Research on Project-Driven Teaching Model of Terminology Translation

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Abstract: In the age of artificial intelligence, the language service industry has entered a completely new era with greatly changed translation model. Neural machine translation (also known as AI translation) is increasingly used in the translating process by professionals and students. Although AI translation quality has been greatly improved, mistakes still exist when it comes to terminology translation. In this paper, we probe into terminology translation teaching from the perspective of translation technology, especially AI translation, and put forward a project-driven teaching model of terminology translation with a detailed discussion of project tools and project procedures. It's found that students need to enhance terminological competence, technological competence and cultural awareness, and suggestions are given in these aspects.

1. Introduction

In the information age with artificial intelligence and big data booming, the language service industry has entered a completely new era with the translation model greatly changed, and thus translation teaching at colleges and universities faces great challenges as well as opportunities. As neural machine translation (also known as AI translation) is increasingly used in the translating process of professionals and students, the need for neural translation post-editing training and teaching is keenly felt. More and more attention has been drawn to AI translation post-editing [1-2]. The need for terminology translation training and teaching, however, is less noticed, despite the fact that the importance of terminology consistency and accuracy in translation has been universally agreed on.

Although AI translation quality has been greatly improved [3], mistakes still exist when it comes to terminology translation, and thus post-editing is required. Moreover, term extraction, term screening and term bank building, which one needs professional training to be good at, are also involved.

Such training is complicated and rarely discussed. In this paper we probe into terminology translation teaching from the perspective of AI translation and put forward a project-driven teaching model of terminology translation.

2. The Project-Driven Teaching Model of Terminology Translation

To teach terminology translation, the advisable way is to integrate it into a translation project. To illustrate it, we will take as an example a Chinese-English translation project of a text of about 9000 Chinese characters. The text is about Fujian *Tulou* on the world cultural heritage list, and thus full of cultural terms. 28 students are divided into six teams, each team handling about 1500 Chinese characters. The team leader is responsible for the project management, including coordination, assigning tasks, quality control, and so on.

The teacher illustrates briefly how to carry out the project, including tools to be used, procedures, and translation principles.

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2.1 Project Tools

During the process of the project, students are taught to employ translation tools such as Xueren, a CAT (Computer-Assisted Translation) tool, and AI translation services like Google translation, Bing translation, Sogou translation, Baidu translation, and Xiaoniu translation. Of these tools, Xueren is the major one that students use throughout the whole project.

2.2 Project Procedures

The project is carried out according to the procedures detailed as follows.

2.2.1 Extracting Terms

Students are taught two ways to extract terms. One is to do it through Xueren. The other is to extract terms through AI term extraction service such as the one provided by Baidu. Baidu AI is much better than Xueren in that the former extracts terms according to the frequency of Chinese characters combined without being able to identify words while the latter is capable of identifying words. For example, Xueren may extract character combinations like "Fujian de" which is not a term.

The following figure shows the effect of Baidu AI term extraction which is integrated into a Trados plugin with AI translation.

术语	译文	正则表达式	启用	优先级	源术语	区分大小写
泉州	Quanzhou	☐	☑	35	泉州	☐
惠安	Hui'an	☐	☑	29	惠安	☐
漳州	Zhangzhou	☐	☑	24	漳州	☐
石雕	stone carving	☐	☑	23	石雕	☐
闽南	Minnan	☐	☑	20	闽南	☐
中国	China	☐	☑	19	中国	☐
制作	Production	☐	☑	18	制作	☐

Figure 1 Baidu AI term extraction

2.2.2 Screening Terms

Among the "terms" extracted by Xueren or Baidu AI are many common words that are not terms in a strict sense, and thus students are supposed to screen terms according to the principle that terminology is usually a professional or proper noun that shouldn't be translated in different ways.

Whether a word should be identified as a term is also related to the terminological competence of the project team. For example, some project teams will not set the place name "Jimei" as a term, because no members will translate it wrongly. Some other project teams, however, may set it as a term, because some team member may translate it wrongly into"Ji mei."

2.2.3 Translating Terms

After obtaining translations for the screened terms from AI translation services such as Google, Baidu, Sogou and Xiaoniu, students need to check these AI translations, identify the correct ones and post-edit the wrong ones.

To do a good post-editing job, students are required to do research online and offline to find the official or traditional translation for a term. For example, there are several translations for the term *"tu lou"* which literally means a building made of earth, such as round building, earth house, Hakka earth building, and so on. If students take a look at the UNESCO world heritage list, however, they will see that Tulou is the only official translation.

A sample of ten terms translated by Google neural machine translation and selected randomly is given in table 1 below. Translations marked with * in the "AI translation plus post-editing" column are post-edited, and those without * in this column are correct translations with no need for post-

editing.

Table 1 AI translations and AI translations plus post-editing of ten terms

AI translation (Google)	AI translation plus post-editing
Tulou	Tulou
Taiji Water Town	Taiji Water Town
Tulou Group	Tulou cluster*
World Heritage List	World Heritage List
Yunshui Ballad	Yunshuiyao*
Jiaqing	Jiaqing
Yuchang House	Yuchang Tulou*
Zhangzhou	Zhangzhou
De Yuan Tang	Deyuan Hall*
Yuan Dynasty	Yuan Dynasty

It can be seen from the table that the AI translations are about sixty percent correct. Therefore, the translation model of AI translation plus post-editing is more efficient than that of human translation alone, despite the fact that errors occur from time to time when AI translation is applied to rendering terms from Chinese to English.

2.2.4 Building the Term Bank

After the screened terms are translated and post-edited, they can be imported into Xueren as a term bank through an Excel file. The term bank can also be exported from Xueren for distribution.

2.2.5 Utilizing the Term Bank during Translation Process

Project team members are supposed to load the term bank into Xueren during the translation process. Xueren automatically finds matches between the original and the term bank, and the matched term and its translation will pop up. All that the translator needs to do is double click the translation of the term and it will appear in the translation area next to the original. In this way, term inconsistency can be avoided during the translation process of the project.

3. Findings and Implications

Through data analysis of the translation project students take part in, we have some findings with regard to terminological competence, technological competence and cultural awareness in terminology training and teaching.

3.1 Terminological Competence

Terminological competence refers to the ability to extract terms by using CAT or AI tools, screen terms, build term banks, and utilize term banks with CAT tools. During the process of the translation project, some students fail to demonstrate good terminological competence. For example, they may forget to load into Xueren the term bank they have built, thus no terms popping up during the translation process. They may also fail to screen terms correctly, and as a result, some words that are not terms find their way into the term bank.

As practice makes perfect, it's important for teachers to assign translation projects to students with specific requirements for terminology translation so as to help them enhance their terminological competence.

3.2 Technological Competence

At the FIT 20th World Congress, the combination of human translation and translation technology attracted much attention, highlighting the technological turn in translation studies today [4]. Terminology translation, as discussed above, involves translation technology in many ways,

such as term extraction, automatic term translation by AI, utilization of term banks, and so on. It takes time and practice for students to grasp the usage of translation technology.

For terminology training and teaching, it's imperative to equip students with translation technology and enhance their technological competence. To get students fully involved in translation projects is perhaps the best way, for these projects provide chances for students to employ translation technology. Thus the project-driven teaching model of terminology translation is worth advocating and promoting.

3.3 Cultural Awareness

Terms can be divided into two major kinds, technical terms and cultural terms. The translation of technical terms poses less difficulty than that of cultural ones. When it comes to the translation of cultural terms, it's much more complicated. For different cultural backgrounds, different terms may be used to refer to something similar or identical. For example, arcade buildings are called shophouse in Singapore, or *Tong Lau* in Hong Kong. While in Xiamen, Fujian, it's preferable to be translated into Qilou building through transliteration so as to be distinguished from the shophouse or *Tong Lau*. Thus, in terminology translation teaching, it's important to cultivate and enhance the cultural awareness of the students.

4. Conclusion

Terminology translation plays a very important role in cross-cultural communication. More attention should be paid to terminology translation teaching. The project-driven teaching model of terminology translation discussed in this paper, from the perspective of translation technology, especially AI translation, is worth further research.

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