

# The Development of Cohesive Ties in English by Japanese University Students

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## Abstract

This study aims to discover how the use of cohesive ties, i.e., ties of reference, substitution, ellipsis and conjunction, develops according to the proficiency levels of Japanese learners of English.

The storytelling part of the LINDSEI (Louvain International Database of Spoken English Interlanguage) Japanese sub-corpus was used as the main data for the present study. It was grouped into intermediate and novice levels. Advanced learner data and native speaker baseline data were also collected separately. All the data were tagged for the use of cohesive ties, and correct-use frequencies were computer analyzed using a language analysis tool. It is noted that the use of cohesive ties in various categories begins at different proficiency levels and that the degree of difficulty of each cohesive tie in each category is different.

## 1. Introduction

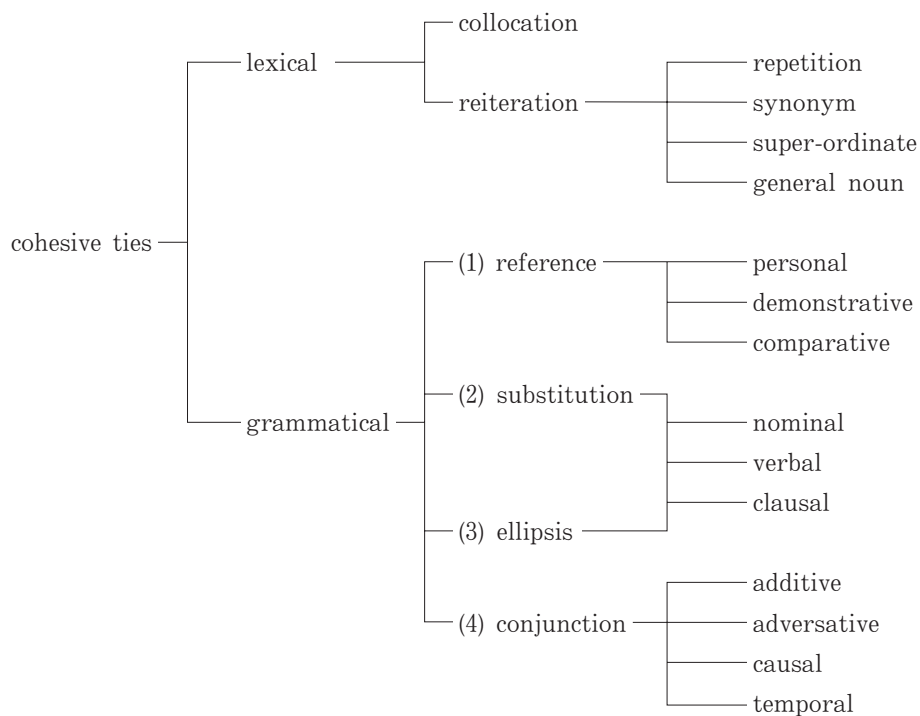
It is generally recognized that many university level English learners with a Japanese language background have more difficulties coping with productive skills than with receptive skills. Among productive skills, they often claim that speaking is more problematic than writing, because of limited time for planning. Although these learners are generally proficient in producing short grammatical sentences, difficulties arise when expressing interrelationships between clauses in more complex structural patterns. The main reason for this phenomenon is that the learners need grammatical knowledge not only in structuring isolated English sentences but also in expressing grammatical and lexical relations that hold across clause boundaries or sentences. In other words, they do not have enough awareness of how to use cohesive devices and their lack of skills in cohesive ties hinders them from speaking coherently.

Studies of cohesion often focus on cohesive ties as part of creating textual cohesion (Halliday & Hasan, 1976). The difference between ‘cohesion’ and ‘coherence’ is worth noting at this point. As Halliday and Hasan (1976) explain, sentences need to be ‘cohesive’, i.e., they need to be connected by cohesive devices in ways that allow the listener to follow. At the same time, the whole text also needs to be ‘coherent’, i.e., various parts of the text have to work together conceptually within a particular rhetorical context. Although cohesion and coherence are related concepts, it is believed that cohesive text/speech is not necessarily coherent (Celce-Murcia & Olshtain, 2000). The appropriate use of cohesive ties attains cohesiveness,

but it does not necessarily attain coherence. Cohesion can be defined as “the set of resources for constructing relations in discourse which transcend grammatical structure” (Halliday & Hasan, 1976). Based on this definition, this study will focus only on the use of cohesive ties as a prelude for learners to attain coherence in their speech.

In Halliday and Hasan’s (1976) study, the inventory of cohesive resources was organized as lexical cohesion, reference, substitution, ellipsis, and conjunction. The five cohesive resources are further grouped in lexical cohesion and grammatical cohesion (reference, substitution, ellipsis, and conjunction). The difference between lexical cohesion and grammatical cohesion is that the former includes open classes of items, while the latter includes only closed classes of items. The relationship between a cohesive item and the item it presupposes in a text/speech is referred to as a cohesive tie. The following table shows a list of cohesive ties based on Halliday and Hasan (1976).

**Table 1. How Cohesion Operates in English Text**



The purpose of this study is to find out how the use of grammatical cohesive ties, i. e., ties of reference, substitution, ellipsis and conjunction, as described by Halliday and Hasan (1976), develops according to the proficiency levels of the English learners with a Japanese language background. Thus, lexical cohesive ties, as shown in Table 1, will not be considered.

The data used for this study were from the Japanese sub-corpus of Louvain International Database of Spoken English Interlanguage (LINDSEI). This database was launched in Louvain in 1995 as a complimentary project to the International Corpus of Learner English (ICLE). LINDSEI is now ready for publishing its first CD-ROM version

which contains transcripts of interviews, with a number of components having been compiled for different mother tongue backgrounds. The Japanese sub-corpus is one of them. Further details regarding this data can be found in a later section.

## 2. Literature Review

Halliday and Hasan's (1976) description of five types of cohesion triggered many studies of cohesion and coherence. In second language research, their cohesive framework has been used in an attempt to understand the relationship between proficiency of second language and use of cohesive ties in discourse. In particular, studies in second language research and instruction have primarily focused on the ability of processing cohesive ties in reading comprehension (Demel, 1990; Al-Jarf, 2001) and the ability of using cohesive ties in writing (Granger & Tyson, 1996; Hirabayashi, 2004; Liu & Braine, 2005).

On one hand, a relationship between general reading comprehension ability in second language learners and an understanding of cohesive ties has been reported. Demel (1990) investigated the relationship between overall reading comprehension and comprehension of coreferential pronouns of second language readers. The results showed that second language readers had problems with processing unfamiliar expressions and that the cultural component of the target language worked as a descriptor. Al-Jarf (2001) examined the difficulty in processing cohesive ties for second language readers and analyzed the causes of cohesion problems. She reported that the main causes were poor syntactic and semantic awareness as well as inaccurate knowledge of cohesion rules. Learners' knowledge of cohesive ties affects their reading comprehension.

On the other hand, a relationship between quality of writing and use of cohesive ties has been observed in learners' written discourse. Using ICLE corpus data, Granger and Tyson (1996) investigated the connector usage between native speakers of English and French learners of English as a second language. Results showed that overall frequency of connector use by learners was not so different from native speakers; however, learners overused, underused and misused the connectors. Hirabayashi (2004) examined the use of cohesive ties by Japanese learners of English as a second language in a free writing activity. He found that beginner learners used reference and conjunction more frequently than substitution, ellipsis, and lexical cohesive ties. All these learners used more pronouns as reference than native speakers. He interpreted that the learners' limited knowledge of English resulted in the overuse of pronouns. Liu and Braine (2005) investigated frequency of using cohesive ties in argumentative writing, and they found difficulties in using reference cohesive ties as well as overuse and underuse of certain conjunctions by Chinese students. Overall, although types of written data were different, previous studies showed that learners often overused, underused, and misused cohesive ties in their writing. The lack of knowledge of cohesive ties was seen as a main cause of incorrect use of cohesive ties in learners' written discourse.

As above, studies in second language research and instructions have shown the relationship between learners' knowledge of cohesive ties and their ability of processing cohesive ties both in reading and writing. Appropriate instructions are considered to help improve the ability of processing cohesive ties both in reading (Johns, 1986) and writing (Tseng & Liou, 2006).

Further research is required from two aspects. The first aspect is a need for research on the relationship between speaking ability and the use of cohesive ties. It is necessary to investigate this relationship because speaking is what language learners and teachers are concerned with primarily. There are some differences between spoken and written discourse even though they are both productive discourses. For example, spoken discourse is less complex, elaborate, explicit, decontextualised, and organized (Biber, 1988) than written discourse. The second aspect needed for further study is looking at differences in ability of processing cohesive ties according to learners' developmental stages. Previous studies have not shown how learners' ability of processing cohesive ties differs according to their linguistic development.

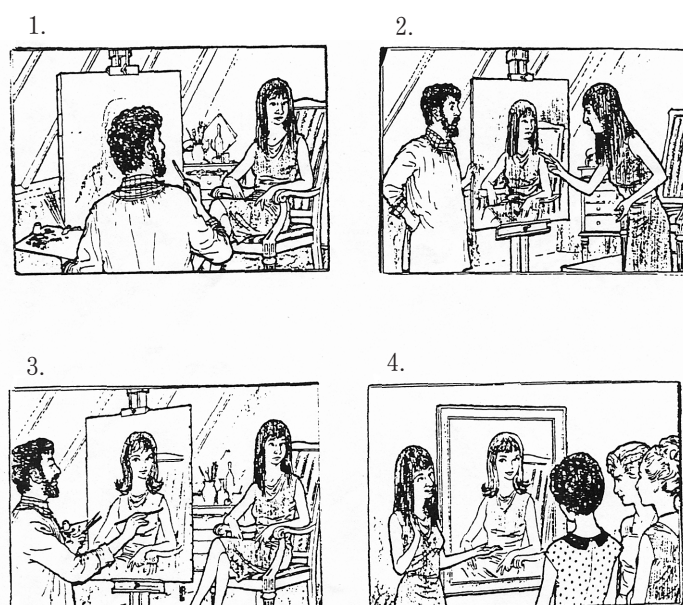
The present study analyzes the use of cohesive ties in spoken discourse by Japanese university students using LINDSEI corpus data as the main source, and focuses on how the use of cohesive ties develops according to the proficiency levels of Japanese learners.

### 3. Data and Method

#### 3.1 Data

This study uses the LINDSEI Japanese sub-corpus as the main data. LINDSEI consists of three phases of face-to-face interviews; we used the part of the corpus in which subjects tell stories based on sequences of four pictures (see Figure 1). Subjects are asked to look at four pictures and to tell the story in their own words.

Figure 1: A Sequence of Four Pictures Used for Storytelling



The storytelling data were divided into two groups, which were labeled novice and intermediate, according to proficiency, by two native speakers of English. In addition to the above corpus data, another 25 samples were taken following the same interview style, from advanced Japanese learners of English (students with at least 18 months experience studying and living in the U.S.) These samples, together with native speaker base-line data were compiled and compared with the original LINDSEI storytelling data. The data analyzed in this study include 13,084 tokens in total: 3,865 from novice subjects, 3,927 from intermediate subjects, 2,339 from advanced subjects, and 2,953 for native speakers.

### 3.2 Method

First, a list of tags for cohesive ties based on Halliday and Hasan (1976) was developed. For tokens which did not fall into Halliday and Hasan’s categories, we revised their framework adding other necessary categories (see Table 2).

Table 2: A List of Tags for Cohesive Ties

Category		Sub-category		Tag	Example
Halliday & Hasan (1976)	Reference	personal pronouns	nominative	Rs	I, you, he
			possessive	Rp	my, your, his
			objective	Ro	me, you, him
			absolute possessive	Ri	mine, yours
		demonstrative pronouns	Rd	this, that	
		demonstrative adjectives	Ra	this, that	
		pronouns	Rn	other, another	
		adjectives	Rj	other, another	
		adverbs	Rl	here, there	
		definite articles	Rf	the	
	Substitution	nominal	Sn	one(s)	
		verbal	Sv	do	
		clausal	Sc	so	
	Ellipsis		E		
Conjunction	coordinate	Cc	and, but, so		
	subordinate	Cs	because, if		
	conjunctive adverbs	Co	however		
Other Cohesive Ties	Opening		Op	one day	
	Closing		F	that’s all	
	Others	relative pronouns	Kd	who, which	
		relative adverbs	Kf	when, where	
comparative expressions		H	more~than		
adverbs		O	again, then		

Next, the data of each group—novice, intermediate, advanced, and native speakers—were tagged according to the revised cohesive tie tag list. For example, in the sentence *he asked*

*her to look at her portrait*, the subject *he*, a nominative personal pronoun, is tagged with <Rs>: <Rs> *he* </Rs>. In the same way, the first *her*, an objective personal pronoun, is tagged with <Ro>, while the second *her*, a possessive personal pronoun, is tagged with <Rp>.

This was followed by computer analysis of frequencies of correct tie use as well as an examination of the development of use of cohesive ties according to proficiency levels.

#### 4. Results

Table 3 below shows the results of the frequency of each cohesive tie in the learner data and native speaker baseline data. As mentioned above, the data for the Japanese learners are divided into 3 levels: novice, intermediate, and advanced. The data for native speakers are shown in the last column. The number of total words used by each group of learners is shown in the “raw frequency” column. In order to compare the results, the “each 1,000 words” column designates the frequency per 1,000 words of each group of the informants.

Table 3: Basic Data

			Novice		Intermediate		Advanced		NS	
			Tokens	3865	Tokens	3927	Tokens	2339	Tokens	2953
			Types	491	Types	466	Types	317	Types	550
			TTR	13	TTR	12	TTR	14	TTR	19
			STTR	24.23	STTR	58.62	STTR	19.8	STTR	27.25
			raw frequency	each 1000 words	raw frequency	each 1000 words	raw frequency	each 1000 words	raw frequency	each 1000 words
Halliday & Hasan (1976)	Reference	Rs	354	91.6	375	94.4	256	109.4	215	72.8
		Rp	89	23.0	102	25.7	88	37.6	61	20.7
		Ro	76	19.7	97	24.4	71	30.4	85	28.8
		Ri	1	0.3	2	0.5	1	0.4	2	0.8
		Rd	12	3.1	26	6.5	3	1.3	21	7.1
		Ra	39	10.1	64	16.1	13	5.6	22	7.5
		Rn	0	0.0	0	0	0	0.0	1	0.3
		Rj	4	1.0	8	2	8	3.4	7	2.4
	Rf	128	33.1	98	24.7	149	63.7	174	58.9	
	Substitution	Sn	4	1.0	3	0.8	3	1.3	0	0.0
		Sv	2	0.5	1	0.3	0	0.0	3	1.0
		Sc	0	0.0	0	0.0	0	0.0	5	1.7
	Ellipsis	E	0	0.0	0	0.0	0	0.0	0	0.0
	Conjunction	Cc	229	59.2	243	61.2	175	74.8	164	55.5
		Cs	38	9.8	47	11.8	30	12.8	40	13.5
		Co	0	0.0	4	1.0	2	0.8	2	0.7
SUBT			976	252.5	1070	269.4	799	341.6	802	271.6
Other Cohesive Ties	Closing	F	0	0.0	1	0.3	1	0.4	0	0.0
	Relatives	Kd	16	4.1	6	1.5	12	5.1	21	7.1
	Comparatives	H	4	1.0	0	0.0	0	0.0	5	1.7
	Others	O	25	6.5	49	12.3	34	14.5	42	14.2
	SUBT			45	11.6	56	14.1	47	20.1	68
Total			1021	264.2	1126	283.5	846	361.7	870	294.6

The following three figures visualize the results of the reference, conjunction, and other cohesive ties. The horizontal axis represents the sub-categories of each group, while the vertical axis indicates the frequency of the cohesive ties in each 1000 words. Some sub-categories such as Ri, Rn, Rj, Sn, Sv, Sc, and E are not shown because of the extremely low frequency at less than 4/1000 words in each group. Despite the low frequency, a sub-category of conjunction Co is included in the graphs for a comparison with other sub-categories within a particular informant group.

Figure 2 shows the frequency of Rs(nominative), Rp(possessive), Ro(objective), Rd (demonstrative pronouns), Ra(demonstrative adjectives), and Rf(definite articles) in each group. As mentioned above, Ri(absolute possessive), Rn(pronouns) and Rj(adjectives) are omitted because of their low frequency.

Figure 2: Frequency of Reference

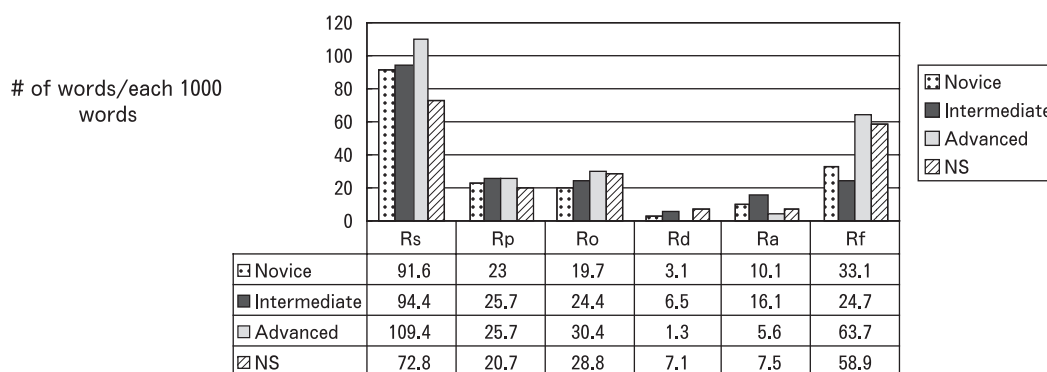
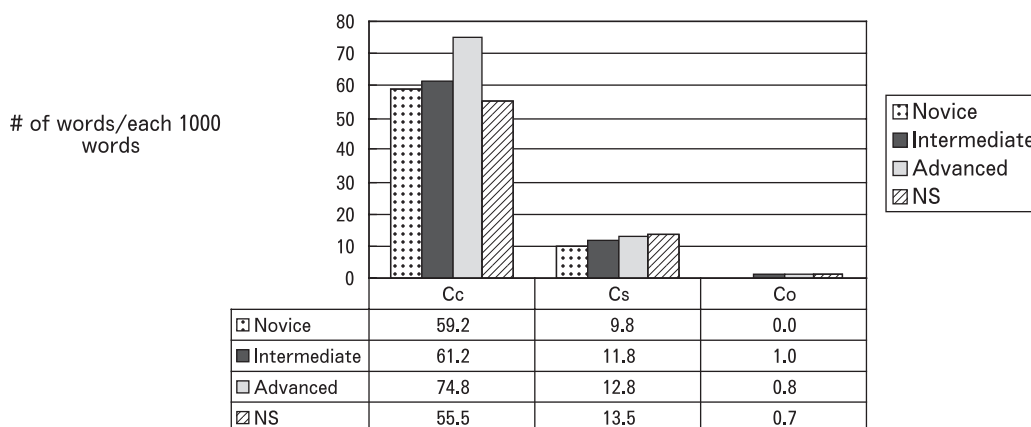


Figure 3 shows the frequency of Cc(coordinate), Cs(subordinate), and Co(conjunctive adverbs). It is clear that all four groups including native speakers (NS) of English use coordinate conjunctions such as *and*, *but*, *so* to make the story coherent.

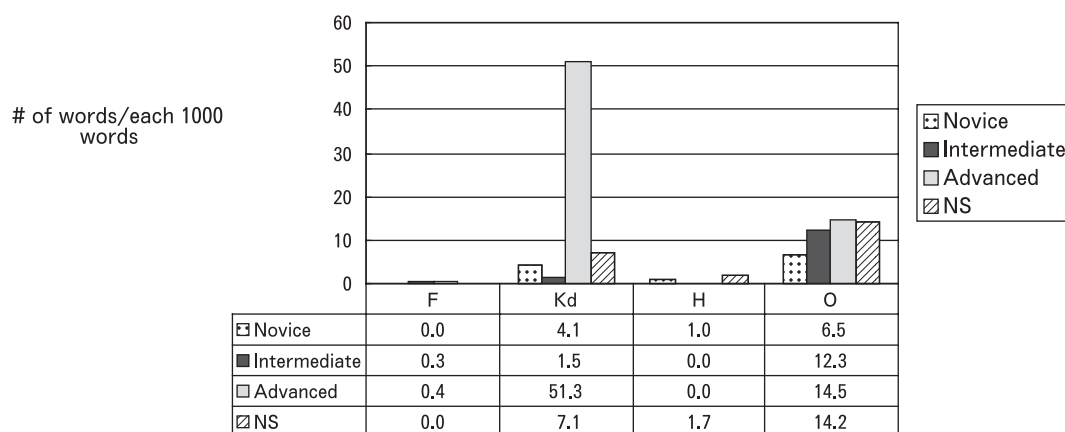
Figure 3: Frequency of Conjunction





Other cohesive ties including F(closing) and H(comparative expressions) (Figure 4) are also included for comparison within informant groups. It is also worth remarking that compared to L2 speakers, native speakers (NS) never used F(closing) in this research.

Figure 4: Frequency of Other Cohesive Ties



## 5. Observations Based on Categories Noted by Halliday & Hasan (1976)

### 5.1 Reference

Regarding the usage of both nominative and possessive cases of personal pronouns, it was characteristic that learners at all levels overused them in comparison with native speakers.

Comparing the usage frequency of the nominative case of personal pronouns (Rs) by beginners, intermediate, and advanced learners, there was an observed increase from 91.6 words per 1,000 words to 94.4 and 109.4 respectively, while native speakers used 72.8 words. In terms of the use of personal pronouns, *she* and *he* were most frequently used in this order by all levels, while the use of *it* and *I* followed, possibly in reference to the central female character and the male character featured in the four pictures used in this study. Learners with a more advanced command of English used nominative cases of personal pronouns with greater frequency, while native speakers avoided the use of nominative cases and instead used alternative expressions such as *an/the artist*, *the painter*, *a male artist*, *the man*, *the guy*, *a/the lady*, *customer*, *a/the young lady*, *the/this woman*, *visitors*, and so on. It was interesting to note that proper nouns such as *Janice*, *Gabriela*, *Thomas*, and *Joe* were used as character names by native speakers, probably with the intention of making the story more realistic.

The use of possessive cases of personal pronouns (Rp) also increased gradually from 23.0 per 1,000 words to 25.7 and 37.6 in the course of progression from beginners and intermediate through to advanced learners. However, the fact that native speakers (NS) showed the lowest frequency (20.7) indicates that frequent use of personal pronouns does not necessarily mean progression towards native speaker level. In addition, advanced learners used *my* less frequently, rather using *her* through indirect speech more.



The usage rate of *his* was extremely low among beginners. Intermediate learners used *his* more frequently than any other groups, while its use by advanced learners fell between that used by intermediates and beginners. This suggests that, when creating a story based on the four pictures shown, beginners mainly focused on the woman, while intermediate learners described the man more, and advanced learners were better able to describe both the woman and the man in a more balanced and effective way.

The use of objective cases of personal pronouns (Ro) increased in frequency from 19.7 per 1,000 words among beginners to 24.4 among intermediates and 30.4 among advanced learners. There appears to be a similar tendency of usage between advanced learners (30.4) and native speakers (28.8). Again, the advanced learners used *me* less frequently than intermediates, indicating their departure from the expressions in direct speech. Moreover, advanced learners used *it* more frequently than *him* or *her*, indicating their ability to use *it* as the personal pronoun for inanimate, non-human subjects such as a “portrait”. This indicates that learners with a more advanced command of English can pronominalize inanimate subjects, while beginners tend to pronominalize animate subjects.

The use of demonstrative pronouns (Rd) was 3.1 per 1,000 words among beginners and 6.5 among intermediates, compared to 1.3 among advanced learners and 7.1 among native speakers. Although at first glance, there appears a similarity between intermediate learners and native speakers, a closer look shows that beginners and intermediate learners more frequently chose *this* from the two demonstrative pronouns of *this* and *that*, while advanced learners and native speakers used *that* more frequently.

The use of demonstrative adjectives (Ra) was 10.1 per 1,000 words among beginners, 16.1 among intermediates, 5.6 among advanced learners, and 7.5 among native speakers. Similarly to the case of demonstrative pronouns, intermediate learners overused demonstrative adjectives. Contrary to the case of demonstrative pronouns, however, the use of *that* as a demonstrative adjective was most frequently found among beginners. In referring to a picture at hand, the demonstrative adjective of *this* should be used in direct speech by the character as the picture in question is located close to the speaker. The insufficient understanding by beginners to distinguish between *this* and *that* in such a case may have contributed to the result (e. g., “She said, ‘I don’t like that picture”).

The use of definite articles (Rf) was 33.1 per 1,000 words among beginners, 24.7 among intermediates, 63.7 among advanced learners, and 58.9 among native speakers. These results show that advanced learners used definite articles most often, while beginners used definite articles more than intermediate learners. In addition, native speakers used the “adjective + noun” pair after the definite article *the* more than any other group (e. g., *the* earlier version, *the* same chair, *the* original woman’s face), while learners used “*the* + noun” pattern more frequently.

## 5.2 Substitution

Learners did not use *so* as a substitution for a clausal (Sc) at all, and this was used only five times by native speakers.

## 5.3 Conjunction

A difference was observed in the use of coordinate conjunctions (Cc) between learners and native speakers. Whereas 59.2 per 1,000 words were used by beginners, 61.2 among intermediates, and 74.8 among advanced learners, only 55.5 were used by native speakers. The learners were inclined to use more coordinate conjunctions as they became more proficient, however, learners at all levels overused coordinate conjunctions compared to native speakers. This discrepancy may be attributable to the following reasons: (i) Repetition as a result of speech error (e. g., (a) her face is more clear *and* clear eyes; (b) she her picture *and* she shows her friends her picture), and (ii) a filler used as a connector (e. g., (a) the woman changed the artists' drawing *and* then, er, *and* then the artist; (b) he paints...he paints again *and*, mm, this finally she is glad of this). *And*, *but*, *so* and *or* were frequently used in that order, among all levels of learners and native speakers. *And* seems to be the most natural filler to link sentences.

The use of subordinate conjunctions (Cs) was 9.8 per 1,000 words among beginners, 11.8 among intermediates, 12.8 among advanced learners, and 13.5 among native speakers. The usage frequency increased as learners became more proficient, getting closer to the usage by native speakers. It was notable that native speakers used *that*, *when*, and *because* more often, while beginners used *when* and *because*, and intermediate learners used *that*, *when*, and *because* more frequently. In contrast, advanced learners used *that* and *when* less frequently, and instead used *after* more prominently. Native speakers also used *while*, *if*, and *since* frequently, while learners at all levels did not, indicating that these words are more difficult to use than *when* and *because*.

The overall results indicate that although learners at all levels overused conjunctions, their usage was quite limited, whereas native speakers used a wider variety.

## 6. Additional Cohesive Ties in this Research

The use of relative pronouns (Kd) was 4.1 per 1,000 words among beginners, 1.5 among intermediates, 5.1 among advanced learners, and 7.1 among native speakers, indicating that, for more advanced learners, the usage resembled that of native speakers. The use of *what* as a relative pronoun should be noted, as it was used by native speakers but not at all by learners including the advanced group.

With regards to the usage frequency of additional cohesive ties other than those included by Halliday and Hasan (1976), the usage by intermediate learners was more frequent than by beginners and advanced learners, and the usage by native speakers was more

diverse. Japanese learners favored the use of *finally* and *then*, although they were not used by native speakers at all. Finally, *same* was not used at all by learners, save for two occasions when it was used incorrectly by beginners.

## 7. Discussion and Conclusion

The progression patterns of cohesive ties frequency, based on what has been shown in the present study, will now be summarized and discussed.

In general, for functionally and semantically simple cohesive ties, frequency increases in relation to the development of learners' proficiency. Nominative, possessive and objective cases of personal pronouns and coordinate and subordinate conjunctions exactly follow this pattern.

Regardless of the usage frequency shown by native speakers, the usage frequency increases in relation to the development of proficiency, sometimes to the point of overusage, though conjunction varieties are not yet diverse. On the other hand, for functionally and semantically more complicated ties, the usage frequency decreases when new cohesive ties in the category are introduced or when learners avoid using them because of difficulties. The example of the former pattern is the use of demonstrative pronouns and adjectives. In the advanced group, the introduction of *that* in speech led to the least frequent use of demonstratives as a whole. The latter pattern is shown in definite articles and relative pronouns.

Looking back at the results from a different point of view, another kind of development can be seen—the expansion of cohesive ties. The following three points summarize what was discussed in the results section in relation to this.

### 1. Expansion of viewpoints

Examples include the more frequent use of (a) personal pronouns (*his/her* instead of *my* and *it* for non-animate things), and (b) demonstrative pronouns (*that* instead of *this*) among advanced learners. The frequent use of the conjunction *because* in intermediate level learners and of *after* in advanced level learners are also examples.

### 2. Expansion towards indirectness

Evidence for this is the less frequent use of *me* and differentiation of *that* from *this* in advanced learners.

### 3. Expansion towards the use of open item lexical cohesive ties

While native speakers used lexical cohesive ties when indicating the same person, learners kept using personal pronouns. In the present data, no development towards the use of open item lexical cohesion was shown in the learners' speech.

In addition, it was found that the learners used the coordinate conjunction *and* far more

frequently than native speakers. They often used the word in order to reformulate former utterances or to fill gaps in their speech as shown below:

Novice: he the picture *and* (reformulation) he paint again *and* (filling the gap) mm this finally she is glad of this picture

The usage frequency by the learners shows an imbalanced use of peripheral functions of conjunctions. This exemplifies that, although learners do not use the same devices to show cohesiveness as native speakers of English, they try to communicate utilizing all of their linguistic resources in various ways.

Based on the above observation, it seems possible to describe a pattern of development in the use of cohesive ties by the learners. Apart from the discussion of what was difficult for the learners, which is outside the scope of this study, we have shown that novice level learners start using the easiest cohesive ties first. As their proficiency develops, they soon start overusing them. At the same time, they start using the next easiest cohesive ties. At this stage, the learners are able to use the easiest cohesive ties more appropriately. Then the same cycle will be repeated again with the next easiest ties. This seems to explain why demonstratives, definite articles and relative pronouns did not follow a gradual increase of usage frequency. Learners only started to use the next easiest cohesive ties in the same grammatical functions when they reached a higher level of proficiency. This hypothesis suggests that what is shown in language change and synchronic variation in the field of sociolinguistics can also be applied in second language learning. Ellis (1994) explains Bailey's (1973) *Wave Theory* as follows:

Bailey sought to show how a theory of language change can account for synchronic variability in language use. According to his *Wave Theory*, linguistic innovation is first introduced by one group of speakers. By the time it is taken up by a second group, the first group has introduced a second innovation. And so as old rules spread, new rules arise. The spread, or diffusion, of new rules also takes place in another way. Initially, a rule may be restricted to a specific linguistic environment and then gradually come to be used in an increasing range of environments. (Ellis, p. 125)

Although this study is limited by the fact that it is based on usage problems and does not use any statistics, the results give an insight for the future study on the special features of the use of cohesive ties in speech as well as patterns of learner language development.

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