disadvantage in training with Wordfast Classic is poor development of team / joint work skills that are essential for translation projects.

The experiment allows us to conclude that the use of CAT technologies in teaching translation not only enhances the information culture of future specialists, but also stimulates students to develop skills of independent learning, which fully corresponds to the European educational concept of lifelong learning and personal improvement. High level of commitment on the students' part and the level of skills formed during the course appear to be convincing criteria for the effectiveness and expediency of experimental work.

6. Discussion

Along with a wide range of advantages offered by CAT-tools in teaching translation, there are some drawbacks. They were analyzed in order to provide appropriate feed forward and further tune the course.

Table 3
Challenges in CAT-tools training and possible solutions

№	Challenges in the training process	Possible solutions
1.	Slow pace in CAT-tools training.	<ul style="list-style-type: none"> • extra work to increase the overall information culture of a student; • development of more detailed instructions; • increase in the number of hours spent on mastering the most challenging CAT aspects.
2.	The quality of translation does not meet the requirements.	<ul style="list-style-type: none"> • preliminary work with special literature on the relevant topics given in the source text; • enhancement of general linguistic skills and abilities; • selection of quality assurance utilities, extra training.
3.	Translation with CAT-tools is extremely time-consuming.	<ul style="list-style-type: none"> • extra hours for independent work to develop operational skills; • individual consulting on challenging technical issues; • an opportunity to choose an alternative program with similar functionality and user-friendly interface.
4.	Lack of coordination in teamwork.	<ul style="list-style-type: none"> • extra hours for independent work to develop operational skills; • introduction of teamwork elements at all stages of CAT-tools training.

In general, throughout the course the students demonstrated a high degree of motivation and commitment to improve their skills both independently and with the advisory support of a teacher. Thus, the introduction of CAT-technologies in translation training should be based on a comprehensive approach incorporating the enhancement of education quality through the integration of electronic and classical educational tools, and the convergence of psychological and pedagogical support mechanisms for students, faculty members and IT specialists.

7. Conclusion

The introduction of an academic course on CAT-tools appears to be an urgent need, since the IT and CAT-operating skills, the ability to apply them in accordance with the tasks and the peculiarities of the source text are one of the key qualification requirements to a translator in the modern labor

market. Work with CAT increases the motivation of students for educational activities, availability of cloud solutions allows them to increase information culture, show independence and take the initiative, gives wide scope for teamwork, development of leadership qualities, and most significantly, provides unlimited opportunities to elaborate professional skills.

The developed module has been tested, however, taking into account the ongoing changes of CAT-tools, it requires perpetual update. It appears relevant to develop and implement a separate academic course to master different CAT-tools, improve the operation skills and foster individual and team translation projects.

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