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著者 Author(s)	Inoue, Satoshi / Matsushita, Erika / Chen, Ye / Kawamura, Koichi
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# Clustering of Asian Learners of English

## —A Study Based on the ICNALE—

Satoshi INOUE, Erika MATSUSHITA, Ye CHEN, & Koichi KAWAMURA

*Graduate School of Kobe University*

### Abstract

Using the ICNALE, we investigated how learners of English in Asia use L2 vocabulary from the four analytical viewpoints: basic verbs, prepositions, modal auxiliaries, and -ly adverbs. The correspondence analysis has shown that EFL learners are largely different from English native speakers and ESL users, but the relationships between writer groups greatly differ according to the lexis types.

### Keywords

Learner corpus, Contrastive interlanguage analysis, Correspondence analysis

## I Introduction

Corpus linguistics has had a critical influence on traditional language studies and education, and the importance of learner corpus has now been duly acknowledged in the fields of corpus linguistics and second language acquisition (Tono, 2010). In learner corpus studies, the comparison between native speakers (NS) and non-native speakers (NNS) is often conducted in order to examine the non-nativeness of L2 performance. This is a part of a contrastive interlanguage analysis (CIA) (Granger, 1998). CIA helps us to identify misuse, overuse, and underuse seen in learners' L2 use.

Recently, several types of learner corpora have been compiled, including The ICLE (International Corpus of Learner English) (Granger et al., 2003; Granger et al., 2009), The JEFLL Corpus (Japanese EFL Learner Corpus) (Tono, 2007), The NICE (Nagoya Interlanguage Corpus of English) (Sugiura, 2007), and The ICNALE (The International Corpus Network of Asian Learners of English) (Ishikawa, 2012).

Now researchers can obtain abundant data from these corpora. Especially when analyzing Asian learners of English, the ICNALE is very useful in that it holds a large amount of data written by both English native speaker (ENS) and varied Asian learners under the strictly controlled writing conditions. In addition, the ICNALE offers detailed L2 proficiency data with individual writers, which enables us to compare learners in a

more reliable way. Ishikawa (2012) claims that the comparison based on standardized proficiency leads to sophistication of CIA.

The objective of the current study is to observe how NS and NNS are different in use of the four kinds of lexis, basic verbs, prepositions, modal auxiliaries, and -ly adverbs. The findings will give us a new perspective to reexamine English educations in Asia and valuable insights for future reforms in TESOL.

## II Research Design

### 2.1 Research Questions

The objective of the current paper is to investigate how NS and NNS in Asia, which can be classified into NNS in English as a Second Language (ESL) countries and NNS in English as a Foreign Language (EFL) countries, are different in use of the four kinds of lexis. Our research questions (RQs) comprise:

- (1) How are Asian learners of English and English native speakers different in use of basic verbs?
- (2) How are Asian learners of English and English native speakers different in use of prepositions?
- (3) How are Asian learners of English and English native speakers different in use of modal auxiliaries?
- (4) How are Asian learners of English and English native speakers different in use of -ly adverbs?

Our initial hypothesis is that NS and NNS are essentially different, but ESL users are closer to NS than EFL learners are in use of each of the four types of lexis.

### 2.2 Data

We used the ICNALE as a database for the analysis. The ICNALE holds 1.3 million words in controlled essays written by 2,600 college students in 10 Asian countries and areas as well as 200 English native speakers. Writer groups are classified into three types: EFL learners (China, Indonesia, Japan, Korea, Taiwan, Thailand), ESL users (Hong Kong, Pakistan, Philippines, Singapore), and ENS (US, UK, Australia, etc), which covers all of the Inner, Outer, and Expanding Circles in Asia (Kachru, 1992).

Unlike other existing learner corpora, writing conditions of the ICNALE are strictly controlled in the following points: (1) topic, (2) length, (3) time, and (4) the use of dictionary. The number of topics is limited to two: *It is important for college students to have a part time job* and *Smoking should be completely banned at all the restaurants in the country*. The length of an essay is between 200 and 300 tokens and the time for writing is set between 20 and 40 minutes. Participants are not allowed to use

dictionaries and other language references, although they are required to use a computer spell checker in order to correct their technical spelling errors. (See the website of the ICNALE *Online*).

The table below shows the number of writers, essays, and tokens collected in the corpus

Table 1 The 201302 version of the ICNALE

Country and area	Writers	Essays	Tokens
ENS1 (English NS, college students)	100	200	44,276
ENS2 (English NS, others)	100	200	44,516
HKG (Hong Kong)	100	200	46,111
PAK (Pakistan)	200	400	93,100
PHL (Philippines)	200	400	96,586
SIN (Singapore)	200	400	96,733
CHN (China)	400	800	194,613
IDN (Indonesia)	200	400	92,316
JPN (Japan)	400	800	176,536
KOR (Korea)	300	600	130,626
THA (Thailand)	400	800	176,936
TWN (Taiwan)	200	400	89,736
TOTAL	2,800	5,600	1,282,086

Based on the scores in the standard L2 proficiency tests such as TOEIC or TOEFL or in the standard vocabulary size test (VST) (Nation & Begler, 2007), learners, both in EFL and ESL countries, are classified into four L2 proficiency levels: A2 (Waystage), B1\_1 (Threshold: Lower), B1\_2 (Threshold: Upper), and B2+ (Vantage or higher), which are based on the proficiency standards proposed in the CEFR (Common European Framework of Reference) (Ishikawa, 2011).

When comparing different writer groups, it is important to standardize the proficiency. In the current analysis, therefore, we used the data of learners only at the B1\_2 level in all the EFL and ESL countries. Concerning ENS data, we used only the ENS 1 module, which means we compare the ENS college students and NNS college students.

### 2.3 Methodology

First, we conducted a frequency analysis of the corpus data with AntConc (Anthony, 2004), and identified top frequent words in each of the four kinds of lexis.

Next, we conducted a correspondence analysis to summarize and visualize the complicated relationships between 11 writer groups (ENS, HKG, PAK, PHL, SIN, CHN, IDN, JPN, KOR, THA, TWN), which are Item 1, and the frequencies of the top frequent

words, which are Item 2.

Correspondence analysis is an exploratory statistical method for interpreting the mathematical strength of correspondence between rows and columns of a two-way cross tabulation table (Ishikawa, 2010a). The results of the analysis are visually expressed on a scatter plot, which allows us to explore the structure of categorical variables included in the table in a more efficient way. We used the Seagull-Stat, statistical analysis software.

#### 2.4 Items to be examined

We conducted a frequency analysis of the ENS 1 data, and identified top frequent words in each of the four kinds of lexis.

Basic verbs (20 items): *be, have, ban, think, do, make, get, go, work, learn, smoke, take, know, find, want, need, allow, feel, agree, believe*

Prepositions (10 items): *of, in, for, to, at, with, as, on, by, from*

Modal auxiliaries (10 items): *can, could, may, might, must, shall, should, will, would*

-ly adverbs (20 items): *only, really, simply, completely, especially, finally, probably, usually, actually, certainly, secondly, eventually, clearly, personally, easily, strongly, absolutely, definitely, extremely, fully*

As shown above, the number of the items to be examined varies according to the lexis type.

### III Literature Review

#### 3.1 Learners' Use of Basic Verbs

Ringbom (1992) focused on the high frequency verbs and found that Finnish learners overuse 'get' due to the lack of knowledge about collocation. Altenberg & Granger (2001) investigated learners' use of 'make' and revealed that delexicalized and causative uses are particularly difficult for EFL learners. Inoue (2011a, 2011b) examined how varied basic verbs are inappropriately used by Japanese learners of English (JLE). The study exemplified, for instance, Japanese learners overuse the causative verb 'make,' while significantly underuse 'let,' 'have,' and 'get.'

#### 3.2 Learners' Use of Prepositions

Using the spoken corpus data, Tanimura, Takeuchi, & Isahara (2004) examined JLE's use of prepositions and identified that learners' errors are categorized into three types: ellipsis, addition, and misuse. The study also showed that according to the increase of proficiency, the ratio of occurrence of errors decreases. Jafarpoor & Koosha (2006)

centered on the use of prepositions by Iranian learners at an upper proficiency level, and revealed that most of the errors concern L1 transfer, especially, the collocation knowledge in their L1. Matsushita (2013) examined the use of prepositions by NS and JLE, and found that JLE cannot understand the difference between ‘at’ and ‘in.’

### 3.3 Learners’ Use of Modal Auxiliaries

Using the ICLE, Aijmer (2002) examined how modality is expressed in the essays written by European learners of English and suggested that ‘might,’ ‘should,’ ‘will,’ and ‘would’ are overused. Hinkel (2009) compiled a corpus of essays written by NS and learners from China, Japan, and Korea, and found that the learners overuse ‘must’ and ‘should,’ and tend to express their volitions more strongly than needed. Ishikawa (2010a) examined the use of modal auxiliaries by ENS, JLE and Chinese learners of English (CLE). He suggested that both JLE and CLE overuse ‘can’ and underuse ‘could’ and ‘would.’ Chen (2012) investigated how modal auxiliaries are used by Asian learners, and pointed out that the patterns of overuse and underuse of individual modal auxiliaries are different from country to country.

### 3.4 Learners’ Use of (-ly) Adverbs

Granger & Tyson (1996) investigated the use of corroborative adverbs, and showed that French learners of English overuse ‘actually’ and ‘indeed’ due to English translation of L1 French *en fait*. Ishikawa (2010b) examined the use of -ly adverbs by many writer groups, and revealed that JLE underuse almost all of the -ly adverbs. Overused -ly adverbs are highly limited.

Previous studies have offered intriguing information about the aspects of English vocabulary use by learners. However, very few studies have compared varied writer groups in Asia in the same analytical framework. Using the ICNALE may allow us to conduct a robust comparison between NS and NNS, and also between ESL users and EFL learners in the NNS group.

## IV Results and Discussions

### 4.1 Basic Verbs

The contribution ratios of the Dimensions 1 and 2 were 40.11% and 24.02% respectively and the cumulative contribution ratio was 64.13%. Therefore, we focused on the two dimensions, which are represented by the horizontal axis ( $Z_1$ ) and the vertical axis ( $Z_2$ ) (Fig. 1 and Fig. 2).

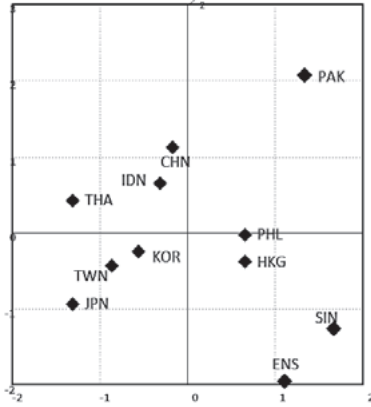


Fig. 1 Scatter plot of writers

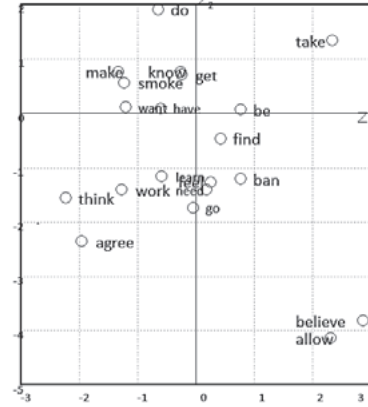


Fig. 2 Scatter plot of basic verbs

The key findings obtained from the two scatter plots are:

- [1] NS and NNS are not clearly divided on the  $Z_1$  axis
- [2] Instead, NS+ESL users and EFL learners are divided on the  $Z_1$  axis
- [3] EFL learners are divided into two groups: [CHN/IDN/THA] and [KOR/JPN/TWN] on the  $Z_2$  axis
- [4] ESL users are divided into two groups: [PAK] and others on the  $Z_2$  axis

We also identified several keywords characterizing each of the writer clusters: ‘take’ for PAK; ‘want,’ ‘have,’ ‘make,’ and ‘do’ for CHN/THA/IDN; ‘think,’ ‘agree,’ and ‘work’ for JPN/TWN/KOR; ‘ban,’ ‘find,’ and ‘be’ for PHL/HKG; ‘allow’ and ‘believe’ for ENS/SIN.

- (1) Our Gov. should **take** steps to end this bad habit from the root. (PAK)
- (2) If you want to **make** money, you should have a part time job. (THA)
- (3) I **think** it is important for college students to have a part-time job. (JPN)
- (4) Having part-time jobs would **be** a method to relieve the loads .... (HKG)
- (5) A part-time job has **allowed** me to make many connections .... (ENS)

It is of note that the so-called NS-like use of the vocabulary is characterized by the expressions such as “I believe (that)...” not “I think” or “I agree” and also by the structure of “X (an inanimate subject) allows person *to* infinitive.”

Meanwhile, EFL learners’ vocabulary is characterized by high frequent versatile verbs such as ‘want,’ ‘have,’ ‘make,’ and ‘do’ and also by the expressions of “I think” and “I agree.” The contrast between “I believe” and “I think” is pedagogically important.

#### 4.2 Prepositions

The contribution ratios of the Dimensions 1 and 2 were 44.15% and 27.49% respectively and the cumulative contribution ratio was 71.63%. Therefore, we focused on the two dimensions (Fig. 3 and Fig. 4).

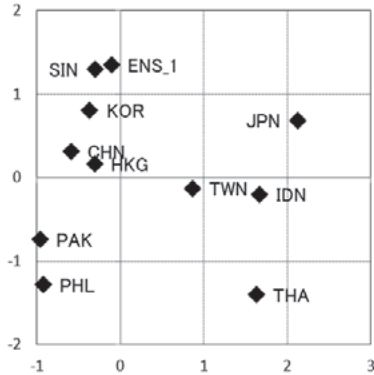


Fig. 3 Scatter plot of writers

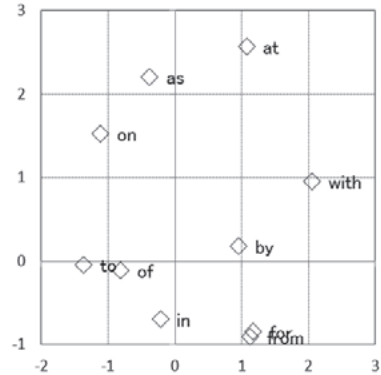


Fig. 4 Scatter plot of prepositions

The key findings obtained from the two scatter plots are:

- [5] NS and NNS are not clearly divided on the  $Z_1$  axis
- [6] Instead, a part of EFL learners [JPN/IDN/THA/TWN] and the others are divided on the  $Z_1$  axis
- [7] EFL learners are divided into two groups: [KOR/JPN/CHN] and [THA/IDN/TWN] on the  $Z_2$  axis
- [8] ESL users are divided into two groups: [SIN/HKG] and [PAK/PHL] on the  $Z_2$  axis

The clustering of NS, ESL users, and EFL learners, however, are not as clear as in case of use of the basic verbs. For instance, ENS is close to SIN in ESL countries, but also to KOR in EFL countries.

We also identified several keywords characterizing several writer clusters: 'with,' 'at,' and 'by' for JPN; 'as' for ENS/SIN; 'on' for KOR/CHN/HKG; 'to,' 'of,' and 'in' for PAK/PHL; 'for' and 'from' for TWN/IDN/THA.

- (6) I agree **with** the idea that smoking should be banned **at** all the restaurants... (JPN)
- (7) ... make enough money to fund all of my personal expenses such **as** food... (ENS)
- (8) ... denying that university students should not focus **on** their study. (HKG)
- (9) ... young adults who are raising a family and are **in** need **of** more income (PHL)



- (10) Part time job has a many types **for example** education...(THA)

It is of note that the so-called NS-like use of the vocabulary is characterized by the expression to list up illustrative examples, “X such as Y.”

Meanwhile, EFL learners’ vocabulary is characterized by the expression “X, for example, Y” in place of “X such as Y” and also by literal reproduction of the sentences given as topics.

#### 4.3 Modal auxiliaries

The contribution ratios of the Dimensions 1 and 2 were 69.44% and 14.97% respectively and the cumulative contribution ratio was 84.41%. Therefore, we focused on the two dimensions (Fig. 5 and Fig. 6).

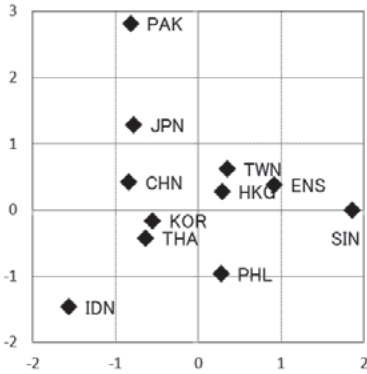


Fig. 5 Scatter plot of writers

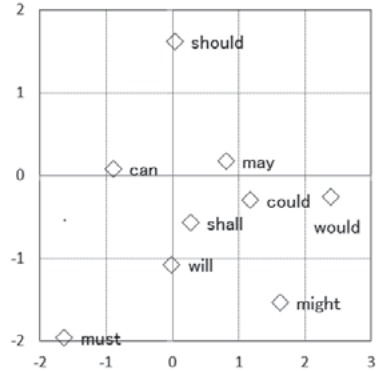


Fig. 6 Scatter plot of modal auxiliaries

The key findings obtained from the two scatter plots are:

- [9] NS and NNS are not clearly divided on the  $Z_1$  axis
- [10] Instead, NS + ESL users and EFL learners are loosely divided on the  $Z_1$  axis
- [11] EFL learners are divided into two groups: [JPN/CHN/TWN] and [IDN/THA/KOR] on the  $Z_2$  axis
- [12] ESL users are divided into two groups: [PAK/HKG] and PHL on the  $Z_2$  axis

We also identified several keywords characterizing each of the writer clusters: ‘may’, ‘could’ and ‘would’ for ENS, SIN, TWN and HKG; ‘should’ for ENS, SIN, TWN and HKG; ‘can’ for CHN, KOR and THA; ‘must’ for IDN; and ‘might’ for PHL

- (11) Secondly, working part time **may** lead a student to finding skills .... (ENS)

- (12) It **would** be important for them to get a part time job to learn things.... (SIN)  
 (13) ... we **should** ban talking, too, because both smoking and talking disturb... (JPN)  
 (14) ... when you do something yourself you **can't** make trouble to other people. (CHN)  
 (15) ... what we **must** think first is our duty as a student. (IDN)  
 (16) The main reason for this is that it **might** result in the lack of ... (PHL)

It is of note that the so-called NS-like use of the vocabulary is characterized by the use of “may.” NS seem to try to soften their claim when they write about something they are not perfectly confident. The same tendency is also observed in the characteristic use of “would” and “might”, both of which are often epistemic, by students in SIN and PHL in ESL countries.

Meanwhile, EFL learners' vocabulary is characterized by the overuse of modal auxiliaries of obligation such as “should” or “must.” The results of the analysis proved that NS and ESL users usually tend to hedge their volitions.

#### 4.4 -ly adverbs

The contribution ratios of the Dimensions 1 and 2 were 31.26% and 26.19% respectively and the cumulative contribution ratio was 57.45%. Although the cumulative contribution ratio is not as high as in other analyses, we focused on these two dimensions (Fig. 5 and Fig. 6). In fig. 6, individual adverbs are shown in the forms without (l)y,

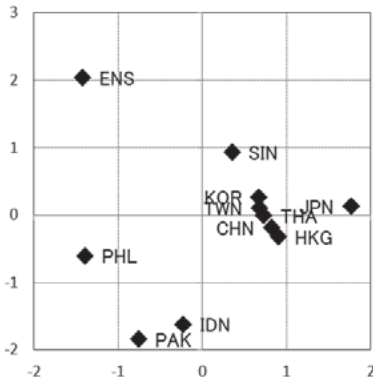


Fig. 9 Scatter plot of writers

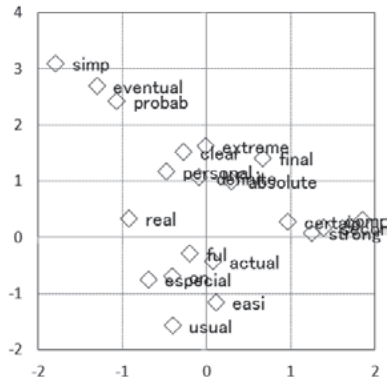


Fig. 10 Scatter plot of -ly adverbs

The key findings obtained from the two scatter plots are:

[13] NS and NNS are not clearly divided on the  $Z_1$  axis

[14] Instead, NS + some of ESL users [PHL/PAK] and others are loosely divided on the

Z<sub>1</sub> axis

[15] EFL learners are not clearly divided on the Z<sub>2</sub> axis

[16] ESL users are divided into two groups: SIN and [PAK/PHL] on the Z<sub>2</sub> axis

The clustering of different writer groups is not clear compared with the results of other analyses, but an important thing is that only ENS exists in the second quadrant (Z<sub>1</sub>-/ Z<sub>2</sub>+). This suggests that the NS have some unique pattern in use of –ly adverbs, while the difference between ESL users and EFL learners is not essential.

We also identified several keywords characterizing each of the writer clusters: ‘completely’ for EFL learners; ‘especially,’ ‘only,’ and ‘fully’ for ESL users; and ‘eventually,’ ‘simply,’ and ‘probably’ for NS.

- (17) I think smoking should be **completely** banned at all the restaurants. (JPN)
- (18) **Secondly**, having part-time jobs can let college students make some money. (CHN)
- (19) Smoking should be banned at public places **especially** at restaurants. (PAK)
- (20) ..., he left his job in order to **fully** concentrate on his studies. (PHL)
- (21) **Eventually** retailers would follow the trend to ban smoking in ... (ENS)
- (22) I think that is **probably** important for college students to have a .... (ENS)
- (23) ... that the best strategy would be to **simply** avoid part-time work .... (ENS)

What attracts our attention is the so-called NS-like use of the vocabulary is characterized by three different types of –ly adverbs showing results (‘eventually’), possibility or hedge (‘probably’), and emphasis (‘simply’). The flexible and combinatory use of –ly adverbs with varied functions and meanings seems to characterize the native-likeness.

Meanwhile, EFL learners’ vocabulary is characterized most typically by the use of ‘completely.’ This is in clear contrast to the use of hedge-like “probably” by NS, although it is supposedly influenced by the learners’ overall tendency to reproduce the topics given to them. EFL learners’ vocabulary is also characterized by their dependence on the conventionalized structure of argumentative essays as in “There are three reasons.... Firstly... secondly.... and finally...” Although this kind of structure can be useful for writers, too much dependence on it, which might be attributed to the negative transfer of L2 training, is likely to deteriorate the quality of essays.

#### IV Conclusion

In the current paper, we examined how Asian learners of English use the four kinds of L2 lexis, namely, basic verbs, prepositions, modal auxiliaries, and –ly adverbs, in comparison to English native speakers. A series of statistical analyses revealed several noteworthy facts about NS and NNS’ use of the vocabulary.

The figures below summarize the relative positions of different writer groups on the dimension 1. The vertical lines (|) represent the middle point on the axis. Whether a value is positive or negative is basically relative in correspondence analysis, the orders of countries are appropriately adjusted so that we can compare them from the same analytical perspective.

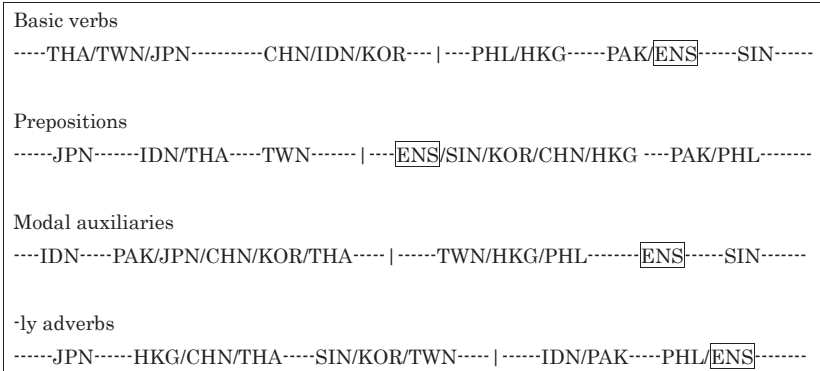


Fig. 11 Clustering of different writer groups based on the usage patterns of four kinds of lexis

The figure suggests that NS and NNS, or rather, NS+ESL users and EFL learners, could be classified separately to some extent. However, clustering patterns greatly vary according to the type of the lexis. For instance, the difference is relatively clear in case of basic verbs and modal auxiliaries, while it is hardly clear in prepositions and -ly adverbs. What is of note is that the discrepancy tends to enlarge when writers use more semantically ambiguous lexis such as basic verbs and modal auxiliaries. Although NS are not always a perfect model for learners, these findings will offer some clues to think of the future improvement of English educations in Asia.

It is clear that there still remain many points to be improved and the reliability of our findings is largely limited. In the future study, we need to examine learners at different L2 proficiency levels, analyze the data more qualitatively, and of course observe how writers use different types of English lexis.

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