

Application of Computer-aided Translation in English Teaching

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Shuping Yao

Luoyang Institute of Science and Technology, Luoyang, China

303347355@qq.com

Abstract—The continuous development of computer information technology has brought about many changes in people's life. At present, the computer-aided translation technology (abbreviated as CAT hereafter), being a kind of important auxiliary method, has been widely used in software localization and the translation of scientific works. This realistic need has aroused more and more attention to the development and use of CAT tools. Using the computer to assist teaching was first initiated in the USA in the 1950's and then widely spread all over the world. Until recently, an increasing number of teachers get to know its great use, and try to apply it to the process of teaching. In China the application of CAT in translation teaching is still at the initial stage. In this paper, the author focuses on the present situation of the adoption of CAT technology in translation teaching in China. This paper conducted a survey to investigate people's understanding over it from teachers' perspective and existing problems in its adoption in translation teaching.

Keywords—Application, Computer-aided translation, Translation teaching

1 Introduction

With the deepening of globalization and the reinforcement of communication between different language groups, translation, as a communicative bridge, has played an increasingly important role. The demand for translators competent in translating large quantity of materials in various applied fields has been greatly increased. Since 1980s, the popularity of computers and the emergence of global network have triggered great changes in translation industry. However, the traditional translation teaching could not meet the demands of translation activities in the new information age, as shown by Barrachina [1]. CAT, abbreviation of Computer-aided Translation, is a form of language translation in which a human translator uses computer software to support and facilitate the translation process. This technology drastically changes the way of traditional translation. Under the help of CAT, translators do not need traditional dictionary or specialized book for reference, and they just key in the content into the translation program and the draft translation product will appear on their computers screen, as stated in Ref. [2]. CAT, faster and sometimes more accurate compared with the slow and expensive human-based translation, has aroused great

interest among researchers, and the huge potential of CAT teaching in translation class has been recognized by many language teachers.

With the development of the economic globalization, the need of the translation market increases. China has a very large translation market, and most of the translation items are the documents about engineering technology and commercial localization that are required to be finished in the limited time. Every field has its own fixed terms and expressions, and the terminology database stored in the computer is very helpful in standardizing translators' translation. So if we want to organize enough translators and finish the tasks on time and with a high quality, we must rely on computer technology to manage the translation process. Meanwhile, more and larger translation organizations also require their translators to master some translation memory software, such as Yaxin CAT, TRADOS, Multiterm, as shown in Ref. [3]. In order to meet the above-mentioned job requirements and the growing demand for high quality translating talents, colleges should take their responsibility to make sure students of translation majors get good translation training before they begin to find a job, as stated in Ref. [4]. This makes it a must to apply CAT to translation teaching.

2 Literature Review

Machine Translation (MT), also referred to as Automated Translation, is “a sub-field of computational linguistics that investigates the use of computer software to translate or speech from one natural language to another”. MT performs simple substitution of words in one language for words in another, as stated in Ref. [5]. The earliest research on MT can be traced back to 80 years ago, the Russian scientist P.P. Telojamsky proposed a detailed step for using machine in translation in 1933. However, since its birth, its accuracy has been widely questioned by researchers. The automatic machine translation systems available today are not able to produce high-quality translations unaided: their output must be edited by a human to correct errors and improve the quality of translation. Considering the drawbacks of MT, researchers began to seek more-advanced technology to facilitate translation process. CAT, at a valuable development state of MT, is a form of language translation in which a human translator uses computer software to support and facilitate the translation process. CAT is using translation software to aid translators in the process of language conversion. In short, the computer is no longer the only protagonist of the translating process, and the translators are involved in the whole translation process, which play a very important role in MT. It is similar to the computer aided design, which actually plays an additional role of translation. It doesn't depend on computer automatic translation to match the source language texts to the final translation results by software processing, but by making full use of database functions and translation memory (TM) to provide reference to translators, as shown in Ref. [6]. It is translators who determine the most appropriate translation in the end. With the great help of CAT, translators are able to make their work more efficient and productive. Meanwhile, CAT incorporates that manual editing stage into the software, making translation an interactive process between human and computer.

Some advanced computer-aided translation solutions include controlled machine translation (MT). Higher priced MT modules generally provide a more complex set of tools available to the translator, which may include terminology management features and various other linguistic tools and utilities, as stated in Ref. [7]. Carefully customized user dictionaries based on correct terminology significantly improve the accuracy of MT, and as a result, aim at increasing the efficiency of the entire translation process.

2.1 Related work

Till April 6, 2016, 212 papers on CAT technology can be searched by using CNKI retrieval system: China National Knowledge Infrastructure (www.cnki.cn). Based on the subject, researches are mainly accomplished from the following several aspects: CAT technology and tools, the development of CAT technology, research on teaching, case study and others. Proportions of these papers are shown in Figure 1. It shows that 212 papers searched on CAT technology, 32.55% papers are about the CAT technology and tools, topics of 22.64% papers are about the development of CAT technology, 23.11% papers focus on the application of CAT, they conduct case studies, 13.21% papers research on teaching, and 8.49% papers are about other fields.

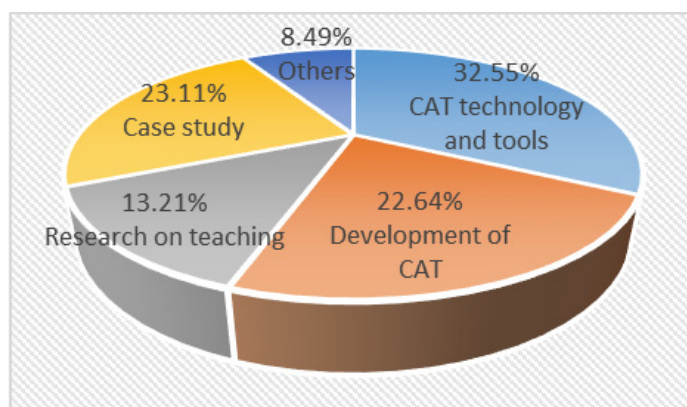


Fig. 1. Research papers on CAT

Papers on application of CAT in translation teaching could rarely be seen before 2008. With the establishment of Bachelor of Translation and Interpreting in many colleges and universities, CAT has been gradually used in translation teaching. At present, a fruitful result of research on the application of CAT in teaching has been achieved. 31 papers searched are on CAT teaching. The content of those papers mainly involves: 1. Method of application of CAT in teaching. 2. CAT teaching practices and experiences. 3. Difficulties met in the adoption of CAT in teaching. 4. The integration of teaching-learning, scientific research and production. 5. The integration of CAT technology and teaching.

2.2 Application of CAT in translation teaching

It is widely acknowledged that the purpose of educating students is to meet the demand of society. In this information explosion era, when CAT becomes a dominant technology in translation industry. It is of great necessity for educators to acquaint the students majoring in translation with CAT technology, as shown in Ref. [8].

The application of CAT in translation field requires the translators to have a proficient mastery of the translation tools. The students who major in translation should learn to use these translation tools to increase efficiency before they enter the translation industry. But the present translation teaching is not a real kind of translation learning process for the students both in the curriculum setting and in the teaching plan, because it cannot offer students the systematic translation theories and practical training, as shown in Ref. [9]. In the universities that offer translation courses for undergraduates and graduates in China, few offer CAT courses. On the contrary, they all put emphasis on the teaching of literature translation. The material is very old and impractical. After a certain period of learning, the students still cannot meet the need of the translation market. They still cannot finish the translation task satisfactorily. Their translation is always time-consuming and inefficient, as show in Ref. [10]. So it is very important to introduce the concept of Computer-aided Translation into the translation course. So as to improve the quality of the translators and the translation work.

3 Research

This section is devoted to the methodology of the present study, mainly research questions, subjects, instruments and data collection.

In the past several decades, great changes have taken place in every aspect of our society, which, as manifested in translation, is the conversion from traditional translation process to an informational and commercialized translation mode. Nowadays, most of translation projects are large in quantity, time-limited and high demand on quality, which cannot be handled by the traditional translation mode. CAT technology is designed initially to assist translation process, and now applied by many large translation service providers, as shown in Ref. [11]. The technology applications in CAT – commonly referred to as CAT tools – include ‘any type of computerized tool that translators use to help them do their job’. Thus, CAT tools range from general-purpose applications such as word-processors, optical character recognition (OCR) software, Internet search engines, etc., to more translation-oriented tools such as multilingual electronic dictionaries, corpus analysis tools, terminology extraction and terminology management systems. Having emerged as one of the earliest translation technologies in the 1970s, translation memory (TM) was commercialized in the mid-1990s, becoming the main CAT tool since the late 1990s, as shown in Ref. [12]. With the development of computer technology, CAT is widely used in the translation process, thus increasing the efficiency of the entire translation work. Software based on translation memory are the most widely used translation tools, but they are seldom seen in the translation teaching in China. To better understand the situation and obtain

first-hand information, the author conducted a survey and analyzed the present situation of application of CAT in translation teaching based on the data collected.

4 Survey results and discussions

Without knowing the using status of CAT in teaching in the colleges where the respondents are teaching, to make the results more representative, area sampling is used in the survey, the sample are distributed to the English translation teachers in different areas of China. The samples are distributed to as more areas as possible to make sure each sample representative. According to the data collected, the author analyzed the geographical distribution of the sample (shown in figure 1) and the structure of the sample (shown in figure 2 and figure 3).

As can be seen in Figure 2, the sample size is 48, which is not so big, still has a certain value for reference because the teachers in the sample are widely distributed in 15 cities and provinces which cover most parts of China.

Figure 3 shows the age structure of the sample, 6.25% of the population is under the age of 30, 12.5% of the population is above the age of 45, and 81.25% - the majority of the population - is between 30-45 years old, thus the following analysis tends to be on behalf of the young and middle-aged teachers.

Gender structure is shown in Figure 4, the proportion of male to female is 12 to 36, which means 33.33% of the teachers are male, and 66.67% of them are female. This conforms to the fact that more female teachers are employed for the jobs of English teaching in China.

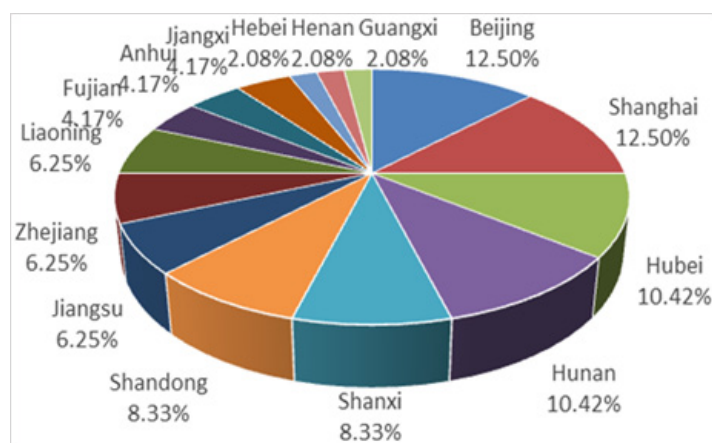


Fig. 2. Geographical distribution

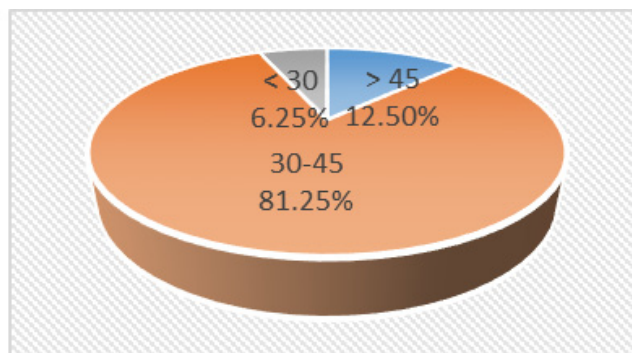


Fig. 3. Age structure

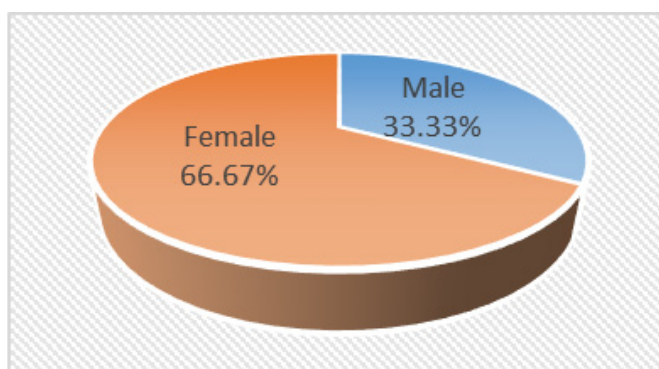


Fig. 4. Gender structure

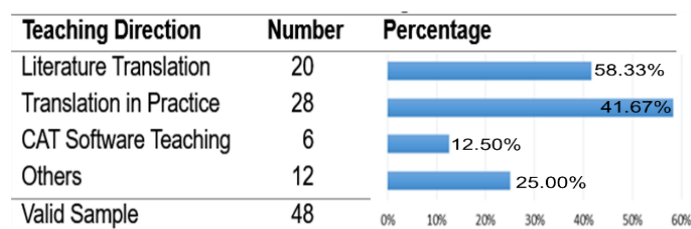


Fig. 5. Teaching direction

In terms of the question: What is our teaching direction? Four directions are given for them to select: literature translation, translation in practice, CAT software teaching and others. Respondents were allowed to choose more than one choice. Respondents choosing translation in practice account for the largest proportion: 58.33%, 41.67% of the respondents chose the choice: literature translation, 25% chose: CAT software teaching, 12.5% respondents chose other teaching directions.

Figure 6 shows how familiar respondents are with CAT technology. From the above Figure, it can be seen that 68.7% respondents are not very familiar with CAT technology. 16.67% believe they are familiar with CAT technology, 12.5% respondents are very familiar with CAT technology, and 2.08% are unfamiliar with CAT.

From Figure 7, the respondents' reaction to the question: What do you know about CAT software? 12.5% teachers take it as a software for teaching purposes, 31.25% teachers believes that it is no more than an instrumental software designed for translation practice, around 43.75% teachers think it is for teaching purpose and it is a translation software to assist translation process. 10.42% teachers are not clear about CAT. 2.08% chose the choice: not clear. When we analyze Figure 5 and Figure 6 together, an interesting and perplexing pheromone can be seen: on one hand, CAT has received increasing attention from both translation and education sector, on the other hand, a fair amount of the respondents teaching translation majors are not very familiar with CAT. This is a good indicator that shows teachers should get a systematic and specialty CAT training prior to the wide adoption of CAT in translation teaching.

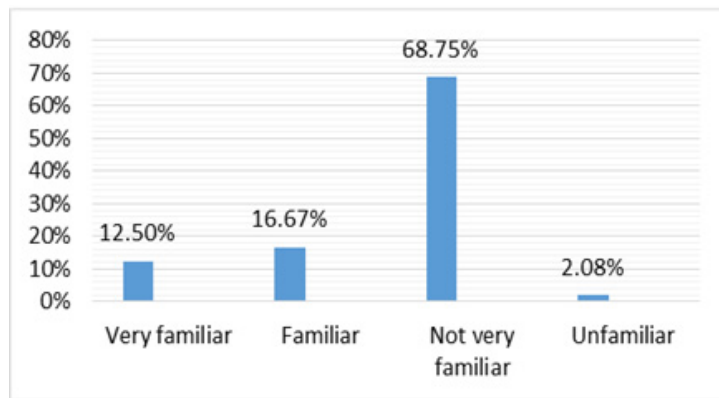


Fig. 6. Familiarity with CAT

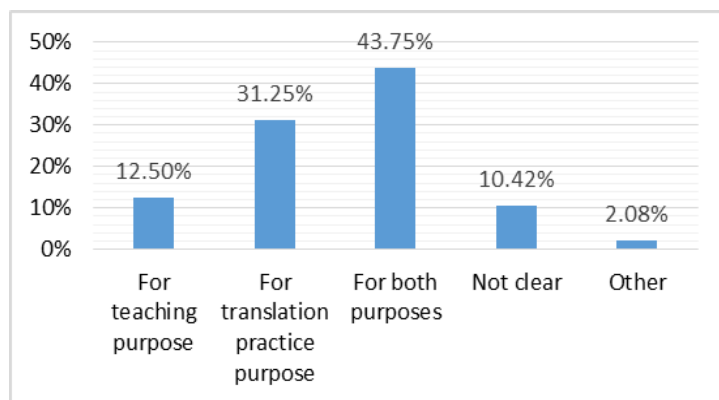


Fig. 7. Perception of CAT

By analyzing the data, it can be seen that there are misunderstandings in many teachers' perceptions of CAT. Firstly, it is true that the teaching function of CAT can be further explored; however, the idea that CAT is designed for promoting the efficiency of teaching cannot be agreed. This is the case with the illogical thought that Photoshop is teaching software. In fact, they have confused CAT technology with CAT teaching. To adopt CAT in translation teaching, teachers should have a comprehensive understanding over CAT technology, a good mastery of some related computer knowledge, or participate in some training before they can operate these software proficiently.

From Figure 8, a good find is that 14.58% respondents have a favorable attitude toward CAT, 56.25% respondents have a favorable attitude toward CAT, 25% respondents have a neutral attitude toward CAT, 4.16% take a not very favorable attitude and nobody has an unfavorable attitude CAT. From Figure 5 and figure 6, it can be seen though the majority of surveyed teachers are not very familiar with CAT, they have a favorable attitude toward it.

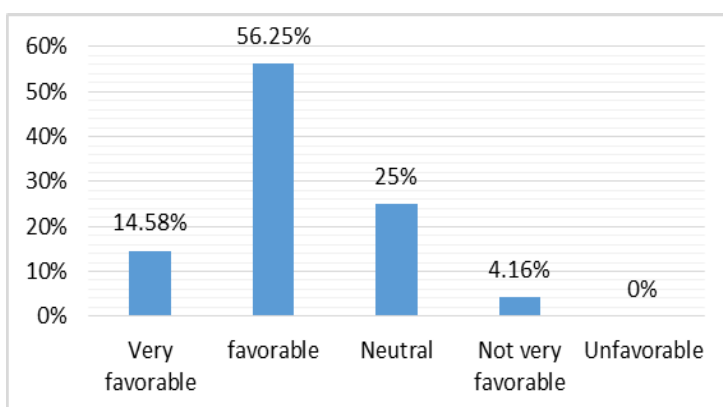


Fig. 8. Attitude toward CAT

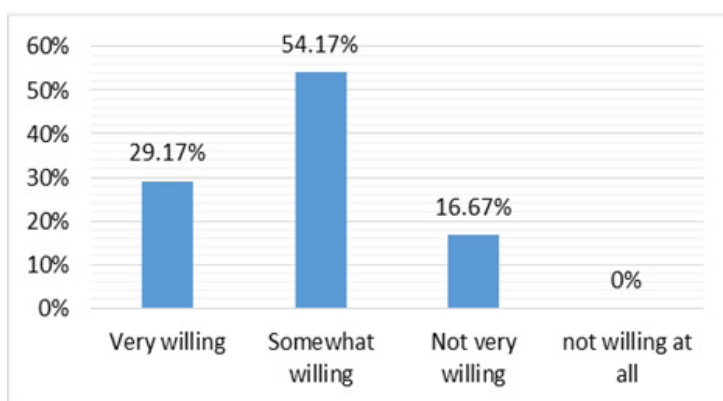


Fig. 9. Willingness to attend CAT training programs

In terms of the question: how are you willing to attend CAT training programs if you are given a chance? Figure 9 shows, none is unwilling at all to participate in CAT training programs. 29.17% of the respondents are very willing get trained, 54.17% respondents are somewhat willing to attend CAT training programs, 16.67% are not very willing to get trained.

Based on the above analysis, one major problem existed in teachers is their insufficient knowledge about CAT. Data analysis indicates a high demand for CAT training programs.

To find teachers' views on the importance of CAT to students' career development, a five-point scale is used. Respondents are asked to use a scale of 1 to 5, where 1 means "unimportant", 2 means "of little importance", 3 means "moderately important", 4 means "important" and 5 means "very important". As to how important they think CAT is to students' career development, a respondent would give a number between 1 and 5 to indicate the amount of importance of CAT to students. From Figure 10, it can be seen that 8.33% respondents believe that CAT is unimportant to students' career development, 6.25% think that CAT is of little importance to student's career development, 45.84% students believe that CAT is moderately important, 25% think that CAT is important, and 14.58% think that CAT is very important.

From Figure 11, it can be seen that, of all the 48 respondents, 52.38% colleges or universities where respondents are teaching have adopted CAT in translation teaching. 47.62% have not adopted CAT in their translation teaching. It leaves room for the adoption of CAT in those colleges or universities where respondents are teaching.

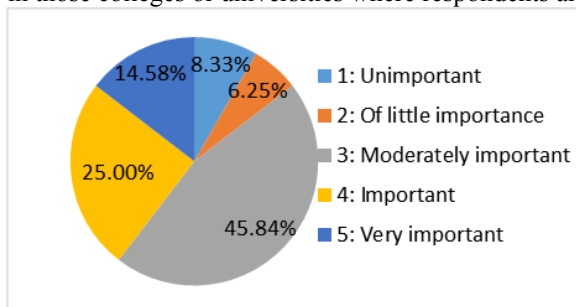


Fig. 10. Importance to students' career development

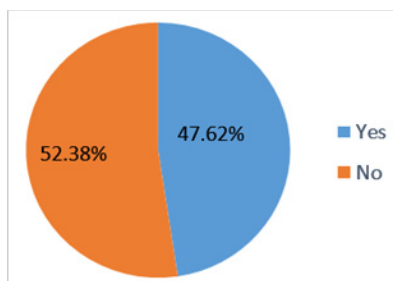


Fig. 11. Adoption of CAT in teaching

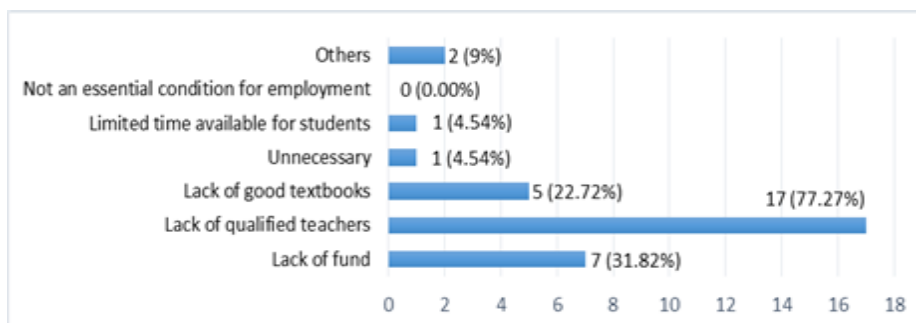


Fig. 12. Possible reasons of not adopting CAT in translation teaching

Information about the reasons of not adopting CAT in their translation teaching can be obtained from Figure 12. This question allows respondents to select one or more choices. Up to 77.27% respondents select the choice “Lack of qualified teachers”, obviously, “lack of qualified teachers” becomes the major factor restricting the application of CAT in translation teaching. “Lack of fund” and “lack of good textbooks” ranks second and third (31.82% and 22.72% respectively). 4.54% respondents chose the choice “Limited time available for students”, 4.54% respondents believe it is unnecessary to adopt CAT in their university, and nobody (0%) think CAT is “Not an essential condition for employment” are the reason why their colleges have not adopted CAT in teaching. Furthermore, two respondents selected “others”, and they gave additional information about their choices: The school is in the process of applying for the application of CAT software in teaching, and the adoption of CAT is not conforming to their cultivating objectives.”

5 Current situation and existing problems

Based on the above analysis, several conclusions can be made. 81.25% respondents are young and middle-aged teachers. 12.5% teachers teaching translation are very familiar with CAT technology. Teachers who teach translation have a limited knowledge about CAT. However, the majority of teachers surveyed take a positive attitude towards the adoption of CAT in translation teaching, and most of them are willing or very willing to participate in CAT-related training programs. It indicates that the importance of CAT to of students’ career development is moderately recognized. 47.62% colleges where respondents teach have applied CAT in translation teaching. It leaves a big space for the application of CAT in teaching in colleges and universities.

The wide application of CAT in translation teaching has encountered many difficulties. 12.5% respondents believe that CAT is designed for teaching purpose, and only 14.58% respondents think that CAT is very important to student’s career development, this shows that they are lack of a sufficient understanding of translation industry. Figure 13 shows François Mansion’s pyramid of value-added skills in translation industry, from the figure, it can be seen that those translators without any value-

added skills are at the bottom of the pyramid, translators with value-added translation skills, such as CAT and MT skills, are at the second level, translators with special subject-additional qualifications (linguistics, IT, law, and so on) are at the third level, language workers with terminology management skills are at the fourth level, next level comes the translators with general management skills, such as project management skills, and language workers skilled in consultancy are at the top of the pyramid. From the pyramid, it can be easily seen that “value added skills” means “more opportunities”.

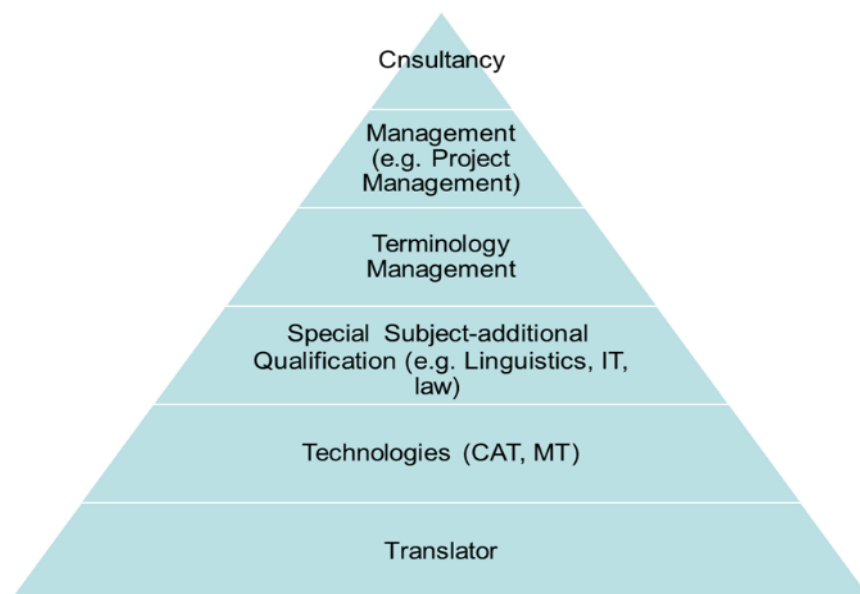


Fig. 13. Value-added skills in translation industry

77.27% respondents believe that “lack of qualified teachers” is the biggest obstacle for the application of CAT. That means it is difficult to find qualified teachers who can teach translation courses to which CAT technology are adopted. “Lack of good textbook” is preventing 22.72% colleges or universities surveyed from applying CAT technology to translation teaching. Till today, only very limited number of books on CAT are published. And most of them are written in English, teachers have difficulties in understanding the technical books. 31.82% colleges have not adopted CAT is due to “lack of fund”. It is investigated that CAT software are usually very expensive. For example, the price of SDL Trade’s Studio 2014 Professional is around RMB17,000, and the software can only be operated in singer-user mode, that means it costs about RMB510,000 to install the software into 30 computers for a class consisted of 30 students, and additional fund should be prepared for accompanying software, update and maintenance of the software.

6 Possible solution

To facilitate translation teaching, several solutions can be concluded in this paper. First, increase awareness of the importance of CAT to student's career development. Nowadays, most translation companies require that their employees, whether full-time or part-time, should master the skill of translating with the aid of CAT software such as TRADOS. If the colleges do not prepare students with a good knowledge of CAT, they may find it difficult for their students to compete in the future job-hunting market. Second, increase investment in translation teaching. Third, cultivate teachers' practical ability. As a newly-developed technology, CAT has been widely adopted in modern translation industry. It is still an unfamiliar field for most translation teachers. Definitely, a student competent in using CAT in translation cannot be cultivated by inexperienced teachers. Based on the fact that, majority of teachers surveyed is willing to participate in CAT programs to improve their ability in using CAT. Thus, colleges should provide training programs or courses to get their teachers trained, especially training on computer-based multimedia and network technology, and invite some experts in the application of CAT technology to supervise the real classroom teaching of those inexperienced teachers. Fourth, communicate with other teaching institutes. At present, some famous and large-scaled universities in china have carried out CAT teaching in translation class, it would be wise for others to communicate with those universities, from which their good experiences can be learnt and the mistakes they made can be avoided. Fourth, reform the way of teaching. CAT teaching is different from other linguistic education, it requires more on students' ability of using computer. However, to efficiently use computers in learning is still difficult for many English major students. In this case, finally, teachers should adopt proper teaching methods, for example, the teamwork and cooperation among students can be advocated to help learn from each other so as to make greater progress at a faster pace, meanwhile, it is good to adopt communicating tools, such as QQ Messenger, WeChat and blog, etc. to facilitate a good communication and maximize the effect of CAT teaching.

The integration of computer technology with translation teaching is the irresistible trend of the times. We should take the practical conditions into consideration and make objective evaluation of its advantages and disadvantages and bring the positive function of computer technologies in translation teaching into full play.

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8 Author

Shuping Yao is a lecturer in School of Foreign Languages, Luoyang Institute of Science and Technology, Luoyang, 471023, China. Her research interests include the applied linguistics, English language teaching, etc.

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