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The Effects of Implicit Learning on Japanese EFL Junior College Students' Writing

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The current study aims to examine the effects of implicit learning on Japanese EFL junior college students' writing. The concept of written corrective feedback (WCF) has continued to receive much attention in second language acquisition research. Although most researchers have been supportive of explicit WCF for the development of accuracy, others have focused on implicit WCF with self-correction. While explicit instruction from teachers is the traditional method to provide students with corrective feedback, research in second language acquisition has shown growing interest in the role of implicit learning to improve students' writing skills. To investigate the impact of implicit learning on students' writing, 39 Japanese second-year students who have previously failed a compulsory writing class because of their high absenteeism, participated in this study. As treatments to improve writing skills through implicit learning, implicit tasks and self-correction were used to motivate the students. The design of the experiment includes two types of implicit tasks, implicit error correction and concept mapping during class. In addition, self-correction on homework was implemented. A mix of quantitative and qualitative methods was used in the analysis. The results showed that implicit learning appeared to help students in developing writing skills, but the impact may vary across students with different levels of English proficiency.

Keywords: implicit learning, implicit tasks, self-correction, EFL, writing, students

INTRODUCTION

With the spread of globalization, literary skills as communicative tools have become increasingly important in EFL situations. EFL researchers in the field of applied linguistics have emphasized the significance of English writing among EFL learners (Kamimura, 2010). Of the four English communication skills, writing is the most deficient among Japanese EFL students. In the Japanese secondary school system, writing instruction in English classes is generally insufficient for the students. Evidence

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shows that Japanese EFL students are underprepared for English writing at the post-secondary level (Kobayashi & Rinnert, 2002; Okada, 2018). Although the literature has discussed the implementation of various methods to develop students' writing skills, no conclusive evidence has been reached (Cheng, 2002, 2004; Bayat, 2014). Recent literature has suggested the positive impact of implicit feedback (indirect feedback) on improving students' writing skills. (Lalande, 1982; Semke, 1984; Chandler, 2003; Van Beuningen et al., 2012). This study aims to explore the effects of implicit learning on Japanese EFL junior college students in terms of developing and improving their writing skills.

LITERATURE REVIEW

Implicit Learning

Implicit learning is generally defined as the acquisition of knowledge without conscious awareness (Sun, 2008). Implicit learning is distinguished from explicit learning as explained by Ellis (1994, p. 1)

"Implicit learning is acquisition of knowledge about the underlying structure of a complex stimulus environment by a process which takes place naturally, simply and without conscious operations. Explicit learning is a more conscious operation where the individual makes and tests hypotheses in a search for structure."

Studies in language acquisition suggest that explicit and implicit learning are both important in the development of language skills, such as spelling, among young children (Treiman, 1993; Pacton et al., 2005). Research has shown that implicit learning can enhance English writing proficiency (Nigro et al., 2015). For example, Steffler (2004) found a positive relationship between implicit learning through artificial grammar learning tasks and English writing abilities among fifth-grade children. The author further noted that spelling skills of children appeared to be related to their ability to implicitly learn from visual patterns. These results imply that grammar learning and visual stimulation through implicit tasks can be beneficial to improve writing skills among EFL learners. Nazari (2014) further supported this suggestion by emphasizing the important role of implicit tasks to promote autonomous learning habits in language learning.

Implicit Tasks

Hamdiun et al. (2012) discuss the importance of designing tasks to motivate writing. Among those given tasks, implicit instruction is considered to be most effective (Nazari, 2014). Implicit tasks are defined as "tasks with indirect forms of feedback." In other words, these tasks are designed to nurture implicit learning. Nazari (2014) discovered the importance of implicit tasks in improving an EFL learner's writing autonomy and grammatical accuracy.

When engaging in implicit tasks, it is possible that students will acquire the target grammar instruction without paying attention. Consequently, they will be able to convert input into intake. This internalization is considered a function of processing input to intake in acquisition. What is more, when students receive input, they are

subconsciously aware of specific features of the target language. This is called "the Noticing Hypothesis in second language acquisition." According to Schmidt (1990), the phenomenon of noticing can be traced back to theories of consciousness in psychology that deal with learning new information. If students pay close enough attention to the target features in producing the correct forms, their implicit learning is more likely to be successful by processing new information obtained through noticing. In addition, Izumi (2002) also pointed out that noticing requires attention and awareness for learning. Chi (2016, p. 80) further highlighted the importance of Schmidt's noticing hypothesis by stating that "the role of noticing is so important that potential language learners will not learn if they are not able to 'notice' features of the target language in the input." Thus, the tasks will be beneficial for developing writing skills if students can learn the target language unconsciously through those tasks.

It is believed that visual aids and images are effective to facilitate learning, as opposed to solely relying on texts (Van Amelsvoort, 2013). In terms of the relationship between visual aids and writing, Yunus, Salehi, and John (2013) maintain that visual aids such as animation videos, films, and pictures assist teaching literature and generate creative/critical thinking skills. Among the different forms of visual aids, concept mapping has been recommended as an educational tool not only for the development of critical and analytical skills but also for brainstorming. According to Novak and Cañas (2007, p. 29), concept maps are defined as "graphical tools for organizing and representing relationships between concepts indicated by a connecting line linking two concepts." These concept maps help students develop logical thinking as supporting sentences in writing paragraphs (Ojima, 2006). It can be said that concept maps are one of the effective ways to implicitly comprehend paragraph organizations. Furthermore, maps are used for students' memory retention. It is easier to recall a shape or diagram, rather than just the content of description (Davis, 2011). Presumably, students' affective variables such as anxieties hinder their writing (Cheng, 2002; 2004), and using concept maps will implicitly relieve their anxieties. Therefore, it is suggested that implicit tasks contain visual aids such as concept mapping.

Implicit Written Corrective Feedback (WCF)

Since the 1980s, several researchers have conducted experimental studies regarding explicit or implicit WCF in L2 learning and second language acquisition (SLA) research. Many different perspectives have been presented on the effectiveness of explicit and implicit WCF (Chandler, 2003; Mahmoud & Oraby, 2015; Bitchener & Storch, 2016). Nazari (2014, p.126) highlighted the issues concerning the degree of explicitness and implicitness of the feedback and stated, "Implicit correction (feedback) …provides learners with indirect forms of feedback." In order to improve accuracy, explicit (direct) feedback has been discussed to be more effective than implicit (indirect) feedback (Bitchener, 2012; Shintani & Ellis, 2015). However, Truscott (1996) argued that error correction is useless and even detrimental to students' writing, especially if they have strong writing anxieties.

More recent research has devoted attention to the feedback concerning students' affective variables such as willingness to communicate as influential factors. Hamidun et

al. (2012, p. 591) claimed that "feedback is one of the essential facets in inspiring the students' motivation in language learning specifically in writing." Cheng (2002) pointed out that students should foster positive writing perceptions as well as positive perceptions of their writing skills to enhance their writing abilities. Self-correction as a form of implicit learning may be particularly helpful for students who are less proficient in writing.

Less proficient writers often find it especially difficult to complete writing tasks during classes, because they take much longer to work on brainstorming, make outlines, and start writing than do more proficient writers. As an alternative, homework can provide these students with opportunities to conduct research on Internet outside of class at their own pace. It was reported that a strong, consistent positive correlation exists between students' academic achievements and the time they spent on homework (Cooper, Robinsion, & Patall, 2006).

For these reasons, assigning homework with the opportunities for self-correction should provide more flexibility such that students can adapt to their learning styles in a more relaxed environment, especially among the less proficient students. In addition, homework can also help to alleviate student absenteeism when students are required to submit their homework in class.

The Present Study

In previous studies, both explicit and implicit corrective feedback (CF) were provided to L2 writers, and explicit CF was more beneficial than implicit CF especially for proficient learners. (Hashemnezhad & Mohammadnejad, 2012). The purpose of this study is to examine the effects of implicit learning on Japanese junior college students with different levels of English proficiency through the implementation of implicit tasks and self-correction. Based on the literature review, two research questions have been formulated as follows:

RQ1: Do implicit tasks and self-correction improve students' writing?

RQ2: Do implicit tasks and self-correction have different impact across students with different levels of English proficiency?

METHOD

Participants

The participants were 39 second-year junior college students (males = 20, females =19; spring semester of the 2017 academic year). All participants were English majors and had previously failed a compulsory writing class taught by native English speakers. In this study, students' English proficiency level was analyzed based on the TOEIC Listening & Reading Institutional Program TEST. TOEIC L & R IP TEST is registered by Educational Testing Service (ETS) in the United States. The Test consists of listening and reading sections, and total score can range from 10 to 990 (with a maximum score of 495 for each of listening and reading). The summary of each criterion is as follows: Score 10 to 220 indicates that students are unable to

communicate in English. Score 220 to 470 shows they are only able to communicate for specific purposes at work. Score 470 to 730 implies they have enough competence in almost any situation. Score 860 to 990 indicates they communicate as non-native well enough (ETS, 2012). The students who participated in this study had scores on the TOEIC L & R IP TEST that ranged from 300 to 800. It implies that their levels of competence can be divided into unskilled, less proficient, and proficient groups. It was believed that most of them did not originally dislike learning English, because they were all English major students in a foreign language college. However, as mentioned above, high absenteeism caused them to fail the compulsory English course, which discouraged them. The class where this study took place focused on production skills such as speaking and writing, which lasted 90 minutes and was held twice per week. Since the students received paragraph writing instruction in their first year, most of them were supposed to have basic paragraph knowledge. However, a few of the unskilled students had difficulties in producing even sentence-level compositions.

Materials and Procedures

The experiment was divided into four phases as shown in Table 1, which included a pretest (paragraph writing), implicit tasks (two types of activities), and a posttest (with self-correction). On the first day of the treatment, a handwritten pretest on "My Hometown" was administered in a class for 30 minutes. The aim of the pretest was to measure students' writing skills and analyze their common errors. During pretest, dictionary use was not permitted.

Table 1
Writing Tasks and Schedule

Day	Tasks
Day 1	Pretest paragraph writing
	Descriptive paragraph "My hometown"
Day 2	Implicit task 1 (Error correction)
Day 3	Implicit task 2 (Reading and concept maps)
	Announcement of homework
Day 4	Submission of homework (posttest paragraph writing)

On the second day and third day, the implicit tasks were conducted. The first part of the implicit tasks included implicit error correction. On two occasions, students corrected errors in short paragraphs cited from a writing textbook, *Great Paragraphs 2* (Folse, Muchmore-Vokoun, & Solomon, 2011). Errors mostly pertained to indentation, capitalization, and punctuation. This task was intended to draw students' attention toward specific forms of grammar subconsciously. What is more, finding errors in texts with peers encouraged interactions and knowledge exchange between students.

The second part of the implicit tasks involved engaging with concept maps. Using visual aids and a projector, the instructor demonstrated how students could develop their ideas into concept maps before writing paragraphs. In order to comprehend the organization process clearly, sample concept maps and pictures were used. In addition, the instructor visually demonstrated the organization of the supporting sentences in paragraphs.

The final phase was the posttest for students to complete their typewritten homework. After creating concept maps, the deadline for the completion of homework was announced to the students. They were supposed to complete and submit their paragraphs with topic-related pictures (i.e., hometown, city, and landscape), for which they were expected to perform online research and self-correct by using the computer software on their typewritten homework.

The design of this experiment aims to observe the impact of implicit tasks (error-correction and concept mapping in class) and self-correction on improving students' writing skills. Students who participated in this study were expected to perform better on the posttest than the pretest due to the exposure to implicit tasks, and being able to complete the posttest at home with help of self-correction (as opposed to the limited class time allocated to complete the pretest).

For assessment, two English language teachers (one of the authors and a native English speaker) analyzed the results of the pretest and the posttest (homework). To measure the students' performance on paragraph writing structure, the Test of Written English (TWE) scoring rubric guide between 1 and 5, designed specifically for junior college students, was applied. The total possible score was five points. The summary of each criterion is as follows: Score 5 indicates that students demonstrate competence in writing on both rhetorical and syntactic levels. Score 4 indicates that students demonstrate minimal competence in writing on both rhetorical and syntactic levels. Score 3 indicates that students demonstrate some developing competence in writing, but it remains flawed on either the rhetorical or syntactic levels or both. Score 2 indicates that students demonstrate incompetence in writing, with serious and frequent errors in usage or sentence structures. Score 1 indicates that students demonstrate incompetence in writing and an inability to comprehend the question. To measure writing improvement, a mix of quantitative and qualitative methods was used. A *t* test was used to compare students' scores on the pretest and the posttest. In addition, a qualitative analysis was conducted on the most frequent errors made by students. The students were asked to answer open-ended questions about their experience after they completed the implicit tasks.

FINDINGS AND DISCUSSION

Results of the Writing Test

Table 2 shows the descriptive statistics of the pretest (Cronbach's alpha = .88) and posttest (Cronbach's alpha = .68). The *t* test indicates significant difference in student performance between the pretest and the posttest. Since the mean score on TWE of the posttest (M = 2.58, SD = 0.48) was significantly higher than that of the pretest (M = 1.83, SD = 0.86), it seems that, overall, students' writing has improved.

Table 2
Descriptive Statistics of the Pretest and the Posttest *(N = 39)*

	Pretest		Posttest		*t* (38)	
	M	*SD*	*M*	*SD*	*t*	*p*
TWE	1.83	0.86	2.58	0.48	-6.54	.00**
Words	72.18	41.56	172.97	54.55	-11.2	.03*

**p < .01, *p < .05

To gain a more in-depth understanding on the impact of implicit learning on different types of students, the 39 students were divided into three groups based on the results of the pretest of TWE: the proficient group, the less proficient group, and the unskilled group (Table 3). Students who scored more than 3 constituted the proficient group (n = 7). Those who scored 2 to 3 constituted the less proficient group (n = 12). Those who scored less than 2 constituted the unskilled group (n = 20).

Results from Table 3 show that the mean score on TWE of the proficient group has significantly decreases from 3.07 (SD = 0.12) at the pretest to 2.93 (SD = 0.24) at the posttest. In contrast, the mean scores on TWE of the other two groups have increased between the pretest and the posttest. For the less proficient group, the mean score has significantly increased from 2.31 (SD = 0.30) to 2.71 (SD = 0.44). For the unskilled group, the mean score has significantly increased from 1.11 (SD = 0.36) to 2.40 (SD = 0.50). Furthermore, the gap in the mean score on TWE between the three groups has become smaller in the posttest compared to that of the pretest. It is also interesting to note that the standard deviation on the TWE score has increased on all three groups between the pretest and the posttest.

Table 3
Descriptive Statistics of the Pretest and the Posttest of Three Groups on TWE *(N = 39)*

	The proficient group (n = 7)		The less proficient group (n = 12)		The unskilled group (n = 20)	
	M	*SD*	*M*	*SD*	*M*	*SD*
Pretest	3.07	0.12	2.31	0.30	1.11	0.36
Posttest	2.93	0.24	2.71	0.44	2.40	0.50
t-stat		-6.54		-3.64		-11.05
p-value		.00**		.00**		.00**

**p < .01, *p < .05

Next, Table 4 shows the number of words in the pretest and posttest for each group. Regarding the mean of the number of words, the proficient group was highest in the pretest (proficient group: M = 137.29, SD = 22.32; less proficient group: M = 85.67, SD = 16.57; unskilled group: M = 41.30, SD = 21.40); but the less proficient group was highest in the posttest (proficient group: M = 178.43, SD = 42.94; less proficient group: M = 209.58, SD = 71.13; unskilled group: M = 149.10, SD = 34.68). Overall, all the three groups showed a higher mean on the number of words in the posttest than the pretest.

Table 4
Descriptive Statistics of the Pretest and the Posttest of Three Groups of number of words written *(n = 39)*

	The proficient group (*n* = 7)		The less proficient group (*n* = 12)		The unskilled group (*n* = 20)	
	M	*SD*	*M*	*SD*	*M*	*SD*
Pretest	137.29	22.32	85.67	16.57	41.30	21.40
Posttest	178.43	42.94	209.58	71.13	149.10	34.68
t-stat	-2.34		-6.06		-15.06	
p-value	n.s.		.00**		.00**	

**p < .01, *p <.05

The results on TWE indicate that the less proficient group and the unskilled group showed relative improvement while the proficient group did not. The unskilled group showed the most improvement with their mean TWE score doubled between the pretest and the posttest. This implies that the unskilled group seems to benefit more from implicit learning than the other two groups, and that these students may be more motivated to learn on their own outside of the classroom through homework. On the contrary, the implicit learning methods did not seem to benefit the proficient group which appeared to be discouraged by homework. This implies that the more advanced students may require more challenging tasks to be motivated. Even though these students all registered for the same course, their writing abilities varied. To have a better understanding of individual student needs, affective factors may provide additional insights on improving students' writing skills.

A major challenge faced by the unskilled group is that these students often find it difficult to create longer and full sentences due to their lack of vocabulary and inability to express their thoughts. Evidence from the number of words written showed that the unskilled group was more likely to use very short and simple sentences in the pretest. However, while working on their homework, they were able to spend more time searching for relevant information on the Internet, which increased the number of words used in the posttest (homework). Homework seemed to have helped to reduce the writing anxieties of the unskilled group.

Types of Errors in the Writing Tests

In this section we will provide some qualitative evidence on whether students writing skills have improved or not after they were exposed to the implicit learning tasks. We will present the changes in the types of errors made by each group between the prettest and the posttest, followed by some comments whether the changes should be considered improvement in writing skills or not. Since the number of participants and the experimental period were quite limited, it was relatively easy to focus on the types of common errors substantially made by each group. Table 5 describes each group's most remarkable errors in the pretest and in the posttest. Excerpts from each test are also provided.

Table 5
The Most Remarkable Errors in the Pretest and the Posttest of Each Group

Groups	Samples (pretest)	Samples (posttest)
The proficient (*n* = 7)	It (inappropriate use) Countable /uncountable nouns Omission of a/the	Relative pronoun Omission of a/the
The less proficient (*n* = 12)	Passive voice (inappropriate use) Verbs Discourse markers	Punctuation Subject-Verb agreement Word order
The unskilled (*n* = 20)	There is/are Incomplete sentences For example	It (inappropriate use) For example Incomplete sentences

Excerpts: Remarkable errors in the pretest
(The proficient group)
One of famous Osaka has Osaka's mother. It is very famous for Japanese people.
Then, some resident told me a dangerous road in a car.
My hometown is very good place.
(The less proficient group)
Osaka castle was built of Hideyoshi Toyotomi in 1583.
Cherry tree is bloom in spring.
…because of there is safe for their children.
(The unskilled group)
There is many famous place in Osaka.
But especially nothing to do with.
For example, an opera house, Mt. Rokkosan, Kinosaki hot spring.

In terms of the pretest, the more proficient the writers were, the more frequently they made local (minor grammatical) errors, which did not hinder the content in the paragraphs such as prepositions and articles. However, the inappropriate use of "it" occasionally made the context incomprehensible and unclear. Participants were supposed to have been provided with explicit instruction so that they could be unconsciously or consciously aware of those forms. As for the less proficient group, they made fewer grammatical errors and their paragraphs made sense overall. The common mistakes they made included the use of inappropriate verbs. For example, some of them wrote two verbs in one sentence, which indicated a lack of grammatical competence. Additionally, even though they tried to use discourse markers, they seemed to choose the same words and phrases repeatedly, which indicated a lack of knowledge about written pragmatics. On the contrary, most participants in the unskilled group wrote incomplete sentences with meaningless content. It is suggested that they review composition exercises. In fact, the use of "for example" was one of the most frequent errors made by the unskilled group. They usually wrote, "For example, Osaka, Kyoto, and Kobe." They missed adding a verb.

Compared with the pretest, the proficient group more frequently wrote compound sentences during the posttest. However, the omission of articles was a common mistake made even in the posttest. It seems that these students spend the least time writing

paragraphs compared to the other two groups, because they made simple mistakes such as the inappropriate use of "for example," which they did not make in the pretest. Next, the remarkable errors of the less proficient group were discussed. Even though they typed their writings on computers, errors concerning punctuations appeared in several paragraphs. Some of them did not leave any space between sentences. In fact, most of the target students did not know about indentation and capitalization before they began their writing practices. The less proficient group revealed that they were unsure of the rules of paragraph writing. Finally, regarding the unskilled group, the inappropriate use of discourse markers was common. Most of them were misspellings or misunderstandings, such as for "concludings." This group lacked overall basic knowledge of writing and grammar, and it is recommended that sentence-level exercises be repeated before they begin working on paragraph writing.

Excerpts: Remarkable errors in the posttest

(The proficient group)

This spot has crazy people who were character's costume.

For example, crab, soba, rice and deep-fried bean curd.

New York City is very good city in the world for a number of reasons.

(The less proficient group)

There are several good points. First, my hometown "Inakagawa" is a town located in Kawabe District, Hyogo Prefecture, Japan.

Umeda has many buildings that is higher than other city's.

Aioi is usually a peaceful, easy to live town with many elderly people.

(The unskilled group)

Cherry blossoms are blooming in April and it is very beautiful.

For concluding, people can enjoy delicious food, hot springs and making Taiwanese friends, Taiwan is so beautiful.

Kakogawa fireworks an annual every year event at Kako river sides.

The summary of errors made by the three groups has shown that implicit tasks did not provide direct error correction, which did not drastically help with students' writing. However, regarding the number of words, since the students could spend more time planning and generating ideas, the unskilled group showed improvement relative to the other two groups.

Students in the unskilled group were only able to write very short and sometimes meaningless sentences in the pretest such as "But especially nothing to do with." Their writing skills showed significant improvement in the posttest in terms of the use of vocabulary and appropriate sentence structure.

The group of less proficient students made grammatical mistakes such as inappropriate use of verbs and the passive voice in their pretest. This same group of students made less grammatical mistakes in the posttest, but showed insufficient knowledge on paragraph writing such as the incorrect usage of indentation and capitalization. Overall, this group showed some improvement in writing skills in terms of the writing errors committed.

Finally, the proficient group indicated that they had only minor errors and few mistakes in the pretest. In the posttest, these students used more compound sentences but also made more basic mistakes such as the inappropriate use of "for example". This group showed the least improvement between the pretest and the posttest among the three groups of students.

In short, the qualitative evidence based on the types of errors made appears to be consistent with the quantitative evidence based on the TWE scores in that the unskilled group of students showed the most improvement in their writing skills after being exposed to implicit learning tasks.

Results of Affective Variables

In this section, student responses on affective variables will be discussed. After the implicit tasks were completed, students were asked to answer open-ended questions in order to investigate their affective variables of implicit tasks displayed in Table 6. However, the implications from the survey discussed below must be interpreted with caution as few responses had been collected from the survey.

Table 6
Results of Open-Ended Questions

Pictures	I was not sure whether my choice of the picture was suitable for the paragraph.
	I took pictures on my own, which reminded me of living in New York.
	Selecting my favorite pictures was very interesting.
Typing	Compared with the written exams, typing at home allowed me to spend more time writing.
	By using the computer, conducting a vocabulary search was very convenient.
	Using Word document was very difficult and bothersome.
Others	Researching my hometown expanded my views of local cultures.
	I did not have a printer at home, but this homework was useful.
	Homework helped me use computer skills and increase my vocabulary.

Although the survey was designed with open-ended questions, most of the responses were related to homework, and not implicit error correction or concept maps. This indicates that students' learning attitudes revolve mainly around homework. During the error correction and concept maps activities, students working in groups or pairs contributed to an interactive classroom setting. Especially, students who actively engaged helped those who were more passive, which resulted in a successful, learning-conducive classroom environment. Despite little use of oral English in the tasks, at least students' anxieties seemed to have reduced with the implicit tasks. In short, although those who have strong anxieties seemed to be reluctant to work in groups or pairs, in this study, the implicit tasks appeared to have exerted a positive influence on their classroom participation.

In fact, the group that showed the most potential was the unskilled group, which showed the largest increase in writing competence. Once these students were able to understand how to develop their writing skills, they could easily reduce their anxieties as they became encouraged. It seems that they already had their own learning strategies, which

contributed to development of their writing skills. In contrast, the proficient group seems to experience little or no improvement through homework potentially due to lack of motivation associated with tasks that are not challenging enough for them.

Additionally, not all of the unskilled writers were passive, while not all of the proficient group was actively engaged. Writing is a communicative skill, however; writing fluency is not necessarily derived from speaking fluency. A more precise research design will be required in future research to obtain more detailed information. Moreover, the issues of explicit and implicit feedback (error corrections) need to be further explored.

CONCLUSION

The current study examined the impacts of two methods of implicit learning, namely implicit tasks and self-correction, on Japanese EFL junior college students' writing. The findings of this study can be summarized as follows. First, as for writing improvement (RQ 1), it was found that writing skills of students in this study improved after treatments with implicit tasks and self-correction. This can be shown by the improvement in the mean score on TWE and increase in the number of words written on the writing tasks after the treatments. Overall, implicit learning appeared to have a positive impact on students' writing skills. Our findings are largely consistent with those of Nazari (2014) who found positive impacts of implicit tasks on students' writing.

As for the impact of implicit learning on different types of students (RQ 2), results from this study showed mixed evidence. From the students' mean score on TWE, the results indicate that the less proficient group and the unskilled group gained from implicit learning but the proficient group did not. One of the reasons for this seems to be the fact that the less proficient group needs more time to plan and generate ideas; thus, homework appeared to help them with improving their writing skills by providing them with more flexibility to work and encouragement to complete writing tasks. This positive relationship between homework and improved writing skills is consistent with the general literature regarding higher academic achievement through doing homework. However, even though the students typed their responses on computers, some of the less proficient students continued to experience problems with punctuation and grammatical mistakes, so self-correction does not seem to help these students. The proficient group seemed to have fewer problems with minor mistakes, which implies that self-correction appeared to be beneficial for these students. However, the proficient group achieved a lower mean score on TWE in the posttest than the pretest. This suggests that the implicit tasks in class (error correction and concept mapping) may not be the most effective way to improve writing skills of the more advanced and proficient students. These students may require more challenging tasks to stay motivated. More research effort is required to examine the impact of implicit tasks on improving writing skills across different types of students.

There are some limitations faced by this study. First, the data collected in this study was limited both in terms of the number of participants and the length of the experimental period. The results derived from this study may not be robust and cannot be generalized. Second, the design of this study aims to maximize the potential gain in the improvement

of students' writing skills with a handwritten pretest and a typewritten posttest. Results were potentially quite different if the pretest and posttest were of the same format. Third, a combination of implicit tasks and self-correction were implemented to maximize potential student gains across different types of students. Future research to explore the independent impacts of implicit tasks and self-correction on different types of students is deemed valuable.

Recent studies revealed that pre-intermediate or higher-level students showed preference for self-correction rather than traditional teacher-correction in order to become autonomous writers (Hajimohammadi & Mukundan, 2011; Ramírez Balderas & Guillén Cuamatzi, 2018). In this study, homework required the students to engage in self-correction on computers and did not provide teachers' explicit feedback. While the proficient group appeared to be quite successful with self-correction by manipulating the function keys on computers and rectifying their grammatical mistakes, the unskilled group continued to have problems with typing. Therefore, self-correction and implicit feedback are more likely to be effective for intermediate or higher-level learners. However, homework allows lower-level learners to complete their writing tasks in an environment where writing anxiety can be reduced.

The role of homework to reduce student anxiety is an area that requires more research effort. The literature has shown that writing anxieties discourage students from learning how to write (Cheng, 2002). Tsao, Tseng, & Wang, (2017, p. 223) defines writing anxiety as "negative feelings that writers experience when attempting to generate ideas and words." For students who suffer writing anxieties, indirect feedback may be more appropriate than explicit feedback as explicit instruction from teachers may create anxiety and hinder student learning (Liao & Wang, 2009). Findings from our present study further suggest that homework may provide the benefit of more time allowed on writing tasks for the less proficient students. Future research on how to use homework properly to reduce students' writing anxiety will be useful.

It is argued that students' personal traits, beliefs, and language competence should be taken into consideration in determining whether explicit or implicit feedback is more appropriate (Kartchava, 2016). In order for students to be motivated, teachers need to assist and mentor their language learning according to individual student needs (Nakagawa, 2019). In addition, Yoshida (2010) argued that teachers should perceive students' noticing of CF when they respond to CF. However, as Nazari (2014) previously discovered, there is no doubt that implicit learning methods that can help to reduce anxiety or promote autonomy are valuable suggestions that deserve further exploration.

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