A Cognitive Linguistics Approach to English Article Acquisition through Collaborative Learning: A Longitudinal Study

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1. Introduction

In research on second language acquisition (SLA), learners' collaboration in language learning has received attention as a tool for effective second language (L2) learning. With the interest in the focus-on-form approach that emphasizes both form and meaning of language, learners' interaction and collaboration have been positively introduced into L2 learning. In particular, research on learners' collaboration employs the work of Vygotsky (1978) as a theoretical orientation. The application of the Vygotskian theory allowed SLA research to explore the socially constructed nature of interaction, claiming that cognition and knowledge are constructed through social interaction. Swain (2000) proposed the concept of collaborative dialogue – "the dialogue in which speakers are engaged in problem solving and knowledge building" (p. 102) – as an important factor for L2 learning process. Many SLA researchers carried out experiments on learners' interactions during L2 learning and demonstrated that L2 learners benefited from collaborative learning (Storch, 2002; Watanabe & Swain, 2007). Some research, however, doubted the effectiveness of learners' collaboration (Kuiken & Vedder, 2002; Nassaji & Tian, 2010), reporting little, if any, advantage of collaborative learning over individual learning. Furthermore, most of the previous studies demonstrated neither what sort of learning occurred nor what exactly learners acquired, because previous

research only focused on the process and nature of learners' collaboration. The present study investigated whether collaborative learning contributed to learners' linguistic performance more than individual learning, when they learned a specific target grammar (i.e., English articles).

As well as collaborative learning, insights from cognitive linguistics have also attracted recent attention in research on SLA. Many studies focusing on the cognitive linguistics approach showed that L2 learners took advantage of cognitive linguistic insights (Verspoor & Lowie, 2003; Yasuda, 2010). The present study employed cognitive linguistic insights as an approach for learning English articles.

2. Literature Review

2.1 Collaborative Learning

Many previous studies on learners' collaboration in L2 learning employed two major theories: the interaction hypothesis (Long, 1983, 1996) and the sociocultural hypothesis (Vygotsky, 1978). In terms of the psycholinguistic perspective, Long claims that SLA can be facilitated when learners obtain comprehensible input through interaction. Comprehensible input is defined as input which contains a structure that is a little beyond the current level of linguistic competence of a language learner (Krashen, 1982, 1985). When communication breakdowns occur, language learners negotiate on meaning of the input they have received, in order to make it comprehensible. Such negotiation raises learners' awareness to problems of their output because they try to modify their output to solve ongoing communication difficulties. Interaction provides language learners with the opportunity for negotiation for meaning.

The consideration from this perspective, however, has been limited to the quantitative research paradigm, where linguistic interaction is viewed as a mere source of output. According to Firth and Wagner (1997, cited in

Watanabe, 2004), the interactionist approach focuses only on cognitive aspects and ignores social and contextual orientations to language. In other words, language acquisition is not only a cognitive phenomenon, but also a social phenomenon. Swain (2000) claimed that the interactionist approach fails to uncover how knowledge is co-constructed through interaction. Storch (2002) also argued that research from the interactionist viewpoint appears to assume that all interactions in pair or group work go on in a similar manner.

The criticism against the interaction theory resulted in an alternative theoretical framework: the sociocultural theory (SCT). The application of the SCT allowed SLA research to explore the socially constructed nature of interaction. The main concept of the SCT, based largely on the work of Vygotsky (1978), is that high cognitive functions, such as attention and memory, first appear on the social level, and later they are internalized on the cognitive level. This internalization of social interactive processes is mediated by language. In short, the SCT claims that human cognitive development involving language learning is constructed through social interaction with others.

Although Vygotsky's theory is fundamentally concerned with child development, the SCT can be an appropriate framework for SLA, because L2 knowledge is considered to be constructed through social interaction between learners and teachers, or among learners. A number of studies (e.g., Anton & DiCamilla, 1999; Storch, 2002, 2005) investigated peer interactions when learners work in small groups or pairs and demonstrated the effectiveness of learners' collaboration. These studies claimed that when learners encounter linguistic problems and cannot handle them individually, they share their different language resources and solve these problems in collaboration with each other. Example 1 is an example of collaborative interaction between learners from the study of Storch (2005).

The learners share their linguistic knowledge to produce a more grammatically accurate text. Learner 1 adopts Learner 2's suggestions but modifies them for grammatical accuracy (in lines 3 and 5). Learner 2 is engaged in the collaborative work by providing input and approving the partner's corrections on grammar.

Example 1

Learner 1: The percentage of Laotians, Laotians
Learner 2: No English skills
Learner 1: Laotians with no English… English skills
Learner 2: Skills much higher
Learner 1: Skill is… was
Learner 2: Was much higher yep
Learner 1: Was… much higher

Some studies compared learners' performance on the same tasks in pairs and alone. Most of these comparative studies showed some advantages for pair work. For instance, Storch (2005) compared pair and individual performance on a short composition task. The result showed that learners worked in pairs produced better texts in terms of grammatical accuracy and syntactic complexity. The overall results of previous research suggest that when learners encounter linguistic problems and cannot handle them individually, they provide assistance mutually in collaboration with each other, sharing their different language resources in order to solve these problems.

2.2 Cognitive Linguistic Insights into SLA

Cognitive linguistics is a theoretical framework that sees language from aspects of human cognitive activities, such as thought and cognition.

The fundamental concept underlying cognitive linguistics is that language reflects the way in which people conceive the world on the basis of individual experiences. From the viewpoint of cognitive linguistics, people construe all events that happen around them, using language as a medium (Ohori, 2002). Language, therefore, is a medium between human cognition and the world, and cannot be understood without the contexts in which words are used. Many cognitive linguistic insights originate in linguistic knowledge that first language (L1) speakers implicitly acquire. According to Littlemore and Junchem-Grundmann (2010), cognitive linguistics provides "a detailed description of the cognitive processes that are at work in language and thought enabling people to extract linguistic knowledge form language use" (p. 1). Furthermore, cognitive linguistics takes a negative stance toward the nativist perspective which focuses on linguistic form and structure independently of meaning. Cognitive linguistics tries to shed light on various phenomena of language in terms of meaning of language.

In the field of SLA, the approach using cognitive linguistic insights has received much attention from researchers and instructors as a way of language learning and teaching. The conventional approach that had been employed in L2 classroom for a long time emphasizes linguistic form and encourages memorization and pattern practice of grammatical rules. Recent observation on SLA, however, insists that such form-focused instruction does not lead to complete understandings of L2 systems, because language acquisition requires one to focus on both linguistic form and meaning and associate with each other (Long & Robinson, 1998). With the importance of the link between form and meaning, SLA researchers have started to pay attention to cognitive linguistic insights as an alternative approach. Empirical research using the cognitive linguistics approach reported that the cognitive linguistics approach led to great performance

in L2 learning (Verspoor & Lowie, 2003; Yasuda, 2010). One of the most common cognitive linguistic instructions is conceptual metaphors for learning L2 vocabulary; many previous studies attempted to make idioms and phrasal verbs easier to learn by providing L2 learners with conceptual metaphors. For example, Yasuda (2010) examined conceptual metaphors of adverbial particles (e.g., MORE VISIBLE/ACCESSIBLE IS UP, OFF IS DEPARTURE/SEPARATION) helped Japanese EFL learners acquire English phrasal verbs. The results showed that the learners receiving conceptual metaphors (i.e., the cognitive linguistics approach) achieved significantly better performance than those learning in the traditional way (i.e., memorizing each phrasal verb with its Japanese translation). Many previous studies claim that cognitive linguistic insights help L2 learners understand how language and thought work together in the mind of L1 speakers. Application of cognitive linguistics can provide language learners with new observations on language.

2.3 The Rationale of the Present Study

As mentioned above, many previous studies on collaborative learning offered evidence that learners' collaboration has positive effects on L2 learning. Some studies (e.g., Kuiken & Vedder, 2002; Nassaji & Tian, 2010), however, reported contradicting results; they did not support the presumed advantage of collaborative learning over individual learning. The findings from previous studies are mixed and still ambiguous in relation to the effectiveness of learners' collaboration. The incomplete understandings lead to a question whether collaborative learning really facilitates SLA. There is room for further research on the effectiveness of collaborative learning. Moreover, most previous studies have revealed little about what L2 knowledge learners acquire and what learning occurs through collaborative work. In other words, previous studies have paid little attention to

what specific items L2 learners acquire through collaborative learning. They only focused on the process and nature of collaborative learning that appeared to affect subsequent L2 learning. They did not demonstrate the clear relationship between learners' collaboration and L2 learning. Further research, therefore, needs to investigate whether L2 learners learn specific target items through interaction with peers.

Regarding the acquisition of grammatical items in English as an L2 (ESL), it is reported that the English article system is difficult to fully acquire for learners whose L1 has no such system or a very different system (Akamatsu, 2018; DeKeyser, 2005; Snape & Yusa, 2013). Akamatsu (2018) pointed out in his study that accuracy in L2 learners' use of English articles varied according to English article usage (e.g., countability of nouns), and the variability resulted from learners' stereotypes affected by their L1 or the erroneous hypotheses that they made. It is hard to learn complex L2 grammatical items such as English articles, because learners' cognitive style and fixed notion influenced by their L1 cannot be changed easily. The present study, therefore, examined whether L2 learners benefited from learning with other learners, compared to those who worked individually, when they learned intensively such a complex grammar as the English article system.

Furthermore, the present study employed the cognitive linguistics approach as a new insight into the English article system. The cognitive linguistics approach has been introduced into SLA research as an approach for L2 learning. Many studies demonstrated the positive effects of the cognitive linguistics approach. For example, Akamatsu (2018) compared the cognitive linguistics approach and a conventional approach that most Japanese schools adopt and investigated to what extent Japanese learners of English acquired complex knowledge of the English article system. The results showed that both the cognitive linguistics approach and the

conventional approach promoted equally learners' appropriate usage of English articles. The results suggest that the cognitive linguistics approach has a potential to help L2 learners understand the English article system.

As pointed above, previous studies on collaborative learning did not provide sufficient evidence that collaborative learning is more advantageous than individual learning. The present study investigated the effectiveness of collaborative learning, focusing on a particular grammar, English articles. In other words, this study examined whether learners' collaboration facilitated the understanding of a complex English grammar rule. This study also employed the cognitive linguistics approach as a novel way of learning the English article system. The research question of the present study is as follows:

RQ. Is collaborative learning more effective than individual learning in understanding the English article system from cognitive linguistic insights?

3. Method

3.1 Participants

Forty-eight Japanese learners of English participated in this study. All the participants were undergraduates who had received English education for approximately 7 or 8 years in Japan. The participants were divided into two learning groups: the collaborative learning group and the individual learning group.

3.2 Materials

This study employed two criteria for grouping the participants. All the participants took an Oxford Quick Placement test which measures their overall English proficiency and an original test for measuring their ability to use English articles appropriately. The original article test

consisted of 40 target items and 20 dummy items. The target items were 20 nouns that were generally conceived as count nouns and 20 nouns were generally conceived as mass nouns. This distinction between count and mass nouns was based on a survey conducted in advance. The participants were given a list of familiar words (nouns) and asked to rate the countability of each word on a five-point scale (i.e., from mostly countable to mostly uncountable). According to the survey results, the 40 target words were chosen (see Appendix A). Two questions were created from one noun by manipulating its countability (i.e., countable and uncountable); 80 questions were made from the 40 target items. In other words, two types of sentences were made for each noun: one for the indefinite article and the other for zero article. Dummy items were also divided into groups of ten in the same way; 10 items were generally perceived as count nouns and 10 items generally perceived as mass nouns. All the dummy items took the definite article as the correct answer. Each test item and its article appeared in a single blank in a sentence. The participants were asked to choose the most appropriate answer from three choices: zero article, the indefinite article, and the definite article (see Appendix B).

Materials for learning the English article system were adopted from Akamatsu's (2018) study (see Appendix C). The materials were based on cognitive linguistic insights: individuation and boundedness. Article choice is influenced by noun countability. The indefinite article and zero article mark nouns as countable and uncountable, respectively. According to Talmy (2000), if the referent of a noun has an unclear outline, it is recognized as unbounded, non-discrete substance, which means the nouns is uncountable. On the contrary, when the referent of a noun has a clear outline, it is recognized as a bounded, discrete object, which means that the noun is countable. In short, noun countability is determined depending on whether a referent has its boundary that forms individuation. The

materials also explained definiteness in the article system as follows; the definite article is used when both a speaker and a hearer can specify the referent of an object. The mutual recognition of the referent is emphasized. The data on definiteness, however, was not taken into account in the analysis, because this study focused on the understanding of noun countability and article choice between the indefinite article and zero article. The materials were written in the learners' L1 (Japanese) with visual aids of illustration and pictures and sample English sentences.

3.3 Procedure

The experiment consisted of four stages: a pretest, learning, an immediate posttest, and a delayed posttest. At the pretest stage, the Oxford Quick Placement Test and the original article test were administered. After the tests, according to the scores of the original article test, the participants were divided into two different groups: the collaborative learning group and the individual learning group. The participants in the collaborative group were paired with other learners whose ability of using English articles was approximately the same. In addition to the ability of English article usage, the participants' gender and acquaintanceship were considered in making pairs. Gass and Varonis (1986) reported that the sex difference in pairs had influence on Japanese ESL leaners' pair interaction. As for acquaintanceship, O'Sullivan (2002) demonstrated that acquaintanceship affected performance on oral proficiency of Japanese ESL learners' pair task. The study reported that the participants achieved higher test scores in terms of accuracy when working with a friend than a stranger. In the present study, therefore, each pair was organized in such a way that all the members in dyads knew each other as friends.

At the learning stage, all the participants in both groups were asked to take article training once a week over five weeks. The learning stage

consisted of three sessions. At the learning session, the participants learned English articles with the materials individually or collaboratively. After each learning session, they took a practice test alone or with their partners to measure their ability to use articles. When they took the practice test, they could use the provided materials. The format of the practice tests was the same as that of the original article test. Fifteen test items were presented in each practice test: 12 for target items (noun countability) and three for dummy items (definiteness). Besides, the participants were asked to write reasons why they chose the answer for each answer. After the practice test session, the participants corrected their answers. During the correction session, they worked individually or collaboratively, taking notes on what they learned or noticed. The participants were not allowed to use a dictionary or any assistance from the researcher throughout the learning stage. Moreover, the participants in the collaborative group were allowed to use their L1 throughout the learning stage in order to express their thought without any language barrier.

After the fifth article training at the learning stage, they took one-week delayed and three-week delayed posttests. The two posttests were identical to the original article test which was administered in the pretest. The participants needed to write reasons for their answers in both delayed tests as well as the practice tests. The test items were randomized in each test.

3.4 Analysis

The collected data were analyzed quantitatively with learning approaches and article tests, using MANOVA (multivariate analysis of variance). As mentioned above, test items regarding definiteness were excluded from the analysis because this study focused on the relationship between noun countability and article usage. Moreover, the researcher

examined carefully reasons for each answer that the participants wrote in the delayed posttests. When the answer was based on a wrong reason, it was counted as an error even if the answer itself was correct.

This study also conducted discourse analysis in order to examine qualitatively pair interactions of the collaborative learning group. The recordings of the participants' interactions during the learning stage were transcribed. The discourse analysis was conducted using NVivo. Eight codes were prepared for the analysis: agreement, disagreement, simple suggestion, elaborate suggestion, explanation, question, confirmation, and repetition (see Table 1). Two raters independently coded participants' utterances that discussed noun countability and article choice. The inter-rater reliability was 99.3%. Disagreements were resolved through discussion.

Table 1. *Eight Codes Used in Discourse Analysis*

Codes	Explanation
Agreement	An utterance that expresses an assent to the suggestion provided by their partners
Disagreement	An utterance that expresses an opposition to the suggestion provided by their partners
Simple suggestion	An utterance that suggests some ideas to their partner
Elaborate suggestion	An extended utterance that is influenced by the previously mentioned suggestions
Explanation	An utterance that explains the contents of learning and the previously mentioned suggestions
Question	An utterance that asks the partner about the contents of learning and the previously mentioned suggestions
Confirmation	An utterance that confirms the contents of learning and the suggestions provided by their partners
Repetition	An utterance that repeats the previously mentioned utterances

4. Results

4.1 Quantitative Results: MANOVA

There was a significant main effect of article tests, Wilk's Lambda = .229, F (2, 45) = 75.6. p < .0001. The percentage of correct answers for each posttest (one-week delayed posttest: M = 68.4, SD = 18.7; three-week delayed posttest: M = 72.1 SD = 18.7) was significantly higher than that of the pretest (M = 57.0, SD = 19.4). The result suggests that learning of noun countability using cognitive linguistic insights was effective in improving L2 learners' knowledge of noun countability and English article usage. Figure 1 represents the mean percentage of correct answers in each test.

There was no significant main effect of learning approach, Wilk's Lambda = .990, F (2, 45) = .2, p < 0.805; there was no difference in the article test scores between the individual learning group (M = 65.1, SD = 20.6) and the collaborative learning group (M = 66.6, SD = 19.3). The results showed no superiority of collaborative learning over individual learning; both learning approaches equally prompted L2 learners' knowledge of noun countability and English article usage.

Figure 1. *The Mean Percentage of Correct Answers in Each Test*

4.2 Qualitative Results: Discourse Analysis

Based on the differences in the article test scores between the pretest and the three-week delayed posttest, four pairs were chosen for the discourse analysis. These pairs exhibited one of the following characteristics: (1) all members of the dyad showed improvement, and (2) one member of the dyads achieved higher scores. Table 2 shows their test scores of the article tests and the score difference in noun countability between the pretest and the three-week delayed posttest. The discourse analysis focused on the scores of the three-week delayed posttest because they represent the learning effects of the training rather than memorization. According to Table 2, both learners in Pair 1 and Pair 4 showed much improvement in the delayed posttest, although both learners in Pair 4 showed more improvement than Pair 1. In Pair 2 and Pair 3, only one learner showed improvement and their peers showed no improvement. Table 3 shows the number of turns of each learner for each code for the discourse analysis.

Table 2. *Test Scores of 8 Students in the Collaborative Group*

		Scores of article tests		Score difference in countability
		Pretest	**3-week Delayed Posttest**	
Pair 1	Student 1	78	85	7
	Student 2	73	83	9
Pair 2	Student 3	60	75	13
	Student 4	59	63	-2
Pair 3	Student 5	60	64	1
	Student 6	60	91	28
Pair 4	Student 7	53	75	19
	Student 8	51	79	23

Table 3. *The Number of Turns of Each Learner for Each Code*

	Pair 1		Pair 2		Pair 3		Pair 4	
	Student 1	Student 2	Student 3	Student 4	Student 5	Student 6	Student 7	Student 8
Agreement	44	35	28	36	51	28	41	37
Confirmation	3	1	4	5	1	5	2	9
Disagreement	4	4	10	5	4	5	1	4
Elaborate suggestion	10	12	24	15	24	49	10	9
Explanation	13	10	38	28	29	53	16	12
Question	12	9	11	15	13	34	19	14
Repetition	24	22	23	20	13	37	40	12
Simple suggestion	164	126	93	86	71	135	236	125
Total	274	219	231	210	206	346	365	222

5. Discussion

The primary purpose of this study was to investigate whether collaborative learning was more effective than individual learning in acquisition of the English article system. The results showed no difference in the effectiveness for improving learners' use of English articles between the collaborative learning group and the individual learning group. This finding contradicts the claim of previous research that collaborative learning is more advantageous than individual learning in L2 learning. On the other hand, the results of this study support the studies by Kuiken and Vedder (2002) and Nassaji and Tian (2010), which reported that learners' collaboration did not show superiority over individual work.

In order to reveal details of learners' interaction, subsequent analysis focused on individuals in the collaborative learning group. The individuals chosen for the discourse analysis were the members of four pairs, which showed one of the following characteristics of pair interaction: all members of the dyad showed improvement, and one member of the dyads

achieved higher scores. The discourse analysis found the two following features of interaction of the pairs: (1) the pairs where both members improved their English article usage showed a collaborative pattern of interaction; (2) and the pairs where only one member of each pair achieved better performance showed a difference between the dyads in the level of engagement with linguistic issues.

Pair 4 is the pair where all members of the dyad showed great improvement. Both learners in Pair 4, who showed much higher scores in the three-week delayed posttest, were collaboratively involved in pair interaction. In collaborative pairs, both members contributed to learning equally. In other words, Student 7 and Student 8 supported each other and extended their suggestions. Excerpt 1 and Excerpt 2 illustrate their mutual collaboration. While the learners constantly offered suggestions, at the same time, they provided proper assistance and elicited correct suggestions from each other.

Excerpt 1 (Pair 4)

ST7: The answer is *c* (i.e., "food"), isn't it?

ST8: General food. [simple suggestion]

ST7: Because this means food in general. [repetition]

ST8: Yes, I think so.

ST7: Because this is the whole of food, the boundary is unclear. [explanation]

ST8: Yes, because there are various kinds of foods. [explanation]

ST7: Because there are various kinds of foods. [repetition]

ST8: Yes, that's right.

Excerpt 2 (Pair 4)

ST8: We keep in touch though… through…the, through a, through

email… through… the…

ST7: The, the? [simple suggestion]

ST8: It means one exchange of email? One mail? Eh? [simple suggestion]

ST7: Keeping in touch regularly… I think it's the same as "by car". [elaborate suggestion]

ST8: Through email? [confirmation]

ST7: I think so, but I feel that "the" is also right. [simple suggestion]

ST8: I don't think that we need "a". [simple suggestion]

ST7: Email… eh… it is uncountable, so, unclear outline. [simple suggestion]

ST8: Yes. [agreement]

ST7: Unclear, unclear, then, we don't need "the". So, there is no mutual recognition, but is that so? There is a mutual recognition, isn't there? [simple suggestion]

ST8: But… Umm… if they exchange emails many times, if they exchange many emails…[elaborate suggestion]

ST7: If they received many emails…[repetition]

ST8: Whether they mutually recognize email. Umm… there is no mutual recognition of email, right? [simple suggestion]

ST7: No mutual recognition. [repetition]

Student 7 and Student 8 scaffolded each other's utterance. Originally, Wood et al. (1976) proposed the concept of scaffolding, which means assistance controlled by experts so that novices can manage with their competence. The SCT perspective insists that language learners provide scaffolding mutually in collaboration with each other and share individual linguistic knowledge. According to Storch (2002), scaffolding is more likely to occur when members in pairs interact collaboratively. Previous studies

on pair interaction (Storch, 2002; Watanabe, 2004; Watanabe & Swain, 2007) demonstrated that the collaborative pattern of interaction contributed to improvement of L2 knowledge of both members in the dyad. The case of Pair 4 supported the findings of these previous studies.

Pair 1 also showed the collaborative pattern of interaction. Both members in Pair 1, however, achieved slight improvement in the performance of the three-week delayed posttest. A possible reason for that is because both Student 1 and Student 2 obtained relatively high scores in the pretest (see Table 2). They had already had the knowledge of English article usage to some extent before the training started. Thus, their improvement was slightly smaller than the improvement of Pair 4, although both pairs showed the collaborative pattern of interaction. In Excerpt 3, Student 1 and Student 2 provided their own suggestions alternately without any hesitation. Their interaction showed the collaborative pattern.

Excerpt 3 (Pair 1)

ST1: Umm… "a"? [simple suggestion]

ST2: Umm…

ST1: No articles? [simple suggestion]

ST2: "The" or no articles. [simple suggestion]

ST1: "The" or no articles? Are you sure?

ST2: I think the answer is *b* (i.e., "the desert") or *c* (i.e., "desert"). The outline of desert is unclear. [simple suggestion]

ST1: Well. I don't know if the outline is clear. There is an outline at least, isn't there? Don' t you think? [simple suggestion]

ST2: Eh? Does desert really have a clear outline? [disagreement]

ST1: Desert, desert… it's difficult to decide.

ST2: Umm… It doesn't seem to have a clear outline. [simple

suggestion]

ST1: No boundary… I suppose so. [agreement]

On the contrary, in Pair 2 and Pair 3, only one learner of each pair achieved better scores in the three-week delayed posttest. As for Pair 2, the test score of Student 3 was higher than that of Student 4 in the three-week delayed posttest. During the learning stage, Student 4 was passively involved in interaction. Excerpt 4 and Excerpt 5 show the passive attitude of Student 4 and the contrasting attitude of Student 3, who actively talked about article choice.

Excerpt 4 (Pair 2)

ST3: We heard a noise…a… does it need "a"? I think "noise" is uncountable. [simple suggestion]

ST4: A noise, noise.

ST3: Noise as an individual… Noise is invisible. Because it's invisible, there is no individual outline. [explanation]

ST4: I think so. [agreement]

Excerpt 5 (Pair 2)

ST4: You chose "iron"?

ST3: "As hard as iron." So I think that c (i.e., "iron") is right. [simple suggestion]

ST4: Eh? Say again, say again.

ST3: It means "as hard as iron," doesn't it? Wrong? [simple suggestion]

ST4: Un-huh, un-huh.

ST3: So, it may be right. It may be a substance. [simple suggestion]

ST4: Oh, I guess so. Okay, okay. [agreement]

Similarly, in the case of Pair 3, there was a difference in their learning attitude between Student 5 and Student 6. Student 6 showed a much higher score than Student 5. In Excerpt 6, Student 6 offered suggestions and explanations successively, while Student 5 made only simple responses.

Excerpt 6 (Pair 3)

ST6: I think that the answer of number 14 is *c* (i.e., "religion"). [simple suggestion]

ST5: I think so. No articles. [agreement]

ST6: Yes.

ST5: I don't know how to explain.

ST6: Religion includes many kinds of religions such as Christianity and Buddhism. [explanation]

ST5: Ah… I see.

ST6: Maybe. A specific religion is not referred. [explanation]

Watanabe and Swain (2007) referred to two patterns of pair interaction with non-collaborative orientation: dominant/passive and expert/passive pairs. In an expert/novice pair, the less proficient passive participant is reluctant to say something in front of his or her expert partner. In a dominant/passive pattern, their interaction consists of long monologues by one learner and echoic repetitions and agreements by the other learner. This study, however, considered participants' acquaintanceship and their English proficiency in order to encourage learners' collaboration. Pair 2 and Pair 3, therefore, are unlikely to be applied to the expert/passive pattern. In addition, although one learner in each pair took a relatively passive attitude, their partners did not seem to be a dominant. As well as the other two pairs showing the collaborative pattern, Pair 2 and Pair 3 appeared to work collaboratively on the surface. In fact, there seems to be

no clear relationship between interaction pattern and the number of coded turns in Table 3. Then, another question rose: what made the differences within the dyads in the performance of the three-week delayed posttest?

One potential reason could relate to the level of attention to linguistic issues. In SLA, the importance of attention has been largely recognized. Schmidt (1990, 1993) distinguished different levels of attention: registration, noticing, and understanding. Registration only involves observation but no conscious awareness, while noticing involves attention and awareness. Understanding involves a higher level of awareness because it requires more complex processing which leads to systematic learning. Researchers working from cognitive theoretical perspectives (e.g., Qi & Lapkin, 2001) claim that noticing a linguistic item is a necessary condition for language learning. Storch (2008) used the term "engagement" with language to describe the quality when learners talk about linguistic issues. She referred to two kinds of engagement: elaborate engagement and limited engagement. In elaborate engagement, both members in a pair deliberate and discuss linguistic items. In contrast, in limited engagement, one learner makes suggestions and the other learner simply repeats, acknowledges or does not even respond to the suggestions. Storch mentioned that elaborate engagement encourages learning or consolidation for both members of the dyads more than limited engagement. In short, such learner-internal processes as noticing and elaborate engagement require a higher level of awareness or attention to language, thus leading to L2 acquisition.

In the case of the present study, Pairs 2 and 3 were different in the level of attention to linguistic issues. Among the eight codes used in this study (see Table 1), elaborate suggestion and explanation involve more complex cognitive processing than other codes, because the two codes are higher levels of linguistic utterance and require the learners to

understand more deeply the English article system. According to Table 3, Student 3 in Pair 2 and Student 6 in Pair 3 produced more elaborate suggestions and more explanations than their peers. It suggests that Student 3 and Student 6 were engaged with linguistic issues at a more conscious and more profound level than their partners. Consequently, their deep engagement led to successful learning of the linguistic item which they focused on (i.e., English articles). The quality of learners' attention or engagement with language would be one of the essential factors that affect L2 learning.

Importantly, the accuracy rate for English article usage increased from 57.0 % to 72.1 % throughout 5 weeks of the English article training, although the statistical results showed no significant difference between collaborative and individual learning. The result indicates that the participants obtained better command of English articles through the explicit learning from the cognitive linguistic perspective. This finding suggests that cognitive linguistic insights may have contributed to the improvement in appropriate usage of English articles. This finding, however, cannot suggest the relative effectiveness of the cognitive linguistics approach, because this study did not compare the cognitive linguistics approach with other learning approaches.

6. Conclusion

This study investigated whether collaborative learning was more effective than individual learning, when Japanese learners of English learned a complex English grammatical item (English articles) using cognitive linguistic insights. The results revealed no superiority of collaborative learning over individual learning; both learning approaches improved learners' understandings of the English article system. This finding contradicts a lot of previous research that claims advantage of learners' col-

laboration in L2 learning.

Although the quantitative analysis demonstrated no superiority of collaborative learning, the learners in pairs received benefit from interaction with their peers. In the pairs showing the ideal collaborative pattern of pair interaction, all members in pairs developed the ability of English article use. Each member of the collaborative pairs was equally engaged in discussing article choice and contributed to each other's understandings of English article usage. On the other hand, in the pairs that had the difference between members in the degree of engagement with linguistic issues, only the learners who were engaged at a more profound and conscious level achieved better performance. The level of engagement with language seems to have affected the outcomes of learning.

Furthermore, the results of this study showed the participants, regardless of the kind of learning approach, achieved better performance on English articles through the explicit learning from the cognitive linguistic perspective. This finding suggests that cognitive linguistic insights may be useful for appropriate usage of English articles.

In conclusion, the results of this study left room for doubt on the relative effectiveness of collaborative learning. However, the fact that some learners benefited from interaction with their peers indicates the potential of learners' collaboration as an effective way of language learning. If future research could demonstrate effective collaborative learning, learners' interaction would be positively used in the L2 classroom. There has been little empirical research on learners' attention or engagement to language during pair interaction. Future research should introduce the cognitive aspect of language learning and offer empirical observations on the relationship between the quality of attention to language and its impact on L2 learning.

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Appendices
Appendix A: Word Lists

Target items	
air	metal
argument	necessity
assignment	orange
banana	paper
beauty	pen
chocolate	pizza
country	potato
crime	rain
dress	room
education	school
egg	silence
fire	sin
flower	snow
gas	space
grass	sport
hair	stone
harvest	sugar
history	time
language	wood
lipstick	word

Dummy items	
advice	money
butter	mother
child	mountain
day	news
door	party
furniture	pasta
hole	rice
information	town
lion	wine
luggage	woman

Appendix B: Sample Test Items

(1) I'd like _____ on my cappuccino, please.

    (a) chocolate   (b) the chocolate   (c) a chocolate

(2) Japanese is _____ to learn.

    (a) difficult language   (b) the difficult language

    (c) a difficult language

(3) "I feel like having Italian food tonight." "Ok. Why don't we split _____?"

    (a) pizza   (b) the pizza   (c) a pizza

(4) My dream is to teach in _____ in Tokyo.

    (a) school   (b) the school   (c) a school

(5) The Internet is just a medium for _____.

    (a) crime   (b) the crime   (c) a crime

(6) I want to create _____ without distinction of age or sex.

    (a) new sport   (b) the new sport   (c) a new sport

(7) She got _____.

    (a) good education   (b) the good education   (c) a good education

(8) Here is _____ you requested.

    (a) information   (b) the information   (c) an information

(9) Normally, as _____ grows richer, students stay in school longer.

    (a) country   (b) the country   (c) a country

(10) Pine is _____.

    (a) soft wood   (b) the soft wood   (c) a soft wood

Appendix C: Learning Material

Learning the usage of English articles

One needs to understand the nature or features of nouns in order to use the English articles in an appropriate manner. This text explains two basic criteria for proper usage of the English articles.

The first criterion has something to do with "individuation." Individuation refers to whether an object or the referent of a noun can be considered as a single entity. Individuation depends on the degree of clarity with which the outline form of an object is conceived. If the outline form of an entity is clear, it is considered as a countable noun. On the other hand, if the outline form is not clear, the entity is considered as an uncountable noun.

Let's take a look at the examples below.

(A)	(B)	(C)

(A)	In Picture (A), there are apples. You can see the outline form of each object (i.e., apple) clearly, and therefore, they are conceived as countable. In this case, the plural form is used as in "There are apples on my table."
(B)	In Picture (B), as in Picture (A), the outline form of the object is clear. Therefore, the singular form is used as in "There is an apple in my hand."
(C)	In Picture (C), you see an apple pie. Apples in the pie are sliced and cooked, so that the original shapes or outline forms of the apples do not remain. In this case, unlike the apples in Pictures (A) and (B), the outline form of the entity is not clear; the uncountable form is used as in "There is apple in my pie."

(D)	(E)	(F)	(G)

(D)	The word "cutlery" refers to instruments used at the table for serving and eating food, such as knives, forks, and spoons. Although knives, forks, and spoons are different in function, they share the commonality in that they are used for serving and eating food. "Cutlery" is used as a collective term, and it is conceived as an uncountable noun. The uncountable nature of "cutlery" could be confusing for the Japanese. One feature of a "collective term" is that the number of entities consisting of the term (e.g., knives, forks, spoons) does not affect the nature or quality of the term. Thus, no article is necessary as in "We just bought new cutlery."
(E)	Unlike "cutlery" in Picture (D), there are collective forms that are considered as countable nouns. For example, the word "team" refers to a group of players, and it is normally conceived as a single entity as in "We have a great team this year." The difference between "cutlery" and "team" is that the outline form (or boundedness) of "cutlery" is unclear, whereas that of "team" is clear. This difference makes one conceive "team" as a countable entity.
(F)	In trashing recyclable garbage, we sort it according to its substance. In sorting garbage, naturally, we pay attention not to how big or what shape the garbage is, but to what substance or material the garbage is made of. In other words, although garbage can be conceived as countable items (e.g., a steel can, a plastic bottle), we do not attend to each item as an entity. Thus, in referring to substance, the object is conceived as an uncountable noun as in "You should put paper and plastic into the recycle boxes."
(G)	We do not normally conceive the shape of abstract objects. For example, such emotion as "love" has no outline form. Thus, abstract objects are conceived as uncountable nouns as in "We fell in love on our first date."