Pedagogical Frameworks for Learning the English Article System

Peter Master, San Jose State University, California
pmaster@sjsu.edu

Introduction

This article reports on a pilot investigation of the effect of using different pedagogical frameworks in teaching nonnative speakers of English the article system. The investigation used a quasi-experimental pre-test post-test design, quasi-experimental because the subjects were in intact groups (i.e., classes) rather than randomly assigned to the control or experimental groups. The subjects (n = 75) were international students in an intensive English program (IEP) at a large urban university. Table 1 shows the language backgrounds of the students, the majority of whom came from Asian countries. All the students were at the intermediate level of proficiency.

Table 1. Language Background of Subjects

Chinese 25	Thai 4
Korean 18	
Indonesian 3	
Japanese 9	Arabic 2
Spanish 7	French 1
Vietnamese 5	German 1

Table 2 provides background information on the subjects. The gender of the subjects in the study was fairly evenly divided, and the other data show that the participants were fairly typical of those who populate intensive university ESL classes.

Table 2. Subject Data

Gender   Male: 35   Female: 40
Average Age in Years: 24.11
Average Reported Years of English Study: 7.18
Average Reported Years in the US: 0.45

All the subjects were tested for their initial knowledge of the article system with a 15-minute, 60-item test. This instrument was first trialed on three community college ESL classes (n = 82), the results of which were analyzed for reliability using the Kuder-Richardson 21 formula, producing a reliability of .7. The test asked the subjects to supply missing *a, the*, or Ø in sentences of four categories: generic (n = 12), shared knowledge (n = 12), ranking adjectives (n = 12), and postmodified noun phrases (n = 24).

The experimental groups received three treatments, each of which represented a different pedagogical framework for teaching the article system. Treatment A, summarized in Table 3, taught the binary system (classification vs. identification) as presented in Master (1990).

Table 3. The Binary Framework

CLASSIFICATION [*a, Ø1*]	IDENTIFICATION [*the, Ø2*]
Count/Noncount	**Count/Noncount**
a book; (Ø1) books/wine	the book; the books/the wine
a dinner; (Ø1) winter	(Ø2) dinner; (Ø2) winter
a president	(Ø2) president
First mention	**Subsequent mention**
a photograph	the photograph
a brother and (a) sister	(Ø2) brother and sister
Descriptive adjectives	**Ranking adjectives**
a first step	the first step
a last chance	(Ø2) last time/week/year
a best man	the best film
an only child	the only chance
Defining relative clause	**Limiting relative clause**
a car that gets 50 mpg	the car that won the race
Partitive *of*-phrase	**Descriptive *of*-phrase**
a cup of coffee	the diameter of a circle
a temperature of 212 degrees	the temperature of the sun
General characteristics	**Generic *the***
A squirrel (has a tail.)	The squirrel (is becoming a pest.)
(Ø1) Squirrels (have a tail.)	
New knowledge	**Shared (given) knowledge**
a moon	the moon
a catastrophe	the catastrophe
Proper nouns	**Proper nouns**
-------	the Amazon River
	the United States of (Ø2) America
	(Ø2) Yosemite National Park
	(Ø2) Albert/
	(Ø2) Dr. Einstein
Classified proper nouns	**Identified proper nouns**
a Mr. Jones to see you	the Mr. Jones you met last night
Idiomatic phrases	**Idiomatic phrases**
have a cow; eat (Ø1) crow	rise to the occasion

Note: Ø1 = the zero article; Ø2 = the null article (see Master, 1997).

Treatment B, summarized in Table 4, taught the effect of information structure on article usage as described in Master (2002).

Table 4. The Information Structure Framework

NEW INFORMATION [*a*, Ø1]	GIVEN INFORMATION [*the*, Ø2]
Canonical Position • To the <u>right</u> of the main verb Example: John bought <u>a book</u>.	**Canonical Position** • To the <u>left</u> of the main verb Example: <u>The book</u> cost twenty dollars.
Main Exceptions to Canonical Position • Subsequent mention Ex: <u>The tornado</u> damaged many houses. • Topic focus, the deliberate shifting of new information into topic position Ex: <u>The dinner</u> I really enjoyed.	**Main Exceptions to Canonical Position** • Limiting Relative Clauses and Descriptive *of* –Phrases Ex: I found <u>the book that you gave me</u>. Ex: <u>The tornado</u> damaged many houses. • Shared Knowledge Ex: She picked up <u>the paper</u>. • Ranking Adjectives Ex: The SF Symphony is <u>the latest</u> in a long line of orchestras to do this. • Idiomatic Phrases Ex: The orchestra <u>rose to the occasion</u>.

_____Note: Ø1 = the zero article; Ø2 = the null article (see Master, 1997).

Treatment C, summarized in Table 5, taught the six-question approach described in Master (1994).

Table 5. The Six-Question Framework

1. Is the noun singular count (*a/an*), plural count (Ø), or noncount (Ø)? 2. Is the noun definite (*the*) or indefinite (*a/Ø*)? 3. Is the noun postmodified (*a/the/Ø*) or not (*a/the/Ø*)? 4. Is the noun specific (*a/the/Ø*) or generic (*a/the/Ø*)? 5. Is the noun common (*a/the/Ø*) or proper (*the/Ø*)? 6. Is the noun in an idiomatic phrase (*a/the/Ø*) or not (*a/the/Ø*)?

Altogether, there were four treatment combinations: Group 1 received A alone, Group 2 received B alone, Group 3 received A and B together, and Group 4 received C alone. Group 5 was the control group, which received no treatment. The instructor of that class agreed to deflect any questions or concerns about the article system with that group until the study had been completed. Treatment combinations were applied in separate IEP classes, all at the intermediate proficiency level. Each of the experimental groups received one hour of treatment per week in three successive weeks. Each group also spent an additional one hour per week working with their regular instructor on article exercises from the packet of materials each subject had received (this was an effort to duplicate the six hours of treatment provided in Master, 1994). The same 15-minute article test was administered four weeks later (any practice effect was considered to have been effaced by this time period). The test was administered again more than five months later, but unfortunately, since only six students volunteered to take it, it provided no indication of the longer-term effect of the treatments, as had been hoped.

Results and Discussion

The results of the study are provided in Table 6. Table 6 shows (Line 6) that the mean differences were positive for each of the five treatment groups, confirming other studies (e.g., Master, 1994) that showed incremental improvement in article use even when no instruction was provided (i.e., the control group). The differences were highest for the binary system framework, followed by the binary system plus information structure frameworks, the information structure framework alone, the six-question framework, and finally the control group.

Table 6. Summary of Results

Group No.	1	3	2	4	5
Category	Binary	Binary+Info	Info Struc	Six Q	Control
1. n size (T = 75)	13	14	15	17	16
2. PREtest Mean	44.846	44.071	46.867	47.000	49.375
3. PREtest SD	5.444	6.019	4.642	4.690	5.126
4. POSTtest Mean	49.000	47.214	48.800	48.235	50.063
5. POSTtest SD	3.742	5.010	2.783	4.644	4.021
6. **D Mean**	**+4.154**	**+3.143**	**+1.933**	**+1.235**	**+0.688**
7. D SD	1.702	1.009	1.899	0.046	1.105
8. p-value	.0033*	.0137	.0987	.2062	.4233

The results were subjected to the following statistical analyses: Analysis of Covariance (ANCOVA), Mixed Analysis of Variance (ANOVA), and Paired *t*-Tests (a faculty member in the Department of Mathematics at San Jose State University helped me to conduct the analysis).

The ANCOVA addresses the question: Was there a mean difference among the five groups (levels of an independent variable) on a posttest (dependent variable) after the posttest scores are adjusted for differences in pretest scores (covariate)? The main assumptions regarding ANCOVA were met: 1) there was a relatively equal distribution of subjects within each group, 2) the homogeneity of the variance was not violated for either the computed means for post- and pretest scores by group or the interaction between group and pretest, and 3) scatterplots of the subjects as one large sample were "nice and linear." There was a statistically significant correlation between the pre- and posttest scores. However, group differences in the posttest after adjusting for the ANCOVA covariate (posttest score) were not statistically significant [F= 0.67, p>.05].

The mixed ANOVA addresses the question: Was there a difference between mean pre- and posttest scores? The results showed that there was a significant testing effect [F = 23.95, p<.05], so there was a significant difference in pre- and posttest scores across groups. The mixed ANOVA also addresses the questions: Was there a mean difference in posttest by group, and were the effects of testing independent of group? There was no significant group effect [F = 2.03, p>.05], nor was there a significant interaction effect [F = 1.86, p>.05]. However, if the dataset (see Table 6, Line 1) is quadrupled (i.e., total n = 300), the results become significant.

Individual paired *t*-tests on the mean pre/post-test differences in each group resulted in significance (p < .05; two-tailed) for Group 1 (binary system) and Group 3 (binary system + information structure) and significance (p < .05; one-tailed) for Group 4 (information structure)—.0987 (two-tailed), which becomes .049 one-tailed and is therefore significant at the .05 (see Table 6, Line 8). Such significances are not valid, however, because they violate the injunction against multiple *t*-tests on the same data set. However, the Bonferoni rule (Bland & Altman, 1995), which requires that multiple *t*-tests be held to a significance criterion divided by the number of *t*-tests applied (5), would reduce the p criterion to .01 (.05/5), which Group 1 (binary system) achieves (p = .0033; hence the asterisk next to this number in Line 8) and Group 3 (binary system + information structure) comes close to achieving (.0137).

The binary system (Group 1) thus appears to have produced the only significant increase in posttest scores, while the binary system in conjunction with information structure came close to doing so. In Master (1994), I found significant improvement by the experimental group on a different article test using the six-question framework that was part of this study. Unlike the 1994 study, which attempted to teach all aspects of the article system in six hours of instruction administered over 10 weeks, this study focused only on a subset of article usage (generic, shared knowledge, ranking adjective, and postmodified NPs) in three hours of instruction and three hours of in-class exercises administered over three weeks. Under these conditions, the six-question framework did not fare well, providing improvement on the post-test that exceeded the control group but no other, although this result was not significant. Nevertheless, I would not recommend the six-question framework unless the binary system and information structure frameworks were unavailable.

Conclusion

The binary system appears to have produced the greatest pedagogical effect. The binary system in conjunction with information structure produced the second greatest effect, though it did not quite attain statistical significance. Information structure alone produced the third greatest effect, though it did not achieve significance. It is tempting to argue that information structure, which attained a lesser effect by itself, interfered with the positive effect of the binary system and "dragged it down," though this is not possible because neither Group 2 nor Group 3 achieved significance. One could surmise that two overarching frameworks were too much for the intermediate proficiency groups that were the subjects of the study, but of the two, the binary system was more effective.

In the future, I hope to repeat the study using 300+ students so that the relatively small increases found can attain statistical significance. It would be preferable to provide six hours of treatment rather than three treatment plus three teacher-guided hours (many complained that too little time was allowed for the amount of material). Finally, I hope to carry out the study in an institution where the students will stay for a longer period of time to allow for follow-up and thus assess the longer-term effect of the treatments.

References

Bland, J. M., & Altman, D. G. (1995). Multiple significance tests: the Bonferroni method. *British Medical Journal, 310,* 170.

Master, P. (1990). Teaching the English articles as a binary system. *TESOL Quarterly,24*(2), 461- 478.

Master, P. (1994). The effect of systematic instruction on learning the English article system. In Odlin, T., (Ed.), *Perspectives on Pedagogical Grammar* (pp. 229-252). Cambridge, UK: Cambridge University Press.

Master, P. (1997, March). *Acquiring the two zero articles in English.* Paper presented at the annual conference of the American Association for Applied Linguistics (AAAL), Orlando, FL.

Master, P. (2002). Information structure and article pedagogy. *System,30*(3), 331-348.

[References for my other work on the English article system may be found at the following website: http://www.sjsu.edu/faculty/pmaster/RESEARCHart.html].