

The Construction of Competence Training Platform of Foreign Language Translation*

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Abstract—It is very important for the public to build the learning and training platform with translation learning and diverse functions. The construction of foreign language translation and competence training platform based on computer technology was studied in this paper. First of all, the core technologies of translation platform under computer technology were analyzed, the platform for the construction of translation service and translation competence training was studied, and the corpus of the platform was trained. Then, the platform users in Hubei province were selected as the research samples. The translation ability after applying the translation training function such as platform session was contrasted and analyzed. The results show that the real-time translation of speech to speech provided by the platform is the most direct way to interact with the user and improve the user's translation ability.

Keywords: *foreign language translation, competence training, platform construction*

I. INTRODUCTION

With the rapid development of science and technology, the world's advanced scientific and technological literature has gradually increased, and more and more people have exposed to the foreign language translation products under computer technology. Therefore, more and more attention has been paid to the foreign language translation of computer technology, and many scholars have done a special research on it [1]. However, most of these studies such as translation standards, translation methods, and translation methods are rarely involved in the construction of computer skills translation skills training platform. Therefore, it is especially important to improve the foreign language translation ability of computer technology and provide the most authentic atmosphere for translation training through the translation training platform [2].

Early machine translation was based on translation rules, and the input language was split, aligned and translated into

the target language according to grammatical rules, the cost of which was expensive. Because of the flexibility of language and the differences of language and grammar, there was a deviation between semantics and reality. Semantic divergence became an insurmountable bottleneck based on rule transformation, which brought about a crisis in the machine translation field [3]. China's real-time translation also belongs to the R & D stage, and only the translators are in the same kind of products. The translator added real-time translation capabilities in the release version published in 2016, but from user feedback, China's real-time translation technology was also not understood by the vast numbers of users [4]. However, with the improvement of living standards of the Chinese people, travel abroad has become the norm. With the improvement of urban internationalization, more and more people need to communicate in multi-language environment, which also brings about the demand for foreign language translation and translation ability training.

II. STATE OF THE ART

Foreign language translation of computer technology refers to the use of computer technology to assist in the completion of translation work, from which, "computer technology support" is mainly embodied in the independent consciousness of translation. In the process of translation, modern translation project management method, special computer technology program and a certain degree of processing language resources are used to help translators perform translation work in a more effective manner [5]. The foreign language translation in computer technology refers to the use of computer technology to assist in the completion of translation work. Foreign language translation of computer technology has been gradually incorporated into the curriculum system in many undergraduate translation majors, which shows that the teaching management and academic leaders have made great changes in their understanding [6]. Over the past twenty or thirty years, the translation platform based on word processing software (such as Microsoft Office Word) has become a standard electronic translation platform [7]. However, in recent years, more and more mature and widely used computer software (such as SDLTradosStudio2011) has undoubtedly challenged and impacted the translation platform of office software.

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Obviously, the integrated translation platform for computer technology will soon replace the office software translation platform and become a new platform for translation. In addition, the general idea of foreign language translation software also emphasizes the accuracy of translation [8].

III. METHODOLOGY

A. Requirement analysis of platform construction

The platform construction program based on computer technology also emphasizes the ability of translation process platform and tools for user training and portability in strengthening translation skills training. In the process of using platform, electronic office is gradually becoming the main trend because of the information age. Inefficient traditional translation platforms are outdated and are beginning to be abandoned by translators. "Computer technology support" is mainly reflected in the sense of independent translation. In the process of translation, modern translation project management method, special computer technology program and a certain degree of processing language resources are used. As for the real time translation of computer technology in foreign languages, mobile phone translation system has become the main carrier. But the use of mobile phones takes a long time to translate through text. However, the communication voice based on the computer translation system can recognize input sentences, which can effectively reduce the time of text input and improve the efficiency of real-time translation. Compared with the foreign language translation platform based on computer technology, the translation of traditional translation systems from text to text is lack of interactivity. In the actual exchange of places, it is impossible to immediately request the other side to enter the manual input text, nor to ask each other to communicate with each other to read the text translation results of the phone.

The computer based translation system can recognize output through speech synthesized, which is more intelligent and interactive in the exchange domain, especially in the translation of user interaction ability, when interaction is of particular importance. Based on the directness of the foreign language translation platform of computer technology, it is difficult to complete such inquiries in a traditional translation system such as phrases and phrases that are unknown to the user. But the translation system of computer technology can translate the speech directly, so that an unknown word can be translated directly [9].

B. Corpus training design of foreign language translation platform based on computer technology

The core of statistical Machine Translation is probability model, which does not analyze the semantics of grammar, but can analyze the most probable meanings of words in a given situation from the perspective of probability. After the corpus training, the machine has a more flexible understanding, thus avoiding the shortcomings of Machine Translation's rigid body mechanical rules. Nowadays, the training of the foreign language translation platform adopts

the natural language processing method provided by the Moses language framework to process corpora. The GIZA++ words form framework is used for word alignment training, the SRILM grammar model training framework is used to train the grammar model, and the Moses language is used to translate model training. Moses is the open source framework for statistical machine translation, which integrates some natural language processing and machine translation approaches, and provides the basic functions of natural language processing, such as segmentation and unification etc. [10]. Parallel corpus translation obtains a good foundation provided by the translation model of the translation platform. Generally, the training process of a foreign language translation model based on computer technology is divided into the following steps: the first step is the pretreatment of parallel corpus data, so that it can be read by GIZA++ corpus. Then, the GIZA++ is used for the training of corpus, and the word alignment is extended. Next, the phrase translation in the corpus is calculated to obtain the word translation table for the translation probability of words. And the short words can be extracted from the word alignment file [11]. Then, the extracted phrases are counted and recorded with the SRILM tool syntax model. Finally, the parametric translation of phrase translation model makes translation model more practical [12].

In addition, statistical machine translation is a branch of computer translation field, and it is also the best one in machine translation method at present, and most of the famous practical platforms (such as Google translation) are based on the theory of it. The theory breaks through the bottleneck of traditional machine translation based on rules, and a better translation is obtained through statistical analysis of a large number of parallel corpora [13]. The statistical language model plays an important role in the field of statistical machine translation [14], it can be used to estimate the relative probabilities of phrases and sentences, so as to obtain the probability of a particular sentence, which is the key component of the online translation module theory of the system platform and the main method to obtain the word translation table. After obtaining the word alignment of the corpus, the distribution of the word translation can be calculated according to the following formula. The probability distribution of each of the two words is calculated according to the following formula, and then the word translation table can be obtained [15]. Count (e, c) stands for actual translation and Count (c) stands for all the Chinese meanings of the same word.

$$t(e | c) = \frac{\text{count}(e, c)}{\text{count}(c)} \quad (1)$$

C. The framework of computer based foreign language translation and its competence training platform

The translation system of computer technology consists of the server and the client, in which, the server runs the online translation system, and the system is trained by developers, and the input sentence is decoded with the decoder to obtain the translation result and provide the

translation interface for the customer. Statistics machine translation becomes the mainstream of machine translation method and development direction, and both American translation and Google translation are applied in this way and have high practicability. The main functions of the translation system client include: home page, conversation module, dialogue module, translation module, dictionary module, etc. Among them, the home page is the client's initial page, and the entrance of the Session module, dialogue module and dictionary module was provided, the above 3 modules include translation functions. The translation module contains the online translation function and applies the interface provided by the computer translation system. Translation majors need to have the basic knowledge of three modules and the application skills of two modules: linguistics, literature, culture, encyclopedic knowledge, and translation and interpretation skills. In the foreign language translation and reinforcement training module of computer technology, the dialogue module, conversation module and dictionary module form a good training platform for translation ability, and the foreign language translation service platform is as follows ("Fig. 1").

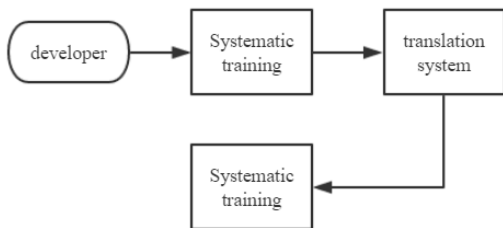


Fig. 1. Foreign language translation service platform.

The translation ability training platform is as follows ("Fig. 2").

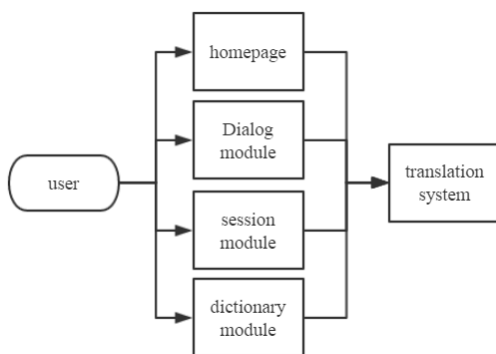


Fig. 2. Translation ability training platform.

The application of computer based foreign language translation and its ability training platform is as follows ("Fig. 3").



Fig. 3. Computer based foreign language translation and its competence training platform.

Today, the computer technology foreign language translation software is not content to just use office software as a "plug-in". As a "supporting role" status, it is increasingly strongly suggested that office software should be integrated into its architecture and interface, so that the translation will be able to complete all translation work smoothly and accurately in the integrated environment, and can change the "supporting role" to "protagonist".

IV. RESULTS ANALYSIS AND DISCUSSION

A. Corpus training analysis of foreign language translation platform based on computer technology

In order to build a foreign language translation platform for computer technology, firstly, raw material library of the platform should be learnt and improved. GIZA++ and Moses of the two training modes were used here. The words used in different frequency ranges were studied. The number of corpora obtained from the two training patterns is as follows ("Table I").

TABLE I. THE NUMBER OF CORPORA DERIVED FROM THE TWO TRAINING PATTERNS

	GIZA++	Moses
1	343264	322775
>200	31992	28441
2	67100	64921
21-100	33806	35811
3	27704	28739
101-200	10958	12085
11-20	19919	20341
7	6387	6174
6	11444	12085
9	4368	4236
4	16828	16750
5	11067	11025
10	3564	3606
8	5072	5064

From the above table, the results of the two kinds of corpus training models in different frequency range were not very different. In different frequency range, the foreign language translation and the number of learning words were similar in the two modes. In different training modes, the largest difference was about the word with a frequency of 1 and a difference of more than 20 thousand. However, in

different training modes, the difference in word number in second place was the word with frequency greater than 200. In this frequency range, the difference in word number between different modes was far less than the frequency range of frequency 1. In the frequency range of frequency

greater than 2, the difference of word and species number in different training patterns was reduced in turn.

According to the above results, the result of the translation corpus was obtained. The part of the translation table is as follows ("Table II").

TABLE II. PARTIAL WORD TRANSLATION TABLE

	Meaning	Probability distribution between words
Please	Polite expressions	88.4%
	Make sb. happy	11.6%
Court	Venue for interrogation	73.5%
	Ball stadium	26.5%
Spring	Spring season	68.1%
	Water source	22.4%
	Jump, move	9.5%
Present	At the place	18.8%
	The moment	15.4%
	Gift	55.6%
	Introduce	10.2%
.....

Available from the above chart, after collecting a large amount of corpus data, the foreign language translation platform based on computer technology must grasp the proportion of different meanings of words, and then translate the input foreign language sentences into their discourse context. Especially the word "present" had 4 meanings, of which three meanings were equivalent, which requires a foreign language translation platform of computer technology to accumulate more semantic expressions and sentence expressions in the above model training.

B. Effectiveness analysis of foreign language translation ability training platform based on computer technology

The session module is the core module of customer competency training, which handles session processed and reflected results. The module provides users with stand-alone session services, and both of them communicate through the same device. When the other party can't build a link, the session is competed by using the module, and the entire process of the session is carried out on the platform. After the user enters the session page, the session history is first loaded from the database and displayed. When the user click on the button in Chinese or English, the system starts dictation, the user enters the corresponding language voice to complete the voice input. If the dictation is too long or the recognition result is empty, the dictation process will be stopped. After dictation, the dictation result is translated, and the translation result is synthesized into voice and played. After the storage is successful, the page is refreshed. Then the user clicks on the translation record in the list to play the voice. The session business sub module is the core module of the session module, which is responsible for processing the business of the entire process of the session. It is a necessary component to ensure the smooth and accurate training of the foreign language conversation. The dialog module needs a dialogue list and a Bluetooth dialogue module. Since both sides of the dialogue are training candidates for the platform, the platform needs to distinguish between the users in the

dialogue training, so as to feedback the training effect. In this paper, taking the foreign language translation and ability training platform of a computer technology in Hubei Province as the main body of the study, the foreign language translation level of the registered users before and after the application platform was compared. The accuracy, coherence and grammatical expression of the target sentence were used as the evaluation criteria, and the score of accuracy was 40%, and the latter two accounted for 30% respectively. The average scores of the tests and results are shown below ("Table III").

TABLE III. FOREIGN LANGUAGE TRANSLATION ABILITY EVALUATION RESULT

	Before training	After training	Difference
Accuracy	30.46	33.24	2.78
Coherence	22.79	25.67	2.88
Grammatical expression	21.12	24.29	3.17
Sum	74.37	83.8	9.43

The translation rates of different translation abilities are shown below ("Fig. 4").

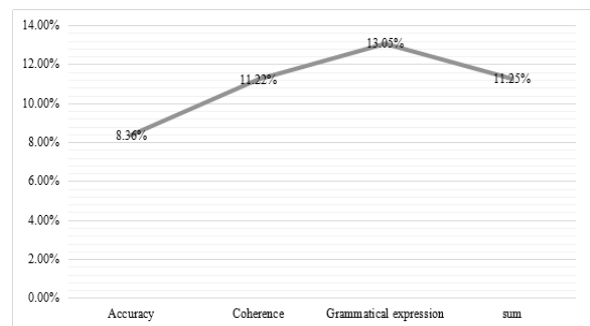


Fig. 4. The change rate of different translation ability evaluation items.

Through the above chart, it can be found that there was a significant difference in the translation ability of the users before and after the platform training, and the average score was risen by more than 10 percentage points. Compared with the traditional foreign language training institutions and schools, the foreign language translation training platform of computer technology effectively improved the accuracy, coherence and grammatical level of students' foreign language translation. The only difference was that when the course was translated, the translator asked the student to use the computer platform software, and specified the type submitted (session translation, etc.), so as to check whether the students finished their homework as required. The challenge for the translation platform was whether the translation task could be successfully corrected and the results would be returned to the user scholar in an appropriate way.

V. CONCLUSION

The original intention of translation based on computer technology is not to replace human translation, but to help human translation and reduce its workload. However, with the increasing availability of computer technology, translation based on computer technology is increasingly promising to replace human translation. The core technologies of foreign language translation and competence training platform based on computer technology were introduced in this paper. Then the requirement of platform construction was analyzed, and a corpus based training module for foreign language translation platform based on computer technology was designed, in which, Moses and GIZA++ vocabulary and grammar model training platform were used, and the word translation table was obtained. Finally, the framework of computer based foreign language translation and its ability training platform, corpus training analysis, and the translation ability of computer based foreign language translation and competence training platform users in Hubei province were analyzed. And the results showed that the interactive and real-time platform plays an active role in improving the user's foreign language translation ability and training experience. Therefore, the foreign language translation and competence training of computer technology must be combined with the humanistic and economic requirements of the region, and the application of the foreign language and its context should be taken into account in the process of translation considerations, so as to provide users with more accurate translation services and translation skills training courses.

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