Investigating the Relationship between L2 Writing Proficiency and Noun Modifications

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Abstract

This research investigated the relationship between L2 writing proficiency and noun modifications in the context of the Program of Intensive English (PIE). Altogether, 12 noun modifiers in an index of L2 writing development were checked by a computer-counting program in 2 tagged corpora that were built based on 84 PIE test essays, namely a corpus of lower L2 writing proficiency and a corpus of higher L2 writing proficiency. The results show that there is a significant difference in the numbers of noun modifiers, especially post-noun modifiers, between the essays written by students having higher and lower proficiencies. To be more specific, students with higher L2 writing proficiency used relative clauses and prepositional phrases statistically more than students with lower L2 writing proficiency. However, some noun modifiers were rarely used by all students, such as participial pre-modifiers, nonfinite clauses, and infinitive clauses, to name a few. Thus, PIE instructors should teach students having different L2 writing proficiencies with emphases on different noun modifiers.

Keywords: corpus-based, L2 writing proficiency, noun modifiers

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Background

In the field of academic writing, researchers have believed for a long time there is a strong relationship between grammatical complexity and clausal subordination (Biber, Gray, & Poonpon, 2013). However, based on corpus-based studies, researchers found out that clausal features were actually more frequent in conversations, whereas phrasal modification tends to be the most important linguistic features in academic writing (Biber, Conrad, 2002, p. 264; Biber, Gray, & Poonpon, 2011; Biber, Gray, & Poonpon, 2013). Recently, a hypothesized developmental index of L2 writing was proposed. It contains 5 developmental stages of L2 writing and each stage incorporates several linguistic features (Biber, Gray, and Poonpon, 2011). Among these linguistic features, 12 types of noun modifiers are identified in 4 developmental stages (except stage 1) in the index.

Based on the index, Parkinson and Musgrave (2014) carried out the most recent research study in the field of applied linguistics with particular emphasis on discovering the relationship between L2 writing proficiency and noun modifiers. However, there are two limitations in this research, because the authors fail to control 2 intervening variables, namely topic and external help. First, Parkinson and Musgrave use academic writings in different topics in their study. The different topics are very likely to influence the use of noun modifiers in participants' essays (Parkinson & Musgrave, 2014). Second, the final drafts of the essays are used as texts to be analyzed in this study. Since all the participants are nonnative speakers, they may ask help from writing tutors or native speakers to improve their writing. Consequently, the use of noun modifiers may not mirror the real L2 writing proficiencies of the participants in this research. In

this study, I managed to control these two variables, aiming at accurately exploring the

relationship between L2 writing proficiency and noun modifications.

Research Question

Do students with different L2 writing proficiencies use different numbers of noun modifiers from

the developmental index of L2 writing in their essays?

Methods

Texts and Participants

The texts used in this research are the essays from the independent writing section of the

NAU PIE placement level test in Fall 2014. There are 84 essays selected from the total 140

essays based on students' consent of participating in PIE research. The mean length is 163

words, with 67 words for the shortest essays and 273 words for the longest essay. The standard

deviation of the essay lengths is 19.42, meaning that students produced various lengths in their

essays.

The participants in this research are 84 PIE students who took a placement level test at

the beginning of Fall 2014. They are from five different countries, including China, Saudi

Arabia, Brazil, Korea, and Japan. The participants are from six different PIE levels,

demonstrating the diversity of their comprehensive L2 proficiencies (*Note*. Level 1 is the lowest

level and level 6 is the highest level.). Before the test, the participants got the same instruction

from PIE instructors on the test, and during the test, all participants finished the essays on the

same topic in the same time.

Procedures

Four main steps have been covered in this research. First, the essays used in the research

were divided into 2 groups based on the mean (i.e., 2.2) of the 84 scores. Group 1 has lower

scores and Group 2 has higher scores. Second, there are 12 noun modifiers in the hypothesized developmental index of L2 writing (Biber, Gray, & Poonpon, 2011). The noun modifiers were categorized into 4 groups via the L2 writing developmental stages (see Appendix A). Third, I built a corpus based on the 84 test essays, containing two corpora for Group 1 and Group 2. The two corpora were tagged by the *Biber Tagger* (i.e., a corpus tagging program). Then, a computer-counting program was written by *Perl* to check the frequencies of the 12 noun modifiers in the tagged corpora. Fourth, all frequencies associated with the 12 noun modifiers were first normalized to 1,000 words and then put into the *Statistical Package for the Social Science* (*SPSS*). I used *Mann Whitney U Test* to figure out whether there are significant differences in the normalized frequencies of the 12 noun modifiers between the two groups.

Results

Generally, there are four types of findings associated with frequencies of the noun modifiers in two corpora. First, Group 2 used noun modifiers statistically more than Group 1 did in the texts. In terms of pre-noun modifiers, the two groups produced similar amounts in their essays. However, for post-noun modifiers, there is a significant different between Group 1 and Group 2 (see Appendix B). Group 2 used more much post-noun modifiers in their essays.

Furthermore, in two corpora, the frequencies of the noun modifiers from stage 2 and stage 3 are very close to each other. In contrast, Group 2 produced noun modifiers of stage 4 statistically more than Group 1 did, whereas Group 1 produced noun modifiers of stage 5 statistically more than Group 2 did (see Appendix B). It is surprising to find out that students with lower L2 writing proficiency used much more advanced-level noun modifiers than students with higher L2 writing proficiency did.

Moreover, among the 12 noun modifiers in the index, Group 2 used three types of noun modifiers statistically more then Group 1 used, which are relative clause, prepositional phrases expressing concrete meaning, and prepositional phrase expressing abstract meaning (see Appendix B). Surprisingly, Group 1 produced infinitive clause from stage 5 statistically more than Group 2 did.

To find out the reason why this unexpected situation occurs, I checked the original corpora. In lower-proficiency students' corpus, an exactly same infinitive clause as noun modifiers, "the way to learn about life", is in almost all the essays. This structure then repeatedly appears at the rest of their essays. It is reasonable to assume that this structure is in the writing prompt of the independent writing section. Consequently, lower-proficiency students just copied and used it in their essays. If this particular type of infinitive clause is removed out of the total frequencies, Group 1 and Group 2 used very similar amounts of infinitive clause in their essays but both in very low frequency (see Appendix C).

Last but not least, six noun modifiers were not effectively used by both groups. Their normalized frequencies are even lower than 1. These noun modifiers include participial pre-modifier, nonfinite clause, prepositional phrase followed by nonfinite clause, noun complement clause, and appositive noun phrase. Consequently, these six noun modifiers could be hard grammatical points for all PIE students (see Appendix D).

Relevance to PIE and Second Language Learning

Three pedagogical implications can be made. First, PIE teachers should generally give more explicit instructions on post-noun modifiers. It is necessary for students with lower L2 writing proficiency to get instructed on the post-noun modifiers to enhance their L2 writing proficiency. It is also strongly recommended that PIE teachers keep track of how students use the

two types of linguistic features, namely clauses with non-predictive verbs (i.e., ing/ed clauses and to-do clauses) and linguistic devices supplementing meanings of head nouns (i.e., noun complement clauses and appositive noun phrases). This is mainly due to the fact that these are the noun modifiers having extremely low normalized frequencies in all the participants' essays. Such instructions will be helpful for PIE students to improve their sensitivity of using advanced noun modifiers in the future. Therefore, the more instructions on noun modifiers, the more progress students may make on their L2 writing.

Second, teachers should think about arranging English writing workshops to PIE students. Since the PIE students are placed into different levels based on their comprehensive L2 proficiencies instead of their L2 writing proficiencies, it is justifiable to assume that a PIE student probably cannot get writing instruction catering to his particular writing proficiency level. Students may not improve their English writing effectively with only instruction in their regular writing class. A potential problem is that students who are at stage 2 may be taught with noun modifiers from stage 4 or 5. With no scaffolding instruction on these advanced noun modifiers, students could not effectively enhance their writing and are even demotivated by the class instruction. To solve this problem, PIE faculty members should organize different English writing workshops for students with different L2 writing proficiencies, to teach the specific noun modifiers they need. For example, in terms of the lower proficient students in this research, a scaffolding writing workshop with emphasis on relative clauses and prepositional phrases would be effective for their improvement of English writing ability.

Third, PIE teachers should pay attention to design appropriate test prompts for writing sections of tests. Many students, especially students with lower L2 writing proficiency, frequently copied and used the words, expressions, and sentences in a test prompt. In this

research, I also realized that many students repeatedly used the noun modifiers in the test prompt, for example, "the way to learn about life". Even though this is a modifier in advanced stage (i.e., Stage 5), it is not reasonable to conclude that students all develop their L2 writing proficiencies very well. Such a situation probably has a negative influence on grading of test essays, especially on grading grammar. Consequently, particular attention should be paid to prompt design for a writing section in a language proficiency test.

References

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Appendix A

Features and Positions of Noun Phrase Modifications

Stage	Noun Modifiers	Position	Example
2	Attributive adjectives	Pre	Big table
	Participial Pre-modifiers	Pre	Exciting game
3	Relative Clauses	Post	The man who is driving
	Nouns	Pre	Rice cooker
	Possessive Noun	Pre	Judy's book
	Prepositional phrases (concrete meaning)	Post	The capital of China
4	Nonfinite clauses	Post	The questions confusing me
	Prepositional phrases (abstract meaning)	Post	The role of honesty
5	Prepositional phrase + nonfinite clauses	Post	The policy of shutting it down
	Noun complement clauses	Post	The idea that we stay here
	Appositive noun phrases	Post	My best friend, Cody
	Infinitive clauses	Post	Two hours to go

Note. "pre" means pre-modifiers and "post" means post-modifiers

Appendix B

Basic Information of the Essays

Group	Number of Essays	Mean Length	Number of Noun Modifiers	Observed Z Value
1	42	145	81.07	z_{obs} = -2.33
2	42	181	91.12	

Note. The statistics of noun modifiers is normalized to 1,000 words. In the tests, p=0.05, two-tailed distribution is used. The observed z value is round up to 2 digits after the decimal and the critical z value is ± 1.96. "obs" stands for observed.

Statistics of the Two Types of Noun Modifiers

Types of Noun Modifier	Group1	Group 2	Observed Z Value
Pre-noun	38.44	39.95	z_{obs} = -1.14
Post-noun	42.63	51.17	z_{obs} = -2.37

Note. The statistics of noun modifiers is normalized to 1,000 words. In the tests, p=0.05, two-tailed distribution is used. The observed z value is round up to 2 digits after the decimal and the critical z value is ± 1.96.

Statistics of the Noun Modifiers at Each Stage

Stage	Group 1	Group 2	Observed Z Value
2	36.45	37.73	z_{obs} = -0.79
3	17.30	22.80	z_{obs} = -1.92
4	17.88	22.25	z_{obs} = -2.68*
5	9.44	9.27	z_{obs} = -3.70*

Note. The statistics of noun modifiers is normalized to 1,000 words. In the tests, p=0.05, two-tailed distribution is used. The observed z value is round up to 2 digits after the decimal and the critical z value is ± 1.96. The z values with an asterisk are greater than the critical z value.
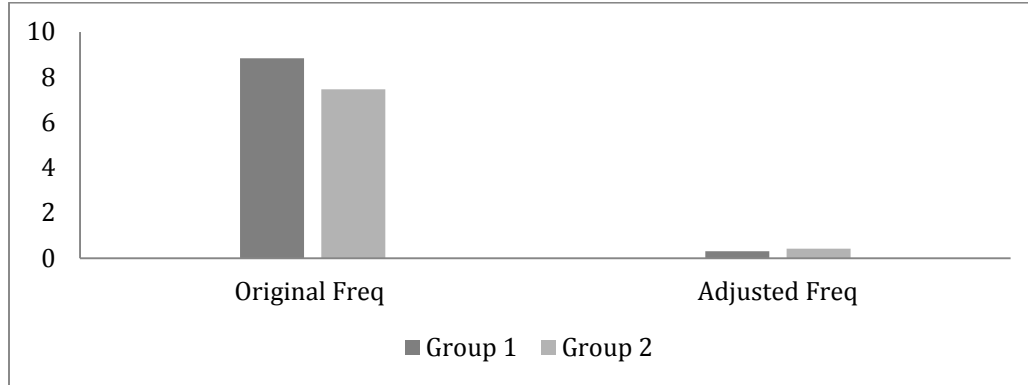
Appendix C

Figure1. Original and Adjusted Frequencies of Infinitive Clauses

Note. The adjusted frequency means the frequency of infinitive clauses not from paraphrasing the writing prompt. The frequencies are normalized to 1,000 words.

Appendix D

Statistics of the 12 Noun Modifiers

Stage	Noun Modifier	Group 1	Group 2	Observed Z Value
2	Attributive adjectives	36.45	36.52	z_{obs} = -0.76
	Participial Pre-modifiers	0.00	0.28	z_{obs} = -1.42
3	Relative Clauses	5.52	9.02	z_{obs} = -2.07*
	Nouns	1.02	1.79	z_{obs} = -0.30
	Possessive Noun	1.07	2.46	z_{obs} = -1.45
	Prepositional phrases (concrete meaning)	9.79	10.63	z_{obs} = -2.04*
4	Nonfinite clauses	0.00	0.14	z_{obs} = -1.00
	Prepositional phrases (abstract meaning)	17.88	22.11	z_{obs} = - 2.61*
5	Prepositional phrase + nonfinite clause	0.15	0.70	z_{obs} = -1.63
	Noun complement clauses	0.30	0.96	z_{obs} = -1.16
	Appositive noun phrases	0.15	0.14	z_{obs} = -0.02
	Infinitive clauses	8.84	7.47	z_{obs} = -5.60*

Note. The statistics of noun modifiers is normalized to 1,000 words. In the tests, p=0.05, two-tailed distribution is used. The observed z value is round up to 2 digits after the decimal and the critical z value is ± 1.96. The z values with an asterisk are greater than the critical z value.