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## Cloud technologies in a translation classroom

### *Abstract*

Technological advances in translation and growing competition on the global language services market require new approaches to academic teaching in translation. Today, technology competence is a prerequisite for a professional career in translation and localization. Due to financial reasons, students in Russian universities have limited access to the latest translation software. This paper discusses the use of free cloud translation tools, such as Smartcat and Memsourc, in the university classroom. The author shares her experience of teaching a bachelor's course in Information Technologies in Linguistics and Translation at Dostoevsky Omsk State University and analyses techniques that are really working.

### 1 Introduction

Recent acceleration of technological development and international economic cooperation and collaboration poses new challenges for Language Service Providers. Today's ever-changing economic and political landscape generates a constant flow of technical, financial and legal documents for translation. The demand for high-quality translations in science and technology grows annually (Russian Translation Market volume and dynamics 2018) with deadlines getting tighter. As a result, one of the key aspects of translator training today is to teach future translators to work better and faster.

To achieve better results, programs of study should meet the needs of the language industry. A recent research (Malenova 2018) reveals an interesting and consistent pattern: Language Service Providers express general dissatisfaction with the competencies of fresh graduates without, however, articulating any specific requirements and issues of concern. In an effort to clarify the situation, we conducted a survey with 23 major translation companies from six Russian cities (Moscow, Saint Petersburg, Nizhny Novgorod, Chelyabinsk, Ekaterinburg and Omsk) regarding their experience of hiring university graduates. Apart from providing answers to 14 questions that were all open-ended, the respondents were also encouraged to share their own thoughts and ideas in the form of a free commentary.

The main survey question was "What competencies of future translators/interpreters do you find crucial?" The respondents gave the following answers: a high level of competence in the native language, good foreign language competence, good

domain-related knowledge, the urge for a constant improvement in skills, and working knowledge of any translation software (Malenova 2018: 105). The present study will discuss the approaches to teaching students how to work with CAT tools in general and with free cloud-based translation tools in particular.

Translation memory (TM) software, or according to Quah, “computer-aided translation” (Quah 2006) has already won a global translation market. Students and young researchers who can work with at least one TM-program have a huge advantage over those who know nothing about it. As Kenny argues:

By integrating CAT tools into our teaching at universities, we are not merely imparting the kind of practical skills that will get graduates jobs. We are also creating an environment in which basic and applied research can be carried out into a number of areas, including translation pedagogy, terminography, CAT tools evaluation, human-machine interaction, and text analysis and composition. (Kenny 1999: 79)

Recognizing this fact, Russian universities have been making efforts to integrate special software training into their programs of study. However, due to insufficient financing, Russian students still have limited access to professional translation software. On the bright side, many TM software developers have academic partnership programs and offer discounts to students. Nevertheless, licensed software is only available in campus computer labs and very few students, if any, opt to purchase professional software for personal use. The use of cloud technologies seems to be a good solution.

## **2 Cloud-based translation solutions: a theoretical framework**

Considering the fact that technology is always a step ahead of the translator (Pym 2003: 493), much of an effort has been invested into the research of a “translator vs. machine” interaction process. As Samuelsson-Brown notes, among the skills that a translator needs to acquire in the 21st century there is a whole cluster of IT-skills, including mastering the hardware and software used in producing translations, electronic file management, and E-commerce (Samuelsson-Brown 2004: 2). According to Bowker and Fisher, “advances in computing and computational linguistics in the late 1970s and early 1990s spurred the development of modern CAT tools” (Bowker/Fisher 2010: 60). As a result, since the early days of computer-aided translation, translator’s workstation has become “a complex and highly digital environment” (Delpech 2014), which includes CAT tools, bilingual concordance services, terminology and glossary managers, etc. These technological advances are “user-friendly” and work as great time-savers because they accelerate the translation process and improve its efficiency. CAT tools carved out their place both in freelance translators’ practices and in the processes of global localization corporations due to their particular value to companies “working on large volume localization projects, or projects containing updates of previously translated material” (Esselink 2000: 359). This development of computer-

aided translation tools has not stopped yet, and now we are entering the era of cloud-based translation technologies.

Cloud-based technologies (or cloud computing in earlier terms) make it possible for users to share and access data (documents, databases, videos, photos, music, and other types of content), applications and particular services via the Internet. All users of this service work in a “cloud” gaining a common access to one virtual environment used for information processing and storage. Any user may work with cloud services from any part of the globe using any device with the only prerequisite being a sustainable Internet connection. According to Zhu, cloud-based platforms’ users may “rent from a virtual storefront the basic necessities to build a virtual data center: such as CPU (central processing unit), memory, storage, and add on top of that the middleware necessary: web application servers, databases, enterprise server bus, etc. as the platform(s) to support the applications” (Zhu 2010: 21). In other words, this cloud is some sort of a “common virtual computer” and an unlimited amount of users may enjoy working with it.

Usually, we use cloud-based applications and environment for storage and sharing of large amounts of data, processing of complicated calculations. Although, not long ago they became of interest for developers of translation-focused software. By using these technologies, translators move to a new technological level. They do not need to install these products on their PCs. There is no need to think of technical support and upgrade of software because all maintenance works are performed on a centralized server. As Monjur and Mohammad put it, “processing is done remotely implying the fact that the data and other elements from a person need to be transmitted to the cloud infrastructure or server for processing; and the output is returned upon completion of required processing” (Monjur/Mohammad 2014: 25). Translator is not tied to a definite workplace, PC or laptop, because the TM-system can be logged in remotely from any device with the Internet connection. Another interesting feature is a possibility of using a “collective mind”, meaning a global translation memory environment, which makes it possible for different translators from different parts of the world to work with one distributed project simultaneously.

Over the past several years, scholars from all over the world have been researching various technological and pedagogical aspects of cloud-based translation systems. Vasiljevs and his colleagues (2012) created a cloud-based platform for “do-it-yourself” machine translation. Zydron (2012) uncovers the technology at the heart of the translation process. Miraglia (2013) researches cloud-based translation systems from the point of view of translation process management. Muegge (2011) and Canim Alkan (2016) bring to light the peculiarities of using cloud-based translation environment in translation teaching practice. Despite differences in approaches and methods, all authors point out that cloud-based translation environments offer a scope of advantages over traditional “desktop” CAT solutions. Muegge (2012) points out the following strengths of cloud-based translation platforms:

- there is no application to install;
- users do not have to worry about updating their software;
- cloud-based TM environments are of cross-platform nature and translators can use any device they like;
- these platforms ensure easier collaboration, project management and workflow;
- cloud-based TM systems are typically available on subscriptions, or even free of charge (Muegge 2012).

Modern cloud-based translation tools are independent translation platforms that include all elements necessary for effective translation process: translation memories, integrated machine translation engines, terminology management modules, and web-based (as well as desktop) translation editors. They come out in several editions specially designed for different categories of users: translation buyers, translation agencies, and translators themselves. Their designers use the latest technologies of text processing and offer all features anyone can expect from a desktop TM- tool. Here are just a few options that these translation environments offer: support of different file formats, automated workflow with real-time project management, secure storage of all data, centralized terminology management, etc. (Memsorce: Features 2011–2019). Cloud-based translation environments represent a viable and effective tool for professionals engaged in different stages of translation process. Usually they are provided as “software as service” (SaaS) meaning that the system is hosted and maintained centrally, while the software itself is distributed to its users either for free, or on subscription.

This study focuses on two cloud-based translation environments that are popular in Russia: Smartcat (2018) and Memsorce (2019). Both companies offer cloud-based platforms that allow freelance translators and translation companies to automate their translation processes. These platforms are “all-in-one” professional translation environments. This enables translation students to feel the real life and create a comprehensible translation product that can be used by a real or virtual client. These environments usually have an understandable set of functional elements and user-friendly interface (see Figures 1 and 2) that makes them an ideal tool for teaching translation technology from scratch. All functions can be activated both using icons on the screen and shortcut keys. Both platforms have an easy access to Users’ Manuals and video tutorials. Moreover, if students are able to master these cloud-based translation environments, they will have much less difficulty in mastering more complicated and sophisticated TM-software.

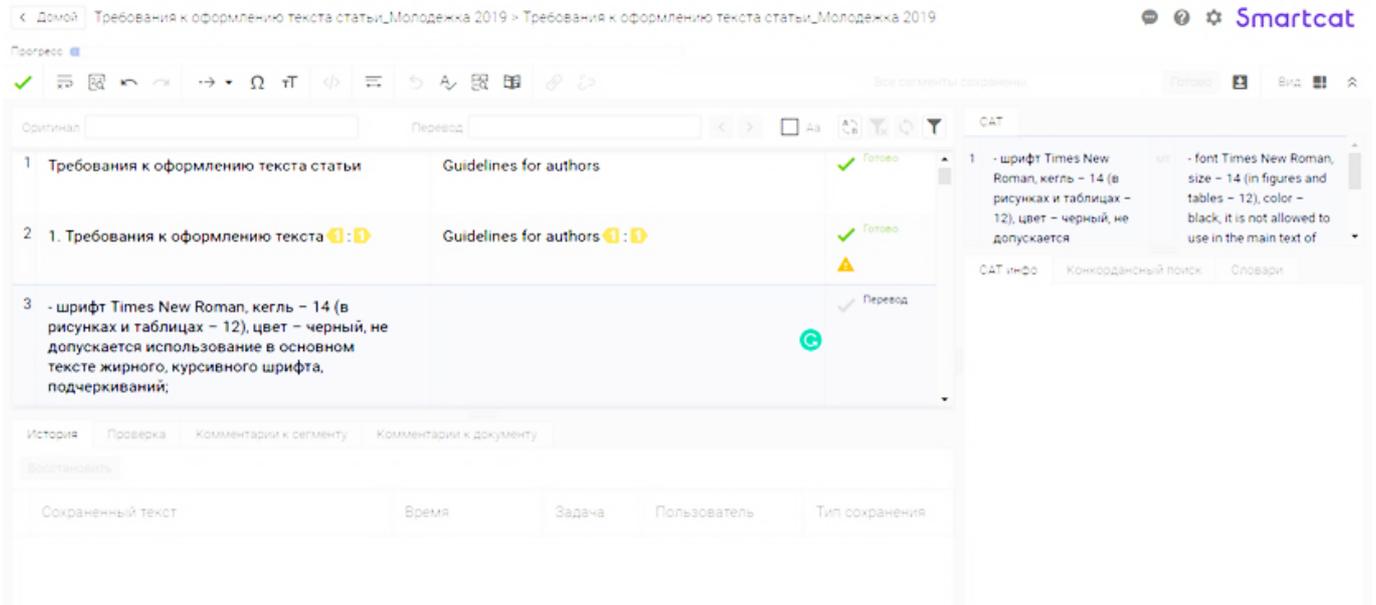


Figure 1: Interface of Smartcat cloud-based TM-environment

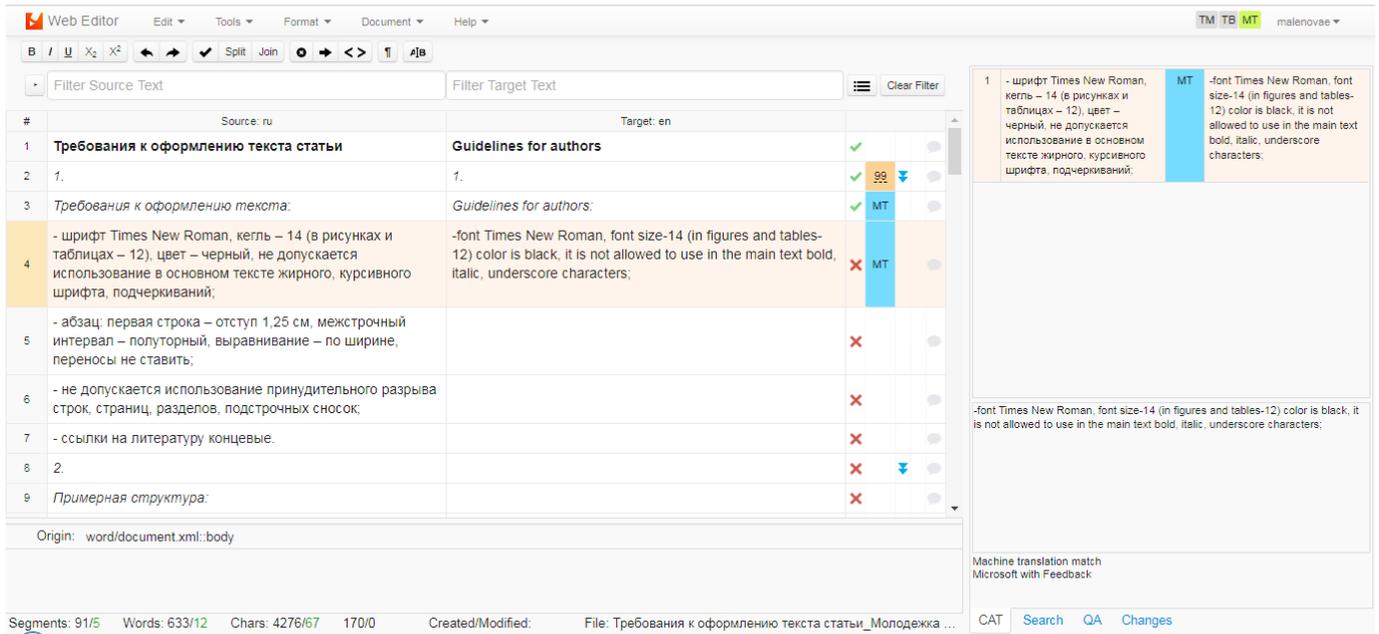


Figure 2: Interface of Memsources Cloud cloud-based TM-environment

### **3 Cloud-based CAT tools in the university classroom**

IT technology, and particularly professional tools used in everyday translation practice, should be integrated into translators' teaching programs. However, less than a decade ago it was argued that

К большому сожалению, отечественные теоретики-переводоведы совершенно незаслуженно обходят молчанием такой важный ресурс письменного переводчика, как электронные средства. Они, как правило, игнорируются и в курсах практического перевода на переводческих факультетах вузов. В результате наши выпускники вступают в мир устного и письменного перевода, имея лишь весьма приблизительное представление о тех возможностях, которые дают переводчику электронные инструменты. (Ševčuk 2009: 5)

'Russian translation scholars do not pay any attention to electronic tools. Despite being very important resources in translator's work, they are usually ignored by universities' applied translation courses. As a result, our graduates enter the world of translation and interpreting having very vague knowledge of advantages that electronic resources provide.'

Today, the situation is changing and more universities offer courses aimed at teaching students how to do their work more effectively using different CAT tools. This is not surprising because as Bowker notes, "familiarity with CAT technology is becoming a prerequisite for translation students if they are to be able to meet the challenges and survive the competition of the twenty-first century" (Bowker 2002: 21). As Canim Alkan argues, "translation educators should make use of technology as much as possible in as many courses as possible. Technology use should not be limited to a course dedicated to the teaching of translation technology" (Canim Alkan 2016: 46).

Despite this, even today there are still universities in Russia that offer programs in Translation and Interpreting and do not have courses in Information Technologies for Translators. This can be explained by a combination of two reasons, i. e. insufficient financial resources and lack of experienced instructors who understand the importance of such courses and can teach on them. Sometimes, even when resources are available, it may be extremely difficult to convince the university's leadership to allocate funds for translation technologies.

Of course, cloud-based technologies fully depend on the Internet access that can sometimes be unstable. Such dependence on the Internet stability can be overcome easily because most of cloud-based translation platforms have special off-line translators' workbenches that can be downloaded to university computers and used offline. Another disadvantage is the fact that students often prefer to use machine translation when working with cloud-based tools. All translation environments mentioned have an in-built machine translation module, which sometimes can be of great help at the stage of preliminary translation. Nevertheless, it is very important to remind students that machine translation always requires post-editing (PEMT). An implicit confidence in the results of machine translation and lack of PEMT skills may lead to major errors in the target text. This is why we should turn this con into pro and regard it as an additional

task to teach students to be critical while assessing machine translation results, as well as to perform PEMT.

Sometimes students and instructors express their concerns about confidentiality issues. Therefore, Smartcat website assures us:

All of your assets as a translator, such as your translation memories, glossaries, and other details of projects you're working on, will always remain yours and only yours. This type of data is secure in SmartCAT and is never made available to other users. (Akhrameev 2016)

Until recently, cloud-based translation platforms could not provide their users with a sufficient level of security. On the other hand, a usual way of emailing source files and reference materials cannot be called the safest practice as well. Now all information is kept encrypted both when stored at a server, and when it is sent to the clients. Therefore, insecurity of data used in the course of translating using cloud-based CAT systems is a myth because "cloud-based translation tools provide some of the most effective security currently to be found in the translation industry" (Memsourse 2016).

One thing especially important for Russian universities with regard to the use of cloud-based translation tools is that there is no need to have a dedicated computer classroom with expensive software. Students can use cloud-based translation environments in any classroom with Wi-Fi connection, even if it is not equipped with PCs or laptops. There is no need to sign up for computer classrooms (which in some places are quite a few considering the amounts of students' groups who wish to use them), or to ask a colleague to swap classrooms. Students may log into their accounts using any device they wish – laptop, tablet, smartphone, etc. – given that it has a sustainable Internet signal.

One more advantage is the possibility to organize collaboration of students in the frameworks of one translation project. It also allows the teacher to monitor students' advancement effectively. Besides all, these translation environments are usually equipped with a module for deadline control, which helps students estimate their working time and arrange their workflows according to a schedule. They set deadline for the project and receive automatic notifications of their progress and time left.

Reviewing the benefits of a cloud-based translation system, Muegge points out the following advantages that make this tool worth bringing to the translation classroom:

- it dispenses with software installations;
- it supports Windows, Apple, Linux computers;
- it enables easy access from anywhere;
- it runs on less powerful systems like netbooks and tablets;
- it makes expensive PC labs obsolete;
- it ensures students' collaboration and real-time resource-sharing (Muegge 2011).

The very possibility of working with these cloud-based translation tools is a huge advantage for universities. Students feel engaged in the translation process; they immerse into professional environment, master the competences needed for their

future professional careers, and become more competitive on a global translation market. Cloud-based translation platforms have more advantages than disadvantages. Our task is to see how this technology can be used in a translation classroom.

## **4 Materials and methodology**

In this section, I would like to discuss the use of free cloud translation tools in the university classroom. I will share my experience of teaching a bachelor's course in Information Technologies in Linguistics and Translation at Dostoevsky Omsk State University and analyze techniques that are really working.

This BA course is a required foundation course for BA students of Linguistics with a specialization in Translation and Interpreting (3<sup>rd</sup> semester, 36 class hours). It consists of three modules:

- (1) *Web Search Strategies for Translator*. It aims to develop information search skills.
- (2) *Cloud-based CAT tools in Translation*. It introduces TM programs and familiarizes students with basic translation operations and strategies. Cloud-based translation solutions used in this module include Smartcat (<https://www.smartcat.ai>) and Memsource Cloud (<https://www.memsource.com>).
- (3) *Desktop-based CAT tools in Translation*. It introduces some advanced features of CAT tools and offers opportunities for further practice.

This is a foundation course introducing students to TM programs and preparing them for a future professional career in translation. This places special requirements to the teaching methodology and syllabus. The major learning outcome is to give students an understanding of the basic principles of working with cloud-based translation tools and to develop the necessary skills for further professional growth.

## **5 Discussion**

The pilot course on Information Technologies in Linguistics and Translation was introduced in 2012. To date, as many as 350 students have taken this course with 96 % of them successfully passing the final test at first attempt.

As already mentioned above, the second module introduces BA students to cloud-based translation environments. These translation platforms are available online, so the first task for students is to create their personal accounts in the system and to log in to their workspaces. This is where students encounter their first difficulties connected with professional terminology. The first step of creating an account on any cloud-based platform is a good opportunity to explain the difference between freelance translators, groups of translators working for an agency, and project managers. It is also vital to explain the technology used in every translation project and the difference between translation memory (TM) and terminology base (TB). To this end, I show them

examples of source and target texts and corresponding finalized TMs and TBs. This makes it easier for them to understand the concept of segmentation.

Our next step is to watch instructional videos offered by the software providers explaining the very basic principles of working with their CAT tool. All providers have YouTube channels where students can find useful videos, free webinars, and other materials that may be helpful. In our course, we usually start with the Smartcat cloud-based translation environment and then move on to the Memsource Cloud. However, this sequence is arbitrary and left to the discretion of the teacher.

After everyone is logged in, students create trial projects together. The teacher guides them through this process drawing the students' attention to the necessity of adding TMs and TBs to the project, letting them make decisions as to switch on machine translation (MT) module etc. At this point, they do not have to translate a long text; it may be just one or two sentences. Students have different levels of computer literacy; sometimes their skills are limited to social networking and working with text documents. For some of them it may be quite difficult to follow teacher's explanations. The main aim of this trial project is to show how to start working with a CAT tool, to explain how to upload the job (a source text) and download the translation, to demonstrate the difference between a bilingual document and a translated text.

The next step is to get down to translation practice. Here, the teacher's task becomes a little bit more difficult because students need constant guidance and support. We start with simple but at the same time interesting texts; usually it is a short fairy tale. Familiarity with the topic, absence of terminology, and numerous repetitions in the text make the work fun and gives many opportunities to explain various functions, e. g. the auto-propagation function. Here is a source text used as the first translation task for students taking the course. It is an excerpt from *The Wooden House* (Teremok), a famous Russian fairy tale. Here, only the English version of the text is provided. All repetitions that give the students an insight into the auto-propagation process are in italics:

There stood a small wooden house in the open field. *A mouse ran by:*  
– *Little house, little house! Who lives in the little house?* Nobody answered. The *mouse* went into the house and began to live there.  
*A frog hopped by:*  
– *Little house, little house! Who lives in the little house?*  
– I am a *mouse*. *And who are you?*  
– I am a *frog*. Let's live together. *So, the mouse and the frog began living together.*  
*A hare ran by.* He saw the house and asked:  
– *Little house, little house! Who lives in the little house?*  
– I am a *mouse*.  
– I am a *frog*. *And who are you?*  
– And I am a hare. [...] The hare jumped into the house and *all of them began living together* [...].  
(The Wooden House 2010)

As the tale goes on, more and more animals join the others in a Wooden House, so the key phrases such as "*Little house, little house!*", "*Who lives in the little house?*" etc. are

repeated several times. As soon the first three sentences are translated, the software starts propagating the translated segments. As a result, the students can see how CAT tools can make their work more effective and less time-consuming. The source text also contains some phrases that software defines as fuzzy matches (*ran by, hopped by, etc.*). It is also useful to draw the students' attention to this fact and explain what a fuzzy match is, how it may influence their work and their fees. At last, one of the sentences contains a deliberate punctuation mistake: the question "*And who are you?*" misses an interrogative mark. Usually the software marks this segment as fuzzy propagated. It is a good opportunity to discuss why it is marked this way.

Such texts are also very convenient to discuss the principles of working with term bases (TB) because they contain names of different animals or trees, which in this context can be considered terms. By adding these terms to their TBs, students investigate the concept of a TB and make decisions as to what information to include in the database.

Source texts are usually presented as a PowerPoint file and may contain pictures, different fonts of different colours and other formatting. Students must take into consideration the type of the source file and adjust their translation strategy accordingly. After downloading the translation to their computers, they are expected to make sure that the formatting of the translated text corresponds to the formatting of the original file. The inevitable discrepancies that need to be taken care of serve to enhance the learning process and stimulate further work with CAT tools.

The use of free cloud-based translation tools allows the teacher to give assignments for homework. For instance, students receive the same text about the Wooden House but in a different format (Microsoft Word or Microsoft Excel) and with another ending. In the original version of the fairy tale, a bear comes to the Wooden House, climbs on its roof and crashes it. However, the teacher may deliberately compile a version with a happy end and ask students to translate it. Here we can introduce the concept of different editions of the same source text and show how CAT tools may help the translator to deal with these types of documents more efficiently.

It is important for students to understand that all tasks they perform during this course are reality-based and have a direct bearing on future career possibilities. To this end, we gradually increase the difficulty of assignments and give them PPTX files with many embedded objects such as tables, diagrams, pictures, etc. To make it a little bit more difficult, we insert non-editable objects into the slides, e.g. captions and diagrams in JPEG format. This is the right moment to discuss different file formats and how to deal with them in CAT tools. Initially, students neglect the importance of post-editing. They start work in class, finalize the translation at home and deliver the final translation to the customer (translation teacher) without noticing that some text elements remain untranslated. As a result, post-editing is usually carried out in class; only after that translations are marked as complete.

Another challenge for future translators is specialized technical documentation with tables. Here, we discuss segmentation and formatting tables. Memsourse Cloud seems to be more efficient in working with tables because it incorporates a counter of total amount of segments, words, and characters in the text, as well as a counter of characters in a single segment. Before students start translating, it is important to draw their attention to the possibility of checking the amount of symbols in the source and target segments. It is necessary to maintain the size of table cells, width of lines and columns depending on the number of characters inside them. It makes students pay more attention to purely technical issues such as target text formatting.

Another important feature of cloud-based translation environments, compared to desktop applications, is the possibility of organizing teamwork within one large shared translation project. In this case, Memsourse Cloud is a perfect solution. Memsourse Academic Edition allows teachers to create a simulated translation agency with a realistic environment that closely resembles the hierarchy of real translation agencies.

Inside this license, the teacher can create sub-accounts for students and other teachers. These sub-accounts can be both Project Managers and Linguists. Using these accounts, the teacher does not need to hand out or to send the translation tasks to the students. He or she can assign them tasks via Memsourse, attach all the files needed (TMs, TBs, reference materials, etc.), and the system will notify students thereof. When students work on the project (or separate projects), the teacher can see their progress and receive the final versions of translations directly in the interface. Students can receive hands-on experience with project management; the teacher can create project manager accounts for them and let them create their own projects, TMs, TBs, etc.

For this purpose, the best option is a large source text which can be divided into several parts. The teacher, or a student assigned Project Manager role, will split the text into several parts, upload them into the system and assign the tasks for different translators (or Linguists in Memsourse's terms). Each student is responsible for his or her part of the text. The teacher will remind them that the whole team is working on a shared project, so it is important to pay attention to the consistency and unification of terminology. A good idea is to appoint an editor who will be responsible for the final product. The accounts the teacher creates do not have to be assigned to specific names; the teacher can let the students try different roles. This approach to teaching cloud-based technologies helps the students to understand the roles of translator, editor and project manager, to gain insight into modern working practices and the translation process workflow.

For this course, we try to find a real volunteer project with a real customer and a deadline. In most cases, these are texts for NGOs related to the history and culture of our region. The fact that the translation will be available to thousands of people raises the students' responsibility. They feel engaged into something "real" and learn to find their place in a translation workflow, to make decisions, and to share responsibility.

At the end of the course on Information Technologies in Linguistics and Translation, a survey is usually conducted to gather students' feedback. In the survey, we ask whether they found the course useful, what can be improved, what aspect of the course was the most important for their future careers. Here are the results of three surveys conducted in 2015–2017, in which 140 students participated. All students (100 %) found the course extremely useful and pointed out that they had learnt how to work with at least two CAT tools. They usually mentioned cloud-based CAT tools among their favorites; most of them (86 %) expressed their wish to use cloud-based translation environments in their future work. Some students (28 %) expressed their regrets concerning the time limit of the course, because they felt they needed more supervised practice with CAT tools. A usual recommendation was to teach more about different tools and applications that could be used in the real-world translation practice. Students also remarked that the course made them feel safer and more confident in their ability to be more competitive on the translation market.

## 6 Conclusions

Technological advances in translation and growing competition on the global language services market require new approaches to academic teaching in translation. Translation workflow is on the move towards cloud-based environments. As a result, it is necessary to teach future translators to work with this type of professional software.

The example of the bachelor's course on Information Technologies in Linguistics and Translation at the Foreign Languages Department of Dostoevsky Omsk State University demonstrates that it is very important to integrate cloud-based technologies into the syllabus. One of the main advantages of the course is that it is practice-oriented and gives the students a taste of what the real business looks like. They learn not only to translate with the help of technology but also to keep deadlines, post-edit, work in a team, communicate clients and manage translation projects.

The overall satisfaction of the students with the course, their desire to learn more about cloud-based translation environments and to use them in everyday translation practice proves the fact that cloud technologies have earned their rightful place in the university translation classroom.

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