

RESEARCH ARTICLE



INTERNATIONAL  
STANDARD  
SERIAL  
NUMBER  
INDIA

2395-2636 (Print); 2321-3108 (online)

## COMPUTER AIDED TRANSLATION AND TRANSLATION TEACHING

WANG JUNXUAN<sup>1</sup>, WU JIAPING<sup>2</sup>, SUNLI<sup>3</sup>

<sup>1</sup>Student, <sup>2</sup>Associate Professor, <sup>3</sup>Lecturer

College of Foreign Language, North China Electric Power University, China



### ABSTRACT

With the development of the computing and networking industries, many computer-aided technologies begin to appear. This paper discusses the importance of the computer aided translation in translation teaching, and on this basis, the paper analyzes in-depth the problems that may be encountered in computer-assisted translation teaching practice, then put forward some constructive suggestions and coping strategies.

Keywords: CAT; translation teaching; problems; coping strategy

### Introduction

The first chapter of this paper outlines the big environment faced by computer-assisted translation. Nowadays, with the popularity of globalization, the communication around the world is becoming more and more frequent. This kind of environment is beneficial to the development of computer-aided translation. Then the second chapter discusses the computer-aided translation in detail, which includes the definition of computer-assisted translation, the significance of computer-assisted translation, the necessity of setting computer-assisted translation as a course, and the current situation of computer-aided translation development at home and abroad. Computer-assisted translation is developed from machine translation or computer translation, called CAT for short, which refers to the automatic translation function that assists the use of computer programs in the process of human translation. The third chapter describes the problems in the development of computer-assisted teaching. The fourth chapter gives some suggestions or solutions. And the fifth chapter is a summary of the full text.

### 1. Background overview

In today's society, the global economy has developed rapidly and international exchanges have become more frequent. As a result, the demand for translation between different languages has also increased. The status of translation studies is constantly improving, and more and more researchers are paying attention to translation research and translation practice. At the same time, the improvement of information technology has provided powerful technical support for computational linguistics, and a variety of computer translation tools have appeared in our vision, such as online translation, electronic dictionaries, machine translation software (MT), corpus search tools, etc. What's more, people are getting used to using these technologies. Their full practicality has prompted colleges and universities to offer related courses and majors. Compared with traditional translations, this new discipline's superiority and current development status remind us that we should increase our research on it.

## **2. Computer-assisted translation teaching technology and translation teaching**

### **2.1 Introduction of computer-assisted translation**

Computer-assisted translation is developed from machine translation or computer translation, called CAT for short, which refers to the automatic translation function that assists the use of computer programs in the process of human translation. Computer programs are automatically matched and retrieved directly from the translation memory, greatly reducing the translator's workload. People often conflate computer translations with the translation tools we commonly use in translation, such as Google and youdao, which belong to the category of machine translation. The biggest feature of computer-assisted translation is that it does not depend on the automatic translation of machines, but it is engaged by people. The process is the improvement and extension of machine translation technology. The quality of computer translation is equal to or better than that of human translation, but it takes a short time and is more effective. It has unparalleled superiority and can be described as a "shortcut" in the translation process.

The translation memory mentioned above is the core technology of computer-assisted translation. Translation memory means that when people use computer translation software to translate, it will automatically create a memory bank and save the original text and translation data to the database to avoid repeated translation. The process of translation is to find the same or similar content from the translation memory and then select it by the translator to make accurate translation. Computer-assisted translation is a tool for translators and provides a platform. Unlike machine translation, it cannot provide dictionaries or ready-made translations. It requires the translator to reprocess it. The most important feature of computer-assisted translation is that it can store professional terminology databases in different industries such as law, engineering, and economics in a memory bank. It can avoid people to consult obscure technical terms and to work repeatedly in articles, so it really saves a lot of time. At the same time, because of the current level of development of computer-assisted translation and the feature of

computer translation, people use it more frequently to translate manuals, drawings, etc. If it is used to translate literary and artistic works with emotional color, the outcome would be unsatisfied. Therefore, if anyone who wants to translate literary works, it is better to translate them manually.

Computer-assisted translation has gone through four stages so far: the budding period from 1967 to 1983, the steady development period from 1984 to 1992, the rapid development period from 1993 to 2002, and the global development period from 2003 to the present (Chen Shanwei, 2014). Computer-assisted translation has achieved great development. Its performance includes three aspects. First, software development has continuously achieved new results. It has evolved from a simple auxiliary tool to a large-scale toolkit for managing and supporting the entire translation process. Second, more and more CAT software has begun to have the function of cooperative work on the network. From online sharing corpus to real-time translation and editing, the application of the network is becoming more and more in-depth. Third, the level of awareness of translation researchers has increased.

### **2.2. The significance of CAT technology to translation teaching**

#### **2.2.1 Improving teaching efficiency.**

First of all, the use of electronic documents can achieve spelling check, text scanning, automatic typesetting, search and replacement and other functions. Second, the use of computer networks can achieve fast retrieval, timely and accurate translation, terminology management. In addition, students or teachers can explore translation problems at the same time through the network. Several people can also set up their own discussion groups for discussion. Then, teachers and students can share resources through the network, or transfer files to each other.

#### **2.2.2 Lightening the burden of translation**

The results of Machine Translation are not very accurate, but when translating some scientific and

technical articles, the use of computer aided translation technology will greatly reduce the burden of translation and improve the speed of translation. In particular, computer-aided translation can automatically compare sentence similarity, search memory bank, thus avoid repeated translation of the same words, sentences or paragraphs. In addition, the corpus plays a great role in the process of translation. It can provide a rich reference sample for the translator.

### **2.2.3 Training students' translation ability**

Teachers can use computer technology to take more activities, such as materials collection, translation evaluation, group discussion, homework assignment, extracurricular answering, and so on, so as to improve students' translation ability. The teaching purpose of translation course is not only to make students understand the basic translation theory and master all kinds of translation skills, but also to train students to use these knowledge and skills to analyze sentences, compare sentences and translate sentences. After the introduction of CAT in the classroom, it can provide students with a large amount of resources and corpus, achieve better teacher-student interaction, arouse students' enthusiasm in learning, and greatly enhance the students' discourse analysis ability, language contrastive ability and comprehensive application ability.

## **2.3 The Necessity of Setting CAT Teaching into the Translation Course System**

### **2.3.1 The needs of the translation market**

The total market for translation is rapidly growing, and most of the translation projects in the market are translations of documents related to science and engineering. Generally speaking, such projects have heavy tasks and time constraints. Therefore, it is difficult to complete it only rely on human resources in a given period of time. To accomplish the task in quality and quantity, the translator must rely on computer technology to assist translation and to complete the entire project.

### **2.3.2 Translation Agency Requirements for Translation Talents**

Computer-assisted translation technology will also become a skill that translation students must learn. At present, most of the domestic translation companies distribute tasks to employees through online communication, and the tasks are relatively large. Some tasks are part of the overall project management. This requires that the students of translation majors have certain computer-assisted translation skills; otherwise, they will not be able to complete and deliver tasks in a timely manner as required.

### **2.3.3 Requirements for Translation Teaching Objectives**

The traditional translation teaching mainly focuses on book knowledge, and is mainly taught by teachers. There are few practice for students, and the subject matter of the textbook is mostly literary content, ignoring the cultivation of students' application ability. If CAT teaching content is added to the teaching, a student-centered classroom teaching mode can be established to better conduct teacher-student interaction and interaction between students and students. At the same time, students can also cultivate their hands-on ability and improve their practice level, thus changing the disadvantages of traditional teaching methods and improving teaching efficiency.

## **2.4 The present situation of Computer-Aided Translation course**

In addition to the research of natural language processing techniques including machine translation and the establishment of translation teaching and research institutions, many universities in the world attach great importance to the teaching of translation techniques and the use of translation tools in translation courses. University of Manchester in England, Imperial College of Science and Technology, University of London, University of Chiptersea in Canada, Carnegie Mellon University and other institutions of higher learning has opened these translation courses. After years of development and accumulation, these universities

have found a more perfect system and effective methods in machine translation, terminology management, translation technology training curriculum, talent training model and translation testing. For example, the Center for Machine Translation Studies at Carnegie Mellon University in the United States, which focuses on high-quality multilingual machine translation, has developed a set of natural language processing techniques. The Centre for Computational Linguistics at the University of Manchester in the United Kingdom and the European Institute of languages at the University of Swansea in Wales also have a more systematic curriculum and assessment system. Institutions such as the University of Dublin in Ireland have carried out a lot of research and practice in the field of machine translation teaching.

In the mainland of China, with the rapid development of computer aided translation, more translation software has emerged and has been widely used, especially in trade, politics and other fields. According to the investigation, non literary translation accounts for 94% of the total translation. According to the survey results of the application of computer aided translation in Peking University for the application of CAT software, 242 students are investigated. 161 of them have used CAT software, accounting for 66.53%. According to the different ways of learning to use CAT software, mainly through the network video course learning, through online discussion of friends learning, through the school set up to learn this kind of courses only 11.57 percent, it can be seen that CAT is widely used in practice. The vast majority of students are in 2002, the Department of Translation of the Chinese University of Hong Kong first established a graduate major in Computer-Assisted Translation. After that, Furen University and National normal University of Taiwan have set up a master's degree in computer-assisted translation and offered relevant courses. Hebei normal University has also tried in the teaching of machine translation, they have trained some students. Subsequently, software and microelectronics campus of Peking University and the Institute of computer Linguistics of Peking University jointly established the first department of language information engineering, which aimed at

training a master of engineering in the field of language information processing technology. The major of this department is divided into the direction of training language information processing ability and computer aided translation with training translation teachers. The latter develops students' ability to use bilingualism as a communication tool, strengthens their vocational skills as a translation tool, and familiarizes them with the principles of machine-assisted translation, and grasps the relevant techniques and tools of language information processing. In addition, Yanshan University, Shandong normal University also opened the CAT course. Since 2007, there have been nearly 200 colleges and universities in China have set up Master's degree in Translation (MTI).

### **3.Problems in Computer-Aided Translation Teaching**

Although translation teaching techniques have been combined with translation teaching in China, only a few colleges and universities have been able to make full use of the advantages of translation technology in translation teaching, and most of these universities cannot train professionals in translation teaching. Translation teaching in most colleges and universities is still unable to get rid of the traditional teaching mode of "language-related professional knowledge", and there is a general lack of correct understanding of computer-assisted translation teaching. Specifically, there are some problems in CAI, such as the shortage of teaching materials, the problem of corpus selection in translation practice, the weakness of teachers, and the limited funds and equipment.

#### **3.1 Shortage of teaching materials**

At present, there is still a lack of systematic textbooks in China. Most of the textbooks need to be imported from abroad. However, even if foreign materials are used more maturely, they do not meet China's actual situation.

### **3.2 Problems of corpus selection in translation practice**

There is no doubt that the scope of use of computer-assisted translation is relatively limited. The principle of computer-assisted translation which determines its efficiency depends on the repetition rate of the original text. To give full play to the role of computer-assisted translation, the original text should have several characteristics: consistency of terms and phrases, concise wording, less ambiguity, long length and frequent updating of some contents. It is obvious that computer-assisted translation is of great help to technical texts with long life cycles and frequently updated content, but it is not practical for literary texts with more rhetoric. In the teaching process, if teachers require students to translate and memorize language materials with such highly matched texts as more than 90%, then the training of students in practical operation is mainly technology-oriented; conversely, if it is a low-match text, it is more likely to require students to have certain translation ability.

### **3.3 Shortage of teachers**

The shortage of teachers is a very important constraint factor. Teachers who teach computer-aided translation and translation technology teaching themselves must master the principles of computer-assisted translation, the operation process, and the requirements of the industry. What's more, they need to be familiar with the use and maintenance of high-tech translation techniques and translation tools, to know the latest international research, to have a deep technical knowledge and a broad academic horizon. However, in addition to the heavy teaching work, our translation teachers often have their own scientific research projects or a large number of translation tasks in and out of the school. They are overloaded for a long time and are generally unable to solve some related problems or do not have the time to solve them. Teachers and administrators are not familiar with translation management software.

The most important thing is that over the past few decades, most of the translation teachers we have trained are foreign language majors and have

been teaching arts and sciences since high school. The basic courses of mathematics, physics and chemistry are generally not good for liberal arts students, especially for foreign language students, and they are not interested in the understanding and application of science and technology development. Although most of the young translation teachers in colleges and universities have master's degrees, it is often difficult to find qualified teachers who are willing and able to undertake terminology management, translation techniques or computer-assisted translation teaching.

### **3.4 Equipment and financial issues**

Although the Computer-Aided Translation course is recommended as an optional course in the model syllabus of the MTI Teaching steering Committee, there were few readily available templates to follow when the course was first offered. The author thinks that since the course is started to learn how to use computer-assisted translation, it is obvious that the most important and basic thing is to choose the appropriate computer-assisted translation tools. There are many kinds of machine assistant tools in the market. The foreign C AT tools are mainly SDL Trados, Dejcx Vu, Star Transit, Wordfast, MemoQ, Heartsome, OmegaT, etc. In our country, there are mainly Yaxin CAT, snowman CAT, Transmate and so on. In teaching, using only a CAT software may not meet the future job needs of students. There are three reasons, first, there is no common CAT tool in international organizations, translation services, and large enterprises that generally use CAT tools; Second, in translation practice, it is sometimes necessary to choose different CAT tools according to the requirements of the customer's request for SDL format content, or term extraction, and third, although the functions and characteristics of the various C-AT tools are much the same, But its operating interface and editing environment are different. Therefore, these CAT tools have their own emphases and application prospects in teaching activities. In addition, in the face of the choice of various CAT tools in translation teaching, the cost of using them is a problem that has to be faced. Compared with all kinds of software such as SDL Trados in China, the price of single software is very



expensive. According to the data published on the internet, if you want to use SDL Trados, the price of installing a computer is as high as 15000 yuan. To save money, some colleges and universities installed only 20 or 30 computers, and students took turns in computer exercises. Moreover, translation software and equipment need to be upgraded and maintained, which is a big expense for many colleges and universities. The reality we are facing now is that the funds for teaching and research in liberal arts colleges are extremely limited, and it is difficult to secure funds without special policies. However, if there is no guarantee of funds or can not find a way to break through the bottleneck of funds, it will be difficult to carry out this kind of teaching and research.

#### **4. Coping strategy**

To solve the above problems in computer-assisted translation teaching, we can start from the following aspects

##### **4.1 Organizing for the compilation of teaching materials**

Appropriate teaching materials are essential for computer-assisted translation courses. Colleges and universities with mature conditions can organize the compilation of computer-aided translation textbooks. The content of textbooks should be arranged reasonably, the combination of theory and practice should be reasonable, the design of knowledge points should be rich in form, and the interaction with students should be emphasized. Immature colleges and universities may compile internal handouts first, and then publish textbooks after the handouts are gradually perfected. At the same time, we can also introduce more excellent computer-assisted translation materials from abroad.

##### **4.2 Integration of translation data**

When choosing the corpus of translation practice, we should avoid too many texts with high matching degree, and avoid even the text which is rarely related to the glossary. At the same time, in the whole process of teaching practice, it is

necessary to combine the characteristics of colleges and universities to sort out all kinds of translation materials, so as to highlight the goal and characteristics of talent training, which should not be aimed at cultivating all-around talents. The various types of language materials in various industries are used as translation practice projects. Li DeChao (Wang Ke / 2011) using the bilingual corpus of tourism terms developed by Hong Kong Polytechnic University to develop data-driven tourism translation teaching, and it provides a good case for the selection of corpus in computer-assisted translation teaching.

##### **4.3 Training of Translation Technology Teachers**

High quality teachers are an important guarantee for the quality of computer-assisted translation teaching. Colleges and universities should encourage teachers to develop and use network resources and learn translation technology related knowledge. Schools should encourage teachers to participate in the translation technology teacher training jointly organized by the China Translation Association and universities and improve the level of translation technology. Encouraging teachers to participate in academic conferences at home and abroad to broaden their academic horizons and understand the latest developments and research of computer-assisted translation at home and abroad. Establishing a cooperative relationship with the translation agency, assigning teachers to the translation agency to carry out job training, encouraging them to participate in the translation project practice, and being familiar with the translation project management process. In Hong Kong and Taiwan, some translation institutions pay attention to close cooperation with translation teaching institutions. For example, translation professionals give classes directly to students majoring in translation, and students also directly participate in translation institutions to undertake some translation work. Students could be proficient in terminology management and translation techniques during their studies.

#### 4.4 Improving Teaching Environment

A good teaching environment is crucial for computer-aided translation courses. In terms of teaching equipment, colleges and universities need to make the necessary capital investment, improve the teaching environment, and build a teaching platform suitable for the characteristics of their own translation teaching. With the development and expansion of some translation companies, teaching and training institutions are closer to the translation company, and both parties can establish mutually beneficial relations. In the process of translation teaching and talent cultivation, if both parties can cooperate effectively, both parties will achieve a win-win result. On the one hand, translation teaching and training institutions will make full use of the human and resource advantages of the translation company to enable them to serve translation teaching. In this way, the problems of lack of financial equipment and teachers will also be greatly alleviated; on the other hand, in the course of practical training, translation companies can increase the number of clients' translation tasks and gain more benefits, and at the same time, they can tap and cultivate more potential translators. For students, they can practice in translation institutions or work part-time as translators, participate in translation projects directly, and familiarize themselves with the relevant translation techniques in the process of participation.

#### 5. Conclusion

The exchanges between domestic and foreign markets are further accelerated, and international exchanges and cooperation are becoming closer and closer. All of these provide an unprecedented opportunity for the rapid development of the translation market. Moreover, more and more foreign enterprises turn their attention to the mainland of China, and the requirement of information localization increases rapidly. The development of translation market has put forward new and higher requirements for talent training. In the field of professional translation, computer translation technology is being used more and more widely. We believe that a good translator should be

a person who is constantly seeking knowledge and willing to explore. In this era of rapid development of information, a good translator must learn to play all kinds of roles. A good translator is not only a reader, an author, a creator, but also a translator with professional qualities. Not only can master all kinds of editing skills and word processing technology, but also can use various software and high technology to complete the translation task quickly and efficiently. Every translator should ask himself to be professional and ready to meet new challenges.

#### Reference

- Bowker L. *Computer-aided Translation Technology: A Practical Introduction*[M]. Ottawa: University of Ottawa Press, 2002.
- Chen S. *A Dictionary of Translation Technology Computer-aided Translation Technology* [M]. Hong Kong: The Chinese University Press, 2006.
- 王华树, 2015, 《计算机辅助翻译实践》[M], 北京国防工业出版社
- 陈善伟, 2014, 《翻译科技新视野》[M], 清华大学出版社
- 胡加圣, 陈坚林, 2013, 外语教育技术学论纲[J], 《外语电化教学》, 第期
- 崔启亮, 2014, 论机器翻译的译后编译[J], 中国翻译, 第六期, 第68-73页。

**Financial Support:** The research for this paper was funded by the NCEPU "Double First-Class" Graduate Talent Cultivation Program, (华北电力大学“双一流”研究生人才培养项目资) Project No:XM1805222