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Group interactive network and behavioral patterns in online English-to-Chinese cooperative translation activity

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ABSTRACT

This study investigated the group interactive network of students and the behavioral patterns of knowledge construction in online cooperative translation activities without teacher intervention. Participants in this study consisted of 48 EFL learners from a Chinese university who major in educational technology. The following are determined by combining the methods of social network analysis and lag sequence analysis: (1) The group interactive network generated in this activity was reciprocal and balanced, and high cohesiveness and tight interaction relationship exist among groups. (2) In different cooperation phases, the behavioral sequences of knowledge construction of students presented different characteristics. (3) The behavioral sequences between the high-score groups and low-score groups also showed distinct differences. In addition, this study also revealed certain problems in cooperative translation, such as uneven contribution and unrelated chats. Finally, some implications for specialized English translation instruction, the limitations, and future research plan were presented.

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1. Introduction

Talents and strong capabilities to process professional English materials are urgently needed to keep up with globalization. In this context, specialized English course has become a basic required course for most majors in universities in China (Ding, 2012; Zhang & Li, 2010). Translation can help EFL students acquire both linguistic knowledge and language skills (Liao, 2006). Specialized English translation instruction (SETI) occupies an important position in the specialized English course, which aims to cultivate student competencies to translate content from particular professional fields, such as chemistry, biology, and business administration. Translation competence requires, at least, reading and writing skills in two different languages and the ability to combine and coordinate these skills (Dragsted, 2010). Thus, translation competence is difficult to cultivate, and SETI has become the hardest part of specialized English course. At present, the SETI in China still follows the traditional "word-grammar-translation" method (Yang, Guo, & Yu, in press). Teachers play a central role, whereas students receive knowledge passively. Instructors often spend plenty of time to teach translation knowledge and skills (Ma, 2011). Thus, an increasing number of students become less interested and less confident in this course (Liang & Li, 2011).

Many scholars explored the specialized English course to solve the existing problems in SETI by reforming the specialized English teaching models (Kang & Wang, 2003; Qin & Wang, 2011; Tao, 2008) and by teaching philosophy (Ding, 2012; Wang, 2013). Meanwhile, some studies were conducted to explore the integration of information technologies and SETI (Chang & Hsu, 2011; Jiang, 2014; Zhang, 2012). Although some progresses have been made, the effective and feasible teaching method in practice is still unclear. Most of the current studies on SETI ignored the analysis of student learning behaviors, which might provide a new insight to improve SETI.

Moreover, an increasing number of language-teaching researchers have begun to explore the application of cooperative learning method in second language learning as the concept of cooperative learning (Slavin, 1980) becomes popular. Cooperative learning has a dramatic positive effect on nearly all of the variables (input, output, and context variables) critical to language acquisition (Kagan, 1995). Cooperative learning not only can rapidly improve student writing skills (Kessler, Bikowski, & Boggs, 2012; Li, 2010; Woo, Chu, Ho, & Li, 2011) and reading comprehension achievements (Pan & Wu, 2013; Yang, Yu, & Sun, 2013) but can also help reduce the anxiety of students in learning foreign language (Bailey, Daley, & Onwuegbuzie, 1999) and enhance their learning attitudes and motivation toward English (Nam & Zellner, 2011; Zahedi, 2012). In addition, cooperative learning can improve the effect of SETI. Meng (2010) showed that cooperative learning can significantly improve the attitudes of students toward specialized English translation and the translation performance of college students. Yuliasri (2014) determined that cooperative learning could improve the translation skills of students, particularly in terms of diction, grammar, and rendering of message/content of text.

Overall, current studies on cooperative learning in SETI are rare. Many issues must be determined, such as the effect of cooperative learning on the learning interests of students and self-efficacies on specialized English translation, the interaction networks, and the

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behavioral patterns of students in the process of cooperation. In fact, cooperative learning is a process of social knowledge construction. In recent years, theories of knowledge construction have been widely discussed (Allchin, 2001; Nuthall & Alton-Lee, 1993; von Glasersfeld, 1993). These theories emphasized that students construct new knowledge from social interactions, such as sharing information, discussions, questions, and answers (Driver, Rushworth, Squires, & Wood-Robinson, 2013; Du & Wagner, 2007; Gunawardena, Lowe, & Anderson, 1997; Leach & Scott, 2000). In this case, the discussion to determine whether several obvious behavioral patterns of knowledge construction exist during the cooperative learning in SETI deserves our efforts. Social network analysis (SNA) is another popular analytical method to understand the interaction structures in cooperative learning (Cho, Gay, Davidson, & Ingraffea, 2007; Gress, Fior, Hadwin, & Winne, 2010; Huang, Yang, Huang, & Hsiao, 2010; Reffay & Chanier, 2003). SNA can help us understand the interaction networks among participants and has two focuses: the actors and the relationships between them in a specific social context (Serrat, 2010).

In this study, on the basis of the cooperative learning theory and knowledge construction theory, we propose a three-stage online cooperative translation approach, which consisted of two times of intragroup cooperation and one time of intergroup cooperation. The objectives of this study are to investigate the group interactive network and the knowledge construction behavioral patterns of students in online cooperative translation activity. Three research questions are specified as follows:

1) How do groups interact with one another during the process of online cooperative translation?
2) What kinds of behavioral patterns of knowledge construction exist in different stages of online cooperative translation?
3) Does any difference exist between the behavioral patterns of the high- and low-achievement groups?

2. Three-stage online cooperative translation

The theories of cooperative learning and knowledge construction pay special emphasis on sharing, interaction, and cooperation among students (Du & Wagner, 2007; Slavin, 1980). Most cooperative learning activities in the field of language learning currently adopt the single intragroup cooperation model (Pan & Wu, 2013; Yang et al., 2013; Zahedi, 2012), while neglecting the intergroup cooperation and the following second intragroup cooperation. The discovery and exploration of dissonance or inconsistency among individuals and groups can promote high level of knowledge construction (Gunawardena et al., 1997; Xie, Song, & Liu, 2008). Through intergroup cooperation, each group may obtain new insights and suggestions and may determine more hidden problems with the help of other groups. In this case, the second intragroup cooperation is needed to help students negotiate and reconstruct their knowledge.

We developed a three-stage online cooperative translation activity in the cooperative learning system based on the preceding analysis. At the beginning, the course teacher selects several professional articles for translation and these articles are posted on the learning system. Afterward, the teacher divides students into small groups. The group number depends on the number of articles. Each group is randomly allocated with one article.

After the preparation work, students begin to translate the articles collaboratively. The whole cooperation process can be divided into three stages, which are described as follows:

In the first stage, each group performs internal cooperation. The group leader is responsible for task allocation and supervision. After task allocation, members begin to search for materials on the Internet, discuss the issues from the translation in the discussion zone, and translate one paragraph at a time. When all the group members complete their translation tasks, the cross-checking of translation is completed in the group. Then, the first draft translation is formed.

In the second stage, intergroup cooperation is conducted. Each group selects at least four translation works of other groups to comment and annotate. The group leaders can receive system notifications on time when their works are commented or annotated.

In the third stage, each group performs another internal cooperation. The group leader collects all the advices and organizes an online discussion to determine the reasonable advices. Each member is assigned with some specific revision tasks. The final translation is formed through group discussion and collective revision.

Each stage abovementioned usually requires one week. In addition, the teacher does not intervene the cooperation process. After all the groups finish their translation task, the teacher and students summarize the result and discuss the problems determined in this activity in class.

3. Method

In this study, we used the SNA method to investigate the group interactive networks, whereas the lag sequential analysis (LSA) (Bakeman & Gottman, 1997) was conducted on behavioral patterns of knowledge construction. Sackett (1978) developed LSA to estimate the probability of occurrence for any behavior of a repertoire against time. LSA is mainly used to examine whether certain human behaviors followed by another behavior occur with statistical significance (Hawks, 1987).

3.1. Participants

The 48 participants in this study were sophomores majoring in educational technology at Jiangsu Normal University. Twelve were male (25%), and 36 were female (75%). The average age was 20.6. In this study, all the students were randomly assigned to twelve groups of four students, each assisted by random allocation software.[1] Before enrolling in the specialized English course for educational technology, these students had finished a public English course, which lasted four semesters. In the public English course, they had learned basic translation skills and knowledge. All the participants were fluent in English. Most had passed the National College English Test (CET), Band 4. Chinese was their first language. In addition, each participant had a laptop computer and had at least 1.5 years of experience with online learning.

3.2. Instruments

An online cooperative learning environment entitled Learning Cell System (LCS) (Yu, Yang, Cheng, & Wang, in press) was used to observe the group interactive network and behavioral patterns by supporting the whole process of the cooperative translation. In addition, all the group translation works were evaluated by two teachers with at least 2-year teaching experience in SETI by using the evaluation criterion of English–Chinese translation.

3.2.1. LCS

LCS[2] is online cooperative learning environment featured by multiple interactions, collaborative content editing, group management, and activity monitoring. The main target users are primary and secondary school teachers, college teachers, and students.

In this study, the teacher divided the students into small groups and assigned articles to be translated. Students translated specialized English articles collaboratively, including division of tasks, discussion, checking, annotation, stating comments, and other activities. All the interaction data were stored automatically in the back-end database of LCS for SNA and LSA.