

Improving Students' Thinking Transformation in English Translation Based on SPSS Statistics

Zhang Ping
Hunan Network Engineering Vocational College
Changsha, Hunan, 410000, China



Zhengkun Yan
Changsha Environmental Protection Vocational and Technical College
Changsha, Hunan, 410000, China
{qiangxie302061xi9@163.com}

ABSTRACT: *This article studies the improvement of students' thinking transformation through English translation based on SPSS statistics. By comparing the experimental and control groups' results, it was found that students who received SPSS statistical training showed significant improvement in English translation ability and thinking transformation. Two groups of students were selected, with the experimental group receiving SPSS statistical training and the control group not receiving training. Both groups conducted English translation exercises and collected relevant data. The experimental group showed significant improvement in English translation ability and also showed significant improvement in thinking transformation. The control group showed some improvement in English translation ability, but it was less significant than the experimental group. SPSS statistical training has a positive effect on improving students' English translation ability and thinking transformation. Introducing SPSS statistical training in actual teaching is recommended to improve students' comprehensive quality and thinking ability.*

Keywords: Business English, SPSS, Student Translator

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1. Introduction

With the increasing status of our country in the world, internationalization development has also ushered in an important period of development. As a result, the market demands more and more translators with professional quality [1]. Translation is a complicated process requiring translators to have the appropriate translation ability [2]. The main purpose of translation teaching in College English majors is to improve English learners' translation ability and cultivate professional translators for the needs of society. Studying translation skills in Business English is an effective way to help learners improve their English translation ability [3]. However, the research on translation competence in China mostly focuses on the organiza

tional competence of language, and there are some discussions on the translation strategy competence and the translator's professional competence [4]. The huge market talent gap has greatly pressured college English students [5]. Therefore, society and schools must study the related translation skills of business English and rapidly improve students' translation abilities [6].

The study of Business English translation skills can help scholars understand the whole thinking process of translation, and it is of great significance to improve the translator's professional competence and the quality of translation [7]. In addition, it also has certain practical significance for helping schools quickly train high-quality translation talents and reduce the employment pressure of translation students [8].

2. State of the Art

Presently, domestic scholars mainly study the process of translation in two aspects: the static study of the translation process and the dynamic study of the translator's thinking process [9]. The former is an objective and static description of the translation steps, and the latter is a dynamic description of the translator's brain thinking operations [10]. In the essay, Li Zhanxi has considered the content and form in the process of translation analysis. In the final translation process, the corresponding sentence structure and the translation of the target text should be adjusted for different receivers [11].

In the 1980s, Zhang Jincai used materialist dialectics to study literary translation and put forward the relevant viewpoints in the process of literary translation. Comprehension is the process in which the translator seeks the artistic content of the original text, while the expression is the search for the language form of the target text [12]. Cohen studies the whole translation process by using the related theories of semiotic semantics [13]. In his book *A Review of the Study of Translation Process*, Li Fang mentioned that patterns, meanings, and memory are important to translation. Through the aid of psychology and the patterns of memory and information processing related to psychological language and the achievements of cognitive science research, a complete translation process model has been constructed [14]. To improve the ability of professional translation, many scholars at home and abroad have made great contributions [15].

3. Methodology

3.1. Translation Skills

In the 1960s, Jean Piaget, a Swedish scholar, put forward the theory of constructivism. The core idea is not to view the world as a fixed goal but to construct and arrange the structure through the individual's experience. Whether a person has a good command of knowledge depends on his ability to construct knowledge rather than simply memorizing the contents of a class or book. This thesis studied the practical significance of constructivism in translation teaching.

As shown in the following picture, translation teaching will be extended beyond the classroom, compared with the traditional translation classroom teaching model. In translation learning, more attention is paid to practice. Outside the classroom, students can have more opportunities to contact external resources and obtain more opportunities for learning to improve their comprehensive translation.

In a word, in the teaching principles of constructivism, the process of knowledge construction is closely related to not only the interaction between students but also the environment. Knowledge construction is not the individual thing of students but is deeply influenced by the learning environment. In addition, through discussion and communication, especially communication with peers and teachers, a better knowledge construction can be formed and become an important source of information. In this paper, research planning was based on knowledge construction and planning organizations were compared. Thus, the translation skills of professional translators were identified by using SPSS statistical software, thus helping translators learn their professional translation skills.

3.2. Research organization and Planning

One group of objects of this experiment comprised 5 girls and 3 boys from grade four of an English department in a university, and the eight students passed the English four test, received formal education in colleges and universities, and had a certain knowledge accumulation. The other group consisted of a professional translator, Mr. Luo. Mr. Luo was a representative of an enterprise, and during university, his major was not English major. Still, he passed the *CET6* and had many years of experience in English translation and communication.

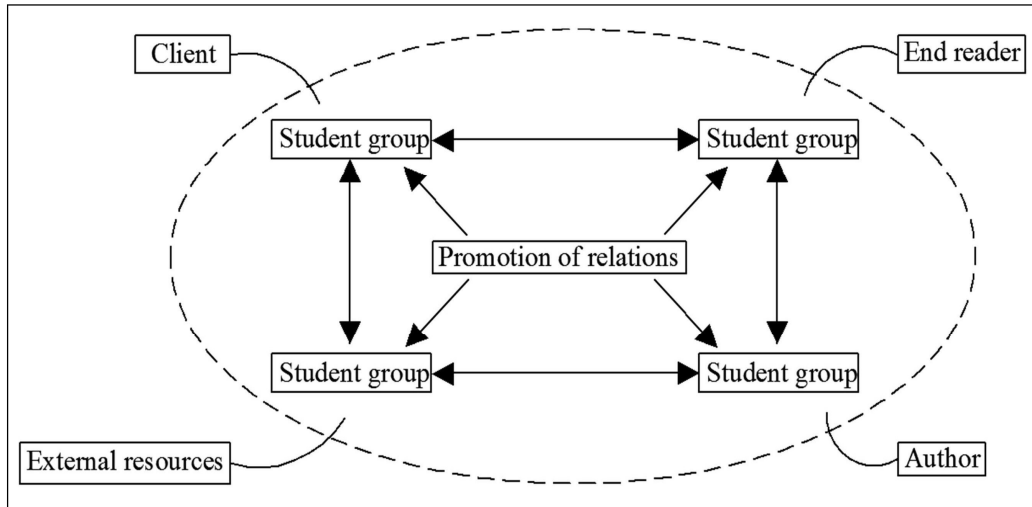


Figure 1. Collaborative translation practice

This study used a questionnaire survey, and two questionnaires were set up. 39 random questions based on the Likert scale were used to consider students' professional abilities; 11 questions were added to collect the students' basic information for further analysis.

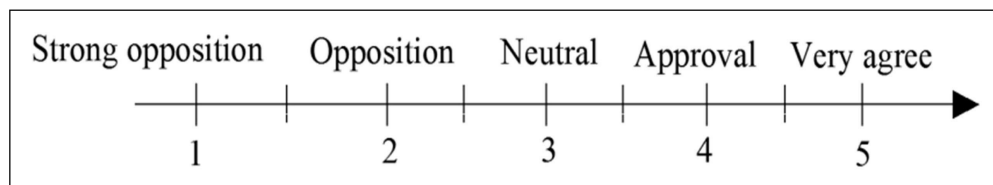


Figure 2. Again of the five-point system of the Likert scale

According to the five-grade marking system in the Likert scale, the scores were divided, and the score between the two attitudes was counted as 0.5. Then, based on the relevant occupational element standards formulated by an international translation and interpretation consortium, 50 common elements were selected to form a general project group. The following table is part of a questionnaire on occupational abilities. The questionnaire contents are not listed to prevent students from having a one-sided answer and denying part of the test items in the rating scale. At the same time, the author's contact information and so on are all left at the end of the questionnaire. If students have any questions, they can contact us at any time. The higher the overall score, the more consistent the statement can be. A total of thirty-nine-five subjects on professional competence were included in the questionnaire. The Cronbach alpha index was 0.86, and the data showed good results.

The questionnaire contained 11 questions, and its scale form was similar to that of Figure 2, which was used to evaluate students' comprehensive translation ability. The following figure is a revised Likert scale:

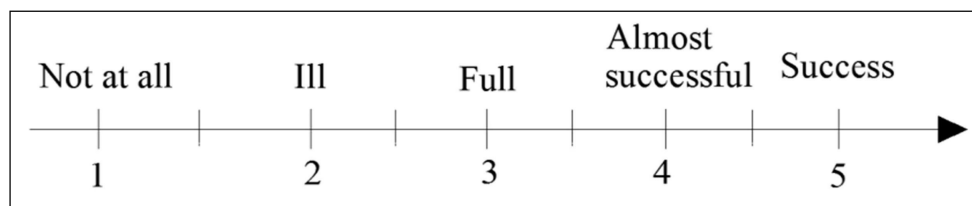


Figure 3. Again scale

Parameter	Factoritem	Project	Questionnaire project
Physical and mental condition	Physical and psychological condition	<i>A11/A21</i>	1/2
Translation methods	Importance of translation, practice, business visit	<i>B11~12/B21~23/C11~12</i>	40~42/3~7
Professional ethics	Prepare, deliver, translate, keep confidential, and keep up-to-date information on a project testing	<i>C11~12/C31~36</i>	5~10
Work attitude and behavior	An attitude of humility, awareness of one's rights, attitude toward remuneration	<i>D31~33</i>	22~24/33~35
Management skills	Translation modification and translation quality control	<i>E11~13/E21~E23</i>	36~38
Interpersonal skills	Team communication and customer interaction	<i>F11~F12/F21~F23</i>	25~29
Awareness of further learning	Consciousness of practical study and theory of further education	<i>G11/G21/G31</i>	30~32
Certification	English certificate, certificate of translation, certificate approval	<i>H11/H21/H31</i>	43~44

Table 1. Contents of the questionnaire on occupational abilities

This part of the questionnaire was based on the quality of Ali and the local translation organizations in China, and 11 items determined four main factors determining the quality and grade of the translation. Questionnaires, before being distributed to eight test objects, were sent to ten other students as a preliminary test (the qualifications and English level of the ten students were almost the same as those of the 8 in the experiment), to ensure questionnaire measures and organizational clarity. In the preliminary experiment stage, the questionnaire was tested and revised again. Eventually, with the help of a

Parameter	Project
<i>E21</i> modify	<i>TQ1/TQ8</i>
<i>E22</i> expression	<i>TQ2/TQ7</i>
The fidelity of <i>E23</i> to the original text	<i>TQ3~TQ6/TQ9</i>
Other aspects	<i>TQ10</i>
Over all evaluation	<i>TQ</i>
Total	11

Table 2. Quality assessment questionnaire

professor at the university, the content was modified to minimize the experimental variables. In the actual questionnaire survey, the students were given sufficient time to think and answer, thus ensuring the reliability and validity of the data. The final data was processed by using the SPSS13.0 version.

Using SPSS software, students' vocational abilities in two different stages were compared and analyzed, and the paired samples of non-parametric equivalents were detected by the Wilcoxon test. By calculating the frequency and percentage of each variable, the general situation of the object was described. The Spearman rank correlation rule was mainly used to analyze the situation of the non-normal distribution of data and to test the relationship between translation competence and translation quality. The Spearman rank correlation method is a tool for detecting whether a set of numbers will affect another set of numbers, which is applicable to statistical results between $-1 \sim +1$.

4. Result Analysis and Discussion

In this study, Wilcoxon test comparison method, sorting method and Spearman correlation method were adopted, and the correlation between the students' translation competence and the quality of the translation was analyzed. And from the internal and external customer evaluations, students' professional competence in translation was evaluated. The results show that the student's overall translation quality and ability have greatly improved after the translation project. The experiment

Project	The first stage		The second stage		Wilcoxon test	Capacity growth ranking
	Average value	Ranking	Average value	Ranking		
TQ1 Spelling and punctuation	3.56	3	4.63	2	-3.69*(a)***	2
TQ2 Format	3.69	1	4.69	1	-3.02**(a)***	5
TQ3 Consistent with Chinese expression habits	3.24	7	4.19	5	-3.42*(a)***	7
TQ4 Style / Vocabulary	2.63	10	3.63	10	-3.56*(a)***	4
TQ5 Intelligibility / readability	2.94	9	4.00	7	-3.68*(a)***	3
TQ6 Functional equivalence	3.69	2	4.44	4	-2.97*(a)***	8
TQ7 Complete content	3.38	6	3.94	8	-2.25*(a)***	10
TQ8 Accurate information	3.44	4	4.13	6	-2.80*(a)***	9
TQ9 Correct grammar	3.38	5	4.56	3	-3.76*(a)***	1
Q10 Terminology consistency	2.94	8	3.89	9	-3.42*(a)***	6
Overall evaluation of translation quality	3.30		3.94		-2.83*(a)***	

Table 3. Statistical analysis of the customer's assessment of student translation quality

has obtained very good anticipated effect, thus providing certain data reference value for the university's specialized, high-quality personnel training.

Fewer than ten subjects were selected in this paper. Therefore, the Wilcoxon test and descriptive analysis were adopted to compare and analyze the students' professional abilities at the project's beginning and end. In the statistical analysis of the students' translation quality, the students' translation in the first and second stages was selected, and a comparative analysis was carried out. Then, the students and clients judged and analyzed the translation. Whether the translation quality of the students improved significantly in the second stage compared with the first stage was explained. The following is a statistical analysis of the quality of the students' translations.

According to the above table, as a whole, compared with the results of the first-stage test, the quality of the students' overall translation significantly improved in the second stage of the test. According to the above table, each of the tests has reached a significant level ($P < 0.1$), indicating that there are differences in the test data in these two stages, and there is certain reference value. In addition, the average value of each item in the second stage is also greater than that of the first stage, showing that the quality of the students' translation has also been greatly improved. In addition, in the ten projects, in the first stage of the test, the students did the best in format and functional equivalence, spelling and punctuation but performed less in style and vocabulary. However, when tested again in the second stage, the students do the best in format, spelling, and punctuation but perform more commonly in content. Students pay more attention to the functional equivalence of the translation forms, the source text, and the target text because the translation requirements for the project are based on technical requirements for publishing. In addition, students' styles and vocabulary abilities are greatly improved compared with those in the first stage.

Through the analysis and research, the Spearman correlation analysis method was adopted to compare and analyze the relationship between the students' translation competence and the quality of the translated text. The results are as follows:

	<i>A1</i>	<i>A2</i>	<i>B2</i>	<i>B3</i>	<i>C1</i>	<i>C2</i>	<i>C3</i>	<i>C4</i>
Translationquality	0.522*	0.088	0.246	0.0150	0.405*	-0.602	0.091	0.0595
	D2	D3	E1	E2	F1	F2	G1	G2
Translationquality	0.015	0.036	0.075	0.293	0.556	0.100	-0.414	-0.412

Table 4. Translation of elements and related indicators

Note: * at 0.05 level (double tail), the correlation showed significance; * *: at the 0.01 level (double tail), the correlation showed significance;

As shown in the above table, each item content value represents the meaning shown in the previous table. According to the table data, what is positively related to the quality of the translation are: *A1* (physical ability), *C3* (the quality of translation

	<i>A1</i>	<i>A2</i>	<i>B2</i>	<i>B3</i>	<i>C1</i>	<i>C2</i>	<i>C3</i>	<i>C4</i>
Translationquality	0.526*	0.102	0.445	-0.096	0.422	0.153	0.732	0.102
	D2	D3	E1	E2	F1	F2	G1	G2
Translationquality	-0.296	0.085	0.369	0.345	0.615	0.385	-0.465	-0.443

Table 5. Translation of elements and quality of translation (stage 2)

and its control consciousness), and *F1* (interpersonal relationship within the team); on the contrary, what is irrelevant to the quality of the translation are: *B2* (the importance of trying translation resources), *C1* (preparatory work prior to undertaking the project), *C2* (delivering the translation on time), *E2* (management system for the quality of the translation) and *F2* (interpersonal communication with clients); and other items, such as *G1* (the awareness of further translation practice), *G2* (the awareness of further translation theory), and *G3* (the awareness of translation project knowledge), are negatively related to the quality of translation; and the other items have nothing to do with the quality of the translation. In addition, as expected, in the sense of confidentiality as well as the emphasis on the translation and the original text, there is no data support for the recognition of the rights and the quality of the translation, indicating the existence of any necessary connection.

Note: * at 0.05 level (double tail), the correlation showed significance; * *: at the 0.01 level (double tail), the correlation showed significance;

The above is a list of the relationships between the elements of translation competence and the quality of the translation in the second stage of the Spearman. Through comprehensive analysis of data in tables 7 and 8, it can be obtained that, as a result, the translation ability of the student translator has been improved in general and has roughly followed a certain order. The student's professional ethics and interpersonal skills have been significantly improved. But for students' own rights, the promotion of cognitive ability is not obvious, and the promotion of training awareness, work attitude, work behavior, and quality control capability is also not obvious. In addition, professional ethics interpersonal skills and the use of translation resources are positively related to the overall quality of the translated text.

5. Conclusions

With the increasing international competitiveness of our country, the market demand for high-quality talent is getting higher and higher. Based on the feedback of the market, the overall quality of translators in our country should be improved. Translation is a complex process involving many subjects, which requires translators to have a sound knowledge base. In this paper, through the experimental comparative study and based on the statistical software SPSS, the differences between the student translator and the professional translator in translating the article were analyzed, and some suggestions were also put forward to improve the learning of the translator. Teachers should integrate constructivist teaching methods into daily college teaching activities and adopt the form of translation projects so as to cultivate the professional competence of translators. Through real translation tasks and real-life situations, students are brought into the learning environment to improve their interests, increase their sense of responsibility, and master and improve their translation skills. And in the process of learning, scholars should pay attention to the quality of translation, emphasize professional ethics, and improve the quality level of translation using interpersonal skills and practical translation resources. However, there are some limitations in this study. The data collection and the number of experimental objects are less, and the sample representation is low. Although the overall results can be reflected to some extent, the reliability and accuracy of the data should be verified many times.

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