Online Peer Feedback Tasks: Training for Improved L2 Writing Proficiency, Anxiety Reduction, and Language Learning Strategies

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Abstract

As the Internet has created a rich and supportive environment for peer-to-peer review activities, this study seeks to better understand the incidence of an online-delivered peerto-peer feedback process on levels of student second language writing anxiety, their awareness and use of appropriate Language Learning Strategies, and ultimately on their performance. Using a mixed-methods approach that combines qualitative data drawn from students' pre/post-intervention essays with quantitative data drawn, on the one hand, from those essays and, on the other, from their response to such surveys as Oxford's (1990) Strategy Inventory for Language Learning (SILL) and Cheng's (2004) Second Language Writing Anxiety Inventory (L2WAI), this study measures changes in writing accuracy and fluency scores, levels of students' anxiety, and their use of anxiety-reducing and performance-enhancing learning strategies. Forty-one South Korean English Education majors attending a compulsory English writing course were recruited. Results reveal that students involved in a semester-long, trained P2P feedback process improved their use and awareness of learning strategies, experienced decreasing levels of second language writing anxiety, and produced overall better writing assignments. Building on studies of the same sort of peer-to-peer feedback process (Cassidy & Bailey, 2018; Hahn, 2016), these results serve as an occasion to reflect on how that process itself, when delivered online, serves as an effective platform for training students in the use of the sorts of learning strategies that decrease learner anxiety and improve performance.

Keywords: Peer-to-peer feedback, computer-assisted language learning, language learning strategies, L2 writing anxiety, online collaborative language learning

Introduction

As Computer Assisted Language Learning (CALL) technologies become increasingly available to English as a Foreign or Second Language (EFL/ESL) classrooms (Blake, 2016), new and more varied opportunities are provided for updating and elaborating on research into students' perception and practice of such collaborative learning processes as peer-to-peer feedback (P2P FB) tasks and process-oriented writing assignments. This study, therefore, proposes to measure the effect of a trained P2P feedback response [1] process on students' writing accuracy and fluency over a seven assignment-cycle long semester. Moreover, we endeavor to compare these quantitative results to student reports about qualitative changes in both their levels of second language writing anxiety (L2WA) and their own use/awareness of appropriate language learning strategies (LLS).

Specifically, the value of this trained P2P process will be measured both in terms of the quantitative differences in accuracy and fluency scores on assignments submitted at the beginning and end of term, and via an qualitative analysis of student representations of their own writing anxiety, first of all, and of the LLS they use or recommend, secondly, to reduce anxiety and improve L2 writing performance. Measures will be taken, therefore, not only of what Liu and Hansen (2002) call *linguistic* outcomes, but measures also of related *cognitive* and *social* (or *communicative*) effects. To be clear, such measurements are taken, not over the relative short-term between first and final drafts of a single assignment, but over the longer-term of a whole semester in which students go through the process of writing seven different (though similarly structured) assignments.

Review of the Literature

As has by now been well-established, students perform better on writing tasks who are better equipped with a wider variety of more appropriate learning strategies, and who are less paralyzed by L2 writing anxiety (Griffiths & Oxford, 2014; Jiang, 2016). Still, little work has been done in L2 blended-learning contexts to document the fact that the longerterm benefit of an online P2P process depends as much on the direct corrective feedback received from an instructor as upon students, simultaneously, knowing what to do with it and feeling less anxious about their ability to learn from it. While it stands to reason that corrective feedback can be useful, only where students know what to do with it and feel empowered to learn from it. The question that remains how precisely do students come to learn and feel in this way? Thus, building on similar studies of the same basic P2P FB process, which showed how students engaging in an online P2P FB process about successive written assignments report significantly reduced levels of writing anxiety (Hahn, 2016), and that the process itself may function as a platform for training students in the use of a variety of social, affective, cognitive and metacognitive LLS (Cassidy & Bailey, 2018), this study seeks to better understand how, in fact, a trained, peer-to-peer feedback process can contribute to gains in the quality of students' written performance, decreasing levels of student writing anxiety (L2WA), and an increased use of well-linked chains of LLS. Indeed, it attempts to better understand the role of collaborative learning at the intersection of learner anxiety, learning strategy, and writing proficiency.

Peer-to-Peer Feedback (P2P FB). In the many years now since Liu and Hansen's *Peer Review* (2002) charted the landscape of outcomes associated with peer response activities, the rapid growth of computer-assisted forms of L2 language learning (Bernacki, Aguilar, & Byrnes, 2011; Chun, 2011; Felix 2008; Jeong, 2010) has provided researchers with the tools required to bolster and elaborate on findings that measure the positive effect of such collaborative learning practices (Storch, 2005; Storch & Wigglesworth, 2012).

Studies of the measurable effects of P2P processes on student perceptions and on their actual written performance provide increasingly compelling evidence for the inclusion of P2P FB in L2 writing classrooms. For instance, increases in the number of quality local and global improvements made to students' writing is seen to result from feedback provided by a range different sources (Biber, Nekrasova, & Horn, 2011) and on a variety of different platforms (Berg, 1999; Liu & Sadler, 2003; Miyazoe & Anderson, 2010). Interesting, also, has been the conceptual growth noted through the students' changing perceptions of the collaborative learning that results from peer learning activities (Hahn, 2016; Vickerman, 2009).

However, the importance of training students to properly engage in such P2P FB activities has been less well studied (Cho & Schunn, 2007; Hanrahan & Isaacs, 2001; Rollinson, 2005; Yang & Meng, 2013). While Liou and Peng's 2009 study of the use of blogs, for example, showed that training is of critical importance, and Zhu (1995) found that training allows students to produce more and better quality P2P responses, when Joo and Kim (2010) concluded that both high and low level students could enjoy and benefit from the training provided, they also acknowledged how more research on training was needed.

The series of papers by Hui-Tzu Min (2005, 2006, 2016) is rather rare, therefore, in its attention to and comparison of the effects of actual courses of P2P training in a blended-learning context, and in its finding not only that training is crucial (Min, 2005) but, more specifically, that proper training will significantly increase the number and quality of peer triggered revisions made as a result (Min, 2006). Consequently, extant literature is not at all clear on what an effective course of P2P response training actually looks like, nor how much class time such training can require.

Likewise, less well studied in the literature are the series of more enduring and transferable set of effects that Liu and Hansen (2002) call *cognitive* and *social* (or *communicative*) outcomes, as opposed to the more commonly studied *textual* and *linguistic* benefits measured by the difference between one draft or assignment and the next. To that end, Cassidy and Bailey (2018), recently, sought to document improvements in student use of cognitive and social language learning strategies through an analysis of responses to an open-ended P2P FB perception survey, noting a series of substantive higher-order learning outcomes, such as an increased metacognition of L2 writing that were the result of the communicative responsibilities required by the FB task. The current study takes Cassidy and Bailey's (2018) work one step further, adding the specificity provided by a measure of such direct linguistic features as accuracy and fluency, and of such indirect benefits as are measured by surveys like the Strategy Inventory for Language Learning (Oxford, 1990) and the Second Language Writing Anxiety Inventory (Cheng, 2004).

Language Learning Strategies (LLS). Research into the strategies used by language learners to facilitate their learning has also received a significant boost as instruments are designed that classify strategies and allow researchers to measure students' awareness and use of different sets of strategies. Categorizing language learning strategies in different ways, as Oxford does (1990), for example, or as Kao & Reynolds prefer (2017), a range of studies have repeatedly confirmed that student awareness and use of LLS correlate positively with student proficiency and writing performance (Griffiths & Oxford, 2014). Woodrow (2005), for instance, found that students who scored high on oral assessments reported significantly more use of informal strategies, such as reading for pleasure, watching TV, and talking to native speakers. Likewise, Chamot (2004) showed that proficient students, in particular, use a greater number and wider variety of learning strategies more appropriately and therefore to greater effect as they have a better understanding of task requirements.

Thus, Oxford's SILL (Strategy Inventory for Language Learning) allowed researchers to compare different populations of students' awareness and use of different strategies. Noting, for example, that Korean students' use of LLS, in general, is not well researched, Lee and Oxford (2008) found them to have had little recourse to such social strategies as P2P feedback, and that social strategy awareness and use, generally, was

relatively low, compared to other, relatively test-oriented strategies (see also Chamot, 2004). Certainly, Oxford's *LLS in a Nutshell* (2002, p. 126) shows learners citing their use of far fewer social and affective strategies, adding that many LLS training studies have tended to ignore their potential.

Indeed, the question of training is an important (if understudied) theme throughout the literature on LLS, also (Chamot, 2004; Cohen, 2011; Lee & Oxford, 2008; Griffiths & Oxford, 2014; Woodrow, 2005; Wu & Liu, 2016). Lee and Oxford (2008), for example, insist on the relationship between student awareness of and their actual and effective use of LLS. Researchers, in general, have focused on such questions as whether students should (or not) be explicitly instructed in the use of specific language learning strategies, whether such training should "be embedded in every practice of [the target] language" (Cohen, 2011, p. 695), or whether such LLS instruction should be presented separately (Chamot, 2004, p. 19). They have focussed also on different methods of LLS instruction. Like Alias, Ab Manan, Yusof, and Pandian's (2012) study of Facebook as a tool for strategy instruction, which noted an improvement in students' perceptions of LLS, and like Liou and Peng's (2009) study of the use of blog writing, the present study asks how a trained P2P FB task serves, in and of itself, as an LLS training program.

Second Language Writing Anxiety (L2WA). Similarly, the conceptualization of different forms and categories of learning anxiety afforded by instruments like Cheng's Second Language Writing Anxiety Inventory (L2WAI, 2004) has provided researchers with new means of measuring the effects of anxiety on L2 language performance. As a result, there remains a strong consensus around the negative correlation of anxiety and achievement (Doğan & Tuncer, 2016), meaning that generally speaking the more students manage to mitigate their learning anxiety, the more they are likely to improve (Ho, 2016; Horwitz, 2001; Leki, 1999; Liu & Ni, 2015; Kim, 2006; Saito & Samimy, 1996; Wei, 2007; Worde, 2003).

Therein lies the importance of studies investigating methods designed to mitigate language anxiety, such as Challob, Nadzrah and Hafizah's (2016) use of a collaborative blended learning environment to help reduce anxiety and improve performance, or Foroutan and Noordin's study (2012) of the relative effects of online versus hand-written dialogue journal writing on levels of student L2 writing anxiety. Jiang's (2016) study of cooperative learning task designed to alleviate anxiety, therefore, as well as Hahn's (2016) finding that an LMS-based feedback exchange process resulted in decreasing levels of student anxiety, represent important precursors to the present study of the effect of a trained P2P feedback process on student levels of anxiety, LLS use, and ultimately writing quality.

Research Questions

This study, therefore, asks:

- 1) How does a trained P2P feedback process affect L2 writing performance (i.e. accuracy and fluency) over the relative long-term of a 15-week semester?
- 2) How are levels of students' writing anxiety, likewise, seen to change over as a result of the online P2P feedback process?

3) What language learning strategies do students themselves refer to in their accounting for such outcomes?

Method

This mixed methods study investigated the effect of a trained P2P feedback process on levels of L2 student writing anxiety, on the number and variety of language learning strategies (LLS) used or recommended by students to mitigate the effects of that anxiety, and on their L2 writing performance.

Participants

Participants included a group of freshman (n=20; female=13, male=7) and sophomore (n=21; female=15, male=6) English Education majors enrolled in compulsory academic writing classes at a Korean university. Their language proficiency ranged from lower to upper intermediate (or from A2 to B2, according to the Common European Framework), resulting from an average of ten years of prior EFL study. All involved were practiced in the use of the university learning management system (LMS) that served the P2P FB process. Participants, in this sense, are not unlike many of the students entering university across Korea today.

Assessments and Measures

Peer-to-peer (P2P) Training and Practice. Students were assigned a series of weekly process-oriented writing tasks. The process included a writing prompt being introduced and discussed in class on Tuesday, in response to which students posted the first draft on the course learning management system (LMS) by Friday, provided feedback on at least two peers' drafts by Sunday, and submitted a second and final draft of their own assignment to the instructor before class time on the following Tuesday. All P2P collaborations occurred asynchronously through the course LMS.

The instructor used Microsoft Word's track change function to provide students with detailed corrective feedback on their assignments as soon as possible after submission (generally within one to three weeks). Common and recurring mistakes were presented on the overhead during class in conjunction with review lessons about different aspects of English grammar and syntax. Sample paragraphs from the textbook, moreover, and from students' work were outlined on the board, focusing on argumentative structure. Then, outside of class, students were asked to review the feedback given to them, integrate the corrections provided into portfolio versions of their assignments, and keep a journal explaining their understanding of either the mistakes they had made or the corrections they had retained. Journal entries were evaluated simply as having been done or not, rather than for their being correct or well-written.

Aside from all of the indirect P2P response training afforded by these task-designs, students were also given explicit P2P feedback training on a weekly basis in the form of A) simple reminders about and modelling of the nature of "useful" feedback (namely, that "helpful" peer comments at minimum make "specific" refers to the text they are

commenting on), and B) weekly instructor feedback about the relative utility of different peer response samples collected from the course LMS and presented on the overhead.

This training program as a whole is grounded in the same social cognitive theory referenced by Min (2016) in her accounting for the benefits of P2P review training, which describes a four-phase model of sequential skill acquisition composed of observation, emulation, self-control, and self-regulation. The blend of direct and indirect forms of P2P review training deployed for this study was, moreover, designed to be much less of an imposition upon class time and better integrated into the course curriculum than are the four hours of in-class training, followed by the 18 hours of individual student-teacher conferencing described by Min (2005, 2006, 2016).

Second Language Writing Anxiety Instrument (L2WAI). A pair of pre/post-L2WAI surveys (Cheng, 2004) was administered in weeks two and twelve of the semester to identify initial levels of, and eventual changes in, student L2 writing anxiety. This 22item survey breaks down second language writing anxiety into three subcomponents, namely, *cognitive (i.e.,* mental anguish due to anxiety), *somatic (i.e.,* physical response to anxiety), and *behavioral (i.e.,* consequent avoidance of L2 writing).

Cronbach alpha scores for the Korean translation of the survey were found to be acceptable for the *cognitive* (pre .92 / post .91), *somatic* (pre .83 / post .81), and *behavioral* (pre .77 / post .74) scales, indicating adequate reliability for both the pre- and post- L2WAI surveys. Mean scores for each scale below 2.5 and above 3.5 were taken, respectively, to represent low and high levels of anxiety.

Strategy Inventory for Language Learning (SILL). Oxford's SILL (1990) was administered at the beginning of the semester, along with the pre-L2WAI. The SILL is a 50-item survey that measures *direct* and *indirect* strategies (*i.e., mnemonic, cognitive,* and *compensation,* or *metacognitive, affective,* and *social* strategies). Students' pre-treatment LLS survey profiles were triangulated with the qualitative data drawn from students' discussion of LLS in their reflections essays (see the following section). No post-treatment SILL survey was administered in order to avoid over-encumbering students' learning environment with purely research interests.

The Cronbach alpha score for the Korean version of the SILL that was used here (Hwang, Kwon, & Park, 1998) was .93, indicating strong reliability. Both the L2WAI and SILL used a 5-point Likert scale, where 1 indicates "never true of me" and 5 "always true of me".

Pre/Post-Treatment Reflection Papers. Initially assigned as an attempt to make a teachable moment of the class-time spent administering surveys, and presented to students as an occasion to reflect on the anxiety they may feel and the strategies they have learned to use to mitigate the negative effects of that L2 writing anxiety, freshmen and sophomore students were asked to write "problem-solution" style paragraphs, similar in length and general structure to every other assignment prompted by the chapters in volumes 2 and 3, respectively, of Pearson's *Longman Academic Writing Series*, developed by Hogue (2014) and Oshima and Hogue (2014). These assignments were graded for both accuracy and fluency, and these scores were compared.

Writing Accuracy and Fluency. Writing accuracy was defined as the number of errors made per 100 words, following procedures and error types described by Chandler (2003, p. 275) and introduced to students at the beginning of term. These included incorrect vocabulary choices, sentence-level grammar mistakes, and discourse-level problems with style. Each error was given an equal weight of one point. Two professional

raters with an average of ten years each of L2 writing instruction experience agreed on the accuracy criteria to be used before counting the number of errors made on the pre/post writing tasks.

Fluency, in turn, was defined as the number of words produced per assignment (or peer comment) over the same week- (or weekend-) long period of time allotted to the writing task. Thus students are understood here as being more or less fluent in their L2 writing to the extent that is shown to write more or less over the same period of time (here, a week).

Data Analysis. Recurrent themes were drawn from the two student reflection papers on perceived anxieties and available LLSs by way of a process of coding based, initially, on the sorts of anxiety and LLS conceptualized by the L2WAI and SILL instruments, respectively. These codes were then adapted (slightly) to the themes found in student papers. This successively top-down and bottom-up discourse analysis was conducted, at first, separately, by the two experienced instructors whose results were then compared and differences resolved before being presented below.

SPSS version 24.0 was used to analyze the quantitative survey and performance data. Mean score comparisons were conducted to provide an initial analysis of anxieties, strategies and performance indicators. A Pearson correlation analysis as well as paired *t*-test analyses were then conducted to show relationships between the pre/post-L2WAI and SILL results and the students' writing accuracy and fluency scores.

Results

Combining quantitative and qualitative data drawn from student writing and survey responses, we begin the results section by describing students' performance improvements in terms of their written accuracy and fluency (i.e. how well and how much they write). Descriptive statistics about both the writing and peer-to-peer commenting tasks are presented. Results from the pre/post L2 writing anxiety questionnaires are then triangulated with our discourse analysis of the content of their reflection essays.

Outcome 1: Performance Indicators

Research question one asked about how the trained P2P feedback process affected the quality of students' writing over the relatively long term of a whole semester. As has often been noted of similar methods (Dippold, 2009; Shih, 2011; Peterson, 2003; Villamil & De Guerrero, 1996), we find that the collaborative P2P learning task described above contributed to improvements in the accuracy and fluency of students' writing. Indeed, as Table 1 shows, students made an average of 14.8 and 12.6 mistakes per 100 words, respectively, in their initial and final reflection papers; which is to say 15% fewer errors. Simultaneously, they tended to write an average of 11% more words per assigned period of time, progressing from an average 217 words in task two (R1) to 241 words in task seven (R2). Two paired-sample *t*-tests, moreover, show that these measures of writing accuracy and fluency are statistically significant, indicating that students were simultaneously writing more and more accurately at the end of the semester-long treatment than they had at the outset.

Table 1							
Paired-Samples t-Test on Writing Accuracy and Fluency							
	М	SD	SE	t	df	р	
Errors T2	14.8	0.26	0.41	4.206	39	.000**	
Errors T7	12.6	0.29	0.46	4.200	39	.000	
Words T2	217	23.32	3.69	4 209	20	.000**	
Words T7	241	34.46	5.44	4.208	39	.000	

The increase in the fluency of students' writing over time is evident also in the number of comments and number of words per comment that students wrote to one another over the weekend. As Table 2 shows, students wrote a total of 63% more words in their comments about their peer's final reflection paper than they did in response to the first reflections (R2: 17,919 words > R1: 10,997 words; n=41). While they did write an average of 9.3% fewer words per comment (R1:268 < R2:243), they were also writing almost twice as many comments to one another per assignment by the end of term (R1:82 < R2:148), suggesting that as the semester progressed, they were motivated to read and write about more of each other's work. [2]

Table 2

Tabla 1

Number of Comments and Words Per Comment Written (n=42)

	Reflection 1	Reflection 2	% change				
Peer comments written/assignment	82	148	+80%				
Peer comment words written/assignment	268	243	-9.30%				
Peer comment words written/semester	10,997	17,919	+63%				
Total Peer comment words written/semester		76,650					
Total Peer comments written/semester		623					
Average Peer comment words written/studer	nt/semester	1,825					

Another way of describing the sheer quantity of writing practice afforded students involved in this sort of P2P feedback task is to say that the total of 76,650 words written in 623 peer comments over the course of the whole semester corresponds to an average of 1,825 words worth of peer commenting per student, which is equivalent to approximately nine extra 200-word assignments worth of writing practice, each, per semester.

Outcome 2: Changes in Levels of Learning Anxiety

Research questions two and three, respectively, asked about the relationship between these indicators of writing accuracy and fluency, on the one hand, and, on the other, any measurable changes in reported levels of student anxiety or LLS use and awareness. Mirroring the structure of the two reflection papers, whereby the students were asked to describe, first, their levels of writing/language anxiety and, secondly, any LLS they had

learned to use or would recommend that others use to help mitigate the negative effects of such L2 writing anxiety, we start here too with the question of anxiety.

As detailed in Table 3, the mean score analyses of the pre-/post-treatment L2WAI surveys show that students reported suffering most from different forms of cognitive anxiety, followed by avoidance and somatic anxieties. Following Oxford's own definitions (1990), "cognitive" anxiety refers to expressions of students feeling unable to understand, know or use the language well enough; "somatic" anxiety refers to the physical effects of such feelings of inadequacy (like sweating, fatigue, and their mind going blank); and "behavioral" anxiety refers to the way learners tend to avoid the language itself (or complex forms of it) as a result of those feelings and physical symptoms, rather than invest instead in overcoming that challenge of learning. None of these results are especially high or low, suggesting either that students did not feel particularly anxious or that the L2WAI failed to capture the anxieties that students did suffer from in the context of such relatively new and particularly social forms of computer-assisted language learning.

Paired Sample t-Test for Pre/Post L2 Anxiety									
Anxiety	Pre-M	Post-M	Pre-SD	Post-SD	t	р	-		
Cognitive	3.20	3.22	0.798	0.605	0.238	0.813			
Somatic	2.57	2.51	0.824	0.831	0.64	0.525			
Avoidance	2.78	2.67	0.659	0.655	1.403	0.168			

Table 3

Note: Responses below 2.5 correspond to a low anxiety score, and above 3.5 to high anxiety.

The fact that these students began the writing course with such relatively low levels of L2 writing anxiety, compared to students surveyed in similar research into South Korean L2 writers (Bailey, Lee, Vorst, & Crosthwaite, 2017), may explain why no statistically significant decreases were found. Nevertheless, such unchanging levels of anxiety attributed to a writing course that added as many as nine extra assignments worth of writing to the already involved process-writing tasks, not to mention the explicit social dimension of the P2P feedback process, may well be interpreted as an effect of the online P2P feedback process, generally, and of the P2P training that students received, in particular, which may be said to have mitigated fears that would otherwise have risen and so proven an obstacle to students' language learning and performance.

As we discuss further below, this non-increase in reported levels of anxiety in students who were required to produce and receive such large quantities of P2P feedback may itself be interpreted as a positive outcome. Certainly, the discursive analysis and comparison of the two student reflection papers (R1 and R2) suggest that such a trained P2P process had significant mitigating effects on student anxieties. As seen in Table 4, below, both groups of freshmen and sophomore students were consistent in their reporting a range of different forms of mostly cognitive, but also behavioral and somatic forms of writing anxiety at the beginning of term. The number of written references here, which suggest higher levels of actual anxiety than was reported in the L2WAI survey is no doubt, at least in part, a consequence of the nature of the reflection task (*i.e.* to describe their anxiety). The account of their anxiety as more often cognitive than behavioral or social is consistent with the survey results.

Table -	4
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Number of References [*] to Types of Anxiety							
Anxiety References in R1	Cognitive	Behavioral	Somatic	TOTAL			
Freshmen (n=24)	33	5	8	46			
Sophomore (n=18)	28	12	7	47			
Anxiety References in R2							
Freshmen (n=24)	1	0	2	3			
Sophomore (n=18)	9	1	1	11			

Note: * Students often referred to more than one form of anxiety per assignment.

Moreover, and unlike what we had been led to expect from the pre-/post-treatment survey results, the content of the students' reflection papers bears witness to a rather dramatic shift in tone over the course of the semester, especially in the case of the freshmen group. As Table 5 shows, only one student in R1 described NOT feeling very anxious about writing in English at the outset, as compared to fully 67% (or 29) of the total 43 references to anxiety in R2 made by freshmen and sophomores combined were explicitly about NOT or NO LONGER feeling anxious. In fact, 85% of freshmen and 50% of sophomore references to anxiety in R2 describe some form of a decrease in or lack of anxiety. These arguably are noteworthy differences.

Tał	ole 5	
	0 0	Lack of Anxiety and Increasing
Con	fidence	
	Freshmen	Sophomore
R1	1	0
R2	18	11

Admittedly, some amount of this apparent decrease in levels of anxiety may be attributed to the social desirability effect of students wanting to impress their instructor. Nevertheless, the fact that there were as many references to persistent or even increasing levels of anxiety as there were to increasing forms of confidence (Table 5) among the sophomore students suggests that the students felt able (with this instructor) to be sincere in their self-diagnoses, suggesting that both groups' exposure to this collaborative writing and reflective process may genuinely have contributed to such significant seeming decreases (or non-increases) in levels of student anxiety.

Regardless, it is clear that the negative correlation between post-treatment anxiety scores captured by the L2WAI and the number of words that students wrote to one another over a given period of time, as Table 6 shows, suggests that such a CALL-assisted and trained P2P feedback process can have a significant effect upon levels of student anxiety. Of note, moreover, is the way the correlations are more significant in relation to the overall number of words written in peer comments generally, than to the number of words written per particular peer comment, indicating that the decrease (or non-increase) in levels of anxiety should be attributed rather to both reading and writing about a peer's

work, rather than only to the writing peer reviews part of the process (cf. Cassidy & Bailey, 2018).

Table 6							
Forms of Anxiety and Number of Peer Comment Words Written							
Post average Anxiety	Total PR Words Written	Words / PR Comment					
Cognitive	381*	243					
Somatic	400**	235					
Avoidance	527**	496**					

Note: PR = peer review

Outcome 3: Correlations to LLS Awareness and Use

Likewise, corresponding changes in student references to their LLS use, especially among the freshmen students who described the more dramatic differences in perceived anxiety, suggests that real changes did indeed occur over the course of the semester-long, trained P2P feedback process; regardless of the possible effect of students' wanting to impress their instructor.

Indeed, while both groups referred to a range of different LLS in R1, those students who wrote about decreasing levels of anxiety in R2 tended to write about a much tighter cluster or continuous chain of related strategies than either their still/more anxious peers did, or than even they had in their own initial reflections. Note that the difference here is not so much quantitative as qualitative. That is, the students who reported decreasing levels of anxiety, tended to write not about their use of more LLS, but of their resort to qualitatively different sets of strategies. For instance, whereas most students in R1 referred vaguely and almost indiscriminately or automatically to such disparate strategies as studying more grammar and vocabulary, watching TV in English, sitting in a comfortable chair, or even taking a language class, many references to LLS in the posttreatment reflection papers were much more targeted and relevant to the actual context of this particular academic writing class. Indeed, students tended to describe rather shorterthan longer-term strategies that were much more closely related to one another, such as reviewing, reflecting on, and asking about the mistakes they or their peers had made on previous assignments or telling themselves that these mistakes were opportunities to learn. Moreover, such strategy chains tended to be much more social and meta-cognitive than simply cognitive or vaguely affective.

Specifically, the vast majority of freshmen and two thirds of the sophomore students collectively referred to the whole range of different aspects of the trained P2P process that they had spent the semester actually engaged with as part of the P2P feedback process, while the minority of those who continued to report feelings of anxiety continued also to look to such external sources of learning and input as other grammar classes and more time spent watching English TV and talking to foreigners. Indeed, those relatively few, mostly sophomore students who did not report in their reflection papers (R2) any decrease in anxiety continued, as they had in the pre-treatment reflections (R1), to write about a relatively disparate number of non-social, non-clustered, and extra-curricular strategies, as if they had either not felt moved by the strategy training provided by the

course of P2P feedback tasks offered them or because the training failed them somehow so that they neither understood nor benefitted from the practice itself as the others had.

By contrast, the large majority who described improved feelings about their L2 also wrote about the utility of such different aspect of the P2P feedback and training as A) the time spent in class outlining their own and sample paragraphs, B.) reviewing of samples of common mistakes and helpful peer comments made online, C) thinking about the feedback received online from both peers and the instructor that was not only corrective and formative but supportive and encouraging, and D) the redrafting and journaling activities that afforded them the opportunity to review again the kinds of mistakes they tended to make and so might in the future avoid. The difference between the two groups reporting relatively unchanged and decreasing levels of anxiety is, indeed, very clear.

Furthermore, the difference between the well-trained and much less anxious students, on the one hand, and those still anxious others who don't refer to any part of the P2P FB process as an affective LLS, on the other, is consistent with results of statistical and correlational analyses of the pre-treatment SILL survey results. As Table 7 shows, one of the two most often reported kinds of strategies at the beginning of term was social, immediately preceded by compensation strategies, while the least used strategy type was affective, suggesting that students, as digital natives, were at once well-disposed to the social nature of the online P2P FB practice and in dire need of some assistance with the sorts of affective strategies that, these results suggest, a trained P2P process provides an excellent delivery-method/training-program for. Similarly, correlations in general between student responses to the SILL and L2WAI subcomponents all tend towards the negative, indicating that those who reported using more LLS also reported lower levels L2 writing anxiety. Specifically, higher levels of reported LLS use correlated to a significant degree with lower levels of behavioral anxiety, while greater use of social strategies correlated significantly with lowered levels of cognitive anxiety.

	LLS		Overall Anxiety		Cognitive		Somatic		Behavioral	
	М	SD	r	р	r	р	r	р	r	р
Mnemonic	3.31	0.4	-0.18	0.24	12	.452	07	.68	32	.042*
Cognitive	3.27	0.54	-0.29	0.07	26	.096	12	.46	38	.013*
Compensation	3.62	0.48	-0.05	0.77	01	.929	04	.82	17	.292
Metacognitive	3.39	0.39	-0.19	0.24	17	.291	09	.56	46	.002**
Affective	2.93	0.59	-0.16	0.31	21	.179	01	.96	21	.191
Social	3.56	0.60	-0.29	0.05	32	.380*	04	.79	40	.004**

Table 7

Pearson Correlation of LLS with Post-treatment L2 Writing Anxiety

Note: alpha = .05*, .01**

Discussion

This study provides a glimpse into students' experience of an online P2P feedback process, and of the benefits that may result therefrom. Findings, indeed, suggest that a series of trained P2P feedback tasks, extending the length of a 15-week semester, can contribute A) to the improvement of students' written accuracy and fluency, B) to the decrease (or non-increase) of levels of student L2 writing anxiety, and C) to an increase in the kind and tightly clustered nature of LLS that students reportedly use and could recommend. The generalized difference in the tone and topic of students' first and final reflection papers, in particular, suggests that a trained P2P feedback process may have a significant and positive effect on levels of student anxiety, and so on the actual quality of their writing, over the mid to longer-term of a semester. Certainly, it suggests that further longer-term and better-controlled studies of similarly designed and well-integrated, onlineP2P feedback processes and training programs is called for.

P2P as Training Grounds for LLS Use. Of the number of pedagogical implications revealed by this study, arguably, the most far-reaching involves the suggestion that processual P2P FB tasks inviting students to support one another in their desire to improve and providing them, moreover, with ample relatively informal occasions to write in their second language, can directly influence students' use and choice of LLS and can serve, therefore, as an opportunity to integrate LLS training into the learning environment, both directly and explicitly. The study suggests that such P2P tasks can provide such LLS training in terms that the students themselves can understand and apply. This confirms conclusion drawn from a previous study of an earlier iteration of the same P2P FB process, namely, that such an online P2P FB task offers gains in student "awareness and use of cognitive, metacognitive, affective, and social learning strategies" (Cassidy & Bailey, 2018, p. 23). Further research would be welcome, therefore, into the use of other platforms for providing P2P feedback or of other instruments for measuring changes in LLS use and levels of student anxiety.

Importance of Training to P2P. The importance of properly training students to provide adequately *useful* peer comments cannot be over-emphasized, however. Modelling the process used in this and previous, related studies (Cassidy & Bailey, 2018; Hahn, 2016), and confirming what others have theorized (Min, 2016), we suggest that an effective course of P2P feedback training would involve: A) providing clear instructions and attainable goals, B) illustrating such objectives through relatable examples in an ongoing way throughout the semester, C) requiring repeated and regular practice as well as D) an ongoing and reflexive evaluation of the effectiveness of the peer feedback provided.

Adding perhaps to the growing list of guidelines cited by Liu and Hansen (2002, p.126), students engaged in such online delivered P2P feedback tasks must be given a sense of purpose they can relate to and must be motivated/rewarded for their engagement, moreover. They must be shown samples of both *useful* and *less useful* peer comments, must be given every opportunity to respond to their peers' comments and, at minimum, to thank one another for those responses; and the peer comments that they themselves provide must be accounted for and graded on their specificity rather than their accuracy.

Indeed, it is important to reiterate that all students must feel invested in the collaborative learning that is meant to be taking place here, which in turn depends on the possibility that peer feedback not be presented as limited only to peer *corrective* feedback (see endnote 1). Indeed, *useful* peer FB must be described as providing, not only the more obvious identification of errors and solutions, but also encouragement, praise, or even a

simple paraphrase. Any sort of peer response can be described as potentially *useful* to the extent that it makes *specific* reference to the peer's actual text, its vocabulary choices, or its sentence and paragraph structure, and so provides the author with some much-needed perspective. Thus, any individual student, regardless of whether they have (or feel they have) the ability to recognize errors in their peer's work, can be taught in this way to think of themselves as able to say something that might prove useful to their peer.

Relations between LLS and SLWA. We suggest, finally, that his study provides a valuable contribution to the field, also, to the extent that it engages, simultaneously, with the correlations between LLS use and performance, on the one hand, and between L2 performance and learning anxiety, on the other, where normally these are studied separately. The reconfirmation of such classic correlations, moreover, in both cases, is especially valuable in the context of the kind of CALL-assisted or blended-learning environments that are increasingly common in L2 studies generally.

This is particularly true in South Korea, where social and affective strategies have often been minimized by the relatively strong focus on test-taking strategies (Lee & Oxford, 2008). Indeed, findings from the current study illustrate how a P2P feedback process provides students with an added opportunity to practice their L2 in a simultaneously goal-oriented and social, informal and low-stakes manner that seems, as might be expected, to have contributed to actual performance improvements. Any such added opportunity to use the target language is especially beneficial to EFL learners in places like South Korea where there may be limited occasion to use the language, either inside or outside the classroom, and to experience themselves thereby as able to communicate effectively.

Conclusion

This study investigated the influence that an online delivered and explicitly trained P2P feedback process has on second language student writing quality, writing anxiety, and language learning strategy use. There were a number of significant findings identified, including that the practice of P2P feedback helped students improve their L2 writing accuracy and fluency over the relative long-term of a 15-week-long semester. The study confirms that the significant amount of writing practice involved in the production of the peer comments may itself contribute to improved writing skills. Moreover, this paper suggests that the collaborative and social nature of the trained P2P process can contribute to noticeable improvements in levels of L2 student anxiety. The simultaneous use of L2WAI and SILL instruments allows us to suggest, finally, that such a P2P feedback process as is described here, when it is well integrated into course curriculum and when students are well prepared to engage with it, can serve as an effective LLS not only in the cognitive and meta-cognitive senses of the term that are normally associated with writing quality, but in the social and affective senses also that, arguably, make such improved performance indicators possible. Further research into the most effective means of preparing students to benefit from such a process will continue, though, to remain of interest to the field.

Endnotes

1. In order to avoid prematurely limiting the scope of the contribution that a peer response task can make to a learning environment, we use the terms "P2P feedback", "P2P review", or "P2P response" interchangeably, in each case referring to the task of peers reading and commenting ('usefully') on the draft of peers' writing, rather than to explicitly "corrective" forms of feedback only. That is, feedback here does not refer only to such responses as seek to identify specific mistakes made in a peer's draft and then provide solutions. Indeed, beyond such *textual* or *linguistic* sorts of peer comments, as Liu and Hansen describe them (2002), peer responses can be useful, potentially, when they speak to the *social* and *affective* aspects of their peers' work also, and recommend metacognitive and mnemonic learning strategies.

2. Students were required to read and respond to at least 2 peers per assignment but invited to read and write to more if they so chose.

References

- Alias, A. A., Ab Manan, N. A., Yusof, J., & Pandian, A. (2012). The use of Facebook as a language learning strategy (LLS) training tool on college students' LLS use and academic writing performance. *Procedia – Social and* Behavioral *Sciences*, 67(1), 36-48. https://doi.org/10.1016/j.sbspro.2012.11.305.
- Bailey, D. R., Lee, A., Vorst, T., & Crosthwaite, P. (2017). An investigation of differences and changes in L2 writing anxiety between blended and conventional English language learning contexts. *CALL-EJ*, 18(1), 22-39. http://hdl.handle.net/10722/238808.
- Berg, E. C. (1999). The effects of trained peer response on ESL students' revision types and writing quality. *Journal of Second Language Writing*, 8(3), 215-241. https://doi.org/10.1016/S1060-3743(99)80115-5.
- Bernacki, M. L., Aguilar, A. C. and Byrnes, J. P. (2011). Self-regulated learning and technology-enhanced learning environments: An opportunity-propensity analysis. In G. Dettori & D. Persico (Ed.), *Fostering self-regulated learning through ICT* (pp. 1-26). Hersey, PA: IGI Global Publishers.
- Biber, D., Nekrasova, T., & Horn, B. (2011). The effectiveness of feedback for L1-English and L2-writing development: A meta-analysis. ETS Research Report (RR-11-05). Princeton, NJ: ETS.
- Blake, R. (2016). Technology and the four skills. *Language Learning & Technology*, 20(2), 129-142. https://doi.org/10125/44465.
- Cassidy, R., & Bailey, D. (2018). L2 Students' perceptions and practices of both giving and receiving online peer-feedback. *Multimedia-Assisted Language Learning*, 21(1), 11-34. https://doi.org/10. 15702/mall.2018.21.1.11.
- Challob, A. I., Nadzrah, A. B., & Hafizah, L. (2016). Collaborative blended learning writing environment: Effects on EFL students' writing apprehension and writing performance. *English Language Teaching*, 9(6), 229-241. https://doi.org/10.5539/elt.v9n6p229.

- Chandler, J. (2003). The efficacy of various kinds of error feedback for improvement in the accuracy and fluency of L2 student writing. *Journal of Second Language Writing*, *12*(3), 267-296. https://doi.org/10.1016/S1060-3743(03)00038-9.
- Chamot, A. U. (2004). Issues in language learning strategy research and teaching. *Electronic Journal of Foreign Language Teaching*, 1(1), 14-26. Retrieved from http://e-flt.nus.edu.sg/v1n12004/chamot.pdf.
- Cheng, Y. (2004). A measure of second language writing Scale development and preliminary validation. *Journal of Second Language Writing*, *13*, 313-335. https://doi.org/10.1016/j.jslw.2004.07.001.
- Cho, K., & Schunn, C. D. (2007). Scaffold writing and rewriting in the discipline : A web-based reciprocal peer review system. *Computers & Education 48*(3), 409-426. https://doi.org/10.1016/j.compedu.2005.02.004.
- Chun, D. M. (2011). Computer-Assisted Language Learning. In Eli Hinkel (Vol 2), *Handbook of Research in Second Language Teaching and Learning* (pp. 663-680), New York: Routledge, Taylor and Francis Group.
- Cohen, A. D. (2011). Second Language Learner Strategies. In Eli Hinkel (Vol 2), *Handbook of Research in Second Language Teaching and Learning* (pp. 681-698), New York, New York: Routledge, Taylor and Francis Group.
- Dippold, D. (2009). Peer feedback through blogs: Student and teacher perceptions in an advanced German class. *ReCALL*, 21(1), 18-36. https://doi.org/10.1017/S095834400900010X.
- Doğan, Y., & Tuncer, M. (2016). Examination of foreign language classroom anxiety and achievement in foreign language in Turkish university students in terms of various variables. *Journal of Education and Training Studies*, 4(5), 18-29. https://doi.org/10.11114/jets.v4i5.1337.
- Felix, U. (2008). The unreasonable effectiveness of CALL: What have we learned in two decades of research? *ReCALL*, 20(2), 141–161. https://doi.org/10.1017/S0958344008000323.
- Foroutan, M., & Noordin, N. (2012). Effect of dialogue journal writing through the use of conventional tools and E-mail on writing anxiety in the ESL context. *English Language Teaching*, 5(1), 10-19. http://dx.doi.org/10.5539/elt.v5n1p10.
- Griffiths, C. & Oxford, R. (2014). The twenty-first century landscape of language learning strategies: Introduction to this special issue. *System*, 43, 1-10. https://doi.org/10.1016/j.system.2013.12.009.
- Hahn, H. R. (2016). 영작문 동료피드백의 정의적 요소. *영어어문교육*, 22(4), 339-367. Retrieved from

http://scholar.dkyobobook.co.kr/searchDetail.laf?barcode=4010025090168.

- Hanrahan, S. J., & Isaacs, G. (2001). Assessing self- and peer-assessment: The students' views. *Higher Education Research & Development, 20*(1), 53-70. https://doi.org/10.1080/07294360123776.
- Ho, M. C. (2016). Exploring writing anxiety and self-efficacy among EFL graduate students in Taiwan. *Higher Education Studies*, 6(1), 24-39. https://doi.org/10.5539/hes.v6n1p24.
- Hogue, A. (2014). *Longman Academic Writing Series 2: Paragraphs (3rd Edition)*. New York: Pearson Education, Inc.
- Horwitz, E. K. (2001). Language anxiety and achievement. *Annual Review of Applied Linguistics*, 21(1), 112-126. https://doi.org/10.1017/S0267190501000071.

- Hwang, J. H., Kwon, M. J., & Park, B. S. (1998). Korean Version: Strategy Inventory for Language Learning Version 7.0 (ESL/EFL). Retrieved from http://www.finchpark.com/books/twas/comm/135.htm.
- Jeong, E.-M. (2010). Comparison between the effects of SCMC and SCMC with peer feedback on EFL writing. *Multemedia-Assisted Landuage Learning*, 13(2), 81-103. Retrieved from http://kmjournal.bada.cc/wp-content/uploads/2013/05/13-2-4Jeong.pdf.
- Jiang, D. (2016). An empirical study on alleviating career English writing anxiety through cooperative learning in a Chinese polytechnic institute. *International Journal of Higher Education*, *5*(1), 173-182. https://doi.org/10.5430/ijhe.v5n1p173.
- Joo, M. J., & Kim, Y. H. (2010). Teacher and peer feedback: Learner perceptions and the efficacy for improvement in L2 writing. *영어교육연구*, 22(3), 1-21. Retrieved from

http://scholar.dkyobobook.co.kr/searchDetail.laf?barcode=4010023108621#.

- Kao, C.-W., & Reynolds, B. L. (2017). A study on the relationship among Taiwanese college students' EFL writing strategy use, writing ability and writing difficulty. *English Teaching & Learning, 41*(4), 31-67. https://doi.org/10.6330/ETL.2017.41.4.02.
- Kim, K. J. (2006). Writing apprehension and writing achievement Korean EFL college students. *English Teaching*, 6(1), 135-153. Retrieved from http://www.dbpia.co.kr/Journal/ArticleDetail/NODE07096616.
- Lee, K.-R., & Oxford, R. O. (2008). Understanding EFL learners' strategy use and strategy awareness. *Asian EFL Journal*, *10*(1), 7-32. Retrieved from https://www.asian-efl-journal.com/904/main-journals/understanding-efl-learners-strategy-use-and-strategy-awareness/#squelch-taas-tab-content-0-3.
- Leki, I. (1999). Techniques for reducing second language writing anxiety. In D. J. Young (Ed.), *Affect in foreign language and second language learning: A practical guide to creating a low-anxiety classroom atmosphere* (pp. 24-45). Boston: McGraw-Hill.
- Liou, H.-C., & Peng, Z.-Y. (2009). Training effects on computer-mediated peer review. *System*, 37(3), 514-525. https://doi.org/10.1016/j.system.2009.01.005.
- Liu, J., & Hansen, J. G. (2002). *Peer response in second language writing classrooms*. Ann Arbor: University of Michigan Press.
- Liu, M., & Ni, H. (2015). Chinese university EFL learners' foreign language writing anxiety: Pattern, effect and causes. *English Language Teaching*, 8(3), 46-58. https://doi.org/10.5539/elt.v8n3p46.
- Liu, J., & Sadler, R. W. (2003). The effect and affect of peer review in electronic versus traditional modes on L2 writing. *Journal of English for Academic Purposes*, 2(3), 193-227. https://doi.org/10.1016/S1475-1585(03)00025-0.
- Min, H. T. (2005). Training students to become successful peer reviewers. *System*, 33(2), 293-308. https://doi.org/10.1016/j.system.2004.11.003.
- Min, H. T. (2006). The effects of trained peer response on EFL students' revision types and writing quality. *Journal of Second Language Writing*, 15(2), 118-141. https://doi.org/10.1016/S1060-3743(99)80115-5.
- Min, H. T. (2016). Effect of teacher modeling and feedback on EFL students' peer review skills in peer review training. *Journal of Second Language Writing*, 31(1), 43-57. https://doi.org/10.1016/j.jslw.2016.01.004.

- Miyazoe, T., & Anderson, T. (2010). Learning and students' perceptions of online writing: Simultaneous implementation of a forum, blog and wiki in an EFL blended learning setting. System, 38(2), 185-199. https://doi.org/10.1016/j.system.2010.03.006.
- Oshima, A. & Hogue, A. (2014). Longman Academic Writing Series 3: Paragraphs to Essays (4th Edition). New York: Pearson Education, Inc.
- Oxford, R. L. (1990). Learning language strategies-what every teacher should know. Boston, MA: Heinle Cengage Learning.
- Oxford, R. L. (2002). Language learning strategies in a nutshell: Update and ESL suggestions. In J. C. Richards & W. A. Renandya (Eds.), *Methodology in language teaching: An anthology of current practice* (pp. 124-132). Cambridge : Cambridge University Press. https://doi.org/10.1017/CBO9780511667190.
- Peterson, S. (2003). Peer response and students' revisions of their narrative writing. *L1-Educational Studies in Language and Literature, 3*(3), 239-272. https://doi.org/10.1023/B:ESLL.0000003605.45224.b5.
- Rollinson, P. (2005). Using peer feedback in the ESL writing class. *ELT Journal*, 59(1), 23-30. https://doi.org/10.1093/elt/cci003.
- Saito, Y., & Samimy, K. K. (1996). Foreign Language Anxiety and Language Performance: A Study of Learner Anxiety in Beginning, Intermediate, and Advanced-Level College Students of Japanese. *Foreign Language Annals*, 29(2), 239-249. https://doi.org/10.1111/j.1944-9720.1996.tb02330.x.
- Shih, R. (2011). Can Web 2.0 technology assist college students in learning English writing? Integrating Facebook and peer assessment with blended learning. *Australasian Journal of Educational Technology*, 27(5), 829-845. https://doi.org/10.14742/ajet.934.
- Storch, N. (2005). Collaborative writing: Product, process, and students' reflections. *Journal of Second Language Writing*, 14(3), 153-173. https://doi.org/10.1016/j.jslw.2005.05.002.
- Storch, N., & Wigglesworth, G. (2012). What role for collaboration in writing and writing feedback? *Journal of Second Language Writing*, 21(4), 364 -374. https://doi.org/10.1016/j.jslw.2012.09.005.
- Vickerman, P. (2009). Student perspectives on formative peer assessment: an attempt to deepen learning. *Assessment & Evaluation in Higher Education*, *34*(2), 221-230. https://doi.org/10.1080/02602930801955986.
- Villamil, O. S., & de Guerrero, M. C. M. (1996). Peer revision in the L2 classroom: Social-cognitive activities, mediating strategies and aspects of social behavior. *Journal of Second Language Writing*, 5(1), 51-75.
- Wei, M. 2007. The interrelatedness of affective factors in EFL Learning: An examination of motivational patterns in relation to anxiety in China. TESL-EJ, 11(1): 1-23. Retrieved from http://www.cc.kyoto-su.ac.jp/information/tesl-ej/ej41/a2.pdf.
- Woodrow, L. (2005). The challenge of measuring language learning strategies. *Foreign Language Annals*, *38*(1), 90-98. https://doi.org/10.1016/S1060-3743(96)90015-6.
- Worde, R. V. (2003). Students' perspective on foreign language anxiety. *Inquiry* 8(1), 1-15. Retreived from https://philpapers.org/rec/VONSPO-3.
- Wu, C.-P., & Lin, H.-J. (2016). Learning Strategies in Alleviating English Writing Anxiety for English Language Learners (ELLs) with Limited English Proficiency

(LEP)". *English Language Teaching;* 9(9), 52-63. https://doi.org/10.5539/elt.v9n9p52.

- Yang, Y. F., & Meng, W. T. (2013). The effects of online feedback training on students' text revision. *Language Learning and Technology*, 17(2), 220-238. https://doi.org/10125/44331.
- Zhu, W. (1995). Effects of training for peer response on students' comments and interaction. *Written Communication*, 12(4), 492-528. https://doi.org/10.1177/0741088395012004004.