

# Improving graduate students' reading comprehension and summary writing in CSCL

**Yu-Fen Yang\* and Pei-Yin Hsieh**

*Graduate School of Applied Foreign Languages, National Yunlin University of Science & Technology, Douliu, Yunlin, Taiwan, ROC*  
yangy@yuntech.edu.tw

**Abstract:** Since the process of summary writing is internal and unobservable in onsite instruction, graduate students have few opportunities to provide their peers with feedback for improving summaries. This study reports on the design of a computer-supported collaborative learning (CSCL) system to investigate the effects of online peer collaboration and feedback on graduate students' summary writings while reading academic texts. The results of this study reveal that the graduate students made more significant progress through using CSCL rather than through onsite instruction alone. The regression analysis and the open-ended questionnaire also show that the graduate students who actively engaged in peer collaboration and feedback made more revisions and progress in their academic reading and summary writings than those of students who passively participated.

**Keywords:** Collaborative learning; Peer feedback; Interactive learning environment; Learning communities; Improving classroom teaching

## 1. Introduction

Graduate students, in general, are expected to grasp the main ideas after reading a large amount of new information from lectures and research articles (Friend, 2000). For graduate students who learn English as a Foreign Language (EFL), the level of inability to sum up paragraphs into a summary is high. Summary writing is hard to learn because the gist of a passage is often not present in the surface structure (the exact wordings) of the text (Friend, 2001) and the cognitive process which converts surface structure to the gist of a text is internal and unobservable in onsite instruction (Alfassi, 2004). To externalize, visualize, and record the process of summary writing, a computer-supported collaborative learning (CSCL) system was developed in this study to investigate the effects of online peer collaboration and feedback on the graduate students' summary writings and reading comprehension.

Roschelle and Teasley (1995) propose that collaboration may be seen "as the mutual engagement of participants in a coordinated effort to solve the problem together" (p.70). Peers, however, are not domain experts, as opposed to teachers because peer advice or judgment may be correct, fully incorrect or misleading. In addition to this advantage, it is possible for students to provide peers with new perspectives when they try to evaluate whether or not they will accept or reject peers' comments.

There have been problems found in the previous studies in terms of peer collaboration, reading comprehension, and summary writing. First, teachers did not provide graduate students with explicit and strategic instruction to write summaries. As such, graduate students have difficulties on main idea identification and paraphrase it into

a summary writing in onsite instruction (Friend, 2001). Second, graduate students have less interaction with their peers and teachers in traditional classroom setting due to very limited instructional hours (Chi, 2001). As a result, graduate students are unable to share their knowledge and deepen their thinking. Third, few studies have investigated the relationships among peer collaboration, reading comprehension, and summary writing. Finally, the process of writing summaries is hardly observed in onsite instruction. That is, graduate students have few opportunities to compare their own summaries with those of proficient ones.

This study reports on using computer-supported collaborative learning (CSCL) system to support peer collaboration and feedback on graduate students' reading comprehension and summary writing. Three research questions were addressed in this study: (1) What are the relationships among peer feedback, summary writing, and reading comprehension?, (2) What are the effects of peer feedback on graduate students' reading comprehension and summary writing in CSCL?, and (3) What are students' perceptions toward their progress on summary writing and reading comprehension in CSCL?

## **2. Method**

There were 24 graduate students participate in this study at a university of science and technology in central Taiwan. Before the instruction began, they were asked to take the reading section of a standardized test such as Test of English as International Communication (TOEIC) as the pre-test to identify their English language proficiency. The maximum score in reading on this version of the TOEIC is 495. The mean and standard deviation of these 24 graduate students in reading section of TOEIC are 385.45 and 45.95 in the pre-test. The onsite instruction incorporated with the CSCL system lasted for 18 weeks (including the pre- and post-tests). In summary writing, the graduate students' original and final drafts were first compared after peer feedback and further identified by the P-density. The high rate of the P-density indicates the high quality of the graduate students' summaries. The reliability of the P-density is reported to be 0.97 (Brown, Snodgrass, Kemper, Hermen, & Covington, 2008).

## **3. Results**

### *3.1 The graduate students' reading progress on summary writing*

In CSCL, paired-sample *t*-test is conducted to investigate the graduate students' reading progress between the pre- and post-tests after the instructional intervention of summary writing. The results indicate that the mean of the reading score for the 24 graduate students in the TOEIC post-test (407.55) is greater than that of the pre-test (385.45) and there is a statistically significant difference between the pre- and post-tests in reading ( $t = -3.026$ ,  $p < .01$ ).

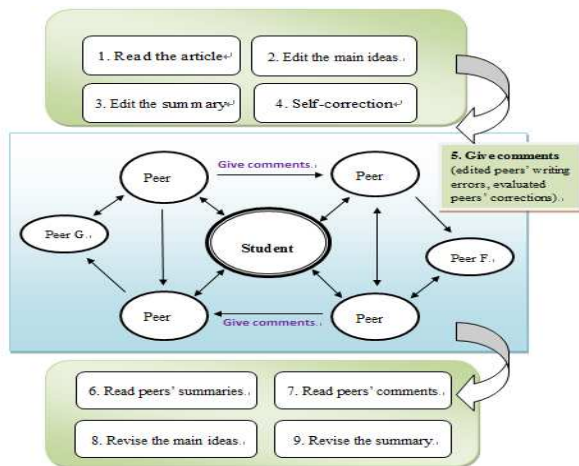
### *3.2 The effects of online peer collaboration and feedback on summary writing*

To externalize, visualize and compare the graduate students' summary writing process, two participants were randomly selected from the 24 graduate students to show their different summary writings. Student A is a sample case to show more revisions of her final draft after receiving peer feedback online. Student B is another example who made almost no revisions after receiving online peer feedback. The log files recorded in the CSCL

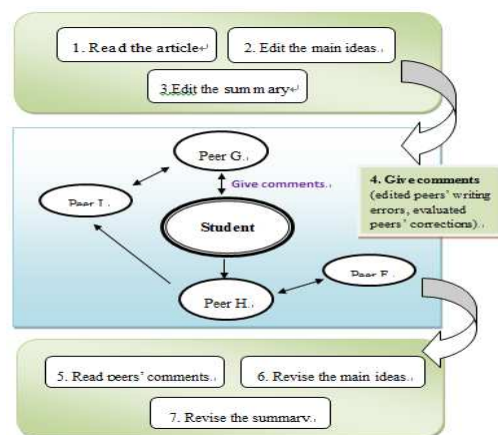
system were shown to indicate the interactive actions between these two students with their peers. From the log files, student A actively participated in collaborative interactions with her peers such as reading peers' summaries and providing peers with her suggestions (Fig. 1). By comparing student A's summary writing cycle, student B was a participant who made almost no revisions after receiving peer feedback. Students B did not actively participated in collaborative interactions with his peers for summary writing (Fig. 2).

### 3.3 The graduate students' perceptions toward summary writing and reading comprehension in CSCL

According to the open-ended questionnaire, all participants agreed that summary writing is an important skill since it helps them to read and write academic texts. Fifteen participants (63%) believed that practicing summary writings helped them identify the main ideas easily and quickly while reading academic texts. Almost all participants (92%) liked to receive online feedback from peers while writing summaries. They preferred to provide feedback to their peers in the CSCL system because they could learn from each other by reading other peers' summaries and comments to improve their own ones.



**Fig.1 Student A's interactions in the summary writing cycle**



**Fig.2 Student B's interactions in the summary writing cycle**

## 4. Discussion and conclusion

Whether or not a graduate student accepted peers' suggestions and corrections, every single social activity of sharing knowledge and acquiring new information in CSCL would lead to a progress in summary revision. The effects of peer feedback on the graduate students' reading comprehension and summary writing are confirmed in this study. The more the graduate students engaged in peer feedback, the more they improved their reading comprehension and summary writing.

## References

- [1] Alfassi, M. (2004). Reading to learn: Effects of combined strategy instruction on high school students. *Journal of Educational Research*, 97, 171–184.2
- [2] Brown, C., Snodgrass, T., Kemper, S.J., Herman, R., & Covington, M.A. (2008). Automatic measurement of propositional idea density from part-of-speech tagging. *Behavior Research Methods*, 40(2), 540–545.

- [3] Chi, F. M. (2001). The role of small-group text talk in EFL reading: A thematic analysis. Taiwan: The Crane Publishing Co., LTD.
- [4] Friend, R. (2000). Teaching summarization as a content area reading strategy. *Journal of Adolescent and Adult Literary*, 44(4), 320-329
- [5] Friend, R. (2001). Effects of Strategy Instruction on Summary Writing of College Students. *Contemporary Educational Psychology*, 26(1), 3-24.
- [6] Roschelle, J., & Teasley, S. D. (1995). Construction of shared knowledge in collaborative problem solving. In C. O'Malley (Ed.), *Computer supported collaborative learning* (pp. 69– 97). Berlin/New York: Springer Verlag.