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Summarization in English as a Foreign Language: A Study Comparing L2 Summary Performances to Summarizer's L2 Vocabulary Size and L1 Summarizing Skill

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Abstract

The study examined the impact of a first language's summarizing skill and second language vocabulary size on summary performances in a second language. A total of 40 English as a Foreign Language (EFL) learners from a Japanese university with a mixed level of English language proficiency were asked to write a summary in English (i.e., their non-native language, L2) and in Japanese (their native language, L1) from a text written English and Japanese respectively. The effect of L1 summarizing skill on L2 summary performances was examined using multiple regression analysis. L1 summary performances (i.e., summarizing skill) slightly influenced English summary performances for summary writers with lower-level English language proficiency but not L2 summary performances for those with higher-level English language proficiency. The participants' vocabulary size measured by Nation's (2007) test was positively correlated with their English summary performances. Moreover, the results showed that the vocabulary size in the highest and smallest-vocabulary size groups was correlated with scores on two rating scales (i.e., Language use and Source use) in their English summary. In contrast, the vocabulary size in the middle-level vocabulary size groups was correlated with their scores on two different rating scales (i.e., Main idea coverage and Integration) in their English summary. This study concluded that L1 summary performance had not impact on L2 summary performances because several characteristics influence of summary writers' English vocabulary size. The study made several recommendations to EFL teachers who teach summary writing and for further study.

Keywords: summarization, L1 summarizing skill, L2 summary performance, English proficiency, vocabulary size, low-intermediate, upper-intermediate

1. Introduction

1.1 Review of Literatures

Summarization is considered one of the most important academic skills in tertiary education (Hirvela & Du, 2013; Yamanishi et al., 2019). University students are often asked to summarize articles or source materials they read in their English courses (Keck, 2006; 2014; Kirkland & Saunders, 1991; Norris, 2007), whereas English teachers use summarization to evaluate their students' comprehension and writing skills (Chiu et al., 2013; Westby et al., 2010).

In English speaking countries, such as United states and Canada, students learn to summarize texts in primary/ secondary school (e.g., Liebman, 1992; Pennycook, 1996; Rinnert & Kobayashi, 2005; Shi, 2006), therefore, they are familiar with writing summaries, so many research studies on English summarization focus not only on learners of English as a second/foreign language (ESL/EFL) but also first language (L1) speakers of English. These include studies on strategies for L1 summarization (e.g., Bogaerds-Hazenberg et al., 2020; Brown, 2018; Graham et al., 1992; Nelson et al., 1992; Winograd, 1984;) and studies on the influence of metacognition on L1 summary performances (e.g., Goctu, 2017; Jitendra et al., 2000) that are applied to second language (L2) summarization studies (e.g., Anderson, 1991; Block, 1986; Brown & Day, 1983; Carrell, 1989; Carrell & Liberto, 1989; Cohen, 1994; Graham & Hebert, 2010; Hosseinpur, 2015; Hidi & Anderson, 1986; Kellogg & Whiteford, 2009; Koda, 2005; Phakiti, 2003a; Saddler et al., 2017; Wischgoll, 2016). Many of scholars (e.g., Hirvela & Du, 2013; Kirkland & Saunders, 1991) mention that summarization is a very complex cognitive skill; to grasp this skill therefore requires intense training for both L1 and L2 speakers (Kellogg & Whiteford, 2009). Many

scholars (e.g., Hirvela & Du, 2013; Kirkland & Saunders, 1991) mention that summarization is a very complex cognitive skill; to grasp this skill, therefore, requires intense training for both L1 and L2 speakers (Kellogg & Whiteford, 2009).

According to Kobayashi and Rinnert (2001), university students in English-speaking countries are instructed to write a summary using a source text in elementary or junior high schools. However, university students do not receive adequate instruction on summary writing in elementary and secondary education in Japan. In recent years, the Ministry of Education, Culture, Sports, Science, and Technology (MEXT) in Japan compelled English teachers in secondary schools to teach integrated language tasks such as English summary writing (MEXT, 2018; Yamanishi et al., 2019). However, it was still the teachers' prerogative to give frequent assignments or decipher guidelines for summarization as a learning strategy based on their students' academic ability.

Both English reading and writing abilities and vocabulary knowledge are required to summarize texts in English. Therefore, a summarizer's English language proficiency will influence his or her summary performance (e.g., Hirvela, 2004; Johns & Mayes, 1990; Kim, 2009). Manchón, Roca de Larios, and Murphy (2007) showed that L2 vocabulary comprehension is the most prominent ability L2 summary writers desire to acquire. In research studies on second language acquisition, Cumming (1976) proposed the Linguistic Threshold Hypothesis that indicated the knowledge of L1 transfers to performance of L2 if they achieve L2 proficiency thresholds such as grammatical/ lexical knowledge (Alderson, 1984; Carrell, 1998; Clarke, 1979; Cziko, 1980). Many studies on the L2 thresholds focus on reading ability (e.g., Bernhardt & Kamil, 1995; Bossers, 1991; Brisbois, 1992; Carrell, 1991). The same studies reported that variance in L2 reading skills was mainly due to L2 proficiency than due to L1 reading ability (Kato, 2018c). Although there are fewer studies on writing threshold level, Berman (1994) and Ito (2009) presented a tentative threshold level. On the other hand, studies on the thresholds of 'summarization as the integration of reading and writing,' Kato (2018c) reported that there are tentative thresholds of summarizing skills among low-intermediate English learners in a Japanese university. Nevertheless, there are still very few studies on the summary threshold.

1.2 Purpose of the Study and Research Questions

Kato (2018c) investigated the transfer relationship between L1 and L2 summarizing skills among Japanese university students with low-intermediate proficiency levels in English using multiple regression analysis.

The results showed that the score of one of the rating scales, Main idea coverage (i.e., how amount of appropriate main ideas the summarizer use in their summaries) in L1 summary performance greatly influenced on the scores of Main idea coverage and Integration (i.e., Whether the statement in summary is written in logical ordering and whether the statement in summary has global interpretation) in L2 summary performance. However, Kato (2018c) has remained the following two concerns: First, English sentences copied verbatim from the source text were included in the scoring rubric; second, most participants had low-intermediate English language proficiency despite the existence of a tentative threshold. Kato (2018c) explained that L1 summarizing skills could explain 18.6% of the L2 summarizing skill conditional on the participants' English level proficiency. There might have been a more accurate summarization performance if the copied texts were excluded from the scoring rubric. Therefore, the research question of the study was: Does summarizing skill (i.e., summary performance in L1) or English vocabulary size affect English summary performance? In this study, vocabulary knowledge will be defined as English proficiency. I narrowed it down to vocabulary size since it is the most prominent language ability desired by L2 summary writers. Several scholars have shown that vocabulary size strongly correlates with second language proficiency (Nation, 2006; Nation, 2011; Hayland & Tse, 2007; Sato, 2017; Stæhr, 2008; Schmitt, 2008; Schmitt & Schmitt, 2012).

2. Methodology

2.1 Research Design

This section explains the methodological approach and research design to address the research question of this study. This study was conducted in a classroom of students undertaking a mandatory English course. Participants of this study were not randomly divided into two groups, and a quasi-experimental design (i.e., a non-equivalent control group design) (Campbell & Stanley, 1963) was adopted.

2.2 Participants

A total of 40 participants all enrolled in freshman English courses offered at two different universities in Japan were recruited to participate in this study. Participants in group A were majoring in engineering, and those in group B were majoring in medicine, pharmacy, or nursing, as shown in Table 1. Group A participants took two general English courses per week; one of the courses was taught by the author of this manuscript who is

Japanese, and the other was taught by a teacher who is a native English speaker. In the class taught by a Japanese teacher, students learned four skills in general English but focused on a review of English grammar using both Japanese and English languages. In the class taught by the native English speaker, students also learned listening and speaking skills in English. Conversely, group B participants took one or more English courses of their choosing. For instance, some took classes in presentation or discussion skills while others took skills for TOEIC preparation. In the class taught by the present author, students learned about reading and vocabulary regarding medical relations. There were no participants in group A who reported having written both English and Japanese summaries, whereas seven participants in group had practiced summarization in Japanese using an English text but not using a source text written in English. The free 30-minutes Nation's vocabulary size test (Nation, 2007; Vocabularysize.com, 2010) was used to rate the participants' English vocabulary size. The average of the vocabulary sizes in group A was 3770 (SD = 1289.7), and that in group B was 6555 (SD = 1182.1).

Table 1. Participants' background information

Group	*n* = 40		Department they belong								Vocabulary size	
			Engineering		Medicine		Pharmacy		Nursing			
	M	F	M	F	M	F	M	F	M	F	Mean	SD
Group A (*n* = 20)	15	5	15	5	0	0	0	0	0	0	3770	1289.7
Group B (*n* = 20)	9	11	0	0	4	2	5	4	0	5	6555	1182.1

Note. M = Male, F = Female

2.3 Materials

The English and Japanese texts summarized in this study were adapted from Kato (2018c) respectively, and the English one was in a section of the reading comprehension of the EIKEN, the Test in Practical English Proficiency (See Appendix A in Kato (2018c)). Table 2 illustrates the readability of these reading materials (see Kato, 2018c in detail).

Table 2. Readability and features of the text (cited from Kato, 2018c)

	Japanese	English
Passive sentences	8%	3%
Flesch Reading Ease	N.A.	79.7
Flesch-Kincaid Grade Level	N.A.	4.5
Count of Words	288	255
Count of Characters	604	1137
Count of Paragraphs	4	4
Counts of Sentences	26	26
Average (Sentence per Paragraph)	6.5	6.5
Average (Words per Sentence)	15.3	9.8
Average (Characters per Word)	1.9	4,3

Note. N. A. = Not applicable

All participants were asked to answer the following four open-ended questions about their experiences in summary writing before writing an English summary: First, whether or not they had any experience in writing English summaries using the source text written in English; second, whether or not they had any experience in writing Japanese summaries using the source text written in Japanese; third, if they had any experience in writing Japanese summaries using the source text written in English; and fourth, if they had any experience in writing English summaries using the source text written in Japanese.

2.4 Data Collection Procedures

Figure 1 illustrates the brief data collection process from each of the two groups. In the first lesson that occurred two weeks before the students wrote summaries, they were asked to answer four open-ended questionnaires

about their summary writing experiences. They were also asked to take Nations' (2007) vocabulary size test. Participants in group A (i.e., those majoring in engineering) took the vocabulary size test in the class because their tutor (the present author) had already recognized that many of them frequently forgot to do their homework. Those in group B were took the test as an assignment but were informed that only submission, and not their scores, would be reflected in their academic grades. In the second lesson, participants in both groups received a brief lecture on summary writing (i.e., the definition of summary writing) as the majority had not written summaries in English before. The present author, as their instructor of English, explained the five points about the generated summary below with reference to Oshima and Hogue's (2006): (1) Its length should be one third that of the original text, (2) it should include a thesis statement in its first sentence, (3) it should include the main ideas in the source text; (4) it should be understood by an audience who had no access to the content of the source text; and (5) participants should paraphrase, and not copy the source text. Participants were asked to summarize an English text and generate a summary text in English in a 30 minutes' period during which they could refer to the source text. In the third lesson the following week, students were asked to write a Japanese summary from a Japanese text that was translated from the English text used in the second lesson (Appendix B in Kato (2018c)) in a 30 minutes' lesson during which they could refer to the Japanese source text.

	Group A (n = 20)	Group B (n = 20)
Lesson 1	・All the participants were asked to answer the four open-ended questionnaires (background). ・They were asked to take Nations' (2007) vocabulary size test in the class.	・All the participants were asked to answer the four open-ended questionnaires (background). ・They were provided assignment which is taking Nation's (2007) vocabulary size test.
Lesson 2	・They received the blief lecture of summary writing (i.e., definition of summary writing). ・They were asked to write an English summary using the text written in English.	・They reported their scores of Nation's (2007) vocabulary size test they measured as the assignment. ・They received the blief lecture of summary writing (i.e., definition of summary writing). ・They were asked to write an English summary using the text written in English.
Lesson 3	・They were asked to write a Japanese summary using the text written in Japanese.	・They were asked to write a Japanese summary using the text written in Japanese.

Figure 1. Process of data collection

2.5 Raters and Rubric

The scoring rubric used to evaluate the English summaries was adopted from Li (2014a; 2014b) (Appendix C in Kato (2018c)); the same rubric is also used in Kato (2018c). Li's analytic rubric consists of four components addressing different aspects of summarization: Main idea coverage (MIC); Integration (INT); Language use (LU); and Source use (SU). The scores ranging from zero to five were categorized depending on the established can-do lists on each scale. A total of 40 English summaries were evaluated by three Japanese raters who taught English at a university and high school in Japan. In the rater training given before scoring, they discussed the idea units that ought to be selected in a summary and selected 5 units that included: (1) There is a new year festival in April in Thailand; (2) During Songkran, Thai people throw water at each other in the streets; (3) to have a clean body and mind for the new year; (4) They throw water at the Buddha statues; (5) All these things show that people are ready for the new year. The inter-rater reliability measured by the Cronbach alpha was 0.98 for MIC, 0.91 for INT, 0.98 for LU, and 0.98 for SU. Subsequently, the same three raters evaluated 40 Japanese summaries by using the same rubric for English summary (i.e., Appendix C in Kato (2018c)). The inter-rater reliability measured by the Cronbach alpha was as follows: $\alpha = 0.91$ for MIC; $\alpha = 0.88$ for INT; $\alpha = .79$ for LU; and $\alpha = 0.75$ for SU.

2.6 Data Analysis Procedures

All the summaries were analyzed using IBM SPSS statistics version 27.0. All participants completed their study tasks. No participant wrote only one sentence or submitted a blank sheet therefore all the data was rated. Firstly, a t-test was conducted to compare the Japanese and English summaries and to compare two groups' Japanese and English summaries. Secondly, a multiple regression analysis was conducted to examine the influence of the

Japanese summaries on those of the English summaries. Thirdly, Pearson's correlation was conducted to examine the relationship between vocabulary size and English summary performances.

3. Results

The descriptive statistics for both groups' English and Japanese summary performances are shown in Table 3. The results show that the average score of each rating scale in group A and B's Japanese summaries were almost the same. In contrast, English summaries had a score-gap between the groups; those in group B had almost double scores the scores of those in group A with regards to the scores of LU and SU.

Table 3. Descriptive statistics of English and Japanese summary performances in each group

	Group A (n = 20)									
	Japanese					English				
	MIC	INT	LU	SU	Total	MIC	INT	LU	SU	Total
Mean	4.55	3.78	4.47	5.00	17.80	4.10	3.48	2.17	2.23	11.98
SD	0.69	0.78	0.61	0.00	1.51	1.12	0.96	1.36	1.13	3.57
Max	5.00	5.00	5.00	5.00	20.00	5.00	4.67	4.00	4.67	17.33
Min	3.00	2.33	3.00	5.00	15.33	1.00	1.00	0.00	0.33	3.33
	Group B (n = 20)									
	Japanese					English				
	MIC	INT	LU	SU	Total	MIC	INT	LU	SU	Total
Mean	4.48	4.08	4.65	4.97	18.18	4.10	3.95	4.33	4.73	17.27
SD	0.55	0.82	0.50	0.15	1.45	1.12	0.87	1.16	0.71	3.08
Max	5.00	5.00	5.00	5.00	20.00	5.00	5.00	5.00	5.00	20.00
Min	3.33	2.00	3.67	4.33	14.00	1.00	2.00	0.00	2.00	6.33

The results of the t-test are presented in Table 4. There were significant differences between the qualities of Japanese summaries and English summaries written by participants in group A in the following rating scales: t (19) = 2.01, $p < .05$, d = 0.93, 95% CL [- 0.17, 0.92] for MIC; t (19) = 6.91, $p < .001$, d = 1.05, 95% CL [1.60, 2.99] for LU; t (19) = 10.90, $p < .001$, d = 0.80, 95% CL [2.24, 3.30] for SU. There were significant differences between the total scores given to the Japanese and English summaries, t (19) = 7.17, $p < .001$, d = 2.74, 95% CL [4.12, 7.52]. On the other hand, for group B participants, the quality of both written Japanese and English summaries did not significantly differ on all rating scales: t (19) = 1.10, *n.s*, d = 0.88, 95% CL [- 0.21, 0.68] for MIC; t (19) = 0.56, *n.s*, d = 0.85, 95% CL [- 0.37, 0.64] for INT; t (19) = 1.09, *n.s*, d = 0.89, 95% CL [- 0.29, 0.93] for LU; t (19) = 1.40, *n.s*, d = 0.51, 95% CL [- 0.11, 0.58] for SU; and t (19) = 1.23, *n.s*, d = 2.41 95% CL [- 0.65, 2.48] for total scores. As shown in Table 5, the scores on each rating scale for the Japanese summary did not differ by group. However, the score on each rating scale for English summary significantly differed by group, especially the LU and SU scores. Therefore, both groups wrote the Japanese summaries well; but LU and SU scores for and overall scores for the English summaries significantly differed between groups. This implies that participants with lower-English proficiency (i.e., group A) could write summaries well in their L1 but not write summaries in English. In contrast, participants with high-English proficiency (i.e., group B) could fittingly write English summaries.

Table 4. Results of t-test for comparison between Japanese summary and English summary of each group

	Group A (n = 20)						Group B (n = 20)					
	Mean	*SD*	*SE*	*t*	*p*	*d*	*Mean*	*SD*	*SE*	*t*	*p*	*d*
MIC	0.45	0.99	0.22	2.01*	0.05	0.93	0.23	0.96	0.21	1.10	0.29	0.88
INT	0.30	1.25	0.28	1.07	0.29	0.87	0.13	1.07	0.24	0.56	0.58	0.85
LU	2.30	1.49	0.33	6.91***	0.00	1.05	0.38	1.31	0.29	1.09	0.29	0.89
SU	2.77	1.14	0.25	10.90***	0.00	0.80	0.23	0.74	0.16	1.40	0.18	0.51
Total	5.82	3.63	0.81	7.17***	0.00	2.74	0.92	3.34	0.75	1.23	0.24	2.41

Note. *SD* = Standard deviation, *SE* = Standard error, d = Cohen's d (effect size), *** = $p < .001$, ** = $p < .01$, * = $p < .05$

Table 5. Results of t-test for comparison between two group's summaries in Japanese and English

	Japanese (n = 40)						
	t	*p*	*d*	*MD*	*SE*	*95% IC*	
						Lower bound	*Upper bound*
MIC	0.33	0.74	0.62	0.07	0.19	- 0.33	0.46
INT	- 1.19	0.24	0.80	- 0.30	0.25	- 0.81	0.21
LU	- 1.05	0.30	0.56	- 0.19	0.17	- 0.54	0.17
SU	1.00	0.33	0.11	0.03	0.03	- 0.04	0.10
Total	- 0.82	0.41	1.48	- 0.38	0.47	- 1.33	0.56
	English (n = 40)						
	t	*p*	*d*	*MD*	*SE*	*95% IC*	
						Lower bound	*Upper bound*
MIC	- 0.47	0.64	1.12	- 0.15	0.32	- 0.80	0.50
INT	- 1.61	1.12	0.92	- 0.47	0.29	- 1.05	0.12
LU	- 5.40***	0.00	1.26	- 2.17	0.40	- 2.98	- 1.35
SU	- 8.34***	0.00	0.94	- 2.50	0.29	- 3.11	- 1.89
Total	- 5.01***	0.00	3.33	-5.28	1.05	- 7.42	- 3.15

Table 6 shows the results of multiple regression analysis to examine the influence of L1 summary performance on L2 summary performance. The effect of the performance in three rating scales (excluding SU) on the English summary performance was 20 % in group A (R^2 = 0.20, F(3,16) = 1.31, *n.s.*), and that of all four rating scales on English summary performance was 2% in group B (R^2 = 0.02, F(4,15) = 0.07, *n.s.*).

Table 6. Results of multiple regression analysis of overall summary performance in English

Group A (n = 20)				
Overall English summary performance				
Independent variable	*B*	*β*	*t*	*p*
MIC in Japanese summary	2.94	0.57	1.87	0.08
INT in Japanese summary	- 2.08	- 0.46	- 1.42	0.17
LU in Japanese summary	2.25	0.38	1.42	0.17
SU in Japanese summary	-	-	-	-
R^2 = 0.20				
df = (3, 16)				
F = 1.31				
p = 0.31				
Group B (n = 20)				
Overall English summary performance				
Independent variable	*B*	*β*	*t*	*p*
MIC in Japanese summary	0.53	0.09	0.25	0.80
INT in Japanese summary	0.07	0.02	0.05	0.96
LU in Japanese summary	- 0.36	- 0.06	- 0.19	0.85
SU in Japanese summary	- 0.74	- 0.04	- 0.11	0.91
R^2 = 0.02				
df = (4, 15)				
F = 0.07				
p = 0.99				

From the multiple regression analysis, the quality of the Japanese summaries did not impact the English summaries regardless of the participant's English proficiency level. Thus, English summarization is immensely influenced by a learner's English proficiency, for instance, writer's English vocabulary size, but not his or her summarization skill. Table 7 shows the correlation between vocabulary size and English summarization

performance. A students' vocabulary size was highly correlated with the scores in each rating scale, with a higher correlation observed with the scores of LU and SU. Group A participants with lower English proficiency higher correlation coefficients for LU and SU scores than for MIC and INT scores. Group B participants with higher English proficiency had higher correlation coefficients for MIC and INT scores than for LU and SU scores.

Table 7. Results of Pearson's correlateon between vocabulary size and summary performances

	All participants (n = 40)					
	MIC	INT	LU	SU	Total	Voca size
Voca size	.53***	.65***	.84***	.85***	.91***	-
	Group A (n = 20)					
Voca size	.63***	.61***	.77***	.78***	.90***	-
	Group B (n = 20)					
Voca size	.86***	.86***	.57***	.40**	.81***	-

Although two groups were randomly allocated, some group A participants had a larger vocabulary size than some group B participants. The number of participants in each group of vocabulary size is shown in Table 8. In the vocabulary sizes 7000s to 8000s, there were 10 participants in group B and no participants in group A. Group B participants were mainly classified in the vocabulary sizes in the 5000s level or larger, whereas group A participants were concentrated in the 4000s or smaller. The score for each rating scale increased proportionally to the vocabulary hierarchy.

Table 8. Number of participants in each vocabulary level and their scores of each rating scale

	Vocabulary size							
	In 7000s to 8000s		In 5000s to 6000s		In 3000s to 4000s		In 1000s to 2000s	
	Group A	Group B	Group A	Group B	Group A	Group B	Group A	Group B
Number	0	10	4	7	11	3	5	0
MIC								
Mean	4.87		4.24		4.05		3.00	
SD	0.32		0.78		0.90		1.58	
Max	5.00		5.00		5.00		5.00	
Min	4.00		3.00		2.33		1.00	
INT								
Mean	4.53		3.88		3.48		2.40	
SD	0.39		0.64		0.72		1.16	
Max	5.00		4.67		4.33		4.00	
Min	3.67		3.00		2.00		1.00	
LU								
Mean	4.63		4.24		2.43		0.60	
SD	0.39		0.78		1.32		0.72	
Max	5.00		5.00		4.00		1.67	
Min	3.67		3.00		0.00		0.00	
SU								
Mean	4.87		4.45		2.57		1.13	
SD	0.32		0.78		1.22		0.65	
Max	5.00		5.00		5.00		2.00	
Min	4.00		2.67		1.00		0.33	
Total								
Mean	18.90		16.82		12.52		7.13	
SD	0.90		1.34		2.38		2.47	
Max	20.00		19.33		15.00		9.33	
Min	17.67		15.33		6.33		3.33	

Table 9 shows the results of correlation analysis between participants vocabulary size and the scores on each rating scale of English summary based on participants' assigned hierarchy in vocabulary size. The vocabulary size of participants assigned to the 7000s to 8000s (i.e., the largest hierarchy) and the 1000s to 2000s (i.e., the smallest hierarchy) positively correlated with the scores of MIC and INT. Whereas the vocabulary size of the participants assigned to the 5000s to 6000s and 3000s to 4000s positively correlated with LU and SU.

Table 9. Results of Pearson's correlation between vocabulary size and summary performances

	Vocabulary size: in 7000s to 8000s (Group A: *n* = 0, Group B: *n* = 10)					
	MIC	INT	LU	SU	Total	Voca size
Voca size	.59***	.61***	- .26	- .37	.19	-
	Vocabulary size: in 5000s to 6000s (Group A: *n* = 4, Group B: *n* = 7)					
	MIC	INT	LU	SU	Total	Voca size
Voca size	.12	.14	.55***	.80***	.91	-
	Vocabulary size: in 3000 to 4000 (Group A: *n* = 11, Group B: *n* = 3)					
	MIC	INT	LU	SU	Total	Voca size
Voca size	- .22	- .44	.50**	.40***	.26	-
	Vocabulary size: in 1000 to 2000 (Group A: *n* = 5, Group B: *n* = 0)					
	MIC	INT	LU	SU	Total	Voca size
Voca size	.84***	.68***	.28	.10	.97	-

4. Discussion

The vocabulary size had a larger impact on English summary performance than summarization skills (i.e., Japanese summary performance). Only the participants' vocabulary size was used as a measure of language proficiency. Nonetheless, the text we used was adapted from a text with comparable vocabulary size to that of group A who had lower intermediate English proficiency. Furthermore, there were a limited number of vocabularies in the text to lessen participants' reading difficulty. Based on this, the following five hurdles were imposed as participants wrote a summary in English: (1) an ability to select the accurate number of the main ideas, (2) an ability to logically rearrange main ideas, (3) language use ability, i.e., correct/sophisticated grammar and vocabulary, (4) an ability to write in a writer's own words and (5) an ability to write a text's content correctly. The first ability (i.e., (1)) corresponds to MIC of the rubric, the second to INT, and the third to LU, and both the fourth and fifth correspond to SU. The MIC score was relatively high in English summaries and Japanese summaries in both groups (Mean = 4.10, SD = 1.12 in Group A; Mean = 4.10, SD = 1.12 in Group B). In other words, both groups read the English text and selected the main ideas correctly as there was no significant difference between the groups. Similarly, both groups had relatively high scores rated on the English and the Japanese summaries (Mean = 3.48, SD = 0.96 in Group A; Mean = 3.95, SD = 0.87 in Group. B). The INT scores in both groups were lower than MIC scores; however, no significant difference was found between the groups. On the other hand, there were significant differences in LU and SU scores between groups (Mean = 2.17, SD = 1.36 for LU in Group A; Mean = 4.33, SD = 1.16 for LU in Group B; Mean = 2.23, SD = 1.13 for SU in Group A; Mean = 4.73, SD = 0.71 for SU in Group B). In other words, the factors that partially affect the overall English summary performance are Language use (i.e., whether accurate/ sophisticated grammar and vocabulary are used in a summary) and Source use (i.e., whether a summary writer wrote an accurate content of the text in his or her own words). The definition of Source use focused on how a summary writer rewrote the text in writer's own words instead of copying sentences directly from the text. Therefore, the participants in group A must have struggled to write a summary in their own words because their SU scores were lower than those in group B. The participants in each group gave comments on summary tasks after writing two types of summaries. Most participants in group A stated that "writing English sentences itself was difficult." In contrast, most in group B reported that "I struggled to put the information together." In this study, we used vocabulary size as an index of English proficiency and tested the correlations of scores on each summary rating scale based on each participant's vocabulary size hierarchy. Table 9 shows that the participants assigned to the largest vocabulary size group and the smallest vocabulary size group had higher correlation coefficients between their vocabulary size and the MIC and INT scores. This was especially so for participants assigned in the smallest vocabulary size as the minimum requirement for summarization is correct selection and rearrangement of the main ideas. It

appeared that middle-level groups had to summarize the correct content in their own words using the correct grammar and vocabulary.

5. Conclusion

This study examined which of the L1 summarization performance scores (that is, summarization skill) or L2 vocabulary size played a significant role in writing a summary in L2. Since a previous study (i.e., Manchón, Roca de Larios, and Murphy, 2007) mentioned that L2 vocabulary was the most prominent ability that L2 summary writers want to possess to be able to complete summary in L2, the study examined how English vocabulary size of effects summary performance for each rating of the summary writing scale. The text used in this study appeared to have been easy to read, and participants could find main ideas regardless of their vocabulary size. However, large correlations between vocabulary size and LU and SU scores support the findings of a previous study that showed that L2 vocabulary knowledge was required to write a summary in L2. Specifically, the large correlation between vocabulary size and SU score explained that with a larger vocabulary size, a summary writer could better write in his or her own words. There were some limitations. We did not use texts with lower readability to examine, (i) which points made it difficult for students with relatively large vocabulary size to summarize texts corresponding to their vocabulary size and (ii) how the relationship between L1 summary performance and L2 summary performance varies when students with relatively large vocabulary size use text that corresponds to their vocabulary size. Moreover, by measuring the vocabulary size, reading comprehension ability, and writing ability as a second language ability, it is possible to observe which ability correlates with each rating scale in L2 summary writing. Clarifying which ability influences which vital element in constructing summaries helps identify indispensable abilities in summary writing and provide instructions in summary writing based on the student's L2 proficiency level.

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