



Developing students' English writing quality through the incorporation of anonymous online peer feedback

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Abstract

Peer feedback has been known as an effective pedagogical strategy in developing students' writing. However, much remains to be understood about how learning occurs as there has been limited research on the interaction of student dyads during online peer feedback activity. To bridge the research gap, this study examined different online interaction patterns in peer feedback and their effects on the revision drafts of thirty Thai freshmen students. A paired samples t-test showed significant improvement in students' writing scores. The comparison between drafts further indicated a substantial number of participants' self-initiated revisions. Based on the analysis of students' interaction, this study provides implications of social constructivism by suggesting that the integration of anonymous online peer feedback into writing practice might have both direct and indirect results in developing students' writing quality through social learning.

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Introduction

Since writing involves a complex cognitive process, it has undeniably become one of the most difficult skills for EFL learners, including Thai students. Several pedagogical strategies exist to support writing instruction, one of which is a deep approach whereby the learners provide comments and help one another to revise their written work (Cheng & Warren, 2005). A growing body of literature has examined the effect of peer feedback on students' revision and writing quality (Ruegg, 2015; Tajik, Fakhari, Hashamdar, & Habib Zadeh, 2016; Wu, 2006); however, in the light of these studies, there has been little discussion of students' interaction during peer feedback activity.

Most interaction research in peer feedback area has focused on collaborative writing tasks (Dobao & Blum, 2013; Saunders, 1989; Storch, 2002), leaving underexplored learners' interaction of individual writing. As learning is

individually constructed and socially enriched (Phuwichit, 2016), the investigation of students' interaction is critical for understanding the cause of revision and the process of learning that occurs during peer feedback activity. This study was framed by the notion of computer-mediated communication as relevant to the integration of online platform into peer feedback tasks. The main objective was to extend the current knowledge of social learning theory by investigating students' online peer feedback interaction and its impact on the writing quality which was specifically defined in this study as the improvement in students' writing regarding grammar, vocabulary, content, and organization.

The investigation was guided by the following research questions:

1. How do Thai students provide anonymous peer feedback during their online interaction?
2. What effect does anonymous online peer feedback have on the outcomes of Thai students' writing?
3. What are the students' attitudes toward peer feedback training and anonymous online peer feedback?

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Literature Review

Through the lens of Vygotsky's social learning theory, the development of knowledge is a social process arising because of interaction in the social milieu (Choi, 2002; Hyland & Hyland, 2006; Storch, 2011). "With the support from a more proficient peer, the less competent student can become independently proficient at what was initially a jointly-accomplished task" (Chaiklin, 2003, p. 3). Based on this theory, students' mutual scaffolding during peer interaction contributes largely to the co-construction of knowledge. Previous studies illustrated that students had better revision outcomes when working collaboratively during peer interaction (Roberson, 2014; Storch, 2002). Roberson (2014) applied a case study, building on Storch's (2002) and Zheng's (2012) patterns of interaction framework to investigate the patterns of interaction in peer feedback of 10 undergraduate students. In line with Storch's (2002) study, 'collaborative' interaction was found to be the most common pattern with a higher percentage of feedback incorporation in student's writing.

Despite the potential benefits of social learning, peer feedback has been questioned in the EFL writing contexts. One of the major concerns is the lack of constructive criticism (dLu & Bol, 2007). Liou and Peng (2009) indicate that students may refrain from providing useful feedback due to their cooperation-oriented cultural background (Hu & Lam, 2010; Yu, Lee, & Mak, 2016). These studies also suggest that the students from a collectivist culture tend to maintain group harmony, so they are hesitant to criticize others. This cultural issue leads to the lack of useful peer comments, underlying the needs for training and creating the environment in which students' identities are not revealed.

Since the rapid advance of computer-mediated communication (CMC), online peer feedback has become widely available (Hyland & Hyland, 2006; Wanchid, 2013; Yu & Lee, 2016a). An online platform and social network sites allow students to generate comments anonymously. dLu and Bol (2007) discovered that students in the anonymous online feedback group provided more feedback that was critical and performed better than those who had revealed their identities. Moreover, Liu and Sadler (2003) found that the learners who provided online feedback could demonstrate a larger number of the overall comments and revisions including those that were revision-oriented than the students in traditional peer feedback group. These results support the argument of Coté (2014) who also indicates that the anonymous peer feedback should be implemented as an alternative to face-to-face peer feedback to avoid bias and to encourage students to concentrate on writing as opposed to personal characteristics of the student writers.

Methods

Participants

Participants in this study were thirty Thai first-year undergraduate students at a public university in Thailand. They were both male and female, 18–20 years of age. An essay was used to classify their English writing proficiency into three levels based on a revised TOEFL paper-delivered test:

low ($n = 19$), intermediate ($n = 6$), and high ($n = 5$). The pre-study demographic survey indicated that none of the participants had engaged in online peer feedback activity prior to this course.

Data Collection

This study drew on social learning theory to investigate students' interaction during online peer feedback activity. It was conducted in a 14-week English integrated skills course which met once a week for three hours as part of the university requirement. Essay writing was taught at the 2nd week and the 9th week of the course. The data were collected from multiple sources, including two data sets of online peer feedback and revision of two writing assignments (persuasive and problem-solution essays). Each data set was created within 15 pairs of students, including 30 written works. Students' attitudes toward training for peer feedback and anonymous online peer feedback were explored through an attitude questionnaire and semi-structured interview at the end of the semester.

The timeline for data collection process

The participants provided feedback on four writing assignments: a persuasive essay (writing I and II) and a problem-solution essay (writing III and IV). The writing tasks (I and III) were not included in the data collection as they were used for in-class practices. The students' feedback and revision on their writing assignments (II and IV) were collected as data for analysis. The data-collection timeline is listed as below.

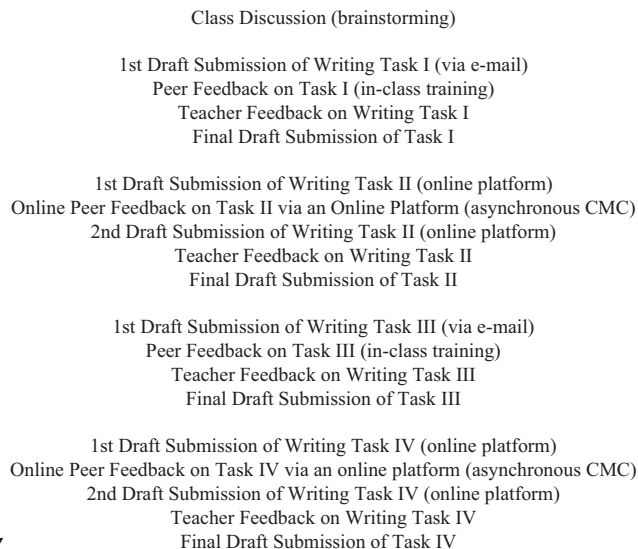
Training for peer feedback

The training through hands-on practice tasks took two sessions lasting for one hour each. In the initial stage, the researcher explained the concepts of writing process and peer feedback along with its benefits and objectives. A writing assessment rubric and students' writing samples from the previous semester including a guidance sheet instructing on how to provide constructive feedback were also handed out at the beginning of the training. In pairs, students practiced identifying errors in the writing samples in terms of grammar, vocabulary, content, and organization. They then individually provided feedback and justified their suggestion through class discussion.

Prior to the online peer feedback activity, the students used pseudonyms to register for Edmodo accounts - an online platform that allows the users to post and reply asynchronously with its interactive comment feature. As the study regarded anonymity as a potential factor that could affect the content of students' feedback, the use of Edmodo was helpful in terms of organizing students in anonymous dyads, avoiding hard feeling, and promoting frank feedback. The researcher then paired 30 participants randomly: low-high ($n = 3$), intermediate-high ($n = 2$), low-intermediate ($n = 4$), and low-low ($n = 6$). It should be noted that the relationship between students' proficiency levels and the ability to generate feedback was not the aim of this study because the researcher could not proportionately select participants from their English proficiency coming in an intact group.

Table 1 Data-collection timeline

Week	Data collection
1	Collecting information about students' writing proficiency levels.
2	Introduction to the persuasive essay and the online platform 'Edmodo'. <ul style="list-style-type: none"> - The students were instructed to access the online platform. They signed up for Edmodo and submitted their pseudonyms to the teacher via e-mail within the same week. - Brainstorming about persuasive essay via Edmodo to be familiarized with posting online. - The students submitted writing task I within the same week via e-mail.
3	Peer feedback training <ul style="list-style-type: none"> - In-class practices included identifying problem and providing feedback on the writing samples written by the students from the previous semester. - The 1st writing assignment was used as another training material for the students to identify errors and provide feedback in class. - After the students had read peer feedback on the 1st writing task, they then received teacher's feedback. During this stage, the participants discussed feedback with the instructor. They submitted the 2nd draft of writing task 1 within the same week.
4	Composing and submitting writing task II through www.edmodo.com.
5	Providing feedback anonymously on writing task II through the online platform.
6	Revision on writing task II <ul style="list-style-type: none"> - The students read peers' comments, decided whether to act upon feedback and submitted the second draft of their writing task II within the same week.
7	The teacher provided feedback on writing task II in class.
8	Mid-term examination
9	Introduction to the problem-solution essay. <ul style="list-style-type: none"> - The students submitted their writing assignment III within the same week via e-mail.
10	Peer feedback training <ul style="list-style-type: none"> - In-class practices included identifying problem and providing feedback on the writing samples written by the students from the previous semester. - The 3rd writing assignment was used as another training material for the students to identify errors and provide feedback in class. - After the students had read peer feedback on the 3rd writing task, they then received teacher's feedback. During this stage, the participants discussed feedback with the instructor. They submitted the 2nd draft of writing task 3 within the same week.
11	Composing and submitting writing task IV through www.edmodo.com.
12	Providing feedback anonymously on writing task IV through the online platform.
13	Revision on writing task IV <ul style="list-style-type: none"> - The students read peers' comments, decided whether to act upon feedback and submitted the second draft of their writing task IV within the same week.
14	The teacher provided feedback on writing task IV in class. Students completed the online attitude questionnaire regarding the anonymous online peer feedback and the peer feedback training.

The diagram illustrates the writing cycle through feedback tasks**Figure 1** Data collection process*Data Analysis**How do Thai students provide anonymous peer feedback during their online interaction?*

The framework for the feedback analysis was based on Liu & Sadler's (2003)'s grid for analysing feedback. The classification of students' interaction was adapted based on Storch's (2002) and Roberson's (2014) patterns of interaction

coding schemes. This study classified interaction patterns according to the extent of learners' engagement with peers' comments. The researcher adapted the classification of interaction by dropping out 'dominant/passive' pattern and adding 'expert/passive' pattern to the analysis instead (Table 2). This was because most students who provided direct suggestions in this study did not dominate the interaction, but the student writer failed to interact. Tables 2 and 3 display the features of interaction patterns that were found in this study. As for the peer feedback, it was coded in terms of area (grammar, vocabulary, content, and organization) and nature of feedback which was classified as 1) revision-oriented feedback-suggestions and/or questions that led to revision in the writer's subsequent draft and 2) non revision-oriented feedback-complements that did not lead to revision in the writer's subsequent draft (Liu & Sadler, 2003). Two coders further determined the quality of feedback in relation to its correctness to avoid ambiguities in the analysis.

What effect does anonymous online peer feedback have on the outcomes of Thai students' writing?

To understand how participants revised their writing and whether it affected the overall essay quality, their between-draft changes were *identified* in terms of type (grammar, vocabulary, content, and organization) and operation (re-order, addition, deletion, and substitution) (Faigley & Witte, 1981). Moreover, the quality of revision was classified as better, original better, and no change (Yu & Lee, 2016b) according to its impact on the subsequent drafts. This research further investigated the source of revision to classify whether the students revised their writing because of peer feedback or their own decisions.

Table 2 Features of interaction patterns in online peer feedback

Pattern	Feature
Collaborative	Student asks for an explanation and/or discuss optional revisions together prior to providing suggestion.* Student writer admits failure or points out errors in peer feedback.
Dominant /Dominant	Students insist on own opinion; they do not agree with each other's ideas.*
Expert /Novice	Student reviewer provides a direct suggestion.* The student writer admits error.* There is little effort to engage student writer in negotiation for meaning.
Expert/Passive	Student reviewer provides direct suggestion (s) but there is a failure in negotiation for meaning due to the lack of interaction.**

Note: Interaction patterns for analysis were adapted from *Roberson (2014) and **Storch (2002)

Table 3 Students' online interaction

Pattern	Feature
Collaborative	Linds: In paragraph 2&3, did the government already legislate the law to reduce air pollution? Cal C: No, but it should, right? Linds: In that case, which tense you should use? I see that you use past tense. Cal C: Ok, it should be present tense. Linds: Yes, because it does not happen yet. Cal C: Ok, agree
Dominant /Dominant	Harry: In the first paragraph, there should be a noun after 'either be', ex. 'either be' single storey 'or' multi-storey. What do you think? Nai A: I already mentioned that the house has many storey before using 'either be'. So I think there's nothing wrong with the use of either be...or... here. Harry: But 'either be' and 'or' should be in the same sentence. Nai A: 'or' doesn't have anything to do with either. It just modifies multi-storey. I think it is different from your concept of 'either or'.
Expert /Novice	Noppy: You should change "help reduce" to "help reducing" Gateaux: Ok Noppy: You may find another word for "maker". Gateaux: I will change the maker to producer.
Expert/Passive	Sophia: application should be changed to equipment. Kitty:

What are the students' attitudes toward peer feedback training and anonymous online peer feedback?

A five-point Likert questionnaire, ranging from strongly agree to strongly disagree, was designed to measure the students' degree of agreement toward training for peer feedback and anonymous online peer feedback activity. The content validation was achieved by having five experts in the field of writing instruction match the items on the questionnaire to the objective of the study. The questionnaire was then tried out with thirty students. Cronbach's alpha coefficient of **0.793** was obtained which indicated a high level of internal consistency for the scale. All statistical data analyses were performed using SPSS version 22.0 (Armonk, NY: IBM Corp.).

Results and Discussion

In the first writing task, more than half of the participants performed as expert reviewers by pointing out errors and providing direct suggestion. Compared with the expert/novice interaction pattern, only a few participants interacted collaboratively or had a dominant/dominant interaction pattern (Table 4). The interview data illustrates that the students did not interact collaboratively because they had already understood peer comments and needed no further elaboration. *"My friend helped me to detect my errors. I did not reply to the comments because I realized that I didn't recheck my writing, so I just corrected them."* As for those who insisted on their own ideas, they had no intention of revising according to the comments because they did not agree with peer feedback. *"I think my peers misunderstood what I meant. That's why I tried to explain."* In the final writing task,

the students interacted more collaborative instead of making changes without further negotiation (Table 4). This was because the student reviewer provided fewer suggestions and asked more questions, which allowed their peers to clarify

Table 4 Patterns of students' online interaction

Patterns of interaction	Task 1		Task 2	
	n	%	n	%
Collaborative	8	26.67	12	40.00
Dominant/dominant	1	3.33	1	3.33
Expert/novice	20	66.67	13	43.33
Expert/Passive	1	3.33	4	13.34
Total	30	100.00	30	100.00

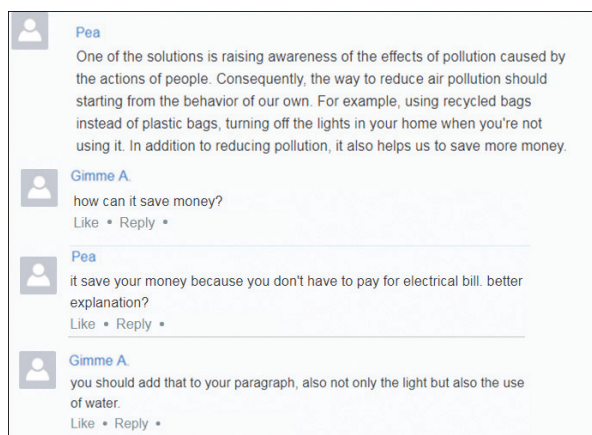


Figure 2 Students' online interaction via www.edmodo.com
Source: Borg and O'Hara (2008).

their writing instead (Figure 2).

Students' patterns of interaction during online peer feedback also have implication for their writing development. This study supports Roberson's (2014) and Mufiz, Fitriati, and Sukrisno' (2017) position that interaction patterns are associated with revision outcomes. In line with Roberson (2014), the finding of the present study indicates that the students who interacted collaboratively and those with expert/novice pattern of interaction had better revision outcomes when compared to the learners with expert/passive and dominant/dominant patterns.

The student writers who clarified themselves and negotiated their ideas with others improved the quality of their writing, particularly in the point discussed with their peer reviewers. This study considers the lack of negotiation in students' interaction (expert/passive) as the factor that led to 'no change' in their final drafts. As Mufiz et al. (2017) pointed out, the transferability of knowledge occurs when both parties reached consensus because of students' engagement with each other's ideas. The lack of participation may then hinder students' online collaborative learning (Li & Zhu, 2013).

Interestingly, this research discovered that students' proficiency levels may be associated with their participation and comment areas. The low English proficiency did not prevent the participants from giving feedback to their higher proficiency peers. In line with Watanabe and Swain (2007) and Allen and Mills (2016), this study indicates that the higher proficiency students could also increase their knowledge while working with their lower proficiency peers. To illustrate, in both writing tasks, the students with higher proficiency generated more correct comment regarding linguistic elements while those with low proficiency level were not good at correcting grammar and vocabulary, but tended to provide useful feedback about the content (Table 5). Nevertheless, English proficiency levels should not become a serious obstacle for online peer feedback as the aim of the activity was to encourage the students to scaffold each other regardless of any feedback area they could provide. This study suggests that while the higher proficiency students did not gain much benefit from feedback regarding grammar and vocabulary, they could gain from working with their lower proficiency peers in terms of developing the content of their writing.

With respect to students' feedback, a large majority of comments involved grammar in both tasks (Table 6). In accordance with Liu and Sadler (2003), the linguistic elements dominated in the technology-enhanced feedback group. The interview data further illuminate students' quality of feedback on three issues. First, this study indicates that online peer feedback promotes critical thinking in students' revision

process. The participants reported that when feeling uncertain about the quality of comments, they did not revise according to peers' comments but searched for information before revising their writing.

Second, this study discovered that some parts of peer feedback contained error, but the participants hesitated to instigate discussion because they did not want to cause conflict even though their identities were not revealed. Based on this finding, the present study then suggests that the teacher should remind the students during each feedback session that the aim of providing online feedback anonymously is not only to support critical feedback but also to encourage them to point out error in peer comments, so that they need not be afraid of offending other learners.

Lastly, although students improved the quality of their comments in the final task, not all of them led to revision. However, the goal of this study was to promote student's learning as opposed to perfecting their final drafts (Allen & Mills, 2016). While the students' feedback did not entirely lead to necessary correction, the teacher should support social learning by encouraging the student writers to reread their writing, reflect on peer feedback and decide on revision before receiving teacher's comment.

Regarding the effect of anonymous online peer feedback on the outcomes of students' writing, a paired-samples t-test was conducted to compare students' writing scores between their first and final drafts of each writing task. In writing task 1, there was a significant difference in the scores for the first draft ($M = 15$, $SD = 1.907$) and the second draft ($M = 16.08$, $SD = 1.550$), $t(29) = 9.956$, $p < .001$. In writing task 2, there was a significant difference in the scores for the first draft ($M = 15.31$, $SD = 1.926$) and the second drafts ($M = 16.26$, $SD = 1.665$), $t(29) = 10.648$, $p < .001$. A Spearman's rank-order correlation illustrates a very strong, positive correlation between students' writing scores given by two raters which was statistically significant ($r_s = .961$, $p < .01$). These results suggest that students made overall improvement between drafts in both of their writing tasks (Table 9).

Table 5 Types of feedback and levels of proficiency

Type/Area	Proficiency					
	Task 1			Task 2		
	High	Intermediate	Low	High	Intermediate	Low
Grammar	25	28	13	19	15	11
Vocabulary	12	7	18	4	6	19
Content	9	5	42	7	4	26
Organization	3	0	1	2	1	1
Total	49	40	74	32	26	57

Note: Number of participants: low ($n = 19$), intermediate ($n = 6$), and high ($n = 5$).

Table 6 Areas of anonymous online peer feedback and students' revision

Areas	Feedback				Revision			
	Task 1		Task 2		Task 1		Task 2	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Content	25	15.34	29	25.22	40	22.35	35	21.47
Organization	4	2.45	4	3.48	17	9.50	2	1.23
Grammar	111	68.10	60	52.17	81	45.25	76	46.63
Vocabulary	23	14.11	22	19.13	41	22.90	50	30.67
Total	163	100.00	115	100.00	179	100.00	163	100.00

Table 7 Quality of anonymous online peer feedback

Quality of Feedback	Task 1		Task 2	
	<i>n</i>	%	<i>n</i>	%
Good	79	48.47	62	53.91
Satisfactory	15	9.20	30	26.09
Unsatisfactory	69	42.33	23	20.00
Total	163	100.00	115	100.00

Table 8 Quality of students' revision

Quality of revision	Task 1		Task 2	
	<i>n</i>	%	<i>n</i>	%
Revision better	161	89.94	155	95.09
Original better	2	1.12	0	0.00
No change	16	8.94	8	4.91
Total	179	100.00	163	100.00

Table 9 Results of paired samples t-test of the difference between drafts in writing scores

Task/Draft		Paired Differences				<i>t</i>	df	Sig. (2-tailed)
		<i>M</i>	<i>SD</i>	<i>SE</i>	95% Confidence Interval of the Difference			
		LowerUpper						
Task1	Draft1 & 2	1.075	.591	.108	.8541.296	9.956	29	.000
Task2	Draft1 & 2	.950	.489	.089	.7681.132	10.648	29	.000

should then encourage more questions and indirect suggestions when providing comments to peer as the aim of giving feedback is not only to correct errors but also to instigate discussion that leads the student writer to be able to revise.

The findings of this study also support the role of providing peer feedback anonymously in an online environment along with training students prior to the peer feedback activity. The participants reported that the training enabled them to provide useful comments. Moreover, they were not worried about losing face when providing and receiving comments anonymously. The online platform allowed them to comment on their peers' writing without having to worry about their handwriting being recognized by the student writer. With respect to the training, this study reveals the need for encouraging students in terms of pointing the error not only in their peers' writing but also in the comment of student reviewer.

Conclusion and Recommendation

Providing feedback anonymously via the online platform reveals both direct and indirect effects on Thai students' feedback and revisions. Students' online interactions during peer feedback activities have possible implications for developing students' writing: collaborative and expert/novice students pairs improved the quality of their writing in terms of making successful revision based on peers' feedback. This study illustrates that peer interaction is a social mediation because it not only directly enabled the students to correct their errors but also indirectly motivated them to search for information and to evaluate their peers' comments before deciding to make their own revision. Additionally, the present study highlights the significant role of online peer feedback in supporting the learners to construct knowledge regardless of their level of L2 proficiency while mitigating the collectivism issue among Thai students by lessening the feelings of pressure in providing critical comments. However, a careful monitoring of students' interactions is also needed for the teacher to remind students to instigate discussion when detecting errors in peer feedback. The present study also indicates that students with large difference in their proficiency levels should not be paired together. Instead, the teacher should pair high proficiency students with those of intermediate level and/or form a dyad of intermediate and low proficiency students to foster their participation and to enable them to gain benefit from each other's feedback. Moreover, to promote students' collaborative interaction and their revisions in the subsequent drafts, the teacher should make online peer feedback imperative for the students to actively engage through reflection. This could also be achieved by emphasizing its importance as part of the course participation. Taken together, these findings highlight the role of anonymous online peer feedback as a supplementary to teacher feedback in promoting social learning and supporting Thai learners to improve their written works. A further experimental study that addresses the relationship between students' proficiency levels and their ability to provide feedback is necessary to shed more light on how to organize peer feedback effectively.

Conflict of Interest

There is no conflict of interest.

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