International Conference for International Education and Cross-cultural Communication. Problems and Solutions (IECC-2015), 09-11 June 2015, Tomsk Polytechnic University, Tomsk, Russia

Technical Translation Training in Groups of Foreign Students Using Multimedia-based Project Activities

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Abstract

This paper considers the features of technical translation training using multimedia-based project activities for foreign students of the Department of Chinese. It is focused on a competence-based approach to education and takes into account the linguistic and cultural characteristics of the Chinese language. This also provides an opportunity to use communication technologies in teaching, using activities that improve knowledge in the field of translation, not only in the educational process, but also for future professional activity.

1. Introduction

Today's China is a giant which interacts with countries from all over the world. China has been rapidly developing not only in the field of economics, but also in the field of industrial production. There is a marked development of China's relations with other countries in technical fields. This condition creates demand for highly qualified technical translators who are skilled in the Chinese language.

The Chinese language is currently considered one of the most sophisticated and in-demand languages. As technical documentation is always abundant in specific terminology, technical translation, especially from such

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complex language as Chinese, requires vast experience and high qualifications. For example, the safety of human lives or the operation of major enterprises may depend on the accuracy of the translation of a technical text. Therefore, a translator of technical documentation takes on immense responsibility.

Only highly qualified and well-trained translators can ensure a high standard of translation accuracy, which supports the conclusion that there is a need to improve and reorganize the educational process of technical translation training.

In order to reach the level of a highly qualified translator, a graduating student has to possess not only professional knowledge and skills, but also the ability to react and act appropriately under certain circumstances. To achieve this, it is essential to develop the professional competency of a technical translator, which includes specific competencies, skills, and knowledge.

In view of the above, the purpose of this study is as follows: the search and scientific substantiation of effective means for technical translation training that can help to develop a set of competencies required for the development of the professional competency of a translator of technical texts from Chinese.

IT penetration into present-day language education emphasizes the use of new information and communication technologies in teaching foreign languages.

Our study used the methodology of technical translation training using multimedia-based project activities. This concept involves the creation of a project with the help of specialized software in order to provide a more detailed description of a device and its operation algorithm.

2. Methodology

2.1. The learning environment

Technical translation training in groups of foreign students using multimedia-based project activity relies on the following principles:
- systematic, activity, student-centered approaches in foreign language education (Gural, 2012; Zimnyaya, 1991; Millrood, 2011, and others);
- Socio-cultural and cross-cultural approaches in teaching foreign languages (Gural, Zimnyaya, Sysoev, Ter-Minasova, etc.);
- translation studies and teaching methods in translation (Alikina, 2010; Retsker, 2004; Tikhonova, 2013, etc.);
- innovative technologies in teaching foreign languages and linguistic education (Yevstigneev, 2010; Sysoyev, 2010).

2.2. Research design

The objective of technical translation training of foreign students of the Chinese department lies within the formation of an interpreter's professional competence, which includes a set of special competencies. Our study suggests that learning using multimedia-based project activities will contribute to the development of each of the required competencies

In order to achieve this objective the study posed the following questions:
1. Will this methodology benefit Chinese technical translation training as an additional learning tool?
2. What are the major difficulties encountered by foreign students studying technical translation using multimedia-based project activities?

The term technical translation used in the study refers to an independent professional activity intended to provide an adequate representation of scientific and technical information from one language in another, taking into account differences between the two texts, communicative situations, and cultures. Scientific and technical texts are the

subject of this activity. [Training in translation of scientific and technical texts in the computerization of professional activity D.A. Alferova, Moscow, Russian Peoples' Friendship University]

As noted above, technical documentation translators take on immense responsibility — the functioning of enterprises, as well as the safety of human lives may depend on their professionalism.

The formation of professional competence is a primary objective in teaching technical translation, and therefore an integral part of the training process.

We have determined the following competencies which are a necessary component of professional competence of a technical translator from Chinese: language competence, communicative competence, translator's competence, information mining competence, linguistic competence, technical competence, special competence (competence is a set of knowledge and skills required to translate professionally oriented texts), extralinguistic competence, text-generating competence, strategic competence.

To develop the required competencies, the study suggests a methodology for technical translation training of foreign students using multimedia-based project activities.

The methodology includes 3 stages.

Step One. Obtaining background knowledge.

The student has to obtain background knowledge on a given subject in their native language independently. In order to fulfill this, a student has to examine the instructions and the device description and its functions.

Step Two. Project.

The second stage involves the creation of the project. The student makes a presentation or video independently. Every aspect at this stage depends entirely on the imagination of the student. The student's goal is to present a step-by-step description of the device and its operation algorithm in the most efficient manner.

The project comprises three steps:
1. the student describes in detail each part of the device in the Chinese language;
2. the student shows the step-by-step operation algorithm, providing a description in the Chinese language;
3. the student explains where and why this device is used.

The project can be done on a poster or presented in multimedia programs such as MS PowerPoint, Google Docs, Slide Rocket, 280 Slides, Open Office Impress, Brainshark, Prezi, or the online service Acrobat.com Presentation.

Step Three. Text translation.

Students receive a text for translation on this subject, analyze it independently, and then continue with a discussion of the text in the classroom.

These three stages enable a comprehensive approach to the educational process and make it possible to develop the required competencies.

The first stage triggers the development of *information mining competence* in the course of obtaining background knowledge. It is developed when searching for information on the Internet and working with electronic resources. *Field competence* is developed through acquiring knowledge in a certain area of activities.

Language competence is developed at the second stage when the student works with a pair of languages. It also develops *communicative competence* that allows students to draw reasonable conclusions based on background knowledge and present the necessary information to recipients in the course of translation. It should be noted that the *information mining competence* is developed not only at the first stage, but also at the second, when working with computer technology.

The third step enables students to develop several competencies at once. *Technical competence* includes the knowledge and ability to use translation strategies, transformations, and translation techniques. *Linguistic competence* is formed through developing knowledge and skills required to use the grammar, vocabulary, and idiomatic structures of the source and target languages. *Translation competence* is the ability to produce a clear and accurate translation from one language to another. *Text-generating competence* is manifested in developing skills required to implement primary and secondary text activities and generate texts of different types. *Strategic competence* is also formed in the implementation of project activities when working with the Chinese language. We

can assume that the Chinese language is one of the most consistent languages. The terms in Chinese are formed not only by means of transliteration, but also by means of description. Therefore, on some occasions, the understanding of how any particular detail functions helps qualified translators to find an appropriate Chinese translation.

This methodology not only contributes to the development of the required competencies, but also helps to improve the mechanism of switching from one language to another. Methods that use photos and video are one of the most effective when it comes to achieving this goal. The student receives information not only aurally, but can also see the device description, as well as steps demonstrating its functioning algorithm. The student subconsciously begins describing this process in his native language. When a logical chain is built and the sentences required to provide a statement are formulated, the student is able to quickly switch from his native language into Chinese.

Theoretically, a translator of technical texts should have a technical background. As we consider students at the language departments, apart from teaching the Chinese language, standard phrases, collocations and terminology. The teacher's task also includes providing background knowledge and understanding about the functioning of particular devices.

2.3. Participants

Experimental teaching was organized through the Department of Chinese Language of the Faculty of Foreign Languages of Tomsk State University. It was implemented in normal conditions within the framework of the professionally-oriented course "**Technical translation**". The experimental training involved 10 third- and fourth-year English, Chinese, Russian and Turkish students studying Chinese as a first foreign language within the major "Translation and translation theory". The subjects were divided into one experimental group (6 students) and one control group (4 students).

3. Discussion of Results

In order to provide the most complete analysis of this method, each student completed five projects on the following topics: internal combustion engine, turbocharger, electric motor, hydraulic press, and autoclave, and completed a final assignment on each of the topics.

The following tasks were used to assess students' progress:

1. Multiple choice test (4 options).

2. A test requiring students to fill in the gaps with specific terminology.

3. Description of an image. The main task is to provide a description of a device and its functioning algorithm based on images. The allotted time for preparation is 2 minutes. The results were assessed based on the following scale: word fluency – 0 to 2 points; correct use of terms – from 0 to 5 points, composition of grammatically correct sentences – from 0 to 3 points.

Both qualitative and quantitative indicators were considered in assessing the effectiveness of the method:

- qualitative: the accuracy of rendering key information, accuracy of oral responses in Chinese during the presentation of a project, accuracy of translation and comprehension of a text;
- quantitative: number of subjects, time allocated for the completion of assignments.
- The results of each task were assessed using a ten-point grading scale, so the calculation of results in each task was performed using the following formula:

$$K = \frac{x}{n * a} * 10$$,

where *K* is the accomplishment quotient, *x* is the total number of correct answers, *a* is the number of students in a group, and *n* is the total number of tasks.

Table 1.

Tasks	Before experimental learning (Average)		After experimental learning (Average)	
	Control Group	Experimental Group	Control Group	Experimental Group
Task 1	4,3	4,6	8	8,9
Task 2	4,5	4,3	7,4	9,1
Task 3	6	6,5	4,9	9,3
Task 4	5,1	4,9	8,1	8,7
Task 5	3,6	3,7	8,2	9,1

The students encountered the following difficulties when performing assignments at the initial stage of technical translation training: an inability to find the correct equivalent for technical terms in Chinese, unfamiliarity with certain characters, an inability to quickly grasp the essence of a sentence, as well as an inability to extract key information from a text. In solving these problems, it was found that most of the difficulties that students encountered in the initial stage of training were not only linguistic, but also psychological namely there was a psychological barrier to working with technical texts. This was due to the absence of background knowledge in different fields of technology, as well as a lack of practice with this type of translation. During the training, it became evident that this barrier can be overcome with systematic exercises and assignments aimed at addressing this problem.

Thus, the observed differences between the control and experimental groups at the initial and final stages of education are quite significant, and therefore the formation of professional competence of a technical translator in the experimental group of students was significantly higher than in the control group.

4. Conclusion

The results have shown that the performance of the experimental group of students is significantly higher than that of the group which was taught by traditional methodology. This makes it possible to conclude that the proposed method is effective and has a practical utility. This method, like many others, has its advantages and disadvantages; therefore, it is necessary to integrate various methods and learning tools into technical translation training to achieve stated objectives and desired results.

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