Improving the content of training future translators in the aspect of studying modern CAT tools

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Abstract. The article deals with the search for improving the content of training for future translators, taking into account the expansion of the use of information technologies in the field of translation. The results of a study of curriculums for translators at the universities of Europe, America and Asia are presented. The use of CAT systems in the work of translation agencies is shown. The presentation of various CAT systems in training programs for translators and their use in the market of translation services is analyzed. It has been established that both university curricula and translation agencies are oriented, as a rule, not to one, but to several CAT systems. The results of a student survey based on their practice in translation agencies are presented. Recommendations have been developed regarding the inclusion of the most common CAT systems in the training program for translators. The expediency of studying not just one, but several CAT systems is substantiated. The necessity of studying both desktop and cloud CAT systems is indicated.

Keywords: Information Technology; CAT system; Translator.

1 Introduction

1.1 Statement of the problem

The powerful development of the modern translation industry is largely due to the use of the latest tools and technologies, which are mainly based on the use of information technologies. In particular, the development of a number of separate groups of specialized software made it possible, to significantly increase the efficiency and quality of work not only of translators, but also of translation agencies, which began to use them as the main toolkit. First, it became possible due to:

 optimization of technological processes that underlie the implementation of certain translation projects;

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- effective use of terminological resources organized in such a special way that they not only affect the speed of the translation process, but also ensure its high quality;
- implementation of new approaches to organizing the work of the team of specialists involved in work on translation projects, based on the collective access of all participants to terminological resources, interactive interaction among themselves of managers, translators and editors to distribute the task, meeting the deadlines for its completion, quality of work, and the formation of the final product etc.

Achieving these advantages due to the use of modern tools in the process of carrying out translation activities is possible only through appropriate training of specialists for the effective use of these tools, which are directly involved at each technological stage of translation projects.

1.2 The purpose of the article

The purpose of the article is to consider the possibilities of improving the training of future translators, taking into account the use of modern information technologies, in particular CAT systems, in the translation activity; definition of those CAT systems, the study of which is advisable in the program of training translators at universities. For this purpose, an analysis of the study of CAT systems at universities and their use in the work of translation agencies is presented.

1.3 Literature review

Many authors are of the opinion that dealing with CAT applications is not always easy; it requires an increased concentration in learning.

Milan Pišl claims that commercial translation is no longer an individual contract awarded on the open market, but rather an extensive project with different project roles. In doing so, they are largely subject to the rules of project management - the computerized approach allows a detailed overview of detailed translation statistics, timelines, percentage of work distribution, etc. Based on this coherent information, the translators are financially rewarded by the clients [10]. In particular, as other authors describe, this is based on the development and application of terminological data processing [2; 3]. Silvia Cerrella Bauer emphasizes that any terminology management project typically pursues goals of a quantitative and qualitative nature, including: harmonizing the content (print, digital) in the source and target language, increasing translation quality, promoting the organization's corporate language, strengthening a consistent and distinct organization image, reducing authoring and translation costs, reducing/avoiding customer complaints, shortening release deadlines (software, publications) [2].

Joss Moorkens, Sheila Castilho, Federico Gaspari and Stephen Doherty made an attempt to bring together research and practice from academic and industry settings and a combination of human and machine translation evaluation [9]. The article by Nicole Keller highlights the familiarization with a new system and the fast and uncomplicated handling of documents with corresponding translation-specific problems and thus helps

to select the appropriate CAT system [6]. Dealing with marketable translation software should now be the basic knowledge of any well-trained entry-level translator [10].

In domestic science, scientists (Arnold E. Kiv [7], Serhiy O. Semerikov [8], Vladimir N. Soloviev [11]) are increasingly paying attention to the use of cloud technologies in the educational process, it is displayed on the training of specialists in various fields, and therefore is relevant for the training of translators.

However, specification that is more detailed is required regarding the selection and study by translators of those tools and technologies that are available on the market of translation services. In this case, it is advisable to direct a special focus on studying the question of which particular CA systems are studied in foreign universities and which are used by translation agencies, to conduct a comparative analysis and identify those that need to be studied at domestic universities.

2 Results and discussion

In order to effectively master future translators with modern translation tools, the content of their training should take into account not only an understanding of the development directions of these tools and the need for their application to increase translation efficiency, but also a change in the relationship between the customer and the translation service provider. In particular, more and more customers understand the main point of using modern tools by translation agencies.

Therefore, more and more often, in the process of agreeing on the conditions for fulfilling a translation order, issues of cost of work are discussed taking into account the following points: providing a translation memory base by customers, the presence of a large number of repetitions in the order text, transferring to the customer along with the translation the generated translation memory database based on the work done, providing the customer own terminology base to comply with a single terminology in the target text and the like. In these circumstances, the future translator should be prepared for flexible interaction with the customer to determine the optimal conditions for the execution of the order on mutually beneficial conditions. Such an interaction can be successful if the future translator is able, based on a deep understanding of both the technological processes of the execution of the translation order using modern tools, in particular automated translation systems, and the complexity of performing certain types of work, to comprehensively assess the wishes of the customer, identify possible reserves and advantages for yourself taking into account the resources provided by the customer and offer profitable solutions for the customer.

Taking into account the indicated trends in the market of translation services, the professional training of future translators at the present stage should be aimed at the formation of their respective competencies [5; 14] that will ensure successful professional activity in the conditions of the modern translation industry.

In the process of solving this problem, first, it is necessary to determine a number of key aspects of the organization of the educational process and the content of the training translators related to understanding the strategic directions of the development of translation tools and the prospects for their use in professional activities [1; 12]. In particular, it is extremely important:

- determination of the list of tools, the study of which should be included in the content of the training;
- distribution of the instruments chosen for study between the courses within which they will be studied;
- determining the relationship between the same type of alternative tools according to the criteria of availability, functionality, the need for installation, and the like;
- distribution of the volume of the training load, which is provided for the study of selected tools, between courses, modules and topics.

For the successful completion of the first task, one should turn to the international standard ISO 17100, one of the applications of which lists the groups of software products that can be used as basic tools for performing translation tasks, in particular [4]:

- content management systems (CMSs);
- authoring systems;
- desktop publishing;
- word processing software;
- translation management systems (TMSs);
- translation memory (TM) tools and computer aided translation (CAT);
- quality assurance tools;
- revision tools;
- localization tools;
- machine translation (MT);
- terminology management systems;
- project management software;
- speech-to-text recognition software.

Of course, the study of the above list of specialized software groups in full is impossible in the process of training a future translator. However, taking into account the indicated list and relying primarily on the need to study the tools that ensure the implementation of all technological operations in the implementation of translation projects, we should select the maximum possible number of software groups for study, as well as determine the basic software products, on an example of which is better to work out their functionality. Typical technological operations performed during translation projects include the following:

- preparation of source material for translation (scanning and text recognition, converting files of one format to another, etc.);
- creation and filling of terminological bases to ensure the uniformity of the translation of terms and quality control of translations;
- formation and editing of translation memory databases;
- translation with connection of terminological databases and translation memory databases, taking into account the possibility of collective work;

- verification of the quality of the translation;
- editing the translation.

In accordance with the above list of technological operations, a narrower list of software groups can be distinguished, which should be included in the training program for translators, in particular:

- optical character recognition (OCR) systems;
- terminology management systems (TMS);
- aligner systems;
- computer-aided translation system (CAT);
- quality assurance (QA) systems;
- word processors.

It should be noted that some software products included in one of the groups could provide, depending on their features, several technological operations.

In order to determine the recommended list of software products, on the example of which it is advisable to study their typical functions within a specific group, the following analysis was carried out:

- a list of tools that are included for study in training programs for translators at universities in Europe, North and South America, Australia;
- features of the work of translation agencies, which widely use modern tools in their activities;
- distribution conditions and characteristics of specialized programs from selected groups that are available on the software market.

To this end, we analyzed the translator training programs that were presented on the official websites of the universities for applicants in 2018 and 2019. In the process of analyzing training programs for translators at 69 universities in the world, it was revealed that the main focus on the study of translation tools is aimed at studying CAT systems. The list of CAT systems that are studied at universities in Europe, North and South America, Australia, are shown in table 1.

Table 1. The list of CAT-systems, the study of which is included in the training programs for translators at universities.

Universities	CAT systems		
Europe			
Kaunas University of Technology	SDL Trados, memoQ, OmegaT, Déjà Vu,		
· · · · · · · · · · · · · · · · · · ·	Wordfast Classic		
University of Latvia	SDL Trados, memoQ, Memsource		
Riga Graduate School of Law	SDL Trados		
University of Malta	SDL Trados		
University of Bologna	SDL Trados, memoQ, OmegaT		
Università degli Studi di Bari Aldo Moro	SDL Trados, Déjà Vu		
Università degli Studi di Torino	SDL Trados		
Fachhochschule Köln	SDL Trados		

Universities	CAT systems
Ruprecht-Karls-Universität Heidelberg	SDL Trados, Across, memoQ, Transit NXT,
Truproons Times Conversion Treatments	Déjà Vu, Wordfast Classic, Memsource
Sprachen & Dolmetscher Institut München	SDL Trados, Across
Universität des Saarlandes	SDL Trados, Wordbee
Hochschule Zittau/Görlitz	SDL Trados, OmegaT
Universität Leipzig	SDL Trados, memoQ, Déjà Vu, OmegaT,
	MemSource, MateCat
University of Antwerp	SDL Trados, Déjà Vu, memoQ, Memsource
The Katholieke Universiteit Leuven	SDL Trados, memoQ, Memsource
Université Libre de Bruxelles	SDL Trados, memoQ
Universiteit Gent	SDL Trados, memoQ
Université de Genève	SDL Trados, OmegaT, MateCat
Zürcher Fachhochschule	SDL Trados
Budapesti Muszaki és Gazdaságtudományi	SDL Trados, memoQ
Egyetem	
ELTE University Budapest	SDL Trados, memoQ, Memsource
Ionian University, Corfu	SDL Trados, Memsource, OmegaT
Aristotle University of Thessaloniki	SDL Trados, Wordfast Anywhere, Across,
	Déjà Vu
Universidade do Porto	SDL Trados, memoQ
Universidade de Coimbra	SDL Trados
Instituto Superior de Contabilidade e	SDL Trados, memoQ, Transit NXT
Administração do Porto	
Universidade Nova de Lisboa	SDL Trados, memoQ
Universitat Autònoma de Barcelona	SDL Trados, memoQ, OmegaT, Memsource
Universidad Alfonso X el Sabio	SDL Trados, memoQ, Memsource
Universidad de Alicante	SDL Trados, memoQ
Universidad Internacional de Valencia	SDL Trados, Wordfast Classic, OmegaT,
	MateCat, Memsource
Universidad de Sevilla	SDL Trados
Universidad de Cádiz	Wordfast Classic
University of Turku	SDL Trados, Memsource
Aston University	SDL Trados
University of Bath	SDL Trados
University of Birmingham	SDL Trados
University of Durham	SDL Trados, Wordfast Classic
University of Central Lancashire	Memsource
University of East Anglia	SDL Trados, memoQ
University of Bristol	SDL Trados, memoQ, Memsource
University of Edinburgh	SDL Trados, Déjà Vu, Wordfast Anywhere
University of Essex	SDL Trados, memoQ
University of Leeds	SDL Trados, memoQ, Memsource,
	OmegaT, MateCat
University of Leicester	SDL Trados
University of Roehampton (London)	SDL Trados, Memsource
Dublin City University	SDL Trados, Memsource
National University of Ireland, Galway	SDL Trados
The University of Stirling	SDL Trados
Univerzita Karlova v Praze	Memsource

Universities	CAT greatering			
	CAT systems			
Adam Mickiewicz University	SDL Trados			
Sofia University "St. Kliment Ohridski"	SDL Trados, WordFast Anywhere,			
	Memsource			
Université de Bretagne Occidentale	SDL Trados, Memsource, memoQ			
Université Charles-de-Gaulle Lille	SDL Trados, memoQ, Wordbee, Memsource			
Université de Toulouse Jean Jaurès	SDL Trados			
Middlebury Institute of International Studies	SDL Trados			
Monterey				
North America				
Glendon College, York University (Toronto)	SDL Trados, LogiTerm			
University of Massachusetts	SDL Trados			
University of Illinois	SDL Trados			
South America				
Universidad Latinoamericana de Ciencia y	SDL Trados			
Tecnología				
Universidad de Buenos Aires	SDL Trados			
Universidad de Belgrano	SDL Trados, memoQ			
The Federal University of Santa Catarina	SDL Trados, MetaTexis, Déjà Vu, Wordfast			
•	Classic, Transit NXT, XTM			
Pontificia Universidad Católica de Chile	SDL Trados, Wordbee			
Universidad de Antigua	SDL Trados, OmegaT			
Australia				
Macquarie University	SDL Trados, Memsource			
The University of New South Wales	Memsource, OmegaT, memoQ, XTM			
Monash University	SDL Trados, Wordfast Anywhere			

According to research results, the list of CAT systems selected for study by the aforementioned universities is quite wide and includes 14 different software products. It is important that in most universities, students study not one, but several such systems (see Figure 1).

The diagram shows that only 22 universities that were examined in our study are limited to studying only one CAT system. Two CAT systems are studied at 24 universities, three at 12 universities, four at 5 universities, five at 3 universities, six are studied at Universität Leipzig, and seven are studied at The Federal University of Santa Catarina and Ruprecht-Karls-Universität Heidelberg.

It is worth noting that in general, more than 30 CAT systems of various developers are presented on the software market. Despite the significant prevalence and popularity of desktop CAT systems, the above list contains three belonging to the cloud systems, in particular, Memsource, Wordfast Anywhere, MateCat. Such CAT systems have relatively recently appeared on the market for software products, but they are quickly gaining popularity among freelance translators as well as among translation agencies. Summarized data on the representation of various CAT systems in university programs for training translators is shown in Figure 2.

Despite the proprietary license and its rather high cost, SDL Trados is present in 94% of universities (65 out of 69) among the CAT systems chosen for studying. This situation is due, in our opinion, to the high popularity of this system among translators and its wide use as the main tool for implementing translation projects with the ability

to ensure all standardized stages of the translation process. In addition, according to representatives of the translation industry, the successful mastery of SDL Trados provides further free adaptation to the study and use of other CAT systems [15].

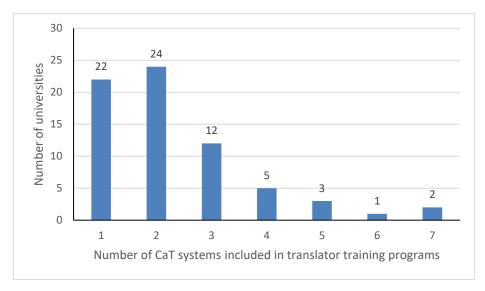


Fig. 1. Quantitative Representation of CAT Systems in University Translation Programs

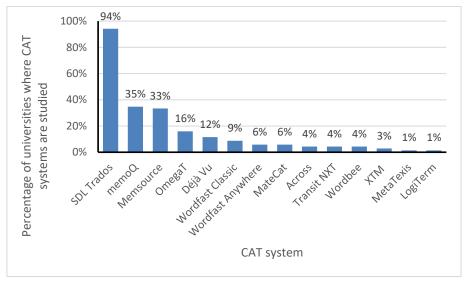


Fig. 2. Representation of CAT systems in translator training programs of universities

A high level of representation in translator training programs belongs to the Memsource cloud-based CAT system, which is studied at 23 universities (33%). In popularity, it is second only to SDL Trados and memoQ. This is a testament to the fact that universities

direct their efforts to training competitive specialists and take into account the development trends of the basic tools of a translator. The widespread implementation of the study of cloud CAT systems is largely due to the relatively high functionality of these systems for the implementation of translation projects, relatively low cost, the ability to use via a web browser without the need to install on your computer, the availability of free versions on an ongoing or temporary basis, etc. [13].

It is worth noting that despite the low popularity of such a CAT system as OmegaT among translators, almost every seventh university took it for study. A feature of this system is that it has a free license, and this greatly simplifies its receipt and use in the educational process. Most likely, this explains its fourth position among the CAT systems included in the curriculum of universities covered by our study.

In order to determine in our study a list of tools, the study of which should be included in the content of the training of translators, it is necessary to understand not only the development trends on this issue in the university environment, but also in the field of translation. For this purpose, data were analyzed from more than 400 translation agencies, whose offices are located in Europe, America and Asia. For analysis, translation agencies were selected, on the web pages of which information was provided on the names of the CAT systems used by them for the provision of translation services. As an example, some of these translation agencies are shown in Table 2.

Table 2. The list of CAT systems used by translation agencies for the provision of translation services.

Translation agencies	Country	CAT systems			
Europe					
Intercontact GmbH Schälike	Germany	SDL Trados, memoQ			
KERN AG	Germany	SDL Trados, Across			
Connect-Sprachenservice	Germany	SDL Trados, memoQ, Across			
Regensburg GmbH					
EVS Translations	Germany	SDL Trados, memoQ, Transit			
		NXT, Across			
Translate.Pro	Germany	SDL Trados, memoQ, Transit			
		NXT, Across			
Oneword	Germany	SDL Trados, Accross			
Text&form GmbH	Germany	SDL Trados, memoQ, Across,			
		Memsource, SDL Passolo			
Lingo24 (UK)	Great Britain	Memsource			
Gengo	Great Britain	SDL Trados			
RWS Translation services	Great Britain	SDL Trados			
Wolfestone	Great Britain	Synergy X			
Capita Translation and	Great Britain	SmartMATE			
Interpreting					
MORNINGSIDE	Great Britain	SDL Trados, memoQ, Memsource			
TRANSLATIONS					
ATLAS TRANSLATIONS LTD	Great Britain	SDL Trados, memoQ			
STAR UK	Great Britain	Transit NXT			
Technolex	Ukraine	SDL Trados, memoQ, Across			

Translation agencies	Country	CAT systems
Translatel	Ukraine	SDL Trados, memoQ, Transit
		NXT, Across, Wordfast, SDLX,
		Déjà Vu, Idiom, SDL Passolo,
		Alchemy CATALYST
МоваСвіт	Ukraine	SDL Trados, memoQ, Accross,
		SDL Passolo, RC-WinTrans
Традос	Ukraine	SDL Trados
Polilingua	Poland	SDL Trados, Wordfast, memoQ,
		Déjà Vu, Across
VEROLING Translation Agency	Poland	SDL Trados, memoQ, Memsource,
		Across, Déjà Vu, Wordfast
Eurolingo	Poland	SDL Trados, SDLX, Wordfast,
		Transit NXT, Across, Idiom, SDL
		Passolo, Alchemy CATALYST
iTrans Translations	Poland	SDL Trados
KMC GLOBAL SOLUTIONS	Poland	SDL Trados, memoQ, Wordfast,
		Transit NXT, SDLX, Idiom,
		Memsource, SDL Passolo
Biuro tłumaczeń Versus	Poland	SDL Trados, Idiom, Déjà Vu
	America	
Excel Translations	cel Translations USA SDL Trados, XLCA	
		WorldServer, Transit NXT, Déjà
		Vu
U.S. Translation Company	USA	memoQ, Workbench
APlus Translations Company	Canada	SDL Trados, Wordfast
BG Communications	Canada	At the request of our clients, we
International Inc.		can perform translations utilizing
		their preferred translation software
	Asia	
Jerome Translations	China	SDL Trados.
		We also use other CAT tools from
		time to time.
CCJK Technologies Co., Ltd.	China	SDL Trados, SDLX, memoQ,
		Wordfast, Transit NXT, Alchemy
		CATALYST
Beijing E-C Translation Ltd.	China	SDL Trados
(BEC)		

Summarized data on the representation of various CAT systems in translation agencies are shown in Figure 3.

The analysis of the use of CAT systems by translation agencies showed that the leader among translation tools of this class is SDL Trados, which is used by more than 80% of agencies. Although by a significant margin from SDL Trados, such systems as memoQ and Across are still very popular. A fairly high percentage of the prevalence (16%) of the Memsource cloud CAT system confirms the tendency for translation agencies to deploy next to desktop systems – the cloud systems.

It is also worth noting that the vast majority of translation agencies use more than one CAT system, and some of them even up to eight. Some agencies are even ready to

fulfill an order on the terms of the customer for the use of a particular CAT system, which indicates a high level of staff training and a wide range of available software products of this class.

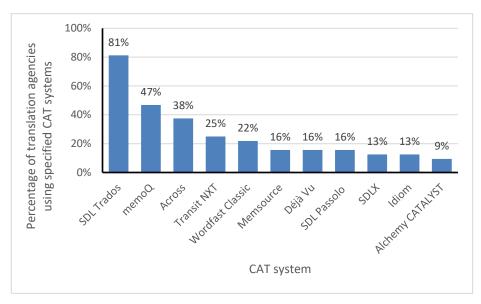


Fig. 3. Representation of CAT systems in translation agencies

Considering the fact that recently many translation agencies have begun offering services for the localization of software products and websites, it is natural to have appropriate tools in their arsenal. In particular, this is SDL Passolo, the prevalence of which among the surveyed offices is 16% and Alchemy CATALYST with a lower representation (9%).

An important indicator of the compliance of the training content of future translators in the aspect of their training for the use of modern tools in the professional activity is the analysis of practical training. After studying the course «Information Technologies in Translation Activities», the content of which included the study of the main stages of working with CAT systems SDL Trados and Memsurce, future translators at the National University of Life and Environmental Sciences of Ukraine can consolidate their knowledge and skills within the framework of translation and technological practice. The duration of such practice is 2 weeks. During this time, students had to complete tasks involving acquaintance with the technology of implementing translation projects using modern tools, participating in the formation of terminological databases and translation memory databases, checking the quality of translations, and the like. Upon completion of the practice, students were offered a questionnaire that contained 5 questions and was aimed at identifying their assessment of the conformity of knowledge and skills in using CAT systems in translating, acquired in the educational process of the university, to the real conditions of the translator's activity in a translation agency. 47 students participated in the survey, answered the following questions:

- 1. What CAT systems are used in translation agencies that have been identified as the basis of practice?
- 2. What CAT systems that are used in translation agencies to provide translation services did you first meet during your practice?
- 3. What are the functions of CAT systems that you have mastered in the studying process, are used in the practical work of translation agencies?
- 4. What functions of the CAT systems that you mastered during the training process are not used in the practical work of the translators of the agencies where the practice was carried out?
- 5. The study of which CAT systems is necessary in your opinion, first of all, to be included in the content of the translator's training in order to maximize his readiness for professional activity?

Student's survey results on their assessment of the conformity of knowledge and skills in the application of CAT systems when performing a translation are shown in table 3.

Table 3. Student's survey results on their assessment of the conformity of knowledge and skills in the application of CAT systems when performing a translation.

Overtion	Anguarantiana	Answer	s given
Question	Question Answer options		%
-	SDL Trados	44	93,6
	memoQ	17	36,2
	Across	6	12,8
Question 1	Memsource	10	21,3
	Wordfast	12	25,5
	Déjà Vu	5	10,6
	SDL Passolo	2	4,3
Wordfast		7	14,9
Question 2	memoQ	4	8,5
	Déjà Vu	2	4,3
	Translation of texts using CAT systems	47	100,0
	Creation and filling of terminology databases	45	91,5
Question 3	Parallel text alignment	8	17,0
	Creating translation memory databases	22	46,8
	Editing translation memory databases	14	29,8
	Checking the quality of translations using QA		80,9
Creation of terminology databases		2	4,3
	Converting terminology databases from one format to another	36	76,6
Question 4	Filling terminology databases by extracting dates in texts with extractor programs	45	100,0
	Parallel text alignment	39	83,0
	Creating translation memory databases	25	53,2
	Editing translation memory databases	33	70,2
	SDL Trados	47	100,0
0	Wordfast	9	19,1
Question 5	memoQ	15	31,9
	Memsource	32	68,1

Answers to question 1 of the questionnaire found predicted results on the prevalence of various CAT systems in the activities of translation agencies. The leading positions, as in the case of previous research on studying them in foreign universities and use in translation agencies, are occupied by the SDL Trados CAT systems (93.6%) and memoQ (36.2%). Among the most common CAT systems, students also noted the cloud-based Memsource, the application of which amounted to 21.3%, despite the relatively limited list of translation agencies that were involved as practice bases. This indicates a rather rapid advance in the market for translation services of cloud CAT systems. It is important to note that in practice, students were able to see the use of CAT systems for a relatively specific type of translation activity related to the localization of software products. Therefore, 4.3% of the answers regarding the SDL Passolo program is not a high indicator, but it is an important evidence of the need to study the tools of this group for future career prospects.

A positive feature of the practice was the familiarity of some students with the new CAT systems that were not studied in the framework of the course "Information Technologies in Translation Activities". The largest number of students (14.3%) noted in the answers to question 2 about getting to know the Wordfast system, which indicates its rather high prevalence. Overall, acquaintance of students with the noted new CAT systems is a positive step, since they could compare them with already known CAT systems and evaluate the general similarity of the various CAT systems. Such experience can help to overcome psychological barriers before mastering new tools, even if necessary independent learning.

Formulating questions 3 and 4 of the questionnaire, we intended to identify the extent to which the content of the course "Information Technologies in Translation Activities" covers modern aspects of using CAT systems in the provision of translation services. It was pleasant to note the high percentage of students' answers, where they indicated that the vast majority of the functions of CAT systems studied in the course used in the activities of translation bureaus studied in the course. In particular, the use of CAT systems in translation was noted by students in 100% of the answers; 91.5% of responses indicated that students performed operations related to the creation and filling of terminological databases; verification of translated texts by QA tools became part of the list of work performed during practice for 80.9% of students.

But a fairly small percentage of students (8%) were able to assess the need to master such an operation as alignment of parallel texts. This is mainly due to the fact that translation agencies primarily work either with translation memory databases provided by the customer, which are based on aligned parallel texts, or these databases are formed directly in the translation process without alignment operations. These operations are carried out in those agencies where, at the stages of their activity without the use of CAT systems, significant volumes of translated texts were accumulated in certain industries within which they continue to work. Despite this, the functions of CAT systems that allow alignment of parallel texts are present as separate modules in almost all powerful desktop systems and embedded in the tools of cloud systems, which are quite new. This was the reason for the inclusion of the study of the indicated function of CAT systems in the content of the course.

Unfortunately, 100% of students noted that in the translation agencies where the practice took place, they did not take part in filling the terminology databases by extracting the terms in the texts with extractor programs, although they mastered this operation in the educational process using the SDL MultiTerm Extract software module. Despite the rather specific nature and low prevalence of such a method of forming terminological bases among translators, we believe that the availability of specialized tools and the rather high efficiency of such an operation determine the feasibility of studying it as an element of an entire training system for translators to use CAT systems. But in order to optimize the priority study of more applicable operations with the use of CAT systems, it is better to make studies on filling terminological databases by extracting terms in texts in independent work.

An additional confirmation of the correctness or incorrectness of the choice of a strategy for studying one desktop and one cloud-based CAT system, in particular SDL Trados and Memsource, as part of the course "Information Technologies in Translation Activities", should have been students' answers to questions 5 of the questionnaire.

It is important to note that 100% of the answers showed the need to include in the training of the translator the study of the desktop SDL Trados system. The interest in the mandatory study of the Memsource system is confirmed by 68.1% of the answers, which, as in the previous case, coincides with our vision of the prospects of these software products as the main tools. The fact that students highly appreciated the importance of studying systems such as memoQ (31.9%) and Wordfast (19.1%), encourages the search for ways to improve the content and organization of translator training, which will expand the range of capabilities of future specialists when translating from using various CAT systems.

3 Conclusions

Studies aimed at identifying the development trends of translation technologies and tools should ensure that the professional training of translators is consistent with industry trends, and the process of its design should contribute to a flexible response to modern challenges. Considering that one of the main tools of a translator in modern conditions of technical translation is CAT systems, the content and organization of training of future translators should ensure their quality training in the aspect of its study.

Based on the analysis of translator training programs at universities around the world, research on the activities of translation agencies for the provision of translation services and our own experience in the development of the content of translator training in the aspect of studying modern CAT systems, it is advisable to take into account the following features:

- to offer for study the most popular in the industry and the most technologically
 efficient CAT systems, in particular SDL Trados, memoQ, Memsource and others,
 among which should be both desktop and cloud.
- to apply various forms and methods of organizing the educational process in order to include at least three leading CAT systems in the training content, since the

- development trends of the activities of translation agencies lie in the plane of expanding the range of automated translation systems in the provision of services in order to maximize customer satisfaction.
- to improve the content of teaching curriculum courses by orienting the implementation of practical tasks related to translation, structuring terminological data, aligning parallel texts using the functions of specialized software, primarily CAT systems.

Further research can be aimed at identifying the features of the study of other translator tools in the process of their professional training.

References

- Amelina, S.M., Tarasenko, R.O., Azaryan, A.A.: Information and technology case as an indicator of information competence level of the translator. In: Kiv, A.E., Soloviev, V.N. (eds.) Proceedings of the 6th Workshop on Cloud Technologies in Education (CTE 2018), Kryvyi Rih, Ukraine, December 21, 2018. CEUR Workshop Proceedings 2433, 266–278. http://ceur-ws.org/Vol-2433/paper17.pdf (2019). Accessed 10 Sep 2019
- Bauer, S.C.: Managing terminology projects: Concepts, tools and methods. In: Kockaert, H.J., Steurs, F. (eds.) Handbook of Terminology, vol. 1, pp. 324–340. John Benjamins Publishing Company, Amsterdam (2015). doi:10.1075/hot.1.man1
- Childress, M.D.: Terminology work saves more time than it costs. MultiLingual 18(3), 43–46 (2007)
- 4. ISO 17100:2015. Translation Services Requirements for translation services. https://www.iso.org/standard/59149.html (2015). Accessed 21 Mar 2019
- Kazhan, Yu.M., Hamaniuk, V.A., Amelina, S.M., Tarasenko, R.O., Tolmachev, S.T.: The
 use of mobile applications and Web 2.0 interactive tools for students' German-language
 lexical competence improvement. In: Kiv, A.E., Shyshkina, M.P. (eds.) Proceedings of the
 7th Workshop on Cloud Technologies in Education (CTE 2019), Kryvyi Rih, Ukraine,
 December 20, 2019, CEUR-WS.org, online (2020, in press)
- 6. Keller, N.: Translation-Memory-Systeme 2014 unter der Lupe. MDÜ 2 (2014)
- Kiv, A.E., Soloviev, V.N., Semerikov, S.O.: CTE 2018 How cloud technologies continues to transform education. In: Kiv, A.E., Soloviev, V.N. (eds.) Proceedings of the 6th Workshop on Cloud Technologies in Education (CTE 2018), Kryvyi Rih, Ukraine, December 21, 2018. CEUR Workshop Proceedings 2433, 1–19. http://ceur-ws.org/Vol-2433/paper00.pdf (2019). Accessed 10 Sep 2019
- Markova, O.M., Semerikov, S.O., Striuk, A.M., Shalatska, H.M., Nechypurenko, P.P., Tron, V.V.: Implementation of cloud service models in training of future information technology specialists. In: Kiv, A.E., Soloviev, V.N. (eds.) Proceedings of the 6th Workshop on Cloud Technologies in Education (CTE 2018), Kryvyi Rih, Ukraine, December 21, 2018. CEUR Workshop Proceedings 2433, 499–515. http://ceur-ws.org/Vol-2433/paper34.pdf (2019). Accessed 10 Sep 2019
- Moorkens, J., Castilho, S., Gaspari, F., Doherty, S. (eds.): Translation Quality Assessment: From Principles to Practice. Springer International Publishing AG, Cham (2018). doi:10.1007/978-3-319-91241-7
- Piśl, M.: CAT-Werkzeuge im Übersetzungsprozess Beschleunigung durch Technik? ACC JOURNAL 23(3), 89–100 (2017). doi:10.15240/tul/004/2017-3-008

- Rashevska, N.V., Soloviev, V.N.: Augmented Reality and the Prospects for Applying Its in the Training of Future Engineers. In: Kiv, A.E., Soloviev, V.N. (eds.) Proceedings of the 1st International Workshop on Augmented Reality in Education (AREdu 2018), Kryvyi Rih, Ukraine, October 2, 2018. CEUR Workshop Proceedings 2257, 192–197. http://ceurws.org/Vol-2257/paper18.pdf (2018). Accessed 30 Nov 2018
- 12. Tarasenko, R., Amelina, S.: A Unification of the Study of Terminological Resource Management in the Automated Translation Systems as an Innovative Element of Technological Training of Translators. CEUR-WS.org, online (2020, in press)
- Tarasenko, R.O., Amelina, S.M., Azaryan, A.A.: Features of the use of cloud-based translation systems in the process of forming information competence of translators. In: Kiv, A.E., Soloviev, V.N. (eds.) Proceedings of the 6th Workshop on Cloud Technologies in Education (CTE 2018), Kryvyi Rih, Ukraine, December 21, 2018. CEUR Workshop Proceedings 2433, 322–335. http://ceur-ws.org/Vol-2433/paper21.pdf (2019). Accessed 10 Sep 2019
- 14. Tarasenko, R.O., Amelina, S.M., Azaryan, A.A.: Integrated testing system of information competence components of future translators. In: Kiv, A.E., Shyshkina, M.P. (eds.) Proceedings of the 7th Workshop on Cloud Technologies in Education (CTE 2019), Kryvyi Rih, Ukraine, December 20, 2019, CEUR-WS.org, online (2020, in press)
- 15. Troitckii, D.I.: Podgotovka perevodchika v vuze: uchebnyi plan vs. realnaia zhizn (Preparing a translator at a university: curriculum vs. real life). http://www.toptr.ru/library/translation-truth/podgotovka-perevodchika-v-vuze-uchebnyij-plan-vs.-realnaya-zhizn.html (2019). Accessed 28 Nov 2019