*THE JOURNAL OF ASIA TEFL*
Vol. 15, No. 2, Summer 2018, 383-397
http://dx.doi.org/10.18823/asiatefl.2018.15.2.8.383

The Journal of Asia TEFL

http://journal.asiatefl.org/

e-ISSN 2466-1511 

# The Effects of Online Collaborative Writing and TOEIC Writing Test-Preparation on L2 Writing Performance

**Daniel R. Bailey**
*Konkuk University Glocal Campus, Korea*

**Christopher Judd**
*Korea Polytechnic University, Korea*

This paper compares the effects of Online Collaborative Writing (OCW) and the Test of English for International Communication (TOEIC) writing training on second language (L2) writing performance with respect to lexical variation, syntactic complexity, and writing accuracy between two groups of South Korean university students. Treatments consisted of OCW through posting in private Facebook groups, while students in the TOEIC group practiced answering TOEIC writing questions. In addition to tracking changes in L2 writing performance, this study investigated the efficacy of OCW towards TOEIC writing goals outside the context of explicit TOEIC writing training in order to provide additional modes of preparation for the TOEIC test. This quasi-experimental study, conducted over an eight-week period, collected writing samples from a pre- and post-writing task consisting of items that are conceptually similar to both OCW and TOEIC writing questions. Results revealed students in the OCW group increased in L2 writing accuracy at a statistically significant level indicating social media platforms like Facebook can assist students in meeting the accuracy criteria of the TOEIC writing test. Both groups wrote fewer adjectives in task 2, but the decrease was only statistically significant for the TOEIC group. Pedagogical implications and future research directions are discussed.

**Keywords: online collaborative learning, computer aided language learning, Facebook, TOEIC writing, L2 writing**

## Introduction

Sites involving asynchronous text communication such as Facebook, Twitter, and Instagram are ubiquitous in modern society, and there is a need in educational research to better understand their pedagogical value to students' development of L2 writing performance. Providing an opportunity to communicate with others in English outside of class and develop L2 writing skills was the impetus for exploring the pedagogical value social networking sites offer language learners.

This study adopts collaborative learning elements of Vygotsky's Sociocultural Theory (Vygotsky, 1978), and follows Lantolf and Poehner (2008) in emphasizing the pedagogical imperative of peer modeling in L2 education. We hypothesize that the possibilities of social collaboration and peer modeling afforded by an OCW environment result in increased L2 writing accuracy because of higher L2 proficient learners model L2 writing accuracy within the zone of proximal development (ZDP) of their lower proficient L2 peers.

Improvement in L2 writing accuracy was identified in previous blended learning (i.e., a combination of computer-supported out-of-class and in-class learning) L2 writing courses. These courses utilized direct

(explicit) written corrective feedback (Bitchener, 2008; Chandler, 2003; Ferris, 1999, 2006), video corrective feedback (Lee & Bailey, 2016), and L2 writing practice in blog, wiki, and forum e-learning platforms (Miyazoe & Anderson, 2010). However, the use of OCW as an instruction technique to improve L2 writing accuracy has received little attention (Bailey, Park, & Haji, 2017; Naghdipour, 2017).

The effect of OCW on L2 writing accuracy has gone virtually unexplored even though such collaborative learning methods (Johnson & Johnson, 1989) in second language acquisition (SLA) are supported by multiple learning theories (Oxford, 2011; Vygotsky, 1978). For language learning and the strategies that accompany that learning, self-regulation guides the successful student through social networking participation because it entails planning, writing, and sharing posts and comments. Language learning strategy theory (Oxford, 2011) provides further justification for incorporating OCW activities in the L2 classroom. Oxford (1990) recognized high proficient learners utilized a wider array of language learning strategies and used them more appropriately than their lower proficient counterparts. Therefore, instructors are encouraged to provide a curriculum that allows students to develop cognitive, social, and affective language learning strategies. OCW is a form of strategy-training in that students must develop content (i.e., cognitive strategy training), engage their peers (i.e., social strategy training), and overcome the fear of sharing their writing with others (i.e., affective strategy training). Lastly, the current study posits that OCW is not a replacement but an addition to conventional in-class writing activities, and consequently added an opportunity for language learning strategy use.

## Literature Review

Although the debate continues about the efficacy of explicit error correction in L2 writing (Bailey, 2016; Bitchener, 2008; Chandler, 2003), it has been argued that added exposure to L2 writing practice alone, without explicit accuracy training, can improve writing on its own (Truscott, 1999, 2004). This debate about the necessity of explicit error correction in L2 writing accuracy is at the heart of the current study. This study suggests that OCW improves writing due to peer modeling (Bandura, 1986; Vygotsky, 1978), affective engagement with student-generated content (Lambert, Philp, & Nakamura, 2016), and added effort by students not to look foolish (Krashen, 1985).

Facebook and other SNS platforms are powerful digital tools that have the potential to positively affect learning (Cook et al., 2008), especially in SLA classes where students are encouraged to be active participants in a learning community rather than passive observers (Alm, 2006). The archiving of student participation in the form of permanently stored digital contributions by L2 learners onto online platforms is an important characteristic of OCW afforded by SNS (Bailey et al., 2017; Naghdipour, 2017). Unlike in-class collaborative learning processes, which have been criticized for their lack of objectivity in grading (Crosthwaite, Bailey, & Meeker, 2016).

MacArthur and Karchmer-Klien (2010) define SNS writing as a way of communicating short, immediate statements to others via social collaboration. For instance, Newgarden (2009) had students use the SNS platform Twitter to send three messages per week and found that the process fostered student support for one another. Hattem (2012) used Twitter as an L2 writing tool for 49 students who produced 3500 messages during one semester, and they attributed increases in L2 writing confidence to the added opportunity for collaborative writing as well as the observation of higher accuracy writing by peers. Min (2005, 2016) found peer-to-peer communication through OCW increased writing quality, and further benefits of OCW have been well documented (Peterson, 2003; Villamil & Guerrero, 1996). While such studies identify the value of using SNS for language learning, none of them quantitatively identify the influence SNS writing practice has on accuracy when taken into consideration with L2 writing complexity (e.g., lexical variance and syntactic complexity).

The application of SNS in L2 education has shown its ability to improve students' interest in language learning (Jones & Shao, 2011; Shih, 2011). The student-generated content that forms the basis of OCW with SNS participation could be another mechanism for such improved interest since student-generated

content has been shown to encourage greater affective engagement in classroom-based narrative tasks than teacher-generated content (Lambert, Philp, & Nakamura, 2016).

Online collaborative writing through platforms such as Facebook allows students to enter into relationships that facilitate the creation of asynchronous communicative content in writing (Limbu, 2012). Moreover, it invites higher performing L2 proficient learners to model varied forms of L2 accuracy, style, structure, and vocabulary for lower performing peers to observe and emulate.

Yunus, Salehi, and Chenzi (2012) witnessed the benefits of online collaboration by integrating SNS tools in an English as a second language (ESL) writing class. Their findings revealed that SNS helped broaden students' knowledge, increased their motivation, and built confidence and clarity as they developed L2 writing skills. However, their study was limited due to their small sample size and lack of either a comparison or control group. Regardless of the limitations, their qualitative findings in the form of semi-structured interviews and class observation identified the important utility of SNS as an OCW learning tool as well as the need for future research.

The studies mentioned above establish the value of OCW with respect to developing L2 writing quality, and we provide reasons for investigating the potential of OCW to improve L2 writing in the context of SNS.

## TOEIC Test Training

The TOEIC is an internationally respected English aptitude exam introduced in 1979 by the Educational Testing Service (ETS). It was developed to assess the everyday English skills of people who are working in an international environment. It is a two-hour multiple-choice test consisting of 200 questions divided into 100 questions each in listening comprehension and reading comprehension. The reliability and validity of the TOEIC is relatively high with a Cronbach's alpha documented at 0.92 (Woodford 1982).

The TOEIC is designed to rate test-takers' English proficiency focusing on everyday language in workplace context, and quickly gained popularity in South Korea because it tests examinees' English proficiency (Lee 2006). Increasingly, more companies decided that students must pass the TOEIC at a specific level for employment.

Students often take the TOEIC test after following intensive test preparation courses that focus on both developing test-taking strategies, increasing test-preparation, and test scores without significantly improving their overall English ability (Choi, 2008). These results threaten the reliability of the TOEIC as an appropriate measure of English ability.

Students are known to sacrifice time spent learning functional English in order to learn what is necessary to gain extra points on standardized tests such as the TOEIC (Booth, 2012). It has become a truism as Alderson and Wall (1993) explain that what is assessed becomes what is valued, which becomes what is taught. This phenomenon is known as 'washback' (Alderson & Wall, 1993) and can refer to the influence of testing on teaching and learning. Booth (2012) presented narrative results of the washback effect in South Korea, reportedly caused from TOEIC training, through qualitative analysis of semi-structured journals and multiple interviews. In highlighting the effect that cultural and social associations can have on directing the washback effect, Booth's study recommended that future research investigate the effect on L2 acquisition of students working as collaborative stakeholders when studying for the TOEIC. The present study attempts to fill this gap recognized by Booth by investigating how OCW in SNS context can be used as an innovative study technique to improve TOEIC writing scores.

## Lexical and Syntactic Complexity Analysis

Foster and Skehan (1996) define syntactic complexity in second language writing as a measure of the variety and sophistication of the units or grammatical structures produced. Lu (2010) developed a computational system for automatic analysis of syntactic complexity in second language writing using 14

indices. He demonstrated the use of the system on a corpus of 1640 students' argumentative essays written under instructor supervision at three school levels. Analysis of variance found the mean length of sentences (MLS) and mean length of clauses (MLC) had statistically significant differences among L2 proficiency levels.

Lu (2012) also designed a computational system to automate the measurement of three dimensions of lexical richness that were lexical density, sophistication, and variation. Lexical density refers to the ratio of the number of unique words to the total number of words in a given text. Lexical sophistication measures "the proportion of relatively unusual or advanced words in the learner's text" (Read, 2000, p. 203), and lexical variation (i.e., lexical diversity) refers to the range of a learner's vocabulary choices (Crystal, 1982). Lexical variation revealed the strongest predicting effect for the overall quality of L2 learners' oral narratives, and 13 of the 20 measures of lexical variation showed significant combined correlations ranging from low ($r$ = .173) to moderate ($r$ = .526). A list of lexical variation indices used in the current study along with their formulas is displayed in Table 1. Indices were chosen from the lexical variation category because this category showed the strongest predicting effect on L2 proficiency.

TABLE 1
*Measures of Lexical Variation*

| Measure | Code | Formula |
|---|---|---|
| NDW (expected sequence 50) | NDW-ES50 | Meat *T* of 10 random 50-word sequences |
| Corrected Verb Variation | CVV | $T_{verb}/\sqrt{2N_{verb}}$ |
| Noun Variation | NV | $T_{noun}/N_{noun}$ |
| Adjective Variation | AdjV | $T_{adjective}/N_{adjective}$ |
| Adverb Variation | AdvV | $T_{adverb}/N_{adverb}$ |

## Purpose Statement and Research Questions

This study tracked changes in L2 writing performance with respect to lexical variation, syntactic complexity, and writing accuracy among two groups of South Korean EFL university students: one group wrote about personalized images (i.e., friends, family, places traveled, etc.) and replied to main posts using the SNS platform Facebook, while the second group wrote about impersonal images (e.g., TOEIC prompts) and replied to email question prompts from the TOEIC test writing section. Results from this study fill an existing dearth of research into if 1) peer modeling (Bandura, 1986), 2) student-generated content (Lambert, Philp, & Nakamura, 2016), and 3) the desire to save face (Krashen, 1985) can increase L2 writing accuracy, even in the absence of explicit error correction. Furthermore, the presence or absence of improved writing in the two groups should provide instructors insight into how to proceed with TOEIC writing test-preparation training.

## Research questions:

1. What are the different effects of OCW and TOEIC writing practice on lexical variation?
2. What are the different effects of OCW and TOEIC writing practice on syntactic complexity?
3. What are the different effects of OCW and TOEIC writing practice on L2 writing accuracy?

The MLS, MLC, and word count components of syntactic complexity and number of different words (from random 50-word sequence), verb variation, noun variation, adjective variation, and adverb variation components of lexical complexity were used here because they have been found to predict L2 proficiency (Lu, 2010, 2012). Writing accuracy followed procedures and criteria set forth by Chandler (2003) which involved a robust list of error types (see Table 4).

# Method

This study used a pre- and post-test design to observe changes between two groups that used different approaches to L2 writing practice, and observations were made of changes in L2 writing complexity and accuracy over an eight-week duration. While quasi-experimental research often includes a control group to which a treatment group can be compared to, this study tracked the effect two independent treatments had on L2 writing in an attempt to both better understand their efficacy as writing instruction methods and their effect on the TOEIC writing goals of improved writing complexity and accuracy.

## Participants

We recruited 65 students attending a mid-upper tier South Korean university. Convenience sampling was used for the OCW group that originally consisted of 36 South Korean Business/English double majors attending an L2 Multimedia English class but was reduced to 33 because three students did not complete both pre- and post-writing tasks. The OCW group participated in an eight-week supplementary SNS for language learning writing program that constituted ten percent of their course grade.

A combination of convenience followed by quota sampling was used among a group of 93 mixed-major students attending a 3 hour weekly 4-skills English (i.e., grammar, reading, writing, speaking) for international communication class to form the TOEIC group. There were only 32 Participants who wrote at least 75 words on both their pre- and post-writing tasks and they constituted the TOEIC group.

An independent-sample *t*-tests were used to measure the difference in both pretreatment writing accuracy and writing fluency between groups. Writing accuracy (i.e., errors per 100 words) for the OCW group ($M$ = 13.40, $SD$ = 5.42) and the TOEIC group ($M$ = 14.10, $SD$ = 5.77) revealed no statistically significant difference; $t(60) = 0.484$ , $p = .63$, indicating adequate pretreatment similarity between groups for inclusion into the study.

## Materials: Pre- and Post-treatment Writing Tasks

The image description section of the pre- and post-treatment writing task (items 1 and 2) involved writing six or more sentences for each of the two items with each item description pertaining to one of three given images. Multiple images for each item were used to harness potential positive effects on motivation and subsequent performance (Patall, Copper, & Wynn, 2010). The remaining items (3 to 6) in the pre- and post-treatment writing tasks asked students to write replies to image descriptions. These replies are conceptually similar to asynchronous replies from one friend to another either through SNS or email. Students were asked to reply through casual writing as opposed to a formal reply (e.g., business email) since formal writing is considered more complex than informal writing (Rosen, Chang, Erwin, Carrier, & Cheever, 2010). Thus, choosing informal writing in the current study was expected to produce more text within the time limit given (30 minutes).

## Procedures

Further description of the OCW and TOEIC groups with respect to participants and their learning environment is provided here to address any confounding variables (i.e., motivation to learn English, learning objectives, and lesson activities) involved when comparing two groups from different L2 English courses. The OCW group attended a Multimedia English course that entailed implicit writing accuracy practice through weekly SNS posts within private class Facebook groups. Students wrote five or more main posts and ten or more comments and/or replies per week. There was no corrective feedback and students were only graded on participation (i.e., weighted average of word count and number of posts/comments). Aside from OCW practice, students in the Multimedia English class practiced reading, listening, and speaking through completing activities from the website TEDxESL that entailed discussing

material based on TED talks (see https://tedxesl.com).

The Facebook discussions that students in the OCW group contributed to in this study consisted of two types of comments: substantive (i.e., reflected the main idea of the post and provided additional information), and reflective (i.e., described personal feelings about the content of the post) messages (see Table 2). The instructor encouraged substantive posts that attracted further contributions to the online conversations because more writing would equate to more writing practice and hopefully improvement in writing quality. Additionally, substantive replies produced more words and therefore higher participation scores. Overall, student participation within the class Facebook groups reflected similar trends found in previous Facebook for language learning research that followed the same Facebook implementation as the present study (Bailey et al., 2017). The genre of Facebook writing was similar to an open diary shared with classmates.

TABLE 2
*Examples of Main Posts, Comments, and Replies*

| | |
|---|---|
| **Example 1** | |
| **Main Post** | |
| *Today, I went to E-mart with my mom because we had to prepare for Chuseok*. The Market was crowded because the Chuseok rush. After shopping, we [were] absolutely exhausted because it took [such a] long time. Even though we were tired, it was a pleasant day. Please have a happy Chuseok!* | |
| **Comment 1** (reflective) | *Have a good Chuseok.* |
| **Reply** | *You to!* |
| **Comment** (substantive) | *Wow . There are lots of people. It looks like a traffic jam. I just stayed in my dormitory during the holiday and studied English.* |
| **Example 2** | |
| **Main Post** | |
| *Hello everyone? How was your weekend?<br>I had a good time. I met my friends at the Igseon-dong station. There were so many people. There stores are great. It's very unique. And, it is a single-story building. The interior was good. At first, we tried to eat dumplings. But...(Continued)* | |
| **Comment 1** (reflective) | *Wow ~ It was so delicious! I will go there!* |
| **Reply** | *Yes, it will be good!* |
| **Comment 2** (substantive) | *Oh! I went to Igseon-dong last week!! The alley was so beautiful. I saw the restaurant! But I didn't go. There were many people waiting! I went to another restaurant! I ate spaghetti!! There was no restaurant sign. I want to go to this place again.* |

*Note*. * Chuseok is a national holiday in Korea to celebrate the harvest.

Students in the TOEIC group attended an English for international communication course and spent one hour during their three-hour weekly meetings practicing TOEIC writing question style 1 (i.e., image description) and style 2 (i.e., reply to a business email). The remaining class time was allocated to other areas of language acquisition such as reading, listening, and speaking using supplementary language learning material provided by the instructor. Criteria for TOEIC writing sections 1 and 2 can be seen in Table 3.

TABLE 3
*TOEIC Writing Test*

| Question | Category | Criteria |
|---|---|---|
| 1-5 | Write a sentence based on the picture | Grammar<br>Relevance to picture |
| 6-8 | Respond to the written request | Quality and variety of sentences<br>Vocabulary<br>Organization |

In both the OCW and TOEIC conditions, students were instructed to practice writing about images and replying to others. TOEIC email replies were formal and longer than Facebook replies, while SNS main posts (i.e., description of a personal image) were informal and longer than TOEIC question style 1 image descriptions, however, the underlying objectives of describing a picture and communicating with others were similar for both groups. In the OCW group, students practiced their weekly writing both inside (30 minutes) and outside (30 minutes) of class while students in the TOEIC writing group practiced their writing (60 minutes) during class with instructor supervision.

Instructors from both groups had graduate degrees in TESOL and over ten years ($M$ = 12.5 years) of experience teaching English as a foreign language in South Korea. The main learning objective for both groups was English language acquisition and this provided opportunity for collaboration between instructors who met on a biweekly basis during the eight-week treatment to discuss class activities. While not exactly parallel, the non-writing portions of both courses involved an emersion approach to L2 acquisition that entailed placing the learner into an English-only learning environment to practice communicating in the target language with a native English-speaking instructor.

## Writing Complexity and Accuracy

For the current study, a combination of lexical variation, syntactic complexity, and L2 writing accuracy were observed. Syntactic complexity was defined here as MLS, MLC, and mean length of pre- and post-writing compositions. Indices of lexical variation consisted of the number of different words (from random 50-word sequence), and variation of verbs, nouns, adjectives, and adverbs. Lexical variation and syntactic complexity were analyzed using Lu's (2010, 2012) computational software. Writing accuracy measurements followed procedures and criteria set forth by Chandler (2003) as shown in Table 4.

TABLE 4
*Error Types and Examples*

| Error Type | Example | Error Type | Example |
|---|---|---|---|
| structure: | *I suggest you to go with me.* | Word order: | *I and my sister came.* |
| Unclear: | *I divided my running in a good way.* | Redundant: | *She is famous and well-known.* |
| Awkward: | *He is the brother of her.* | Wrong form: | *It has stopped to rain.* |
| Wrong word: | *He is becoming to mature.* | Subject-verb: | *She have much to do.* |
| Fragment: | *Because I did not want to go.* | Verb Tense: | *If I know, I would tell you.* |
| Run-on: | *She told me, I answered, she left.* | Verb voice: | *When it be happens, we will know.* |
| Punctuation: | *Do you like dogs.* | Plural: | *Two woman came.* |
| Capitalization | *She said Love was very important.* | Article: | *We saw dog.* |
| Delete: | *She told to me her answer.* | Pronoun: | *She is a friend of myself.* |
| Insert: | *He is listening music.* | Spelling: | *Friend.* |

*Note*. Error types taken from Chandler (2003, p. 275)

Spelling (e.g., He *woried* about his mom.) and capitalization (e.g., he *worried* about his mom.) errors were counted only once for the same word within each writing task item. Figure 1 displays an example of

an analyzed writing task with descriptions of corrections.

| Text | Error Types |
|---|---|
| Hello, my name is [redacted]. I want to show a birthday cake which is my favorite cake. Yesterday, it ~~is~~ was my younger sister's birthday. Most ~~of~~ people eat normal cake, but my sister wanted~~s~~ to buy ice-cream cake. W~~w~~e bought this cake because there ~~are~~ were many flavors in that ice-cream cake, such as ~~,~~ chocolate, lemon, strawberry...etc. I want to recommend this cake. ~~Although~~ The price is very expensive, but you can ignore the price if you eat this ice-cream cake. | Subject Verb (was)<br>Delete (of)<br>Subject Verb (wanted)<br>Subject Verb (was)<br>Awkward (in that ice-cream..)<br>Insertion (such as)<br>Deletion (Although) |

*Figure 1.* Examples of corrections on a main post SNS task.

The participants' pre- and post-writing compositions were evaluated and scored by two independent trained raters with each having over 10 years of experience as L2 writing instructors with relevant graduate degrees. To estimate the inter-rater reliability of the writing, we calculated the correlation coefficient between the two raters among randomly selected samples (i.e., 10 percent of pre- and post-SNS writing corpus) of compositions from both groups. The resulting inter-rater reliability was .87 indicating high reliability.

## Data Analysis

SPSS 23.0 was the statistical package used in this study. Descriptive statistics were used to identify possible changes between groups because of their given treatment. Specifically, a set of paired-samples *t*-tests were used to compare indices for both lexical variation and syntactic complexity between pre- and post-writing tasks. A further set of paired-samples *t*-test analysis were used to identify possible changes in L2 writing accuracy. Finally, an ANCOVA was used to compare changes in L2 writing accuracy between the OCW and TOEIC groups. The method for answering research question one helped identify and explain possible washback effects caused by the OCW and TOEIC treatments beause the method separately analyzed components of sentence complexity and writing accuracy.

# Results

To help better understand writing instruction methods that improve L2 writing complexity and accuracy, this study measured a set of indices for lexical variation, syntactic complexity, and writing accuracy between two groups: one consisting of L2 students practicing OCW and the other group practicing TOEIC writing questions.

We begin with research question one which identified changes in lexical variation of writing through indices measuring the number of different words from random 50-word sequences (NDWERZ). Random sequences were chosen because the raw number of different words can depend on text length and therefore would not be appropriate due to the varying word count among students here. The remaining lexical indices measured included verb (VV) noun (NV), adjective (AdjV), and adverb (AdvV) variation. These indices were found to best identify differences in L2 proficiency levels as measured by Lu's lexical sophistication analyzer (2012).

A series of paired samples *t*-tests were conducted to compare possible changes in the quality of pre- and post-texts produced by the SNS and TOEIC groups. Once Bonferroni adjustments were made

(alpha .05/5 = .01; alpha .01/5 = .002) to the alpha levels, no statistically significant differences were found among indices measuring the OCW group as shown in Table 5. However, one of the indices reported a statistically significant difference for the TOEIC writing group: pretreatment ($M$ = .1633, $SD$ = .0472) and posttreatment ($M$ = .1289, $SD$ = .0454) for adjective variation; $t(32) = 3.669$, $p$ = .001), indicating a decrease in their use of adjectives after the TOEIC writing practice. Less adjective variation was also noticed in the OCW group but was not statistically significant.

TABLE 5
*Comparison of Lexical Variation before and after Treatment*

| | Pre | | Post | | Paired *t*-test | |
|---|---|---|---|---|---|---|
| OCW | *M* | *SD* | *M* | *SD* | *t* (33) | *p* |
| NDWERZ | 36.81 | 2.29 | 37.66 | 2.14 | 1.638 | .111 |
| VV | .208 | .043 | .199 | .055 | 1.230 | .228 |
| NV | .762 | .113 | .772 | .091 | 0.283 | .779 |
| AdjV | .141 | .031 | .120 | .041 | 2.597 | .014 |
| AdvV | .108 | .028 | .105 | .038 | 0.286 | .777 |
| | | | | | | |
| TOEIC | *M* | *SD* | *M* | *SD* | *t* (32) | *p* |
| NDWERZ | 36.82 | 2.11 | 36.06 | 3.01 | 1.157 | .254 |
| VV | .207 | .042 | .195 | .059 | 0.4791 | .636 |
| NV | .827 | .119 | .811 | .119 | 0.5081 | .616 |
| AdjV | .163 | .047 | .129 | .045 | 3.699 | .001** |
| AdvV | .112 | .043 | .089 | .046 | 2.089 | .047 |

*Note*: Alpha values for the paired *t*-test was adjusted to .05/5 = .01; .01/5 = .002

Research question two inquired toward the change in syntactic properties of writing related to the MLS, MLC, and mean length of image descriptions for items 1 and 2 (i.e., the difference in total number of words used to describe images from pre- and post-writing tasks). As with the lexical indices, MLS and MLC were chosen because of their independence from text length of pre- and post-writing tasks, and furthermore, MLS and MLC reported higher reliability in comparison to other syntactic indices in predicting differences in syntactic complexity among different L2 proficiency levels (Lu, 2010). As Table 6 shows, no differences were found between pre and post analysis, indicating that neither treatment influenced the syntactic complexity indices measured here.

TABLE 6
*Comparison of Text Length*

| | Pre | | Post | | | |
|---|---|---|---|---|---|---|
| OCW | *M* | *SD* | *M* | *SD* | *t* | *p* |
| MLS | 9.65 | 2.72 | 9.51 | 2.32 | 0.335 | .740 |
| MLC | 6.73 | 1.10 | 6.75 | 0.74 | 0.184 | .855 |
| MLMP | 42.7 | 17.8 | 44.4 | 20.5 | 0.614 | .544 |
| | | | | | | |
| TOEIC | | | | | | |
| MLS | 8.04 | 1.63 | 7.88 | 2.33 | 0.357 | .724 |
| MLC | 6.11 | 0.85 | 6.34 | 0.831 | 1.116 | .274 |
| MLMP | 27.5 | 12.3 | 28.0 | 9.47 | 0.209 | .836 |

*Note*. The alpha value for the paired *t*-test was adjusted to .05/3 = .0166. MLMP = Mean Length of Main Post.

Research question three identified changes in L2 writing accuracy. Paired samples *t*-tests found a significant difference for writing accuracy ($t(32) = 3.834$, $p$ = .001) among OCW students, while no difference was recognized in the TOEIC group. In terms of the relative effects on students' L2 writing accuracy generated by the OCW with SNS and TOEIC writing practice treatments, the results (see Table 7) suggest that while OCW through SNS writing practice can be associated with increased accuracy, no such benefits were recognized following the TOEIC test-preparation training here.

TABLE 7
*Comparison of Writing Accuracy between OCW and TOEIC groups*

| | Pre | | Post | | | |
|---|---|---|---|---|---|---|
| OCW | *M* | *SD* | *M* | *SD* | *t* | *p* |
| Accuracy (errors/100 words) | 13.39 | 5.40 | 10.11 | 4.90 | 3.834 | .001** |
| TOEIC | | | | | | |
| Accuracy | 12.51 | 3.67 | 14.08 | 5.78 | 1.369 | .182 |

*Note*: Alpha value for the paired t-test was adjusted to .05/2 = .025; .01/2 = .005.

A One-way ANCOVA was conducted to determine if a statistically significant difference between the OCW and TOEIC treatment on writing accuracy existed. There was a significant effect of the OCW with SNS treatment on the change in L2 writing accuracy after controlling for pre-accuracy levels, $F(2, 59) = 4.450$, $p = .039$, indicating the OCW treatment with SNS had a statistically significant positive effect on writing accuracy in comparison to the students practicing TOEIC writing questions.

Answering these research questions described how the two writing treatments under observation here influenced L2 writing by taking into consideration lexical variation, syntactic complexity, and writing accuracy. The treatment consisting of OCW in SNS context resulted in higher L2 writing accuracy, but not at the expense of simpler word use or sentence structure. On the other hand, the TOEIC group displayed no changes in L2 writing accuracy and wrote fewer modifiers at the end of the TOEIC-preparation class. These findings will now be explored further.

## Discussion

We begin the discussion with interpreting results for research questions one and two, which revealed no change in syntactic complexity for either group, no change in lexical variation in the OCW group, and a decrease in adjective variation in the TOEIC group. Both groups used fewer adjectives in the post-writing task, but the difference was only statistically significant for the TOEIC group. The TOEIC students also showed a decrease in adverb variation ($p = .047$). However, this was not statistically significant due to the adjusted alpha level ($alpha^* = .001$). The reasoning for this lack of adjective variation in the post TOEIC writing samples may be attributed to the TOEIC writing prompts themselves. In TOEIC writing question style one, students are shown a picture that is accompanied by two nouns they must use in a sentence. For example, the test taker is given an image of people in a library, with the nouns *people* and *library*. Test takers are graded on the accurate use and the relevance of the sentence to the picture, therefore, a correct answer to the above example could be 1) *There are people in the library,* or 2) *The people are reading books in the library*. Students can add modifiers which would show greater complexity in their writing, however adding complexity increases the risk of making a mistake at no extra reward (i.e., points).

The lack of any difference in lexical variation and syntactic complexity between pre- and post-writing tasks in the OCW group is noteworthy because it indicates students who participated in OCW with SNS for eight weeks did not display avoidance behavior tendencies in their writing. Such tendencies occur when students avoid using less familiar vocabulary (*i.e.*, taking risk) or longer sentences because they fear looking foolish. As Krashen (1985) explains, L2 writers may feel constrained, and therefore write less if they are experiencing negative emotions such as fear or embarrassment.

Research question three investigated changes in L2 writing accuracy. Students in the OCW group displayed statistically significant improvement in L2 writing accuracy, while the TOEIC writing group, who received explicit corrective feedback in the form of instructor intervention during class writing activities, showed no changes.

Improvements in writing accuracy across a range of error types have been attributed to some form of

corrective feedback in past research (Bailey, 2016; Bitchener, 2008; Chandler, 2003; Ferris, 1999, 2006), and students continue to report to appreciate and expect feedback on their writing (Hyland, 1998; Storch, 2005; Storch & Wigglesworth, 2012). The argument for feedback is strong, however, results from answering research question one fuel the corrective feedback debate because they show OCW, in the absence of corrective feedback, was sufficient for improvement in L2 writing accuracy for the OCW students under observation here.

The reasoning for the increase in writing accuracy among the OCW group could be due to exposure to writing practice, which is similar to what Chandler (2003) attributed the increase in accuracy with her non-feedback group. Chandler compared error rates of first drafts of task 1 and task 5 during a 10-week term. While students in the direct corrective feedback and indirect corrective feedback groups showed greater improvement than the non-feedback group, all groups improved. However, if this were true, then some amount of accuracy improvement would have been expected in the current study for the TOEIC group because they were also exposed to writing practice.

There are a number of social learning theories that help support the L2 writing improvements that students in the OCW group displayed as opposed to the TOEIC group. The increase in L2 writing quality, according to the indices measured in the present study, could be a result of collaborative learning based in the peer-modeling component of the Sociocultural learning theory (Vygotsky, 1978). In this instance, examples of correct writing are delivered collaboratively through peer-modeling provided by higher L2 writing accuracy writers to their lower L2 writing accuracy counterparts. Additionally, OCW students may have invested more energy in their writing to avoid looking foolish in front of others (Krashen, 1985). Modeling by peers is an aspect of collaborative learning which increases students' self-efficacy beliefs, leading to greater academic success (Bandura, 1986), and made possible because the material being modeled exists within the lower level learner's zone of proximal development because it was in the form of personalized social media communication amongst peers.

The zone of proximal development is a social relationship, constructed largely through language, in which individuals undertake to help other individuals to appropriate and gain control over available forms of mediation in the form of mental and emotional growth (Vygotsky, 1978). While never originally intended for social platforms like Facebook, the concept of learning by modeling within the ZDP, and gaining L2 writing knowledge from peer modeling, is just as easily attainable through communication technology today as it was in the classroom decades past when the theory was proposed.

A further potential explanation for the OCW groups' improvement in writing accuracy could be increased interest and investment in the task of writing on Facebook due to the inherently student-generated nature of the writing topics. As was found in Lambert, Philp and Nakamura (2016), students' language production, time invested in the task and responsiveness, all increased under the student-generated content condition. Since the students in the OCW group provided the pictures to write about, it is more likely that they were interested in writing about that topic, and hence spent longer on their writing which could have produced the observed improvement in accuracy. Further research is warranted in this area to ascertain the influence of topic interest on writing accuracy.

Language learning strategy theory (Oxford, 1990) may also help explain the increase in L2 writing accuracy among the OCW students. Participating with others in online collaborative writing platforms entails relying on numerous self-regulated learning strategies such as planning, organizing, and sharing. Perhaps future studies could investigate language learning strategy training through online collaborative communication activities like OCW.

With respect to the TOEIC group, criteria for test performance was much more elaborate than the genre of OCW in SNS context. Also, TOEIC criteria varied depending on the question style. TOEIC question styles 1 and 2 were most relevant to the pre- and post-writing tasks in the current study and their criteria consisted of 1) grammar, 2) quality and variety of sentences, 3) vocabulary, and 4) organization (see Table 3). The only change identified among students in the TOEIC group was a decrease in adjective use, indicating negative washback with respect to modifier use (i.e., sentence complexity). The reasoning for this was given above when discussing the results from question 1: students wrote fewer adjectives

because increasing sentence complexity with such modifiers adds to the risk of making a mistake (i.e., error) with no reward of extra points. This lack of lexical variation with respect to adjectives in the post-writing task among students in the TOEIC group is considered an example of negative washback occurring as a result of practicing in accordance to the TOEIC rating criteria.

The reasoning for the lack of improvement noticed here among students in the TOEIC group could be found in the TOEIC textbooks themselves. It is common for TOEIC textbooks in South Korea to be written in the students' first language (L1) (Booth, 2012) with the intention of providing strategies for doing well on the TOEIC test (ETS, 2017) and not necessarily in accordance with SLA theory (Krashen, 1985), language learning strategies (Oxford, 1990), or pedagogically proven techniques expressed by good language learners (Reid, 1987).

Finding no change in accuracy in the TOEIC group is worrisome considering the importance this component has on the TOEIC writing test itself. This lack of positive findings among the TOEIC group could be due to the lack of importance the TOEIC speaking and writing sections have in comparison to the TOEIC grammar, listening, reading and vocabulary sections. Due to the added financial cost and time required for the TOEIC speaking and writing test, many companies only ask for non-speaking and writing scores of the TOEIC, and as a result, this is what the students focus on when preparing.

## Conclusion

Findings from this study showed online collaborative writing using class Facebook groups had a positive effect on L2 writing accuracy, which supports previous research in technology-enhanced L2 writing instruction (Arslan, 2014). This study added a quantitative element to Dippold's (2009) qualitative study which found blogging supported collaborative learning and students enjoyed and profited from the use of SNS due to its interactivity, simple user interface, and ability to provide channels for communication. Moreover, the collaborative learning afforded by SNS revealed the potential for writing improvement independent of instructor delivered written corrective feedback.

Results from this study show potential for improving TOEIC writing training, as well as L2 writing in general, through the inclusion of OCW in SNS context. Perhaps future courses involving TOEIC writing training may serve the students best when integrating a portion of their writing activities into a collaborative writing context (i.e., Facebook, Twitter, or online discussion forums).

Platforms like blogs, wikis, and forums have been well established in L2 writing instruction as viable instruction tools (Miyazoe & Anderson, 2010), yet the implications of OCW in SNS context to support TOEIC learning objectives had remained unexplored until now. If such social collaboration positively effects writing accuracy, then future research should attempt to implement a comparison group that combines OCW and TOEIC writing test-preparation. Future research should also attempt to better understand how the collaborative aspects of sociocultural and socio-cognitive theories influence improved L2 performance on collaborative platforms like SNS.

As with all socials science research, this study had some limitations. First and most notably, no true control group was established which limits conclusions that can be made concerning one treatment in comparison to another. Secondly, the small sample of participants and recruitment of participants from the same university limit the generalization of findings. Furthermore, while the goal for both groups was language acquisition through emersion with a native English speaker, curriculums for the OCW and TOEIC group differed conceptually. Finally, students in the TOEIC group consisted of a variety of university majors while students in the OCW group were all double majoring in Business and English and this likely influenced underlying motivation to develop L2 writing accuracy. Albeit imperfect, this study shines a light on how SNS platforms like Facebook can be used to provide additional modes of L2 writing practice that align with both criteria required by the TOEIC writing test as well as the writing goal of improved accuracy held by many L2 learners.

Importantly, this study reveals the need for future research to investigate the influence social learning

theories have on elements related to L2 writing quality such as accuracy, cohesion, and perceptions. Such research could include control groups and attempt to compare feedback versus non-feedback groups with participants practicing L2 writing in OCW conditions.

Social networking sites in education are used for the purpose of communicating and connecting socially with others through collaborative learning. The importance for educators and researchers to understand the implications of online collaboration continues to advance through the development of information and communication technologies.

## The Authors

*Daniel Bailey* (corresponding author) is an assistant professor in the Department of English at Konkuk University's Glocal Campus in South Korea. He recently earned a PhD from Korea University in education technology, and his current research interest is exploring methods to improve English communication opportunities in EFL context.

Department of English Language and Literature
Konkuk University Glocal Campus
Tel: +81-010-4442-8181
Email: dbailey0566@kku.ac.kr

*Christopher Judd* has been teaching English as a Foreign Language in South Korea for over six years. He is completing a master's degree in TESOL from Lancaster University. His research interest lies in the investigation of collaborative language learning, language learning tasks, and reflective practice.

Department of English
Korea Polytechnic University, Korea
juddchris3@googlemail.com

## References

Alderson, J. C., & Wall, D. (1993). Does washback exist? *Applied Linguistics, 14*(2), 115-129.

Alm, A. (2006). CALL for autonomy, competency, and relatedness: Motivating language learning environments in Web 2.0. *JALT CALL Journal, 2*(3), 29-38.

Arslan, R. S. (2014). Integrating feedback into prospective English language teacher's writing process via blogs and portfolios. *The Turkish Online Journal of Educational Technology, 13*(1), 131-148.

Bailey, D. R., Park, I. W., & Haji, S. A. (2017). An investigation of Facebook for language learning: Better understanding participation and patterns. *CALL-EJ, 18*(2), 14-30.

Bailey, D. R. (2016). Forum-assisted written corrective feedback: Fostering greater focus on writing accuracy. *Society for Teaching English through Media, 17*(2), 83-104.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Upper Saddle River, N. J.: Prentice Hall.

Bitchener, J. (2008). Evidence in support of written corrective feedback. *Journal of Second Language Writing, 17*(2), 102-118.

Booth, D. (2012). *Exploring the washback of the TOEIC in South Korea: A sociocultural perspective on student test activity* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses (Accession Order No. [229219379])

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.

Choi, I.-C. (2008). The impact of EFL testing on EFL education in Korea. *Language Testing, 25*(1), 39-62.

Crosthwaite, P., Bailey, D., & Meeker, A. (2015). Assessing in-class participation for EFL: Considerations of effectiveness and fairness for different learning styles. *Language Testing in Asia*, *5*(9), 1-19.

Dippold, D. (2009). Peer feedback through blogs: Student and teacher perceptions in an advanced German class. *ReCALL, 21*(1), 18-36.

Educational Testing Service (2016). *TOEIC Program Data & Analysis 2016*. Retrieved from http://www.iibc-global.org/library/toeic_data/toeic/pdf/TOEIC_Program_DAA.pdf

Ferris, D. R. (1999). The case for grammar correction in L2 writing classes: A response to Truscott (1996). *Journal of Second Language Writing, 8*(1), 1-10.

Ferris, D. R. (2006). *Does error feedback help student writers? New evidence on the short- and long-term effects of written error correction*. In K. Hyland, & F. Hyland (Eds.), *Feedback in second language writing: Contexts and issues* (pp. 81-104). Cambridge: Cambridge University Press.

Foster, P., & Skehan, P. 1996. The influence of planning and task type on second language performance. *Studies in Second Language Acquisition, 18*(3), 299–323.

Hattem, D. (2012). The practice of microblogging. *Journal of Second Language Teaching and Research, 1*(2), 38-70.

Hyland, F. (1998). The impact of teacher written corrective feedback on individual writers. *Journal of Second Language Writing, 7*(3), 255-286.

Johnson, D. W., & Johnson, R. T. (1989). *Cooperation and competition: Theory and research.* Edina, MN: Interaction Book Company.

Jones, C., & Shao, B. (2011). *The net generation and digital natives: Implications for higher education.* Higher Education Academy, New York.

Krashen, S. D. (1985). *The input hypothesis: Issues and implications*. New York: Longman.

Lambert, C., Philp, J., & Nakamura, S. (2016). Learner-generated content and engagement in second language task performance. *Language Teaching Research, 21*(6), 665-680.

Lantolf, J. P., & Poehner, M. E. (2008). *Sociocultural theory and the teaching of second languages.* London: Equinox Publishing.

Lee, A. R., & Bailey, D. B. (2016). Korean EFL students' perceptions of instructor video and written feedback in a blended learning course. *Society for Teaching English through Media, 17*(4), 133-158.

Limbu, M. (2012). Teaching writing in the cloud: Networked writing communities in the culturally and linguistically diverse classroom. *Journal of Global Literacies, Technologies, and Emerging Pedagogies, 1*(1), 1-20.

Lu, X. (2010). Automatic analysis of syntactic complexity in second language writing. *International Journal of Corpus Linguistics, 15*(4), 474 -496.

Lu, X. (2012). The relationship of lexical richness to the quality of ESL learners' oral narratives. *The Modern Language Journal, 96*(2), 190-208.

Naghdipour, B. (2017). 'Close your book and open your Facebook': A case for extending classroom collaborative activities online. *The Journal of Asia TEFL, 14*(1), 130-143.

Newgarden, K. (2009). Annotated bibliography: Twitter, social networking and communities of practice. *TESL-EJ, 13*(2), 2-13.

MacArthur, C. A., & Karchmer-Klien, R. A. (2010). *Web 2.0: New opportunities for writing*. In G. A. Troia, R. K. Shankland, & A. Heintz (Eds.), *Putting writing research into practice* (pp. 45-69). New York: Guilford Press.

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.

Oxford, R. L. (1990). *Language learning strategies: What every teacher should know.* Boston: Heinle and Heinle.

Oxford, R. (2011). Strategies for learning a second or foreign language. *Language Teaching, 44*(2), 167-180.

Patall, E. A., Copper, H., & Wynn, S. R. (2010). The effectiveness and relative importance of choice in the classroom. *Journal of Educational Psychology, 102*(4), 896-915.

Peterson, S. (2003). Peer response and students' revisions of their narrative writing. *L1-Educational Studies in Language and Literature, 3*(3), 239-272.

Read, J. (2000). *Assessing vocabulary*. Cambridge: Cambridge University Press.

Reid, J. (1987). The learning style preferences of ESL students. *TESOL Quarterly, 21*(1), 87-111.

Rosen, L. D., Chang, J., Erwin, L., Carrier, L. M., & Cheever, N. A. (2010). The relationship between "textisms" and formal and informal writing among young adults. *Communication Research, 37*(3), 420-440.

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.

Storch, N. (2005). Collaborative writing: Product, process, and students' reflections. *Journal of Second Language Writing, 14*(3), 153-173.

Storch, N., & Wigglesworth, G. (2012). What role for collaboration in writing and writing feedback? *Journal of Second Language Writing, 21*(4), 364 -374.

Truscott, J. (1996). The case against grammar correction in L2 writing classes. *Language Learning, 46*(2), 327-369.

Truscott, J. (2004). Evidence and conjecture on the effects of correction: A response to Chandler. *Journal of Second Language Writing, 13*(4), 337-343.

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.

Vygotsky, L. S. (1978). *Mind in society.* Cambridge, MA: Harvard University Press.

Yunus, M. M., Salehi, H., & Chenzi, C. (2012). Integrating social networking tools into ESL writing classroom: Strengths and weaknesses. *English Language Teaching, 5*(8), 42-48.