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Efficacy of Teaching Dative Alternation to Japanese University Students from a Cognitive Perspective

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Abstract

This study aims to compare the effects of a Cognitive Linguistics-inspired (CLI) method with those of traditional teaching on Japanese English as a foreign language (EFL) learners' understanding of dative alternation in English. A quasi-experimental research design was adopted in this study. A total of 62 Japanese university students were instructed to take part in the experiment. Judging from their scores of Oxford Quick Placement Test (OQPT, Version 2), students from two homogeneous classes in a university were placed in an experimental group (n = 31) and control group (n = 31) before evaluation by implementing the same grammaticality judgment test three times at the following time intervals: i.e. pre-test, post-test, and delayed test. After completing the pre-tests, a technique from the CLI method was applied to the experimental group, in which semantic prototypical verbs were introduced as effective input. Meanwhile, the control group received the traditional teaching method, where emphasis was on paraphrasing exercises. The scores on each test under the different methods were analyzed by means of two-way ANOVA, showing that the teaching method used in the experimental group had a significant effect on long-term retention: the CLI method resulted in more long-term progress compared to traditional teaching. In addition, the findings from a questionnaire-based survey indicated a significant difference in motivation to learn English grammar between two groups: the CLI method enhanced participants' motivation to further learn English grammar more positively.

Keywords: Cognitive Linguistics, English grammar, dative alternation, effective input, motivation

1. Introduction

Grammar plays an influential role in developing language proficiency. Without acquiring grammar knowhow, it is hardly possible to write or speak English. Therefore, grammar teaching is an essential part of language instruction. However, it is not an easy task when it comes to learning a second language (L2) in Japan. As English as a Foreign Language (EFL) learners, Japanese people get frustrated and demotivated by the dominant grammar translation methods.[1,2] In traditional techniques of grammar teaching, they are required to memorize a hugely intricate system of grammatical rules and long lists of exceptions, rendering learners to get fed up with rote memorization and can eventually neutralize their interest in learning English before they are fully aware of how essential grammatical knowledge is. Although acquiring accuracy in language requires certain detailed grammatical rules to be remembered, the existence of such seemingly meaningless and boring grammar instruction may result in counterproductive responses among them. Therefore, effective methods of making learning grammar meaningful and intriguing need to be provided in EFL classrooms in Japan.

Recently, numerous studies have reported that cognitive approaches to L2 learning are effective in helping EFL learners become more motivated to learn English as well as enhance their understanding.[3-5] Since languages are used by human beings, linguistic phenomena of a certain language rely on human cognition. This concept reflects the general principles of Cognitive Linguistics, which is based on the idea that grammar is part of human cognition and related to other cognitive activities such as decision-making, memory, attention, and perception.[6] In response to growing needs for authentic use of English grammar, some methods inspired by such approaches have been introduced into Japan.[7,8] However, it is questionable whether such methods are widespread in actual classroom practice/teaching. In actuality, even Japanese EEL learners with certain level of English knowledge depend

mainly on memorization in dealing with grammar: it is unlikely that they understand the correct form/meaning of grammatical constructions.

Of the various linguistic phenomena, this study focuses on English dative alternation, which is so complicated and difficult for Japanese EFL learners due to its complex syntactic nature. Dative alternation considers all alternating verbs to have two types of argument structures: double-object construction (DOC) and prepositional object construction (POC). Prepositions in POCs typically concern *to* or *for*. Semantically, the object of *to* is a recipient while the object of *for* is a beneficiary. Considering that both recipient and beneficiary noun phrases (NP) are the selected items, learners are bound to confuse *to*-dative verbs with *for*-dative ones because the structures seem to differ only in the prepositions. In addition, DOCs and POCs are often paraphrased, thus leading to the failure of learners to understand grammatically correct argument structures, let alone their individual meanings. In sum, distinguishing among objects belonging to the same category is very difficult even though similarities *per se* provide clues for creating analogies. For example, *write*, a dative verb, is allowed in both of the aforesaid prepositional constructions and those who are uncertain of their grammatical constructions would probably not be able to judge the grammaticality nor comprehend the difference in meaning between *John wrote a letter to Mary*, *John wrote a letter for Mary* and *John wrote Mary a letter*. Accordingly, the present study aims at examining the efficacy of such Cognitive Linguistics-inspired (CLI) teaching methods on dative alternation to Japanese EFL learners by presenting the results of an empirical study. The investigation also included a survey to determine perceptions of participants toward English grammar after the experiment and their impressions about this activity.

2. Prototypical verbs as effective input

2.1 The importance of input

According to Construction Grammar whose origin is in cognitive linguistics as proposed by Goldberg (2006),[9] constructions are "learned pairings of form with semantic and discourse function, including morphemes or words, idioms, partially lexically filled and fully general phrasal patterns." Based on this viewpoint, language acquisition involves abstracting from patterns found in language use, after which those with sufficient frequency are regarded as constructions. In other words, input frequency plays an essential role in language entrenchment. The frequency of a specific structure (especially to maintain a tight connection with human comprehension) represents the concept of the usage-based model.[10,11] Earlier studies indicated that verb-centered constructions are particularly more relevant to input since they relate to basic concepts[12] and that verbs are of great importance in predicting the meaning of a sentence better than any other part of speech.[13]

Originally, the primary focus of this approach was the study of child language acquisition, stressing that early language acquisition in children is conservative: i.e. involves the imitation of linguistic expressions that they hear frequently and that early language learning is an item-based, bottom-up process. For example, when children frequently hear sentences such as "*give me milk*" or "*give him that*," they gradually acquire the schematic pattern of [*give*-X-Y], and eventually produce a new utterance by filling in the appropriate slots. At about the same time, they experience the same argument structures containing different verbs such as "*send me a letter*" or "*throw her a ball*" and gradually acquire the pattern of [*send*-X-Y] or [*throw*-X-Y] respectively. Finally, the [Verb-NP-NP] pattern becomes entrenched. Thus, the more times they experience instances of use of individual verbs in the same pattern (token frequency), the greater they are exposed to various types of verbs that appear within constructions (type frequency: e.g. *give*, *send*, and *throw*), and then the more deeply a pattern of DOC becomes entrenched.[14] Although the same syntactic pattern applies to a lot of different verbs, it has been reported that prototypical verbs which occur with high frequency compared with other verbs trigger greater comprehension of verb argument structures: in this case, '*give*' is a prototypical verb in DOC.[15] For example, Casenhiser and Goldberg (2005)[16] showed that high type-token frequency facilitates abstraction in first language (L1) learners. They created a novel structure (non-English word order) and utilized it to introduce new verbs to children. Subsequently, the children obtained abstract meanings from the structure and created new utterances with the novel verbs. Namely, to acquire certain syntactic patterns, it is necessary for children to be exposed to type and token frequencies in their vicinity. Interestingly, a group that experiences a particularly prototypical verb more frequently can acquire the meaning of its argument structure more easily than another group that is exposed to all verbs with the same frequency, even though the amount of input is equal.

Even in L2 learning, input frequency is said to have

a significant role in entrenchment.[17,18] By investigating corpus data, Ellis and Ferreira-Junior (2009)[19] have concluded that EFL learners first acquire the most frequent, prototypical, and generic exemplars. It follows that input frequency is essential in L1 and L2 acquisition, and that the most frequent verbs in a category are regarded as the most easily perceptible.[20] Unlike language acquisition in L1, however, in actual L2 settings, exposure to sufficient type/token input is almost impossible. Especially in Japan, providing exposure to an extensive variety of input is extremely difficult and unrealistic (i.e. Japanese do not need nor use English in their daily lives), and thus, the quality of input is much more important.

2.2 The semantics of '*give*' and '*make*'

Dative alternation involves an alternation between DOCs and POCs. Therefore, EFL learners encounter three confusing syntactical patterns: DOC, *to*-POC, and *for*-POC. Traditionally, dative alternation has been taught as follows: DOC, as a fourth sentence pattern, can be paraphrased into subject-verb-object (SVO) word-order with a preposition as a third sentence pattern and vice versa. Both constructions are not always interchangeable, which means that they are not identical. Nonetheless, numerous repetitious paraphrasing exercises make learners believe that they share the same meaning. Moreover, through fill-in-the-blank grammar drills, learners tend to memorize its structure on the basis of a verb based on the selection of prepositions in POCs. As a result, determining which verb takes '*to*' or '*for*' is frequently learned by only referring to a list of *to*-/*for*-dative verbs. Numerous grammar books have introduced a vast number of verbs that belong to either category, giving rise to difficulties in remembering and distinguishing them. Focusing on memorization leads the learners to spend excessive time and efforts for judging the apt expression. In summation, the traditional approach does not provide a systematic view of dative alternation even though EFL learners are exposed to various and many input. Therefore, in the process of teaching and learning, the first thing to do should be to give lectures on what makes *to*-dative verbs different from *for*-dative ones.

Regarding the selection of prepositions in POCs, previous studies reported that applying Cognitive Linguistics to teaching dative alternation is effective for Japanese EFL learners.[21,22] Among them, Takahashi (2012)[21] has provided data on the educational effect through an explanation based on an analysis of Kuno and Takami (2005):[7] *to*-dative verbs are three-place predicates, whereas *for*-dative verbs two-place predicates. She focuses primarily on all the verbs equally on a verb category basis. While basically following that method, this study intends to incorporate the semantic concept of most prototypical verbs to help Japanese EFL learners deepen their grammatical knowledge, specifically by explaining the examples of '*give*' and '*make*.'

Dative alternation concerns verbs that appear in two realizations with apparently the same arguments, as typically exemplified by the verbs *give* (*to*-dative verbs: e.g. *John gave a book to Mary*) and *make* (*for*-dative verbs: e.g. *John made a doll for Mary*). Since *give* is most prototypical in dative alternation, it should be introduced first. Newman (1996)[23] has defined the semantics of *give* as "an act whereby a person (the GIVER) passes with the hands control over an object (the THING) to another person (the RECIPIENT)." That is, **John gave*, **John gave Mary* and **John gave a book* are all ungrammatical/incomplete, while *John gave Mary a book* is complete. Thus, *give* can be regarded as a three-place predicate in English. Of course, *John gave a lecture* and *John gave a concert* are both grammatical in spite of lack of a recipient. This, however, does not make *give* a two-place predicate since a recipient is only implied in the structure.[24] Even though the recipient is unstated, its existence is inferred, as in *John gave (students) a lecture* and *John gave (the audience) a concert*, and the typical *give* which requires *to*-NP entails the transfer of a thing.

Meanwhile, *make* is basically a two-place predicate, as in *John made a doll*. The semantic role of its object, *a doll* is that of a newly emerged thing.[25] That is, *a doll* did not originally exist, but it emerges through the event. Table 1 represents a list of *for*-dative verbs by Green (1974)[26] which shows that other verbs such as '*sing*' and

Table 1: Green (1974)'s list

Verb Types	Examples
a. Verbs of Creation	*make, cook, boil, bake…*
b. Verbs of Selection	*buy, find, get, gather…*
c. Performance Verbs	*sing, chant, recite, dance…*
d. Verbs of the *Earn* -Class	*earn, gain, win,…*

'*buy*' also have the power to make something emerged through their action or an event. Typical *give*-type verbs (*send*, *throw*, *lend*, etc.), however, concern THING that already exists at the beginning of the event, except for certain communication verbs (*read*, *tell*, *teach*, etc.).

3. Newly-proposed Cognitive Linguistics-inspired (CLI) methodology

This newly-proposed method is performed as follows: learners are taught the argument structures and then the semantics of two prototypical verbs (in this case, *give* and *make*), and finally other *give*/*make*-type verbs are introduced to improve their understanding. Furthermore, for the next step, it is desirable to let them realize that *to*-POC and *for*-POC have different structures even though they appear similar in form. The reason is that *to*-NPs in *to*-POC are tied to *give*-type verbs, and the typical *give* requires three arguments that are combined with the meaning of the transfer. However, this never applies to *for*-NPs since *make* is a two-place predicate. Unlike *to*-NPs of regular dative verbs, *for*-NPs are not treated as verbal arguments: they are optional and *for*-POC does not have transfer interpretation. For example, *John made a doll for Mary* means that John made a doll for the benefit of Mary. As such, this sentence can be interpreted in various ways (e.g. John made a doll with the intention of showing Mary how to make it because she did not know how, or John did so on behalf of Mary because she was too busy, etc.).[12,14]

When guidance is given at this point, learners would probably have only partial knowledge of dative alternation. It does not follow that they know the difference in meaning among the three syntactic structures. For example, they would probably not understand the ungrammaticality of **John gave a headache to Mary* because they have only learned that *give* takes *to*-dative. Also, it seems odd to learners that *make*-type verbs appear in DOC structures, which require three arguments. This can be the best time to engage them in a discussion of the Construction Grammar approach[12] in order to further develop and strengthen their understanding of constructions. Construction Grammar defines that each particular structure has a particular meaning; i.e. these three confusing structures (DOC, *to*-POC, and *for*-POC) each have their own meaning, as seen in Table 2. According to Gropen et al. (1989),[27] DOCs are more or less associated with the transfer of possession, thus enabling one to understand the ungrammaticality of **She brought the border a package*. In this case, since *borders* are not animate objects, it does not entail caused possession. Unlike the aforementioned *for*-POC, DOC has the meaning of caused possession. *John made Mary a doll* means that John did make a doll with the intention of giving it to Mary despite that it does not entail actual transfer of the direct object. The reason why *make*-type verbs take DOC structures is that the newly emerged thing (*a doll*) can be an object of possession: a doll which John made could be his own, Mary's or someone else's property.

For the purpose of exploring an effective way of helping Japanese EFL learners acquire/use English dative alternation, teaching the semantics of prototypical verbs belonging to either the *to*-dative or *for*-dative constructions as effective input, and then their individual meanings in the three confusing constructions (i.e. DOC, *to*-POC, and *for*-POC) should prove to be efficient and practical.

4. Experimentation

4.1 Objective and research questions

Since the main purpose of this study is to ascertain whether the newly-proposed CLI approach is applicable to Japanese EFL classrooms in teaching English dative alternation, the findings of an experimental and control groups were compared. To fulfill the purpose of this study, the following research questions are posited: (1) whether or not this Cognitive Linguistics-inspired approach yielded better results than the traditional method regarding dative alternation; (2) after the experiment, whether or not both methods improved the participants' motivation to learn English grammar; and (3) whether or not the participants found this activity useful.

Table 2: Form-meaning correspondences

Syntax	Semantics	Examples
DOC	X CAUSES Y TO RECEIVE Z	*John threw Mary a ball.*
to -POC	X CAUSES Y TO MOVE TO Z	*John gave a book to Mary.*
for -POC	X ACTS ON Y FOR THE BENEFIT	*John made a doll for Mary.*

4.2 Participants

The current study employed a classroom-based, quasi-experimental design to compare this newly-proposed CLI method with the traditional instruction. As mentioned above, dative alternation means dealing with complex syntactic structures. Hence, Japanese EFL learners at intermediate levels of English proficiency or above were suitable for this study. On the presupposition that students in the classrooms have some competency in English language, two homogeneous classes were chosen for comparison. Considering $\alpha < .05$, power = .80, and effect size = .25, the required minimum number of participants was 30 in each group.[28,29] Fortunately, the number of participants who completed all of the procedures was 31 each for the experimental (10 males and 21 females) and control (13 males and 18 females) groups, respectively. The participants consisted of first-year non-English major students between 18 and 20 years of age at a university in Japan. Of the 62 participants, the overwhelming majority (n = 60) had never studied abroad in an English-speaking country. Although the participants were already divided into classes of similar proficiency levels on the basis of their entrance examination scores, the Oxford Quick Placement Test (OQPT, Version 2)[30] was further administered in order to pool participants with the same level of language proficiency. This test (maximum score: 60) corresponds to the Common European Framework of References (CEFR) for assessing language levels. It turned out that they all had an intermediate level (in this case, B1 and B2 CEFR levels). The results of an independent sample t-test with the alpha level set at .05 (Table 3) indicate that no significant difference was found among OQPT scores between the experimental and control groups (t (60) = -1.769, p = .082, r = .220). Therefore, the two groups were regarded as homogeneous at the start of the experiment.

4.3 Grammaticality judgment test

To measure the participants' achievement, a grammaticality judgment test was created by basically adopting from Takahashi's (2012) material.[21] Additionally, the current test stresses the semantic differences between DOC, *to*-POC, and *for*-POC as well as the selection of prepositions in POCs (see Appendix A). It contains 30 questions each, espousing the three argument structures as in (1): a) *John gave Mary a book*; b) *John gave a book to Mary*; and c) *John gave a book for Mary*. The participants were asked to judge if any one of the three sentences was grammatically correct. In this case, (1a) and (1b) are correct (see Appendix B for details). The test also included a representative sample of sentences from well-known technical books,[12,31] which was subsequently proofread by two native speakers. If they judged a set of three syntactic structures together correctly, they got one point, meaning that the test was scored on a 0–30 scale.

Before attempting to answer the aforementioned research questions, the test *per se* required an analysis of its reliability and validity. After the pre-test was conducted, internal consistency was assessed by Cronbach's alpha, which gave a value of .65. When it comes to linguistic tests, which are considered reliable if the value is greater than .80, the value was somewhat low. However, all Cronbach's alpha coefficient values above .60 are generally considered acceptable.[32] Construct validity was estimated through correlations with the OQPT and pre-test scores. The findings showed that there was a statistically significant positive correlation between these two tests (r = .64, $p < .05$). This coefficient indicated that a participant with greater overall proficiency had more knowledge about dative alternation. For the above reasons, this test was considered useful enough to meet the minimum standards for this analysis in terms of reliability and validity.

4.4 Procedure

Prior to the experiment, participants were asked to take the OQPT 30 minutes to ensure homogeneity between the groups. To examine the first research question, the participants in both the experimental and control groups were asked to take the same 10-minute grammaticality

Table3: The t-test for both groups (OQPT)

Group	n	M	SD	df	t	p
Experimental	31	39.193	4.792	60	-1.769	.082*ns*
Control	31	36.967	5.109			

Note. M = Mean, SD = Standard Deviation, *ns* = not significant

judgment test three times (pre-test, post-test, and delayed test). Whenever each test was administered, the order of questions was randomized to avoid memorization of the answers. First, each participant took the pre-test before instruction. Upon completion of the pre-test, the answers were provided. At that point, they noticed again that there are three typical argument structures associated with dative alternation, and that the judgment of grammaticality does not depend on the verb. For example, with regard to *give*, *John gave a book to Mary* is grammatical while **John gave a headache to Mary* is ungrammatical despite the use of the same verb. To maintain the same conditions, teaching and learning time were both set for one hour: the experimental group spent one hour learning through the aforementioned newly-proposed CLI method, while the control group received an hour of traditional instruction and learning. Both groups were given all instructions in Japanese by the researcher.

First, the experimental group was instructed to consider the differences between these two POCs and especially examine the semantics of their own prototypical verbs (*give* and *make*) by using dictionaries and consulting their classmates. Finally, using concrete examples, they were given a lecture on prototypical verbs and then taught how their particular structures have certain meanings, as shown above (Table 2). Meanwhile, the control group, following the traditional method, was asked to memorize as many verbs (that belonged to either verb category) as possible by paraphrasing SVOO structure into a SVO with a preposition during the allotted time. Additionally, permission to use dictionaries and talk with their classmates prompted the participants to create a list of verbs in these two POCs. Regarding sentences which are hard to answer with only knowledge of *to*/*for*-dative verbs, they learned them as exceptions.

Without prior notice, the post-test was administered a week later. Furthermore, after a two-month intermission, the same test (delayed test) was re-administered. The post-tests and delayed tests were later scored by the researcher. At the end of the experiment, a brief questionnaire was administered to each group for the purpose of eliciting information regarding the last two research questions. Participants were asked to rate the following items using a five-point Likert scale. Each item was assessed on a scale from 1 to 5 (1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree): (a) I got more motivation to learn English grammar; and (b) I found this activity useful. The study results are summarized as follows.

4.5 Data analysis

The study was based on a mixed (between–within) subjects design with *method* and *time* as the independent variables and *test scores* as the dependent variables; therefore, a two-way between-subjects analysis of variance (ANOVA) was conducted with Holm's post-hoc analysis of variance for group comparison of the three tests. The R 3.1.0 program for Windows was utilized to perform the statistical verification and result analysis. All tests were at the alpha level of .05.

Table 4 shows the descriptive statistics for each test (Fig.1). To begin with, the participants' performances on the pre-tests were compared and analyzed to determine whether they had the same levels of English proficiency regarding dative alternation; no significant differences were found between the groups (F (1, 60) = .923, p = .341, η^2 = .015). Moreover, the analysis showed a significant difference between the mean scores of the

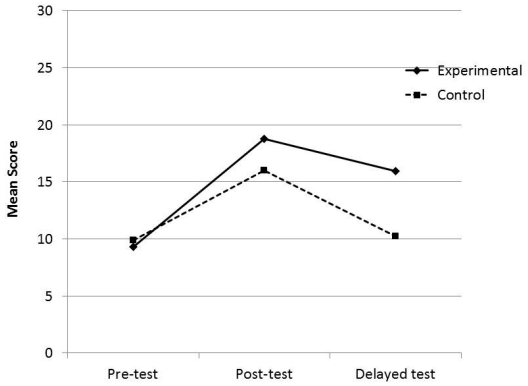

Fig 1. Mean score of Pre-, Post- and Delayed tests for Experimental and Control groups

Table 4: Descriptive statistics for the grammaticality judgment test

Group	*n*	Pre-test		Post-test		Delayed test	
		M	SD	M	SD	M	SD
Experimental	31	9.290	2.383	18.774	2.667	15.968	2.243
Control	31	9.871	2.377	16.000	2.805	10.226	2.473

Note. M = Mean, SD = Standard Deviation

Table 5: Summary of ANOVA

Source of Variance	SS	df	MS	F	*p* -value	P. Eta-Squared
Between Groups						
Method (A)	325.355	1	325.355	33.357	.000***	0.357
Within Groups						
Time (B)	1895.3548	2	946.677	211.201	.000***	0.779
A*B	310.194	2	155.097	34.565	.000***	0.366

Note . ***$p < .001$

Table6: Summary of post-hoc analysis: Experimental group (multiple comparison)

	Diff	*t* -value	df	*p*	Adj. *p*	
Pre-Post	–9.484	20.887	30	.000***	.000***	Pre < Post
Pre-Delayed	6.678	11.781	30	.000***	.000***	Pre < Delayed
Post-Delayed	1.387	4.984	30	.000***	.000***	Post > Delayed

Note . ***$p < .001$

Table7: Summary of post-hoc analysis: Control group (multiple comparison)

	Diff	*t* -value	df	*p*	Adj. *p*	
Pre-Post	–6.129	11.062	30	.000***	.000***	Pre < Post
Pre-Delayed	0.355	0.686	30	.498*ns*	.498*ns*	Pre = Delayed
Post-Delayed	5.774	10.245	30	.000***	.000***	Post > Delayed

Note . ***$p < .001$, *ns* = not significant

Table 8: Mann-Whitney U-test results of each item

items	group	Mean (SD)	Man-Whitney U	*p*
I got more motivation to learn English grammar.	E (n =31)	3.419 (0.765)	303.500	.008**
	C (n =31)	2.871 (0.846)		
I found this activity useful.	E (n =31)	3.742 (0.930)	360.000	.087*ns*
	C (n =31)	3.484 (0.811)		

Note . E = Experimental group, C = Control group, **$p < .01$, *ns* = not significant

experimental group and those of the control group in the post-test (F (1, 60) = 15.926, $p < .001$, $\eta^2 = .210$) and the delayed test (F (1, 60) = 91.696, $p < .001$, $\eta^2 = .605$), respectively.

A two-way ANOVA yielded the following results (Table 5): The main effect was significantly different for method (F (1, 60) = 33.357, $p < .001$, $\eta^2 = .357$) and time (F (2, 60) = 211.201, $p < .001$, $\eta^2 = .779$), thus showing that the test scores were affected by method and time. The method–time interaction was also statistically significant (F (2, 60) = 34.565, $p < .001$, $\eta^2 = .366$).

The key findings of all post-hoc analyses within each group, using Holm's sequentially rejective Bonferroni procedure, are shown in Tables 6 and 7, respectively. The results of the paired comparison (or the comparison of all combinations of pre-test, post-test, and delayed test) indicated that the scores of the post-tests in both groups were better than those of the pre-tests. The only difference was the scores on the delayed tests. The results from the experimental group revealed that the post-test scores were the highest, followed sequentially by the delayed test and pre-test. Meanwhile, in the control group, the scores on the pre-test and delayed test showed no significant difference: the arrangement of the three tests' scores in the experimental group was Pre < Delayed < Post, while that of the control group was Pre = Delayed < Post.

As for the questionnaire, each item was compared using the Mann Whitney U test to find out the difference between the experimental and the control groups (Table 8). The results revealed a significant difference in their motivation to learn English grammar (U = 303.500, p = .008, r = .337), while both groups had similar impressions of this activity: no significant difference was found (U = 360.000, p = .087, r = .217).

5. Discussion

From the results of the pre-test, both groups were assumed to have similar knowledge about dative alternation prior to receiving instruction. To be specific, the participants in both groups had difficulty in dealing with dative alternation at first, although they had

possessed a certain level of English proficiency. As for the post-test/delayed test, both of which were administered after the instruction, the participants' scores in the experimental group were higher than in the control group. This amounts to saying that the CLI approach is more effective. For this study, the same grammaticality judgement test was conducted three times with certain time intervals. That presented a more detailed analysis of how deeply what they had learned was entrenched in memory: i.e. when comparing the pre-test/post-test scores in each group, there was a statistically significant difference between both methods, resulting from the fact that both teaching methods are meaningful in enhancing their performance on dative alternation in a week's time. Furthermore, in comparing the post-tests/delayed tests results, statistically significant results were achieved in both groups. From these results, it is revealed that all the participants failed to recall items they had learned clearly in two months. Some useful results were obtained from comparing the pre-tests/delayed tests scores. In the control group, no significant difference was found between the two tests, meaning that the traditional method did not lead to long-term effective improvement: the participants in the control group tended to forget what dative alternation was after an interval of two months. Meanwhile, in the experimental group, there was a significant difference between the two tests, showing that the effects from this teaching method lasted much longer. The participants' achievement was retained longer in their memory, suggesting that this CLI method can make learning easier. Therefore, the first research question was answered in greater detail by implementing the delayed test: the Cognitive Linguistics-inspired approach yields better results than the traditional method regarding dative alternation and can result in longer-lasting educational accomplishment.

With respect to the second research question regarding motivation, the questionnaire-based survey demonstrated that the participants in the experimental group were likely to end up with more motivation to learn English grammar than in the control group: the CLI method could stimulate their intellectual curiosity, which can be a form of motivation, leading to the development of their awareness toward English grammar. However, their perceptions toward this activity (i.e. answers to the last research question) yielded similar results in both methods: viz., the participants in both groups enjoyed this activity overall. The result might be due to the fact that group work facilitated participants to have positive responses for learning, suggesting that the method alone does not affect their impressions toward this activity: they happened to report self-enhanced efficacy just because they had a satisfying time with their peers through group work.

6. Conclusion

The focus of this newly-proposed CLI method was placed on prototypical verbs as effective input. Although the participants under both methods were exposed to various and many input, the findings have proved that only those who received the CLI teaching instruction could achieve long-term retention in memory, suggesting that teaching the semantics of prototypical verbs in each verb category (in this case, *give* and *make*) intensively and explicitly could further encourage the entrenchment of their grammatical knowledge regarding dative alternation. It is, of course, important to remember that this CLI method is incomplete at explaining this concept in its entirety since dative alternation is extremely complicated. This study leaves unanswered questions, especially with regard to whether the grammaticality judgment test results actually reflected understanding of dative alternation. This study was conducted on a limited number of learners with similar proficiency levels (i.e. intermediate level), possibly leading to a Cronbach's alpha value of .65, which is insufficient in linguistic tests.[29] To gain valid and reliable results in the real sense, this test for measuring dative alternation comprehension of EFL learners at all proficiency levels would need further consideration and sophistication.

All in all, this CLI method provides a new perspective for EFL learners struggling to learn grammar: viz., it can help them recognize and acquire grammatical rules and exceptions as meaningful and intriguing activities, raising their consciousness. It is true that there are no rules without exceptions; however, systematic instruction - where learners are more aware of certain principles and mechanisms behind various syntactic structures - can make them realize that learning grammar is more than memorization and rote-learning. To expand the range of this method, it could be effective to introduce other exceptions, such as the uniqueness of Latinate verbs (e.g. *donate* and *report*). In short, *give* and *donate* have a similar meaning, but only the latter never takes DOC form as in **Mary donated the museum the painting*. The asymmetric relationship found in this DOC pattern is

mostly reflected in other verbs such as *tell*/**report* and *build*/**construct*. Seemingly these verbs behave like exceptions in that they do not allow for DOC, but there is also a systematic rule here: the common factor is they are Latinate verbs. Furthermore, this approach has a wider range of applications to other alternating linguistic phenomena: i.e. passive vs. active sentence construction. Bolinger (1968)[33] has stated that "a difference in syntactic form always spells a difference in meaning." Strictly speaking, there is no true paraphrase. Through the cognitive approach, EFL learners are expected to realize that "sentence construction is directly associated with meaning of the sentence."[34] Upon appreciation, they would probably not regard grammatical constructions as meaningless and unidimensional structures anymore. Considering that traditional grammar instruction tends to develop negative responses in actual EFL classrooms (i.e. grammar is often regarded as boring and frustration-provoking for EFL learners), it is particularly worth noting that the cognitive framework can serve as a powerful tool to help increase EFL learners' motivation to learn English grammar all over again: it can be a consciousness-raising activity. Once consciousness is raised, significant effects for learning can be expected. Consciousness-raising is effective for language acquisition because it is "the drawing of the learner's attention to features of the target language."[35]

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Competing Interests

Authors have declared that no competing interests exist.

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Appendix

A: Grammaticality Judgment Test for Pre-test version

(The order of questions was randomized each time.)

In this task, you will be asked to judge whether individual sentences sound grammatical to you. As the following example shows, leave the space blank if a sentence sounds grammatical. By contrast, put an asterisk (*) in the space for marking ungrammaticality. Asterisk on the top of the sentence denotes the following sentence is not grammatical.

Example: a. [*] John went school.
b. [ ] John went to school.

1 a. [ ] John gave Mary a book.
b. [ ] John gave a book to Mary.
c. [ ] John gave a book for Mary.

2 a. [ ] John found Mary a seat.
b. [ ] John found a seat to Mary.
c. [ ] John found a seat for Mary.

3 a. [ ] John read Mary the book.
b. [ ] John read the book to Mary.
c. [ ] John read the book for Mary.

4 a. [ ] John sent Tokyo the letter.
b. [ ] John sent the letter to Tokyo.
c. [ ] John sent the letter for Tokyo.

5 a. [ ] John took Mary the letter.
b. [ ] John took the letter to Mary.
c. [ ] John took the letter for Mary.

6 a. [ ] John played Mary a waltz.
b. [ ] John played a waltz to Mary.
c. [ ] John played a waltz for Mary.

7 a. [ ] John brought the table a dish.
b. [ ] John brought a dish to the table.
c. [ ] John brought a dish for the table.

8 a. [ ] John opened Mary the door.
b. [ ] John opened the door to Mary.
c. [ ] John opened the door for Mary.

9 a. [ ] John bought Mary a doll.
b. [ ] John bought a doll to Mary.
c. [ ] John bought a doll for Mary.

10 a. [ ] John taught Mary French.
b. [ ] John taught French to Mary.
c. [ ] John taught French for Mary.

11 a. [ ] John told Mary the news.
b. [ ] John told the news to Mary.
c. [ ] John told the news for Mary.

12 a. [ ] John got Mary a ticket.
b. [ ] John got a ticket to Mary.
c. [ ] John got a ticket for Mary.

13 a. [ ] John gave Mary a headache.
b. [ ] John gave a headache to Mary.
c. [ ] John gave a headache for Mary.

14 a. [ ] John sang Mary a song.
b. [ ] John sang a song to Mary.
c. [ ] John sang a song for Mary.

15 a. [ ] John made Mary a chair.
b. [ ] John made a chair to Mary.
c. [ ] John made a chair for Mary.

16 a. [ ] John brought Mary a dish.
b. [ ] John brought a dish to Mary.
c. [ ] John brought a dish for Mary.

17 a. [ ] John built Mary a house.
b. [ ] John built a house to Mary.
c. [ ] John built a house for Mary.

18 a. [ ] John kicked Mary a ball.
b. [ ] John kicked a ball to Mary.
c. [ ] John kicked a ball for Mary.

19 a. [ ] John baked Mary a cake.
b. [ ] John baked a cake to Mary.
c. [ ] John baked a cake for Mary.

20 a. [ ] John opened Mary the beer.
b. [ ] John opened the beer to Mary.
c. [ ] John opened the beer for Mary.

21 a. ☐ John called Mary a taxi.
b. ☐ John called a taxi to Mary.
c. ☐ John called a taxi for Mary.

22 a. ☐ John showed Mary a picture.
b. ☐ John showed a picture to Mary.
c. ☐ John showed a picture for Mary.

23 a. ☐ John cooked Mary a meal.
b. ☐ John cooked a meal to Mary.
c. ☐ John cooked a meal for Mary.

24 a. ☐ John took the post the letter.
b. ☐ John took the letter to the post.
c. ☐ John took the letter for the post.

25 a. ☐ John gave Mary an idea.
b. ☐ John gave an idea to Mary.
c. ☐ John gave an idea for Mary.

26 a. ☐ The book cost me $10.
b. ☐ The book cost $10 to me.
c. ☐ The book cost $10 for me.

27 a. ☐ John drove Tokyo a car.
b. ☐ John drove a car to Tokyo.
c. ☐ John drove a car for Tokyo.

28 a. ☐ John sold Mary a book.
b. ☐ John sold a book to Mary.
c. ☐ John sold a book for Mary.

29 a. ☐ John chose Mary a bag.
b. ☐ John chose a bag to Mary.
c. ☐ John chose a bag for Mary.

30 a. ☐ John wrote Mary a letter.
b. ☐ John wrote a letter to Mary.
c. ☐ John wrote a letter for Mary.

B: Correct Answers for Pre-test version

(1)	a, b	(11)	a, b	(21)	a, c
(2)	a, c	(12)	a, c	(22)	a, b
(3)	a, c	(13)	a	(23)	a, c
(4)	b	(14)	a, c	(24)	b
(5)	a, b	(15)	a, c	(25)	a
(6)	a, c	(16)	a, b	(26)	a
(7)	b	(17)	a, c	(27)	b
(8)	c	(18)	a, b	(28)	a, b
(9)	a, c	(19)	a, c	(29)	a, c
(10)	a, b	(20)	a, c	(30)	a, b, c