On the Effect of Teaching the English Article System to Japanese Learners of English
From the Perspective of Pedagogical Grammar

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Abstract

The essence of pedagogical grammar is that the rules should be simple. It also needs to specify the order of presenting the pedagogical rules as well as the method of presenting them. A quasi-experimental study was conducted from the perspective of pedagogical grammar in order to examine (1) the effect of the two teaching approaches (old vs. new approach), (2) the effect of the instructional order of English articles rules (either the definite / indefinite distinction comes first or the count / uncount distinction comes first) on Japanese high school learners' acquisition of the English article system. The new approach emphasized the uniqueness teaching the definite / indefinite distinction while the old approach did not. The new approach presented the dual nouns in the contrastive environment while the old approach did not. The results of the present study showed a significant effect of every treatment on the use of the indefinite article. It also found a significant effect of teaching the definite / indefinite distinction when the referent is countable. The study also showed that it was significantly better to teach the count / uncount distinction earlier than the definite / indefinite distinction.

1. Criteria for pedagogical grammar

According to Richards et al. (1985), pedagogical grammar refers to “a grammatical description of a language which is intended for pedagogical purposes, such as language teaching”. As Bygate and Williams (1994) point out, the rules of pedagogical grammar must be simple (simplicity). Then, as Beaumont and Gallaway (1994) argue, it should present the sequence of teaching such rules (sequence). Finally, it should propose how to teach them (teaching methodology) (For further discussions on criteria for pedagogic language rules, see Swan, 1994 and Takahashi, 2006).

2. Purpose of the present study
There is some previous research on the effect of instruction on the acquisition of the English article rules. For example, Master (1994) spent a total of six hours in teaching various article rules. His study indicated the effect of article instruction but the result was not necessarily conclusive, as Master (1997, p. 229) himself pointed out. There are other studies indicating the effect of article instruction (Kimura and McCroskey, 1991; Murano, 2000; Ikeno, 2001; Master, 2003; Murao, 2004), the methods of teaching used in these studies had at least one of the following defects; (a) the rules taught in these studies were not simple, (b) they spent a long time teaching the English articles rules, (c) they did not examine the order of teaching the English article rules, (d) the pre-test and post-test used to measure the effect of article instruction did not test a comprehensive article use and were more or less restricted to the area of English article use taught in these studies (except for Ikeno, 2001).

The first three defects are especially problematic from the perspective of pedagogical grammar. In order to overcome these problems of previous research, the present study examined (1) the effect of the two teaching approaches (old vs. new approach) using simple, non-time-consuming approaches, (2) the effect of the order of instruction of English articles rules (either the definite / indefinite distinction comes first or the count / uncount distinction comes first) on Japanese high school learners' acquisition of the English article system.

3. Experiment

As schematically shown in Figure 1, the experiment consisted of 6 steps; (1) the preparation of a pre-test and two post-tests (i.e. Post-test 1, and Post-test 2), (2) the implementation of the pre-test, (3) the first treatment, (4) the implementation of Post-test 1, (5) the second treatment and (6) the implementation of Post-test 2.

In Step 1, two sets of article insertion tests were given to a total of 306 students (153 students at a high school in Yamaguchi Prefecture and 153 students at a high school in Okayama Prefecture). Based on the results of these tests, three sets of article insertion tests of equivalent difficulty (each consisted of 63 questions) were made; For example;

![Figure 1: The flow chart of the experiment](image-url)
The method consisting of an article insertion test was used in order to measure a wide range of English article usage. The Japanese translation was added to avoid the situation where the students were not able to answer correctly due to their lack of vocabulary on the test. There was no statistically significant difference between the three tests in terms of difficulty ($F (2, 186) = 0.075, n.s.$). There were no overlaps between the questions used in these tests and the number ($= 63$ questions) and type of questions covering similar article usage (Quirk et al, 1985, Egawa, 1991) were counter-balanced to make the tests equivalent. For example, the questions for the definite article covered eight types of definite article use (immediate situation, larger situation, anaphoric reference - direct (‘second mention’), anaphoric reference - indirect (‘associative anaphora’), cataphoric reference, sporadic reference (‘institutional reference’), logical use and relevance to body parts). The number of countable /uncountable nouns, and that of abstract / concrete nouns were also balanced between the three tests. In the present study, one of the three tests was randomly selected as a pre-test. In the same way, Post-test 1 and Post-test 2 were decided.

In Steps 2-6, a pretest-posttest control group design was used to study (1) the effect of the two teaching approaches (old vs. new approach), (2) the effect of instruction order of English article rules (either the definite / indefinite distinction comes first or the count / uncount distinction comes first) on Japanese high school learners’ use of the English articles. In a two (teaching approaches) by two (instruction order) factorial design (cf. Figure 1), four intact classes were randomly assigned to four experimental conditions (i.e. Groups A – D) (A total of 123 students participated in the present experiment). As Figure 1 shows, the pre-test was given in Step 1. Then in Steps 3-4, Post-test 1 was given after the first treatment. Finally, in Steps 5-6, Post-test 2 was given after the second treatment. Each of the 3 tests (the pre-test, Post-test 1, Post-test 2) was the same for the four groups and took 15 minutes to complete. The four groups received different treatments depending on the stages of the experiment. As Figure 1 illustrates, Groups A and C received instruction on the definite / indefinite distinction in Step 3 whereas Groups B and D received instruction on the countable / uncountable distinction. Then in Step 5, Groups A and C received instruction on the countable / uncountable distinction, whereas Groups B and D received instruction on the definite / indefinite distinction.

The difference between the new approach groups (i.e. Groups A and B) and the old approach groups (i.e. Groups C and D) was whether the methods used in article instruction were new. As regards instruction on the definite / indefinite distinction, Groups A and B were instructed to select the definite article when the referent was unique in the context (cf. Zehler and Brewer, 1982), whereas Groups C and D were instructed to choose the definite article when the referent was specific. In this experiment, the former was regarded as a new method because a lot of research indicates that the uniqueness of the referent in the context can better explain the use of the definite article than the degree of specificity of the referent (Master, 1990, p. 467; Takahashi 2006).
As regards the teaching of the countable / uncountable distinction, Groups A and B were shown pairs of dual nouns in the contrastive environment so as to make the subjects understand how the distinction affects the meaning of dual nouns, of which the meaning differs depending on whether the noun is used as a countable noun or not (e.g. a chicken / chicken, an egg / egg, a paper / paper, a fish / fish, a hair / hair, a beauty / beauty, etc.). On the other hand, Groups C and D were shown the same sets of dual nouns as their counterparts (i.e. Groups A and C) but the dual nouns were not shown to them in the contrastive environment so that it was less likely that they understood that the meaning of a noun changes depending on the countable / uncountable distinction.

Instruction on the definite and indefinite distinction was given to the participants using PowerPoint (a presentation software). The exercise consisted of two sample questions and 48 questions. The instruction took 35 minutes. As Figures 2 and 3 show, the instruction was the same for all groups except for one thing: while the new approach groups (i.e. A and B) were instructed to select the definite article when the referent was unique (i.e. only one) in the context, the old approach groups (i.e. C and D) were instructed to use the definite article when the referent was specific.

Instruction on the countable / uncountable distinction was also given using PowerPoint
(computer software). The exercise consisted of two sample questions and 40 questions. The treatment lasted for 35 minutes. As Figures 4 and 5 illustrate, the questions were the same for all groups except for two things. Whereas the new approach groups were presented with dual nouns in the contrastive environment (i.e. both countable and uncountable examples of a dual noun are presented in succession), the old approach groups were not. Whereas the old approach groups were provided with Japanese translations, the new approach groups were not. This was to counter-balance advantages of the new approach groups obtained from the contrastive presentation with those of the old approach gained from the help of bilingual translations.

Since the question sentences appearing in both the new and old instructions were exactly the same, and the instructions were given by a computer program, no effects could be attributed either to lexical and structural differences in the question statements used in the experiment or to teacher factors.

4. Result
4.1 Results of the pre-test
The analysis of variance (ANOVA) of the results of the pre-test shows that there was no significant difference between the four groups ($F(3, 119)=1.080, n.s.$).

4.2 Results of Post-test 1 and Post-test 2
4.2.1 Overall results of the present study
As Figure 6 graphically shows, there was no significant difference between the three tests (Pre-test, Post-test 1 and Post-test 2) ($F(2, 238)=1.723, n.s.$).

There was no significant effect of either teaching approach ($F(1, 119)=0.700, n.s.$) or teaching sequence ($F(1, 119)=0.414, n.s.$) on the use of the English articles.

4.2.2 The analysis of the students' accuracy in questions requiring an indefinite article
In order to explore the reason behind the overall result observed in 4.2.1 (i.e. the non-significant difference between the three tests and the non-significant effect of either teaching approach or teaching sequence), further analysis was carried out to see whether the same result would be found for all of the three question types (i.e. questions requiring either the definite article "the", the indefinite article "a(n)", and the zero article). The analysis of the questions requiring the indefinite article was as follows.

As Figure 7 shows, in relation to the accuracy of the students in answering the questions requiring the indefinite article "a(n)", there was a significant difference between the three tests (pre-test, post-test 1, post-test 2) ($F(2, 238)=58.918, p<0.001$) (A post-hoc multiple comparison analysis using the Ryan's method found a significant difference between every pair of the three tests ($p<0.01$)). Thus the result shows that the subjects in the present study performed increasingly better as far as their accuracy in the...
use of the indefinite article was concerned. The result also indicates that the simple, short and automated instruction using PowerPoint was actually useful for teaching how to use the indefinite article.

4.2.3 Analysis of the results on questions on the definite article use

As Figures 8 and 9 schematically illustrate, the analysis of the results of the questions on the definite article use indicates:

(1) The accuracy on the definite article did not seem to have improved after the definite / indefinite instruction when the analysis included the data with both countable and uncountable referents. However, when the data on uncountable nouns were excluded from the analysis, there was a significant effect of the definite / indefinite instruction on the use of the definite article (except for the sporadic use). As Figure 9 shows, the subjects in Groups A and C performed significantly better in Post-test 1 than in the pre-test. (Group A: $t(47) = 3.10, p < 0.01$; Group C: $t(20) = 5.38, p < 0.001$). Similarly, in the cases of Groups B and D, their performance was better in Post-test 2 than in Post-test 1.

(2) The accuracy in the use of the definite article dropped after instruction on the countable / uncountable distinction. Groups A and C performed less well in Post-test 2 than in Post-test 1. In the same way, in the case of Groups C and D, their performance was lower in Post-test 1 than in the pre-test.

(3) As Figures 8 and 9 show, the performance of the two groups (i.e. Groups B and D) in Post-test 2 almost returned to or exceeded the level achieved in the pre-test in spite of the decline in Post-test 1.

Furthermore, an analysis of variance of the whole data on the definite article use found a significant interaction effect between teaching sequence and the accuracy in the use of the definite article ($F(2, 238) = 18.96, p < 0.001$) (i.e. The performance in Post-test 2 was significantly higher when the count / uncount distinction was taught first while the opposite was true in Post-test 1). Thus it seems that it is best to teach the count / uncount distinction before the definite / indefinite distinction.
when teaching both types of distinction in a sequence (at least in the case of the questions requiring the definite article) in order to avoid learning interference from the teaching of the count / uncount distinction.

4.2.4 Analysis of the results of questions on the definite and indefinite article use when the referent is countable

As illustrated in Figure 10, an analysis was made on the results of questions on both definite and indefinite article use (except the sporadic use) when the referent is countable, which showed:
- The performance was significantly better in Post-test 2 than in the pre-test ($F(2, 238) = 24.042, p < 0.001$).
- The performance immediately after the instruction on the definite / indefinite distinction improved.
- Groups B and D, which learned the count / uncount distinction first, performed better in Post-test 2 than Groups A and C, which learned the definite / indefinite distinction first ($F(1, 357) = 6.576, p = 0.011$).

Thus, it seems that the results indicate a significant effect of article instruction on the accuracy in the use of the definite and indefinite article (except the sporadic use) when the referent is countable.

5. Discussion

5.1 Which was more effective, the old approach or the new approach?

There was no significant effect of article instruction on the overall use of the English articles (in other words, both the old and new approach were equally ineffective). However, when the results on the zero article use are excluded from the analysis, both the old and new approach had a significant effect on the accuracies on the use of the indefinite and definite articles when the referent was countable.

5.2 Which should we teach first, noun countability or definiteness?

Similarly, when the data on the zero article use was included in the analysis, there was no significant difference between the two sequences of instruction on the use of the English articles. However, if the results on the zero article use are excluded from the analysis, the analysis showed that the teaching of the countable / uncountable distinction before the definite / indefinite distinction
benefited the students most (when the referent was countable) \(F(2, 238) = 12.829, p < 0.001\).

5.3 The possible reasons for the results of the present study

The present study did not show a significant effect of article instruction on the use of the zero article. At first, the result seemed to be inconsistent with previous research results. Whereas the present study did not show a positive effect of article instruction on the zero article use, previous research seemed to show a positive effect of explicit instruction of the English article system as a whole. However, a scrutiny of previous studies showed that those studies claiming to have shown a positive effect of article instruction used pre- and post-tests which mainly consisted of definite and indefinite article use in the countable environment (cf. Kimura and McCroskey, 1991; Murano, 2000; Murao, 2004). Thus the finding of the present short-term study can be considered to be consistent with the previous research in that no short-term studies have found a significant effect of article instruction on the use of the English article in the uncountable environment. It may be that a long-term instruction such as Ikeno (2001) is necessary for teaching the use of the zero article.

If the referent is not definite and the noun in the referring expression is not countable, the zero article is the only option. On the other hand, if the referent is not definite and the noun in the referring expression is countable, the only possible choice is the indefinite article, thus making the task of selecting the appropriate article much easier for students.

In addition, since the definite article can be used in front of both countable and uncountable nouns, the correct use of the definite article only needs the definite and indefinite distinction. Furthermore, there was a tendency for the students to perform remarkably well in questions where “demarcation” (Swan, 1994) as to whether the referent is definite or indefinite seems to be relatively clear. Therefore, it is not surprising that a significant effect of article instruction was obtained in previous research studies which used pre- and post-tests questions concerning the relationships between the use of the definite article and the shared knowledge, ranking adjectives, post-modification (Kimura and McCroskey, 1991; Master, 2000; Master 2003)

References


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