A Writing Support through Peer Reviewing

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Abstract: For communicable writing, reviewing and revising is essential. In this paper, we propose an SNS-based environment to improve writing by repeated collaborative reviewing. The results of an experiment comparing the system against face-to-face collaborative writing show that while face-to-face learners wrote better reports quickly, the system-users could also write reports of the matched quality in their third round, by adopting peers' suggestions more often than their offline counterparts.

Keywords: Collaborative peer-review; communicative writing; writing skills.

Introduction

There is a growing concern in public about Japanese writing education not meeting the demands in society for helping college students to write communicatively. To enhance writing skills, a novice writer needs to develop the ability of reflection. (Flower et al., 1980; Burtis et al., 1983) Collaborative learning also helps writers to engage in reflective activities as they can see themselves through the eyes of others. The present paper proposes an SNS-based collaborative writing system, which allows users to utilize a variety of viewpoints of other readers. We report some results of an experiment comparing this system against face-to-face collaborative writing, with implications for further development.

1   Purpose

Revising one's own writing is known to be difficult task. Our system aims at circumventing this difficulty by letting the learners refer to collected comments by others repeatedly while they revise, so that they could gradually improve their writings through peer reviewing. There are three factors implemented in our system. First, we create a collaborative writing situation, where each writer has different information to fulfill the shared assignment. This allows commenting on others writings easy (because each notices "something is missing" in others' writings). It also makes collaboration necessary. Second, we design the writing activity to repeat for three times to provide explicit chances for making revisions. Third, the system collects its users' writings with comments so that they could refer to them whenever they need to do so.

2   CORE: Collaborative Online Rewriting

CORE is an interactive learning-support environment that works in an already existing social network service. A learner may log in by using a unique ID and password to become a member of a preset group of three. Once the learners enter CORE, they are invited to participate in a series of writing activities (Fig. 1). There is a shared assignment. The participants are given different pieces of information that are necessary to be integrated to fulfill the assignment (the jigsaw method), and so it is their task to cooperate to complete the assignment through peer reviewing.
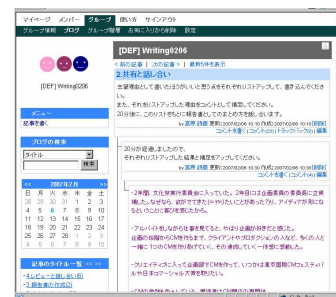

Figure 1. CORE Image

3   Experiment

In February 2007, we conducted an experiment to test the effects of our collaborative writing design, with two CORE groups and one face-to-face (F2F hereafter) group, three members each. The goal of the task was to discover rules of communicative writing such as "prioritize the information," and "keep sentences short." The assignment was to write a plea letter for a desired posting, using as many "sales points" as possible, while the points were distributed among the participants. The details of the participants and the task are briefed in Tables 1 and 2. Both the CORE and the F2F groups commit to the same learning activities, in different online/offline environments. Day One is for exercise, and the learners engage in actual writing on Day Two. Their writings, conversations and system logs were collected as data for analyses.

Table 1. Learner and Learning Environment

Group	CORE1	CORE2	F2F
Learner	3 undergraduates	3 graduates	2 undergraduates, 1 graduate
Physical environment	Online in a classroom	Online in separate rooms	Offline in a classroom
Working environment	Web mail and blog on SNS/web-enabled PC		Paper and MS word/client-PC
Review style	Entering a comment through the text input		Handwriting and speaking
Learning style	Learner-centered（an assistant per group assigns the schedule）		

Table 2. Task Overview

| Situation	A college student works as a prospective employee at the marketing division of an ad agency, hoping to transfer and start his career as a producer of commercial films.	
Day	**Day One（Exercise）**	**Day Two（Learning）**
Learning activity	Improve a prepared report on a commercial film through orderly review	Create a plea letter for the manager of the marketing division, and revise it twice after peer review (share info->write->review->rewrite->review->finish)
Text materials	One sheet of the prepared report	Three transcripts of 1)blog entry 2)conversation with friends 3)conversation with his trainer on the job

4   Results

All three groups completed the task almost as scheduled, while each member of the groups participated in collaborative activities. Final writings also met our expectations, and included overall mean score of 7.89 points out of nine "sales points". The number of comments in peer review is from 9 to 40 in each group, and the quality of them ranges from terminological expression to constructive assessment of sentences. More than half of those comments were adopted for revision.

4.1   Observation

All the tasks took 250 minutes for each group, which finished 15 minutes earlier or later than the other groups. The F2F group spent about 40 minutes less time on collaborative activities such as reviewing and discussion, and more time on individual activities such as writing and revision, comparing with the CORE groups.

From transcripts of conversations and system logs, we made bar graphs to show each learner's rate of their group utterance in relation to each other. We argue that participation of each member of the groups proves positive cooperative activities. In the F2F group, the utterance is imbalanced (Fig. 2).
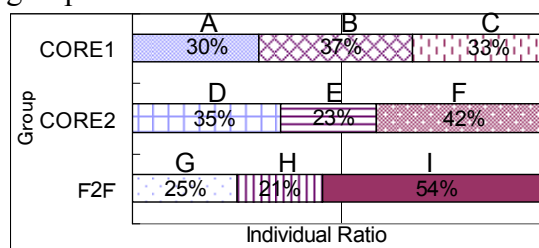
Figure 2. Utterance Ratio

4.2 Analysis

Quality of the Writings (1): Evaluation by business persons

To examine if the learners were able to improve writings as we expected, we gave nameless 28 files, produced by the writers plus a model answer, to 4 business persons with more than 10-year experience in a Japanese company. Fig. 3 shows average scores of the groups based on the scale from 1 to 3, when "3" represents the best, in terms of comprehensibility and persuasiveness. As a result, three groups could write almost at the level of the model (2.38) at the second or the final round.
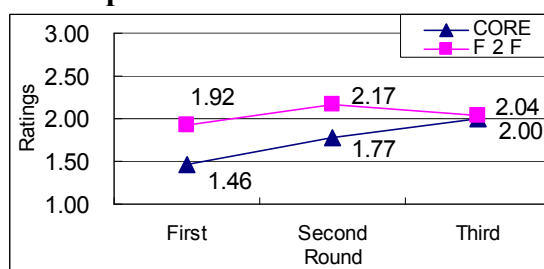

Figure 3. Quality of Writings

The F2F group could write fairly well from the start and their score exhibits less volatility than the CORE groups. Achievement of the CORE groups, on the other hand, was relatively low at first, but caught up with F2F in the end through writing for three times. This indicates that the repeated activity on the system contributed to the result.

Quality of the Writings (2): Encompassing the distributed "sales points"

Next we counted how many of the nine "sales points" appeared in the final version of the writings. This is to examine if the learners have completed the assignment of writing simple but fully informative letters.

Table 3. Nine Points

Group	CORE 1				CORE 2				F2F			
Learner	A	B	C	Ave.	D	E	F	Ave.	G	H	I	Ave.
Point	8	8	8	8.0	9	9	8	8.6	8	7	6	7.0

According to Table 3, the average points of the CORE groups are 8 or above, while that of the F2F group is just 7. In CORE 1 each member missed one, different piece of information from others. CORE 2's coverage of points is almost perfect. All F2F members fail to state the "copywriter's anecdote," but include some extraneous content. The record from the audio revealed that the F2F members did not mention the "copywriter's anecdote" when they were supposed to exchange and share the information. According to the CORE logs, all learners in both groups presented their piece of information with reasoning, to which other learners expressed opinions and confirmative comments in the case of CORE 2.

Quality of the Reviewing Comments:

To examine the quality of comments during the first peer review, we classified all of them into two categories differing in levels: one is terminological comments (grammatical mistakes, typos, and wordings) and the other refers to quality (construction or length of paragraphs, viewpoint of the reader.) See Table 4 for examples.

Table 4. Classification of Review Comments

Terminological Comment	mobile fone --> mobile phone
Quality Comment	I thought it would be better if you select the points.

The comments of the F2F group are twice as many as those of the CORE groups, but the groups did not differ much in the number of "quality comments" they produced (Fig. 4) . The difference in the "terminological comments" could have been caused by the ease of the F2F learners' expressing their ideas through oral communication.

Another reason could be that the F2F group had two modes of communication, speaking and handwriting, while the CORE groups had only one, to enter a comment through the text input.
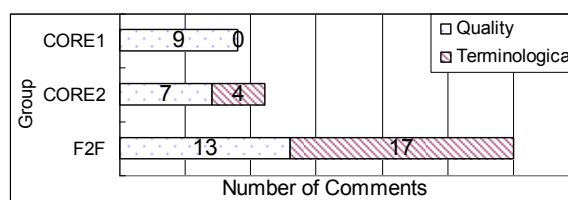

Figure 4. All Comments

Were Comments Reflected to Revision?: Adoption of the peers' suggestions

We sorted the comments to see whether they were reflected in the revised writing. There is no significant difference between F2F and CORE for the most desirable "quality comments" for revision (Fig. 5). This suggests that CORE was effective for the learners to read other's comments whenever necessary.

Among 17 terminological comments, F2F revised 11 words or sentences, and didn't reflect 4. The remaining 2 comments were irrelevant either because the problematic sentences were completely revised without trace of the first version or simply disappeared. CORE 2 learners reflected all the remarks.
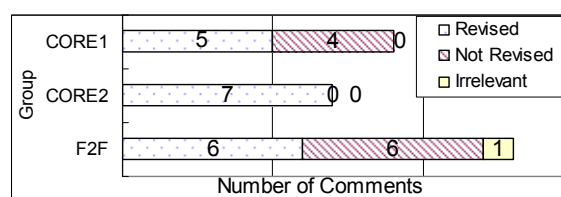

Figure 5. Quality Comments

To sum up the comparison between the F2F and the CORE groups, F2F swiftly finished writing the first version to achieve relatively high score from business persons' viewpoints. This would indicate that the face-to-face collaboration of peer reviewing enhance the learners' writing ability. The scores of the CORE groups rose steadily from the first to the final version, indicating that the different type of learning occurred in the process.

Every detail of the reviewing process is textualized on CORE, which was accumulated from the beginning through the activities. Because of the log, the learners were able to focus on the writing and revising task at individual paces. For this reason, we might argue, the CORE writings showed higher rate of the revisions. The gap between the F2F and the CORE regarding the adoption of the substantial suggestions assured the importance of collection of log data.

5   Concluding Remarks

Both online and face-to-face groups could enhance writings through a series of effective revision of one's writing by utilizing various ideas shared in collaborative activities. The results also suggest that the writing logs with comments could be useful, especially when the writers wish to stop to consider review comments. A goal for further research is to examine how to encourage more active exchange of review comments in the new CORE.

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