

Peer Corrective Feedback on Written Errors in Computer-Mediated Communication

S. H. J. Liu

Abstract—This paper aims to explore the role of peer Corrective Feedback (CF) in improving written productions by English-as-a-foreign-language (EFL) learners who work together via Wikispaces. It attempted to determine the effect of peer CF on form accuracy in English, such as grammar and lexis. Thirty-four EFL learners at the tertiary level were randomly assigned into the experimental (with peer feedback) or the control (without peer feedback) group; each group was subdivided into small groups of two or three. This resulted in six and seven small groups in the experimental and control groups, respectively. In the experimental group, each learner played a role as an assessor (providing feedback to others), as well as an assessee (receiving feedback from others). Each participant was asked to compose his/her written work and revise it based on the feedback. In the control group, on the other hand, learners neither provided nor received feedback but composed and revised their written work on their own. Data collected from learners' compositions and post-task interviews were analyzed and reported in this study. Following the completeness of three writing tasks, 10 participants were selected and interviewed individually regarding their perception of collaborative learning in the Computer-Mediated Communication (CMC) environment. Language aspects to be analyzed included lexis (e.g., appropriate use of words), verb tenses (e.g., present and past simple), prepositions (e.g., in, on, and between), nouns, and articles (e.g., a/an). Feedback types consisted of CF, affective, suggestive, and didactic. Frequencies of feedback types and the accuracy of the language aspects were calculated. The results first suggested that accurate items were found more in the experimental group than in the control group. Such results entail that those who worked collaboratively outperformed those who worked non-collaboratively on the accuracy of linguistic aspects. Furthermore, the first type of CF (e.g., corrections directly related to linguistic errors) was found to be the most frequently employed type, whereas affective and didactic were the least used by the experimental group. The results further indicated that most participants perceived that peer CF was helpful in improving the language accuracy, and they demonstrated a favorable attitude toward working with others in the CMC environment. Moreover, some participants stated that when they provided feedback to their peers, they tended to pay attention to linguistic errors in their peers' work but overlook their own errors (e.g., past simple tense) when writing. Finally, L2 or FL teachers or practitioners are encouraged to employ CMC technologies to train their students to give each other feedback in writing to improve the accuracy of the language and to motivate them to attend to the language system.

Keywords—Peer corrective feedback, computer-mediated communication, second or foreign language learning, Wikispaces.

I. INTRODUCTION

RECENT years have seen an increasing interest in peer CF or assessment in other disciplines or across different levels

S. H. J. Liu is now with the Department of Applied English, Kainan University, Taoyuan City, Taiwan ROC (phone: 886-3-341-2500, ext. 6175; fax: 886-3-301-6915; e-mail: sarah.hjliu@gmail.com).

of education [1], [2]. Peer assessment focuses on collaborative learning in which students work collaboratively on assignments to provide comments, correct each other's errors or share mutual feelings. As Topping [3] proposes, peer assessment entails reflexive practice, "learning by teaching," indicating that the role of an assessor involves a series of cognitive processes to compare, contrast, diagnose inaccurate output, and identify missing knowledge. Similarly, in second or foreign language learning (L2 or FL), an assessor in peer tutoring has been considered to effectively engage learners in cognitive activities, noticing the difference between target forms and non-target forms and providing corrections to others, among others, that may enhance form learning in the target language. Peer CF may foster autonomous learning and self-confidence in the language [4]. It highlights the importance of scaffolding interaction [5], and more importantly, it assists learners in reaching L2/FL attainment [6].

Using CMC applications, such as Facebook and wikis for pedagogical purposes, has become widely available over the past few decades, allowing learners to communicate with others outside the classroom at the same time or in different times. To this end, CMC provides language learners with opportunities for authentic learning to foster linguistic and pragmatic competence in the language [7]. Several asynchronous CMC studies investigating peer CF in a non-language learning setting were intended to determine feedback types that affect the dynamic of peer interaction. Tseng and Tsai's [1] study involving high school students in a computer course examined the types and effects of feedback on the participants' written projects. Four types of peer feedback were found in the study, namely, corrective (corrective errors), reinforcing (encouraging or praising others' work), didactic (providing explanations for errors/inappropriate information), and suggestive (providing suggestions for incomplete work). The researchers found that peer feedback significantly assisted in improving students' creativity, relevance, and feasibility. Besides, both reinforcing and suggestive feedbacks were found to improve students' projects more effectively than didactic and CFs.

In a language learning setting, the effect of CF on the accuracy of output in L2 has been empirically examined. As suggested by [8], form feedback is more likely than content feedback to help learners reinforce the linguistic form that they learned previously. This is particularly true in a situation where learners often overlook linguistic forms when focusing on content that is meaning-focused during writing [9].

Feedback types, such as recasts and metalinguistic clues relating to linguistic corrections, have been frequently adopted and empirically investigated. A recast means an interlocutor

provides his/her partner with the reformulation of the erroneous output, and a metalinguistic clue means that an interlocutor initiates repair moves to correct errors by clarifying the intended meaning [10]. Metalinguistic clues that require learners to clarify their utterances that contain linguistic errors are more likely than recasts to enhance form learning [8], [11]. Similar to the results found in [9], metalinguistic explanations were more effective than direct CF (recasts) contributing to the accuracy of a given linguistic item. However, both researchers point out that the effect size of metalinguistic explanations was too small to prove that such CF sustained implicit knowledge, meaning that learners are able to produce the given form correctly in various contexts. Schmidt [12] claims that consciously paying attention to form is required to avoid morphological errors. Frequent practice is suggested to acquire implicit knowledge for particular forms. One way to help achieve the goal is to allow students to assess each other's written productions. If they play as an assessor, they might be able to focus on form and meaning because they are obliged to do so. This current research assumes that the roles of assessor and assessee played by a learner during peer tutoring have an effect on the form accuracy. Research in other learning contexts, such as Chapman (cited in [13]), has suggested that students acting as tutors and tutees performed better in reciprocal tutoring than those acting as tutees in non-reciprocal tutoring. In their study, for example, [13] examined pupils' written productions in two target languages, English and Spanish. Although corrections or comments in response to linguistic error were made in learners' L1, learners in the experimental groups correcting others' work and receiving feedback from others were more likely to decrease errors and to improve fluency and complexity more frequently than their counterparts in the control groups who received feedback and corrections from their teachers.

Many researches in the given realm [5], [8], [9] focused on feedback that directly relates to linguistic corrections, such as recasts (implicitly correcting errors without giving explanations) and metalinguistic clues (e.g., explicitly asking learners to correct their own errors by using a clarification request), whilst a few examined both affective and linguistic corrections. Hence, the current research adopting existing taxonomies included CF on errors, suggestive, affective, and didactic dimensions. While most previous studies investigated teacher/researcher-led CF, a few examined student- or peer-led CF in L2/FL learning, and the latter is worth more research attention because it is considered to promote student-centered learning. That is, the present study is intended to fill the gap by examining the effectiveness of peer CF on the accuracy of the participants' written productions through collaborative scaffolds among EFL learners when working together in Wikispaces. This research further identified the types and frequencies of the peer feedback from the experimental group and then explored the participants' perspective on collaborative learning in the CMC environment. Three research questions are formed to address the abovementioned issues:

1. Is there a significant difference in the linguistic accuracy between the experimental and the control groups?

2. What types of peer feedback are employed by the experimental group?
3. How do the participants perceive learning in Wikispaces?

II. METHODOLOGY

A. Participants

A total of 34 mix-ability EFL learners, including sophomore and junior students, were studying in the university where the researcher taught. The sample coming from three intact classes consisted of 15 male and 19 female students. Their English proficiency levels were between upper intermediate and advanced. They were randomly assigned to two groups, the experimental and the control, with an equal number of 17 students in each group. All the participants had learned English as a core subject in school for at least seven years.

B. Instruments

Three writing tasks used in this study related to picture descriptions derived from [14]. Each task consisted of several pictures that described a major event in a sequential order. The first task, "The Table That Got Smaller," dealt with a situation where two small boys played table tennis in a garage, but the table was taller than them, so they found tools and decided to cut down the legs of the table so they could both hit the ball. The second task, "The Winner," contained six pictures describing a boy, whose clothes were washed away when he went to swim. The last task, "Wet Paint," involved a set of images depicting a boy who helped his father to paint the floor of a room while his mother went to get them drinks; however, as they diligently worked to complete the job, neither noticed that they painted in an opposite direction, that is, they could not get out the room because they had painted themselves into a corner and the paint was wet. Each task took a student around 30 minutes to complete in Wikispaces. The purpose of the tasks was to assist in eliciting the learners' implicit knowledge. When they were asked to write the stories, they were likely to focus on the meaning in a given time. As Ellis (cited in [9]) points out, if tasks do not require learners to pay attention to particular linguistic forms, they tend to elicit learners' implicit knowledge.

There were four interview questions including: (1) How do you feel about using Wikispaces to complete your learning tasks? (2) Do you find peer feedback useful in improving your compositions? Why? (3) Do you think that written errors need to be corrected? Why? (4) How do you feel about working with others?

C. Coding

The four types of feedback that emerged from the collected data were coded and analyzed in this study. The first type of CF refers to the corrections for the inaccurate items, for instance, an incorrect morphosyntactic error in the sentence "Jack send a letter to his mother last week" → "sent." Such type of feedback is related to recasts, according to [5] and [8], and denotes a notion that a teacher corrects a learner's errors in a face-to-face (F2F) setting. The first type further included metalinguistic clues that required learners to correct their own errors without

directly providing them with the correct form [9]. Metalinguistic clues in this study used by the learners subsumed clarification requests (seeking a detailed explanation from others who corrected their own errors) and explanations (giving the correct form and explaining the form in detail).

The second, affective feedback, refers to an instance in which a learner praises his or her group member's written work [15]. It includes three subsets: negative, suggestive, and encouraging. Negative CF contains negative comments, such as "no," whereas positive feelings included "Well done" and "You did a good job," among others. However, suggestive feedback is separated from affective as the third type of feedback in this study. It meant that learners were not certain about linguistic errors and attempted to provide suggestions to their peers, such as "I think using past simple would be more appropriate than using present simple... but I'm not sure about this."

The last type, didactic feedback, contained lengthy or inappropriate information [1], for example, a learner provided his/her comments: "You need to use 'for' for the present perfect tense with the structure of 'has/have + past participle,' very difficult to use it right, so you need to remember the rule . . ." Such comments seemed to overgeneralize the fact that the present perfect tense only requires "for."

D. Procedure of Data Collection

The researcher first approached the potential participants and distributed call-for-participation flyers that briefly introduced this research, learning tasks, and duration of the experiment. A week after, 46 voluntarily returned their consent forms, note that 12 of them discontinued the participation for various reasons. A total of 34 students were randomly divided into two groups, experimental and control. In each group, 17 participants were subdivided into small groups of two or three, resulting in six small groups in the experimental group and seven in the control group. A one-hour F2F introductory session for each group was held at a computer cluster on campus during Weeks II and III. The purposes of these sessions were to ensure that the learners were familiar with Wikispaces and the types of CF. In the sessions, each learner in the experimental group was instructed to sign up for a Wikispaces account and to practice using the tools (e.g., to compose and upload a writing task). Each learner was asked to practice providing each other with CF on incorrect items involving inadequately using vocabulary and verb tenses, among others. To illustrate how to give others feedback, the researcher demonstrated several types of error corrections, for example, the sentence "Jane lives in the same house since 1990," which contained an incorrect tense - present simple. One way to correct the error was to provide the correct form "has lived" and an explanation: "The verb 'live' in the sentence requires a present perfect tense because the action 'live' started in 1990 and it still continues." A question could also be simply asked by locating the error: "Is it correct to use a present simple tense?"

After the participants received feedback from others, they were required to revise their original writing and uploaded their revised work in Wikispaces. The learners were then asked to complete three writing tasks outside the classroom throughout

the six weeks. All of the procedures executed in the control group were similar to those in the experimental group apart from the peer feedback. The participants were asked to revise their work by themselves a few days after they uploaded their original work.

Following the completeness of the tasks, five participants were randomly chosen from each group to participate in the post-task interviews and were individually interviewed by the researcher. Each interview took a learner about 30 minutes.

E. Data Analysis

Both quantitative and qualitative approaches to data analysis were adopted in this study. Frequencies of accurate items and feedback types were calculated to determine the difference between the experimental and the control groups. The frequency calculations for accurate items were based on the participants' revised rather than original compositions. For the data logs to be analyzed validly two raters coded the qualitative data independently; both agreed 86% of the coding.

III. RESULTS

In this section, the statistical results regarding the groups' performance in written productions will be first presented. Following this, the results from the interviews will be discussed. To determine the differences in the mean scores between the experimental (metalinguistic clues and recasts) and the control groups, independent *t*-tests were used. The results in Table I indicate that both the experimental and the control groups had improved the accuracy of the language aspects in the three tasks because the mean scores of each group had increased across the tasks. However, the frequency of the accurate items in Tasks 1 and 2 did not significantly differ between the groups. For example, in Task 1, the control group (G2) had more accurate items ($N = 17$, $M = 64.00$, $SD = 5.477$) than the experimental groups (G1) had ($N = 17$, $M = 62.41$, $SD = 5.789$). The difference in the mean scores between the groups did not reach a significance level ($t [32] = -.822$, $p = .417$). However, the experimental group outperformed the control group in Task 3. When compared with the latter group ($N = 17$, $M = 71.02$, $SD = 10.440$), the former group produced more accurate items ($N = 17$, $M = 92.06.18$, $SD = 9.705$, $t [32] = 6.091$, $p = .000$).

TABLE I
 INDEPENDENT T-TESTS FOR THREE TASKS PERFORMED BY THE EXPERIMENTAL AND THE CONTROL GROUPS

		Mean	Std. D	t	df	p
T1	G1 (N = 17)	62.41	5.789	-.822	32	.417
	G2 (N = 17)	64.00	5.477			
T2	G1 (N = 17)	66.94	6.590	-.458	32	.650
	G2 (N = 17)	67.88	5.314			
T3	G1 (N = 17)	92.06	9.705	6.091	32	.000
	G2 (N = 17)	71.02	10.440			

(Abbreviations: T1, T2, T3 = the first, second, and third written tasks. G1, G2 = the experimental and the control groups.)

In Table II, the frequencies of feedback types were further calculated for each subgroup in the experimental group to determine how each group contributed to the collaborative

scaffolds. Overall, the learners were more likely to use CF than affective or didactic feedback. The former resulted in the most counts in the three tasks, namely, 110, 202, and 137. As shown in the table, G4 initially had the most feedback (N = 69), while G2 contributed to the least (N = 12). In Tasks 2 and 3, G3 had most counts of feedback, and again, G2 yielded the least. In fact, G2 had the least amount of feedback in Tasks 1, 2, and 3.

TABLE II
FREQUENCIES OF FEEDBACK TYPES ACROSS THE SUBGROUPS

Feedback types	G1	G2	G3	G4	G5	G6	Total
CF	13	3	18	26	23	27	110
affective	4	1	7	12	3	8	35
Suggestive	10	6	13	27	8	5	69
Didactic	8	2	8	4	6	2	30
Total	35	12	46	69	40	42	244
CF	35	14	56	49	17	31	202
affective	0	2	17	7	10	16	52
Suggestive	14	9	23	27	15	12	100
Didactic	7	5	12	14	7	13	58
Total	56	30	108	97	49	72	412
CF	24	6	28	37	23	19	137
affective	4	0	24	8	5	8	49
Suggestive	3	11	19	12	9	5	59
Didactic	2	1	9	7	5	3	27
Total	33	18	80	64	42	35	272

(Abbreviations: T1, T2, T3 = the first, second, and third written tasks. G1, G2, G3 . . . = Subgroups 1, 2, 3. . .).

In addition to the statistical results, the post-task interviews reveal that seven (out of 10) interviewees had positive perspectives on the usage of Wikispaces because they could see others' work or/and suggestions and reviewed their own compositions at their own pace. The 10 participants believed that CF on errors was necessary because it could improve their linguistic knowledge and enhance their compositions. Finally, four participants (out of five) from the experimental groups perceived positively that peer CF could assist them to improve form accuracy in writing. These participants also reflected that when they provided feedback to others, as tutors they were more aware of the linguistic errors; by contrast, when they composed their own writing, they often neglected their own errors. Interestingly, they said that providing incorrect information about grammar would be embarrassing. Hence, they became more aware when providing feedback on the errors their peers produced. This situation can be observed in one participant's writing and his CF; one statement the participant made regarding verb tenses used inconsistently was as follows: "If the event happened in the past, the past rather than the present simple is used... two verbs (in the sentence Tom went to swim last week and he forgets to bring his swimming suit) should be in the past simple." However, he used different tenses in his own writing "My mother got us some drinks and snacks when we painted the room. She wants us to take a break..."

IV. DISCUSSION AND CONCLUSION

The first research question asked whether a significant difference exists in the linguistic accuracy between the experimental and the control groups. In Tasks 1 and 2, the mean scores of the two groups did not significantly differ. In Task 3,

however, the difference in the mean scores reached a significant level, which means that the experimental group had a higher number of accurate items than the control group. The results are supported by studies, such as Thurston et al. [13], suggesting that peer CF was likely to improve form accuracy.

The second research question addressed the issue of what types of feedback are likely to be employed by the subgroup members in the experimental group. Four types of feedback were identified, namely, CF, affective, suggestive, and didactic. Correcting others' linguistic errors was found more frequently than affective or didactic feedback.

The third research question asked about the participants' perspective on learning in Wikispaces and on peer CF. Given the advantages of the asynchronous environment, learners considered Wikispaces useful for learning because it allowed them to view and edit their own and others' work at their own pace. Peer feedback provided opportunities to participants to reflect on their language use. When they provided feedback in response to the linguistic errors that were made by their peers, they were more aware of their comments or corrections; however, they overlooked their own errors when composing. This supports what Shintani and Ellis [9] argue that when learners are focused on meaning, they are not likely to focus on form during writing.

This study has some limitations. The contents of the tasks were limited to the picture descriptions. A limited range of feedback types (CF, affective, suggestive, and didactic) was examined in this study. Further research is suggested to examine the changes in learners' peer CF over a longer period to determine whether the changes relate to the gains of the linguistic form. Linguistic gains can also be examined by observing the difference between focused and unfocused linguistic errors (the current research examined the unfocused linguistic errors): will learners pay more attention to the feedback on focused errors, say, articles, than on unfocused errors? This subject deserves further research attention. Last but not least, using CMC technologies is helpful in fostering collaborative learning and form development in L2 or FL. Training students to provide each other with linguistic feedback can motivate them to pay attention to the language system.

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