

# Learning Participation of College Students in Professional English Online Collaborative Translation Based on Learning-Cell System

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**Abstract**—Translation instruction, in English learning, is extremely important as a comprehensive application of listening, speaking, reading and writing. However, there are still many problems in domestic professional English translation teaching such as ineffective integration with information technology and students' poor participation. 48 college students majoring in education and technology from one university of Jiangsu Province were selected in this paper as subjects to carry out an activity focusing on Professional English of translation instruction on Learning Cell System. The relationship between students' learning participation and their post-test scores can be found by the method of Content Analysis and Statistical Analysis. The result shows that online collaborative translation can indeed improve undergraduates' learning participation and they are positive-correlated; the relationship between learning participation and Professional English post-test scores proves to be positive-correlated.

**Index Terms**—learning participation, professional English, learning-cell system, collaborative translation

## I. INTRODUCTION

Under the background of internationalization of higher education, universities are building an international curriculum as the core content of professional curriculum reform [1].

Among them, professional English occupies an important position in the construction of international professional curriculum and cultivating professionals with international competitiveness in universities. As a comprehensive application of listening, speaking, reading and writing, translation instruction, in English learning, is extremely important. However, current professional English translation teaching still adopts traditional teacher-centered "grammar-translation" model. Students' participation in curriculum learning is poor, and the learning effect is worrying. Learning participation as an important measure of students' learning effectiveness is a direct manifestation of student's subjectivity. Taking an active part in class can enhance students' sense of self-efficacy, raise students' level of metacognition and promote students' mastery of knowledge. With the

increasing application of modern information technology in education, it has created good conditions for translation teaching under information technology environment. The integration of information technology and translation teaching has opened up a new path to promote students' learning participation in curriculum and improve the teaching effect of professional English translation.

Learning participation is an important indicator of learning effectiveness, and research has changed from traditional classrooms to online classrooms which are used for online learning. Kuboni O [2] studied the measurement of online learning participation. Yinling Li [3] divided online learning participation into shallow participation and deep participation according to the ways of participating in online activities and the level of contribution and sharing during students' learning process. Generally speaking, current research on learning participation mainly focuses on theories. Research of online learning participation is mostly based on the number of students' participation as the measurement methods and evaluation criteria, neglecting the quality of students' participation, and also lack of related empirical study of online teaching. Compared with previous studies, which mostly measure the degree of students' participation in curriculum by quantity, learning participation in this study mainly refers to the quality of students' participation, that is participation level, the higher and deeper the participation level is, the higher the student's participation is in the curriculum.

## II. RESEARCH DESIGN

### A. Research Hypotheses

**Hypotheses 1.** Online collaborative translation can improve undergraduates' learning participation.

**Hypotheses 2.** The relationship between students' learning participation and Professional English post-test scores is positive-correlated.

### B. Participants

This study takes third-year undergraduates majoring in educational technology in a university of Jiangsu Province as experimental subjects. Students in this class have experience of more than one year of online learning,

and good information technology ability. They are up to the mustard of online collaborative learning teaching request. A total of 48 students in the class participated in the experiment, including 12 boys and 36 girls, with an average age of 20.6 years. Teachers divided students equally into 12 groups according to the principle of heterogeneous. Every 4 Students were divided into a group to carry out one-month English collaborative translation instruction of educational technology professional English class on learning cell system.

C. Research Tool

The research tools used in this study include English translation ability test papers and learning-cell system. In collaboration with the instructor, the researcher has completed a post-translation test of professional English which includes five translation questions (English translation) for 45 minutes and a maximum score of 60. Learning-Cell system is the support platform for this class, collecting data of students' online translation activities, for late implementation of statistical data analysis.

D. LCS Introduction

Learning-Cell System (LCS) is a ubiquitous learning system designed and developed on the basis of learning cell concept [4]. It's provided with convenient interactive features to support students' interaction, including adding micro-annotation, online discussion, polls, pushing real-time messages, group management and data sharing, which provides a favorable supporting environment for professional English collaborative translation teaching.

E. Collaborative Translation Teaching Process

Based on learning cell system, online collaborative translation teaching process is divided into three stages, the process shown in Fig. 1.

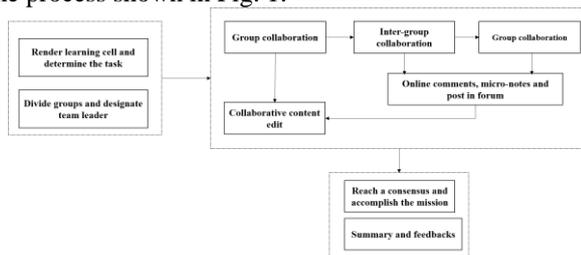


Figure 1. Collaborative translation teaching process

III. DATA ANALYSIS

A. Data Collection

The learning-cell system records all the behavioral data of students' online collaborative translation activities. Changes of students' external behaviors can reflect the changes of students' learning participation. Therefore, Researchers extracted and analyzed totally 738 behavior data on the basis of students' behavior records collected from LCS, involving 267 comments, 65 annotations, 94 posts and 312 edits. Content Analysis and Statistical Analysis were adopted to analyze the relationship between students' learning participation and post-test scores.

B. Data Processing

In this study, content analysis and statistical analysis were used to process the data. The data was analyzed by using nvivo8.0. The correlation analysis and regression analysis of data were done by spss17.0 to explore inherent law. Based on the reference of relevant coding system [5], In order to analyze participation situation, researchers established an online learning participation level type coding system, including 5 categories and 20 subcategories. Among 5 coding categories, social type and process type are at shallow participation level while elaboration type and cognitive type are at deep participation level. Participation level is increasing from social type to cognitive type. Coding system and description are in Table I.

Code reliability adopts the percentage consistency, and the formula of its reliability calculation method is: reliability = 2M / (N<sub>1</sub> + N<sub>2</sub>). Where M is the number of codes agreed between coders, N<sub>1</sub> is the number of codes obtained by coder 1, and N<sub>2</sub> is the code number obtained by coder 2. According to the coding system two people code together, finally the calculated reliability coefficient is 0.78, indicating that coding reliability of this research is better.

TABLE I. ONLINE LEARNING PARTICIPATION HIERARCHICAL CODING ANALYSIS TABLE

category	index	code	description	
social type	positive emotional communication	1a	Expression of social / emotional terms. There is no direct relationship with the topic, but it strengthens community members' connections, emotional experience and community belonging.	
	negative emotional communication	1b		
	neutral emotional communication	1c		
process type	course description	2a	Course-related process requirements, descriptions, assessment and more	
	course requirement	2b		
description type	ask questions	consultation questions	3a	Ask questions or make statements about unknown information or problems encountered in learning, put forward the topic for discussion
		good constitutional questions	3b	
		bad constitutional questions	3c	
	clarification	3d	Discrimination and detailed narration of concepts, opinions and ideas	
elaborated type	agree	4a	Directly or indirectly agree with others' point of view	
	disagree	4b	Arguing the participants' points of view to show different opinions	
	support	4c	Defend your own past by explaining and using arguments	
	consensus	4d	Trying to reach a consistent understanding of the arguments of the debate	
	synthesis	conclusion	4e	Based on the facts and premise, we use the deduction and induction to make assumptions, forecasts and analyzes, and draw conclusions
		summary	4f	
cognitive type	reference sharing	5a	Reference, resource references and sharing	
	evaluation	solution evaluation	5b	Decide, evaluate, evaluate and criticize opinions, facts and solutions
		opinion evaluation	5c	
		value judgement	5d	
	reflection	5e	Summarize the learning gains, indicating that learning gains	

C. Data Coding Results

According to different coding categories of the meaning unit, the researcher further collates coding results and counts different categories of meaning units, which are shown in Table II.

TABLE II. DATA CODING RESULTS TABLE

Code	1				2				3				4				5			
	a	b	c	d	a	b	c	d	a	b	c	d	a	b	c	d	a	b	c	d
Number of meaningful units	31	4	11	11	15	21	21	13	48	19	31	31	30	16	19	12	22	24	19	14
Total	46				26				103				146				91			

D. Data Analysis

1) The impact of online collaborative translation on college students' learning participation

Comparing and analyzing five different types of students' participation in teaching process from five sets of data, Contrastive analysis figure of student participation levels in all stages of collaborative translation can be obtained, as shown in Fig. 2.

At early stage of online collaborative translation teaching, most students took part in shallow participation, while social and process type of participation accounted for 40.1% and 42.7% respectively. In the middle and late teaching period, social and process types showed a sharp downward trend, while the description, elaboration type and cognitive type began to rise gradually. With the increment of teaching process, level of participation in online learning is also constantly improving, from shallow to deep participation gradually.

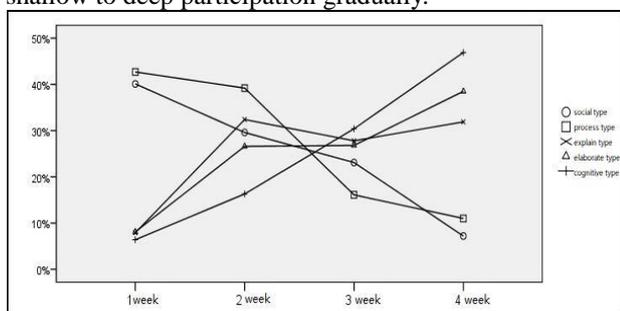


Figure 2. Contrastive analysis of student participation levels in all stages of collaborative translation

2) Comparison of participation between groups in online collaborative translation process

(1) Comparative analysis of participation levels among different groups

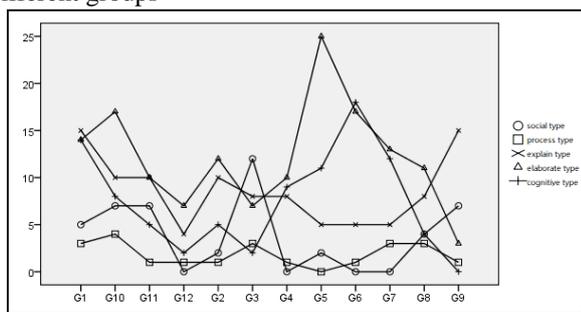


Figure 3. Contrastive analysis of participation levels among different groups

Compare five groups of data for 12 groups with different levels of participation, contrastive analysis table of participation levels among different groups can be obtained, shown in Fig. 3, the process curve changes more smoothly, difference was not significant in each group. The trend of elaboration and cognitive type curves is obvious, indicating that the deep participation in each group is quite different, besides the level of cognitive participation is the highest among all participation types. The maximum value of the curve is in group G6, the value is 18, the minimum is in group G9, and the value is 0, compared with other groups, the difference is

significant. The maximum value of the social curve is located in the G3 group, the value is 12, indicating that G3 group is most involved in shallow participation. The description curve changes relatively stable, the maximum value in the G9 group and G1 group, the value of 15, compared with other groups, the difference is not significant.

(2) Comparative analysis of participation numbers among different groups

Numbers of evaluating other groups can effectively reflect the degree of team members' participation in translation activities of other teams. Numbers of evaluating own groups can effectively reflect the degree of team members' participation in translation activities of their own group. In online collaborative translation process, the percentage of numbers of evaluating own groups is totally higher than the percentage of numbers of evaluating other groups, which indicates that co-translation within each group has a higher level of participation, besides the co-translation among different groups is still a small percentage relatively.

3) The relationship between learning participation and professional English translation post-test scores

Two highest online learning participation types are elaboration type and cognitive type. The results of correlation analysis between these two types with the average group test scores are shown in Table III.

TABLE III. ILLUSTRATES THE CORRELATION BETWEEN COGNITIVE TYPE AND GROUP AVERAGE GRADE

		Elaboration type	Cognitive type
Group	Pearson correlation	0.765**	0.872**
average	Significant double test	0.004	0.000
	Sample size	12	12

\*p<0.01

The average score of the group was significantly correlated with both (p = 0.01), and the correlation coefficient r between elaboration type and cognitive type was greater than 0, ranging between 0.764 and 0.873, showing a highly positive correlation, of which cognitive and post scores related to the highest degree of r value of 0.872. The data analysis shows that two types with the highest degree of participation are highly correlated with the score, indicating that the deeper involvement and the higher participation is, the higher the scores are.

TABLE IV. COGNITIVE, EXPOSITION AND RESULTS OF THE LINEAR REGRESSION ANALYSIS OF THE RESULTS

argument	Dependent variable	R square	Constant term coefficient	Regression coefficients	T	Sig
Cognitive participation	Group	0.760	41.712	0.922	3.3	0.00
	average					
elaboration participation	Group	0.773	40.520	0.731	2.2	0.00
	average					

\*p<0.05

To further analyze the relationship between above-mentioned two participation types and the scores,

the researchers selected the cognitive type and the exposition type as independent variables, and selected the group after-test average score as the dependent variable, and conducted a one-way linear regression analysis respectively and results are shown in Table IV.

Taking the average score of the group as a dependent variable, taking cognitive type and elaboration type as independent variables, the fitting goodness-of-fit R of obtained linear regression equation is 0.760 and 0.773 respectively, the coefficient of constant coefficient is 41.712 and 40.520 respectively, and the regression coefficient is 0.922 and 0.731 respectively, the significant probability is 0.000 and 0.004, the significant level is below 0.05, the above data show that the regression is significant, we can get a linear regression equation of  $y = 41.712 + 0.922 * x$  and  $y = 40.520 + 0.731 * x$ . The results show that there is a significant linear relationship between group average scores and cognitive type, as well as elaboration type participation. Therefore, in teaching of collaborative translation, teachers need to give the necessary guidance and help to improve students' online participation level as soon as possible.

#### IV. FINDINGS AND DISCUSSION

##### A. Online Collaborative Translation Can Indeed Improve Undergraduates' Learning Participation

The collaborative translation teaching based on learning-cell system can effectively improve students' learning participation. Using content analysis method to classify, count and analyze students' participation data collected from the platform, which shows that in the pre-teaching period, the proportion of social and process type is more than 50%, and students' primary task are clarifying teachers' arrangement and enhance emotional communication, which belong to shallow participation. When the experiment went on to second and third weeks, there was a substantial increase in elaboration and cognition type, indicating that the depth of students' participation is on the rise. Until the fourth week, deep participation dominates. The research by Wenhui Zhu [6] (2013) and Lixia Zhang [7] (2012) also found positive effect of collaborative learning in students' learning participation, which indicates that teaching should be designed combined with the functional characteristics of online platform to mobilize students' learning motivation and improve the level of students' online learning participation.

##### B. The Relationship between Students' Learning Participation and Professional English Post-test Scores Proves to be Positive-Correlated

This study found that in the process of collaborative translation of professional English teaching, there is a relatively high post-test average score among the groups with high level participation of cognitive and other deep types, as well as proved by the correlation analysis and regression analysis. Therefore, deep involvement of students in learning-cell system can improve group's scores. Constructivism learning theory pointed that the process of learning is not passively accept information

stimulation, but the process of learners' initiative knowledge construction. The process students ask questions, express opinions and cooperate in class is knowledge construction. Therefore, teachers should establish student-centered concept and enhance students' awareness of curriculum participation.

#### V. CONCLUSION

The conclusions are as follows.

(1) Collaborative online translation can indeed improve undergraduates' learning participation. (2) The relationship between students' learning participation and Professional English post-test scores proves to be positive-correlated.

It is verified in this research that collaborative translation has positive effects on improving learning participation of students' professional English translation instruction. Besides that, the influence of learning participation on post-test scores in collaborative translation instruction is tested. In this research, it's found that improving professional English instruction effects can be achieved from the following aspects. (1) Teacher-centered conventional translation instruction pattern should be altered, and collaborative online translation instruction is to be carried out actively. (2) Appropriate translation tasks should be set to guide students to self-explore and discuss collaboratively. In the meantime, online teaching design must be optimized to mobilize students' participation enthusiasm. (3) Learning participation ought to be included in curriculum evaluation system while corresponding incentive mechanism set up, to improve students' learning participation.

#### ACKNOWLEDGMENT

Supported by 2017 Jiangsu Province Lifelong Education Research Association Key Project "The Study of the Construction of Open University Lifelong Educational Resource Center under the Background of Internet+" (No.17SZJA008), ranchen, etc.

#### REFERENCES

- [1] J. Cai, "Adjustment of foreign language teaching evaluation system in higher education under the international background," *Computer-assisted For Eign Language Education*, vol. 4, pp. 3-8, January 2013.
- [2] O. Kuboni and A. Martin, "An assessment of support strategies used to facilitate distance students' participation in a Web-Based learning environment in the university of the west Indies," *Distance Education*, vol. 25, no. 1, pp. 7-29, May 2004.
- [3] Y. Li and C. Zhang, "Teacher training in remote analysis and calculation of online participation," *Distance Education in China*, vol. 3, pp. 60-64, February 2008.
- [4] X. Yang and S. Yu, "Learning-Cell system design and development scene analysis and its application," *E-Education Research*, vol. 6, pp. 55-61, March 2013.
- [5] R. Oliver and C. McLoughlin, "Interactions in audiographics teaching and learning environments," *American Journal of Distance Education*, vol. 11, no. 1, pp. 34-54, November 1997.
- [6] W. Zhu and Y. Jin, "An action research on the impact of network activity-based collaborative learning on the e-learning participation of education master," *China Educational Technology*, vol. 8, pp. 48-53, August 2013.

- [7] L. Zhang, "Factors and strategies of virtual classroom learning participation," *Modern Education Technology*, vol. 8, pp. 29-34, June 2012.



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