



Genre-based Analysis of Syntactic Complexity in L2 College Students' Writing: Pedagogic Scope and Directions

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This study aims to examine the degree of syntactic complexity in Korean L2 college students' writing of four different genres. Using 14 syntactic complexity measures as indices of L2 language development of writing, this study investigates how syntactic patterns are different among four different genres and English proficiency levels. Sixty-one participants in A university in South Korea participated in this study, and their writings were scored by two raters. All 244 essays including four different genres were collected, and these data were analyzed by using the computer program of syntactic complexity analyzer. The results have shown that genre difference has an impact on syntactic complexity in Korean students' English written products. Details of results showed strong evidence of genre-specific features among narrative, expository (comparison and cause-effect essays), and argumentative genres. Based on the overall findings of the study, syntactic complexity showed significant genre differences, but there were not significant group differences of syntactic complexity among L2 proficiency levels.

Keywords: syntactic complexity, genre-based writing, L2 academic writing

Introduction

With growth of academic interests in L2 learners' development of linguistic features and consequently how to measure the overall features in various learning contexts, recently linguistic complexity has gained much attention in the field of language assessment and L2 studies (Beer & Nagy, 2010; Hwang, 2012; Larsen-Freeman, 2006; Park, 2012). Among the linguistic complexity, syntactic complexity has been regarded as a solid and reliable indicator that demonstrates the overall level of L2 learners' language development (Bardovi-Harlig, 1992; Ellis & Yuan, 2004; Housen & Kuiken, 2009; Housen & Simoens, 2016; Ong & Zhang, 2010; Ortega, 2003). Therefore, syntactic complexity is regarded as one of the important measures used to trace the process of learners' language development, to investigate distinctive linguistic features and patterns in each developmental stage (Hwang, 2012), and to compare them across different groups of learners and different types of production (Park, 2012).

Previous studies on syntactic complexity in L2 learners' performance have provided insights into linguistic features of L2 writing production (Bardovi-Harlig, 1992; Ellis, 1987; Ellis & Yuan, 2004; Ishikawa, 2006; Larsen-Freeman, 1983; Ong & Zhang, 2010). The focus of the analysis of those studies in L2 writing, however, has been on small numbers of linguistic features with a limited number of

subjects. Moreover, most of the studies focused on various ESL contexts (Larsen-Freeman, 2006) with a limited number of studies in EFL settings like Japan (Hirano, 1991; Ishikawa, 1995; Sasaki, 2000), China (Ong & Zhang, 2010), and Korea (Bae, 2018; Kim, 2011; Park, 2012; Hwang, 2012). Most previous studies have not considered the effects of text type and genres in L2 writings. Although there are a few studies that examined the effects of different genres in L2 writing production, they just collected data from only the narrative genre (Armstrong, 2010; Ishikawa, 1995; Larsen-Freeman, 2006). Exceptions are Hwang (2012) which compared two different genres, narrative and argumentative, to show the effects of genre on L2 writing in terms of complexity, accuracy, and fluency, and Park (2012) which evaluated the syntactic complexity measures as indices of language development in narrative and argumentative essays. Relatively limited research has considered linguistic features in L2 writing of different genres. Thus, there has been a need for more research about linguistic features in L2 learners' writings across a variety of genres.

Literature Review

Syntactic Complexity Measures in L2 Writing

Complexity as one part of linguistic measures used to trace language development both in L1 and L2 has been characterized as “the extent to which the language produced in performing a task is elaborate and varied” (Ellis, 2003, p. 340). Linguistic complexity refers to the language features which consist of syntactic complexity and lexical complexity (Halliday & Mathiessen, 2013; Housen & Kuiken, 2009). As Ortega (2003) intricately defines, syntactic complexity also called as grammatical complexity refers to “the range and forms that surface in language production” (p. 492) and the degree of variation or sophistication of such form. Therefore, the degree of syntactic complexity is considered as a credible and solid index of overall development of language learners' writing (Larsen-Freeman, 1983; Ortega, 2015; Wolfe-Quintero et al, 1998; Yang, Lu, & Weigle, 2015).

For this reason, a great deal of research has paid much attention to syntactic complexity as a developmental index of L2 learners' writing since the late 1970s. (Bardovi-Haring & Bofman, 1989; Casanave, 1994; Ferris, 1994; Henry, 1996; Hunt, 1970; Lambert & Kormos, 2014; Larsen-Freeman, 1983). The research shared attention and aim, but they have showed difference in the number of measures, the language levels of learners, and learning contexts and backgrounds. An in-depth large-scale research initiative (Ortega, 2003) demonstrated that the difference in defining L2 proficiency from study to study causes different outcomes in the relationship between syntactic complexity in L2 writing and L2 proficiency. Also, differences in learning contexts affect the degree of syntactic complexity in L2 writing. Learners in ESL contexts were shown to have used more complex syntactic features compared to those in EFL contexts. But the difference between ESL and EFL also relates to the language proficiency because ESL learners have higher proficiency levels in general (Ortega, 2003, 2015).

The number of complexity measures as well as the number of writing samples also affects the validity of the measures as developmental indices for L2 writing. Lu (2011) used 14 syntactic complexity measures as indices of language development in writing of Chinese college learners in an ESL context. Park (2012) also evaluated the same 14 syntactic complexity measures as indices of developmental pattern in writing by college learners of English in Korea. Lu (2011) claimed several variables including genre had an impact on the relationship between language proficiency and syntactic complexity. Park (2012) also showed the similar results concluding that genre had an impact on syntactic complexity in learners' writing and several particular measures had strong correlations to each other.

L2 Writing of Different Genres

Genre as a socially constructed practice and conventionalized social action functions to serve social

and cultural purposes with different micro and macro forms (Bazerman, 1997; Halliday & Hasan, 1989; Miller, 1984, 1994). Different genres, therefore, express the purposeful, interactive, and sequential messages of their own (Martin, 1992). Writing different genres serves different social purposes and achieves different communicative goals because writing a specific genre is considered as the style and component element in which the writers select to convey their thought. Extensive analysis of writing (Bae & Min, 2017; Bhatia, 2004; Hyland, 2004; Lap & Truc, 2014; Melander, Swales, & Fredrickson, 1997) has shown that different types of texts are distinguished by distinctive patterns of linguistic elements such as grammar, vocabulary, and cohesion.

Emphasizing the importance of locating texts in contexts, Johns (1997) asserts the need for guiding L2 learners as well as L1 students to become aware of the interaction between language and linguistic features in different genres. Student writers, as Johns (1997) clearly points out, should be given practice to understand the genre-specific knowledge including the purpose of writing of specific text types. As Bazerman (1997) notes that genres are not just forms, the purposes and functions of particular texts or genres are influenced by the social situation in which they occur. By understanding these practices, L2 learners can gain greater access to texts and genres and be better writers (Hyland, 2004).

A good deal of research has demonstrated L2 learners' linguistic development across language proficiency levels in various genres of writing (Bae, 2018; Bardovi-Harlig, 1992; Casanave, 1994; Hwang, 2012; Kim, 2014; Larsen-Freeman, 2006; Lu, 2011; Park 2012; Pyo, 2020; Quin & Uccelli, 2016; Ruiz-Funes, 2015; Yoon & Polio, 2016). All findings up from previous studies on writing genres to examine the patterns and magnitudes of syntactic complexity showed that genre is an overwhelmingly strong variable in determining levels of syntactic complexity. Those studies, however, have chosen to focus on one or two genres of writing. Most of the studies focused on one genre of writing: narrative. Several studies (Bae, 2018; Hwang, 2012; Kim, 2014; Lu, 2011; Park, 2012; Quin & Uccelli, 2016; Yoon & Polio, 2016) compared two genres, narrative and argumentative revealed that one genre of writing showed higher syntactic complexity in some particular measures than the other genre. These studies did not suggest strong enough results to be generalized for L2 writings, and it has been necessary to extend the scope of genres, not only narrative and argumentative, but also expository genres for research of L2 writing. Therefore, this study examines syntactic complexity measures in Korean L2 college students' writings of different language proficiency levels and shows how different genres of writing affect their writing productions.

Research Design and Methodology

Research Questions

Previous related studies found significant differences of syntactic complexity between narrative and argumentative genres (Carrell & Connor, 1991; Crowhurst, 1990; Hwang, 2012; Park, 2013; Pollitt & Hutchinson, 1987; Quin & Uccelli, 2016; Ruiz-Funes, 2015; Yoon & Polio, 2016), but the present study included two more genres of expository, such as comparison and cause-effect essays, because the awareness about genre-specific knowledge of L2 writing is necessarily required for L2 learners to accomplish their academic purposes (Bae, 2017; Bae & Min, 2016; Kroll, 2003; Quin & Uccelli, 2016; Ruiz-Funes, 2015; Yasuda, 2011). This study, therefore, aims to examine syntactic complexity measures in Korean L2 college students' writing task performance of different language proficiency and show how different genres of writing: narrative, comparison, cause-effect, and argumentative essays affect their writing productions. The research questions are below:

- 1) What are the features of syntactic complexity in Korean college students' L2 writings depending on different genres (narrative, comparison, cause-effect, and argumentative essays)?
- 2) Which measures show significant differences between English proficiency levels in each genre?

Participants

The participants in this study were 61 students of Korea, aged 19 to 24 at the time of the data collection, in 2018. Thirty-one participants' major was English education, and remaining 30 participants majored in various subject education, English literature, and international studies, etc. These students were enrolled in English academic writing classes which aimed to develop students' academic English writing skills. Detailed information about participants was elaborated in Table 1.

TABLE 1
Participants Characteristics

Characteristics	N	%	Mean
N	61		
Age			21.6
Gender			
Female	46	75.41	
Male	15	24.59	
Grade			
Freshmen	16	26.23	
Sophomore	22	36.07	
Junior	19	31.15	
Senior	4	6.56	
Major			
English Education	31	50.82	
English Literature	4	6.56	
International Studies	8	13.12	
Other Majors	18	29.51	

Each participant was asked to write four different genres of academic essays: narrative, comparison, cause-effect, and argumentative essays. The writings from the participants were collected via word files for this study. The prompts of different essay genres were adopted from *Great Writing 4: Great Essays* (Folse, 2014), and the essay prompt for each genre were displayed in Table 2.

TABLE 2
The Essay Prompts of Each Genre

Genres	Essay Prompts
Narrative	Write a story about a person who inspires you. What does this person do? Why is it important? How does this person influence you and others?
Comparison	Show the similarities and differences in the ways that two cultures celebrate an important event, such as a birthday, wedding, or funeral.
Cause-Effect	As climates change, many parts of the world are experiencing extreme weather such as heavy rains or snow, intense heat without any rain, and powerful storms. What are some effects of extreme weather?
Argumentative	Using animals in disease research

Measurement of the Variables

Through the related literature, this study investigates the patterns of 14 syntactic complexity measures in English writing of four different genres by college students in Korea, and details of these measures were displayed in Table 3. These 14 syntactic complexity measures were categorized to five sections as length of production (MLC, MLS, MLT), sentence complexity (C/S), subordination (C/T, CT/T, DC/C, DC/T), coordination (CP/C, CP/T, T/S), and particular structures (VP/T, CN/C, CN/T).

TABLE 3
Definition of Syntactic Complexity Measures for the Present Study

Category	Measures	Explanation
Length of Production	Mean length of clauses (MLC)	number of words divided by number of clauses
	Mean length of sentence (MLS)	number of words divided by number of sentences
	Mean length of T-unit (MLT)	number of words divided by number of T-units
Sentence Complexity	Clauses per sentences (C/S)	number of clauses divided by number of sentences
Subordination	Clauses per T-unit (C/T)	number of clauses divided by number of T-units
	Complex T-units per T-unit (CT/T)	number of complex T-units divided by number of T-unit
	Dependent clauses per clause (DC/C)	number of dependent clauses divided by number of clauses
	Dependent clauses per T-unit (DC/T)	number of dependent clauses divided by number of T-units
Coordination	Coordinate phrases per clause (CP/C)	number of coordinate phrase divided by number of clauses
	Coordinate phrases per T-unit (CP/T)	number of coordinate phrases divided by number of T-units
	T-units per sentence (T/S)	number of T-units divided by number of sentences
Particular Structures	Verb phrases per T-unit (VP/T)	number of verb phrases divided by number of T-units
	Complex nominal per clause (CN/C)	number of complex nominals divided by number of clauses
	Complex nominals per T-unit (CN/T)	number of complex nominals divided by number of T-units

Note 1. Measures in Table 3 were adapted and reorganized from Lu (2011) and Park (2012).

Note 2. Coordinate phrases: coordinate adjective, adverb, noun, and verb phrases; Complex nominal: 1) noun plus adjective, possessive, prepositional phrase, adjective clause, participle or appositive, 2) nominal clauses, and 3) gerunds and infinitives in subject; Verb phrases: both finite and nonfinite verb phrases.

Before measuring college level students' L2 syntactic complexity of four different genres of academic essays from participants in the present study, the 14 syntactic complexity measures by Lu (2011) were adopted for the investigation in the present study. Learners' language use was evaluated in terms of the ability to use a variety of structures and complex sentences accurately in different text genres in this study. Lu (2011) categorized 14 syntactic complexity measures into five types as presented in Table 3, and these measures were previously employed in related research (Kim, 2014; Ortega, 2003; Park, 2012; Park, 2013; Wolfe-Quintero et al., 1998).

The sentence complexity (C/S) investigates the ratio of clauses to sentences. In addition, the sentence coordination ratio (T/S) measures the degree of coordination clauses, so proficient language learners tend to have decreased patterns of the sentence coordination ratio (Wolfe-Quintero et al., 1998). The subordination clauses include C/T, DC/C, and DC/T, and these indicators measure grammatical complexity, such as the degree of embedding clauses (e.g., adverbial, adjective, and nominal clauses). The particular structure involves complex nominals and verb phrases, measures that determine the L2 writers' linguistic abilities, especially for advanced learners. In the end, the present study used the same 14 measures to evaluate the degree of syntactic complexity of Korean students' L2 writing in different genres and different English proficiency levels.

Data Collection & Data Analysis

During data collection procedure, 61 participants wrote four genres of essays including narrative, comparison, cause-effect, and argumentative essays, and a total of 244 different essays were collected for the present study. After compiling participants' essays, participants' TOEIC scores which they took at the beginning of the semester in 2018 were coded to three different proficiency levels. The total score of TOEIC was 990 points. Participants were divided into three different language proficiency levels according to their TOEIC scores. Students who received their TOEIC scores from 800 to 990 points were classified as advanced, students receiving scores from 600 to 770 were listed as intermediated, and students receiving scores below 550 were categorized as basic. Descriptive results attempted to capture how participants' levels of English proficiency were divided into three groups and listed in Table 4.

TABLE 4

Descriptive Statistics of the Participants' TOEIC scores and Proficiency Levels

Proficiency Levels (score ranges)	N	%
Level 1 - Advanced (800-990)	20	32.79
Level 2 - Intermediate (600-770)	23	37.70
Level 3 - Basic (below 550)	18	29.51
Total	61	100

In order to measure L2 syntactic complexity of four different genres from participants in the present study, the L2 Syntactic Complexity Analyzer program by Lu (2010, 2011) was used in the present study. The independent variables of this study were participants' L2 proficiency and four different essay genres. Additionally, dependent variables in the current study were 14 syntactic complexity indices which were categorized by five domains: length production units, sentence complexity, subordination, coordination, and particular structures as outlined in Table 4.

Fourteen syntactic complexity variables were calculated and then compared across four different genres and three proficiency groups using SPSS 23.0. Descriptive analysis was used to see differences between the means of syntactic complexity measures and to describe the data on students. In order to compare the means of syntactic complexity measures among four different genres, one-way ANOVA with the Bonferroni post hoc test was used. In addition, one-way ANOVA was used to determine whether there are significant differences in each different genre among three English proficiency levels of L2 syntactic complexity. Mean scores were compared for significant ANOVAs, and then multiple comparisons were necessary. Alpha level of .05 was set for a significance test.

Results and Discussion

The Effects of Different Text Genres on Students' Syntactic Complexity in L2 Writings

In order to examine the effects of different genres on syntactic complexity, all narrative, comparison, cause-effect, and argumentative essays were analyzed regardless of participants' English proficiency levels because the interaction between text genres and proficiency levels was not significant. First of all, descriptive analysis of 14 syntactic complexity measures in Korean L2 students' essays was conducted, and Table 5 displays the result of means and standard deviations of syntactic complexity indicators according to four different genres of narrative, comparison, cause-effect, and argumentative essays.

TABLE 5

Descriptive Statistics of Genres on Syntactic Complexity

		Narrative (N = 61)		Comparison (N = 61)		Cause-Effect (N = 61)		Argumentative (N = 61)	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
LP	MLS	14.42	2.84	15.93	3.02	16.42	3.05	16.77	3.14
	MLT	13.00	2.62	14.42	2.70	15.11	3.00	15.15	2.99
	MLC	7.91	1.17	9.86	1.53	9.68	1.52	9.59	1.29
SC	C/S	1.83	.27	1.63	.30	1.70	.27	1.75	.25
S	C/T	1.64	.23	1.48	.26	1.57	.26	1.58	.24
	DC/C	.37	.08	.30	.09	.34	.09	.35	.09
	DC/T	.63	.22	.47	.24	.56	.24	.58	.24
	CT/T	.46	.12	.36	.14	.43	.13	.45	.13
C	T/S	1.11	.09	1.11	.09	1.09	.09	1.11	.09
	CP/T	.26	.16	.52	.18	.37	.14	.32	.14
	CP/C	.16	.09	.36	.14	.24	.10	.20	.08
PS	VP/T	2.10	.37	1.85	.35	2.21	.41	2.08	.39
	CN/T	1.25	.43	1.70	.47	1.91	.56	1.94	.56
	CN/C	.75	.22	1.15	.27	1.22	.33	1.22	.27

To explore the effects of text genres on syntactic complexity of students' L2 writing, a series of one-way ANOVAs was conducted using the 14 selected syntactic indices as the dependent variables, and the four different text genres set as the independent variables (see Table 7). First of all, the one-way ANOVA shows significant differences ($p < .05$) in the mean values of 13 measures, only except for the T/S indicator, among narrative, comparison, cause-effect, and argumentative essays in Table 6. In particular, the narrative genre exhibits lower syntactic complexity in the part of length of production, coordination, and particular structures than other expository genres, such as comparison and cause-effect essays. Moreover, in these three categories, argumentative essays generally exhibit higher syntactic complexity than narrative essays; this result is identical to the previous research (Kim, 2014).

TABLE 6
Results of One-Way ANOVA by Different Genres

			Sum of Squares	df	Mean Square	F	Sig.
LP	MLS	Between Groups	196.319	3	65.440	7.211	.000*
		Within Groups	2177.917	240	9.075		
		Total	2374.236	243			
	MLT	Between Groups	184.753	3	61.584	7.676	.000*
		Within Groups	1925.573	240	8.023		
		Total	2110.327	243			
	MLC	Between Groups	150.592	3	50.197	26.166	.000*
		Within Groups	460.412	240	1.918		
		Total	611.004	243			
SC	C/S	Between Groups	1.233	3	.411	5.559	.001*
		Within Groups	17.743	240	.074		
		Total	18.976	243			
S	C/T	Between Groups	.883	3	.294	4.850	.003*
		Within Groups	14.566	240	.061		
		Total	15.449	243			
	DC/C	Between Groups	.170	3	.057	7.213	.000*
		Within Groups	1.880	240	.008		
		Total	2.049	243			
	DC/T	Between Groups	.845	3	.282	5.072	.002*
		Within Groups	13.325	240	.056		
		Total	14.170	243			
	CT/T	Between Groups	.349	3	.116	6.729	.000*
		Within Groups	4.150	240	.017		
		Total	4.499	243			
C	T/S	Between Groups	.018	3	.006	.719	.541
		Within Groups	1.985	240	.008		
		Total	2.003	243			
	CP/T	Between Groups	2.198	3	.733	31.020	.000*
		Within Groups	5.669	240	.024		
		Total	7.867	243			
	CP/C	Between Groups	1.338	3	.446	40.463	.000*
		Within Groups	2.646	240	.011		
		Total	3.985	243			
PS	VP/T	Between Groups	4.183	3	1.394	9.628	.000*
		Within Groups	34.760	240	.145		
		Total	38.943	243			
	CN/T	Between Groups	18.401	3	6.134	23.566	.000*
		Within Groups	62.468	240	.260		
		Total	80.869	243			
	CN/C	Between Groups	9.194	3	3.065	41.470	.000*
		Within Groups	17.735	240	.074		
		Total	26.929	243			

* $p < .05$

TABLE 7
Results of One-Way ANOVA and Multiple Comparisons by Genres

		(I) Genre	(J) Genre	Mean Difference (I-J)	Std. Error	Sig.	95% CI		Effect Size (<i>d</i>)		
							Lower	Upper			
LP	MLS	N	C	-1.51258*	.54546	.036*	-2.9637	-.0615	-.52		
			CE	-2.00001*	.54546	.002*	-3.4511	-.5489	-.68		
			A	-2.35022*	.54546	.000*	-3.8013	-.8991	-.79		
	MLT	N	C	-1.42014*	.51289	.036*	-2.7846	-.0557	-.53		
			CE	-2.11137*	.51289	.000*	-3.4758	-.7469	-.75		
			A	-2.15099*	.51289	.000*	-3.5154	-.7865	-.77		
	MLC	N	C	-1.94927*	.25079	.000*	-2.6165	-1.2821	-1.44		
			CE	-1.76853*	.25079	.000*	-2.4357	-1.1013	-1.32		
			A	-1.68455*	.25079	.000*	-2.3517	-1.0174	-1.37		
SC	C/S	N	C	.19616*	.04923	.001*	.0652	.3271	.70		
S	C/T	N	C	.16846*	.04461	.001*	.0498	.2871	.65		
			DC/C	N	C	-.07119*	.01603	.000*	-.1138	-.0286	.82
					CE	-.04279*	.01603	.049*	-.0854	-.0002	-.44
		C	CE	-.05474*	.01603	.004*	-.0974	-.0121	-.56		
			A	-.05474*	.01603	.004*	-.0974	-.0121	-.56		
	DC/T	N	C	.16137*	.04267	.001*	.0479	.2749	.70		
			CT/T	N	C	-.09929*	.02381	.000*	-.1626	-.0359	.77
	CE	-.06511*	.02381		.040*	-.1284	-.0018	-.52			
	A	-.08385*	.02381		.003*	-.1472	-.0205	-.67			
C	CP/T	N	CE	-.10224*	.02783	.002*	-.1763	-.0282	-.73		
			C	N	.25514*	.02783	.000*	.1811	.3292	1.53	
			CE	.15291*	.02783	.000*	.0789	.2269	.94		
			A	.19988*	.02783	.000*	.1258	.2739	1.25		
	CP/C	N	C	-.19896*	.01901	.000*	-.2495	-.1484	-1.74		
			CE	-.07730*	.01901	.000*	-.1279	-.0267	-.84		
			C	CE	.12167*	.01901	.000*	.0711	.1722	1.00	
			A	.15613*	.01901	.000*	.1056	.2067	1.45		
			PS	VP/T	N	C	.24832*	.06891	.002*	.0650	.4316
CE	-.36084*	.06891	.000*			-.5442	-.1775	-.95			
CN/T	N	A	-.22618*	.06891	.007*	-.4095	-.0429	-.62			
		C	C	-.44564*	.09238	.000*	-.6914	-1.1999	-1.00		
			CE	-.65662*	.09238	.000*	-.9024	-1.4109	-1.33		
A	-.68764*		.09238	.000*	-.9334	-1.4419	-1.39				
CN/C	N	C	-.39742*	.04922	.000*	-.5284	-.2665	-1.63			
		CE	-.46783*	.04922	.000*	-.5988	-.3369	-1.71			
		A	-.46528*	.04922	.000*	-.5962	-.3343	-1.92			

Note 1. N: Narrative; C: Comparison; CE: Cause-Effect; A: Argumentative

* $p < .05$

Note 2. Cohen's *d* (effect sizes) can be interpreted .20 = small, .50 = moderate, and .80 = large.

All five categories of syntactic complexity – length of production, sentence complexity, subordination, coordination, and particular structures - showed the largest difference across four different genres. First of all, in the case of length production units including MLS, MLT, and MLC, genre effects were observed in the mean length of sentence, T-units, and clauses. Specifically, effect sizes were .52 to 1.44, and these sizes were mostly large and practically significant. In other words, students produced longer lengths of sentences, T-units, and clauses in comparison, cause-effect, and in argumentative genres than the narrative genre. In addition, sentence complexity measure (C/S) showed statistically significant text genre differences ($F(243) = 5.559, p = .001$). Specifically, the narrative genre ($M = 1.83$) indicated a statistically significantly greater ratio of the mean score than the comparison genre ($M = 1.63, d = .70$).

Secondly, all four measures of subordination clause (C/T, DC/C, DC/T, CT/T) showed a statistically significant genre difference. The ranges of effect sizes were from .44 to .82, and it would be interpreted that these differences were practically significant. More specifically, the subordination clause ratio in the students' narrative writing was higher than in other genres, such as comparison, cause-effect, and argumentative essays. In addition, among comparison, cause-effect, and argumentative genres, the

subordination clause ratios in both cause-effect and argumentative essays was similar to each other, but comparison essays had a small amount of the subordination clauses ratio. These results are completely opposite from the results that argumentative text genres exhibit higher syntactic complexity than the narrative genre (Hwang, 2012; Lu, 2011; Park, 2012).

Two coordination clause measures (CP/T, CP/C) also presented statistically significant genre differences among four different genres. Only the measure of T/S did not show any statistically significant differences among different genres. Finally, all three measures (CN/T, CN/C, VP/T) of particular structures, such as complex nominal and verb phrase, indicated statistically significant differences among four genres. Argumentative essays contained the highest ratios of complex nominal (CN/C, CN/T); similarly, complex nominal also registered higher in comparison and cause-effect essays than in narrative essays. On the other hand, verb phrases (VP/T) indicated similar ratios in narrative, argumentative, and in cause-effect essays, but participants' comparison essays contained smaller amount of verb phrases than other three genres. Consequently, these results proved the effects of text genres on L2 learners' writings, especially in terms of syntactic complexity. Details about the result of the one-way ANOVAs by genres are presented in Table 7.

Syntactic Complexity of Different English Proficiency Levels

Before discussing genre analysis, it was necessary to look over the descriptive statistics of participants' syntactic complexity measures regarding their English proficiency levels without genre effects. According to Table 8, the results of the length of production indicated that students with higher proficiency generally produced longer essays than lower proficiency level students. In addition, advanced students' writings involved higher ratios of four categories of syntactic complexity, such as sentence complexity, subordination, coordination, and particular structures, than intermediate and basic levels students' writings.

TABLE 8

Descriptive Statistics of Different Proficiency Levels in Syntactic Complexity

		Advanced (N = 20)		Intermediate (N = 23)		Basic (N = 30)	
		Mean	SD	Mean	SD	Mean	SD
LP	MLS	16.52	3.11	16.42	3.12	14.79	2.87
	MLT	15.01	3.25	14.86	2.82	13.45	2.52
	MLC	9.34	1.66	9.56	1.59	8.89	1.46
SC	C/S	1.79	.28	1.73	.29	1.67	.26
S	C/T	1.62	.30	1.56	.24	1.52	.21
	DC/C	.36	.10	.34	.09	.32	.08
	DC/T	.62	.29	.55	.23	.51	.19
	CT/T	.45	.15	.42	.13	.41	.12
C	T/S	1.11	.10	1.11	.09	1.10	.09
	CP/T	.37	.17	.39	.18	.35	.19
	CP/C	.23	.11	.25	.12	.24	.15
PS	VP/T	2.17	.46	2.07	.37	1.95	.34
	CN/T	1.81	.66	1.78	.51	1.52	.51
	CN/C	1.12	.37	1.14	.30	1.00	.31

In order to examine whether the differences in syntactic complexity measures were statistically significant across the three proficiency groups, a one-way ANOVA was conducted in each different genre. First of all, in the narrative text genre, a sentence complexity measure (C/S) and two subordination measures (C/T and DC/T) were statistically different among three different language proficiency levels (see Table 9). In particular, the ratio of the sentence complexity increased according to writing proficiency levels in narrative essays. Additionally, the results of subordination clause (C/T, DC/T) in narrative essays indicated significant positive linearity in students' English proficiency levels. Even though the measure of DC/T was not statistically significant, the effect size between intermediate and basic levels was .70 and relatively large. Interestingly, the group differences between basic and

intermediate levels were statistically significant, but advanced level students' writings were not statistically significantly different from the intermediate level. Details were listed in Figure 1.

TABLE 9
Multiple Comparisons across Proficiency Levels in Narrative Essays

	(I) Proficiency	(J) Proficiency	Mean Difference (I-J)	Std. Error	Sig.	95% CI		Effect Size (d)
						Lower	Upper	
C/S	1	2	-.22824*	.09243	.049*	-.4561	-.0004	-.88
	2	3	.25227*	.08432	.012*	.0444	.4602	.30
C/T	2	3	.18281*	.07409	.032*	.0137	.3519	.77
DC/T	2	3	.16421*	.06970	.066	-.0076	.3361	.74

Note. 1: advanced; 2: intermediate; 3: basic

* $p < .05$

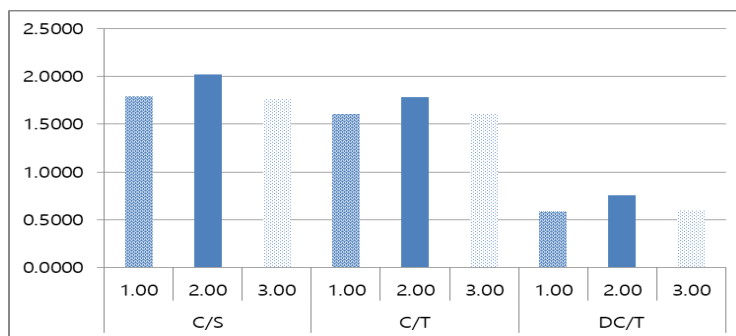


Figure 1. Comparisons of syntactic complexity in students' narrative essays.

In the case of comparison essays, the result of the length of production measures (MLS and MLT) and one particular structure measure (CN/T) were not statistically significant at the .05 level across the proficiency levels, except the differences of MLS between intermediate and basic levels. However, all effect sizes (d) were .78 to .91, and it would be possible to interpret that the group differences of three measures were large and practically significant. Table 10 illustrates that as proficiency level increased, students produced longer length of sentences and T-units in comparison genres. In addition, there was no statistical significance between advanced and intermediate groups about the length of production measures because students in both groups produced similar lengths of sentences and T-units. The statistically significant difference only existed with basic-level students' writings compared to intermediate level students' writings. However, in the case of the other three genres, such as narrative, cause-effect, and argumentative genres, length of sentences and T-units were not statistically significant indicators for students' writings across their proficiency levels. CN/T in the comparison essay showed the significant difference regarding proficiency levels in terms of the effect size ($d = .78$). That is, the more proficient Korean L2 writers use the more frequently complex nominal in their comparison essays (see in Figure 2).

TABLE 10
Multiple Comparisons across Proficiency Levels in Comparison Essays

	(I) Proficiency	(J) Proficiency	Mean Difference (I-J)	Std. Error	Sig.	95% CI		Effect Size (d)
						Lower	Upper	
MLS	1	3	2.21531*	.90590	.053	-.0181	4.4487	.84
	2	3	2.40261*	.85533	.020*	.2939	4.5113	.91
MLT	2	3	1.82425*	.77895	.068	-.0962	3.7447	.84
CN/T	2	3	.31964*	.13744	.071	-.0192	.6585	.78

Note. 1: advanced; 2: intermediate; 3: basic

* $p < .05$

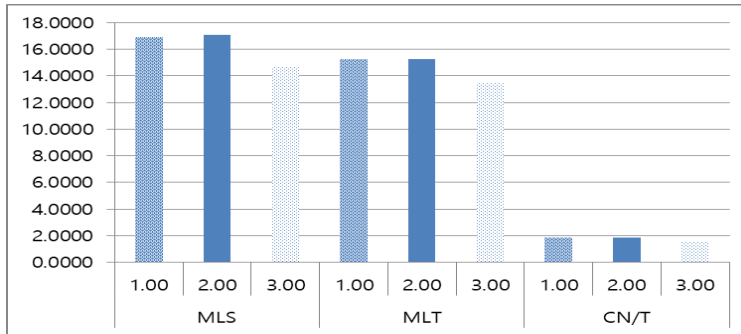


Figure 2. Comparisons of syntactic complexity in students' comparison essays.

The results about one coordination measure (CP/T) and one particular structure measure (CN/T) showed moderate or large differences across three different proficiency levels in cause-effect essays, and the difference of CP/T between advanced and basic levels was statistically significant ($p = .01$). The only measure of coordination, CP/T, was found to be the statistically significant difference between advanced and basic levels, and the other measures, CP/C and T/S, showed no discernible difference in proficiency levels. These results are not consistent with Lu (2011) but were consistent with finding of Park (2012) as well as Cooper (1976). CN/T in the cause-effect essay also showed moderate differences regarding proficiency levels ($d = .71$ and $.63$). This result is similar to the results of the comparison essay, implying that the more proficient Korean L2 writers applied more frequent use of complex nominal in their expository text genres, including comparison and cause-effect essays. The results from the cause-effect essay were presented in Table 11 and Figure 3.

TABLE 11
Multiple Comparisons across Proficiency Levels in Cause-Effect Essays

	(I) Proficiency	(J) Proficiency	Mean Difference (I-J)	Std. Error	Sig.	95% CI		Effect Size (<i>d</i>)
						Lower	Upper	
CP/ T	1	3	.12835*	.04370	.01*	.0206	.2361	.94
	2	3	.08755	.04405	.16	-.0210	.1962	.72
CN/ T	1	2	.38524	.15730	.05	-.0026	.7730	.71
	1	3	.35871	.18129	.16	-.0882	.8056	.63

Note. 1: advanced; 2: intermediate; 3: basic
* $p < .05$

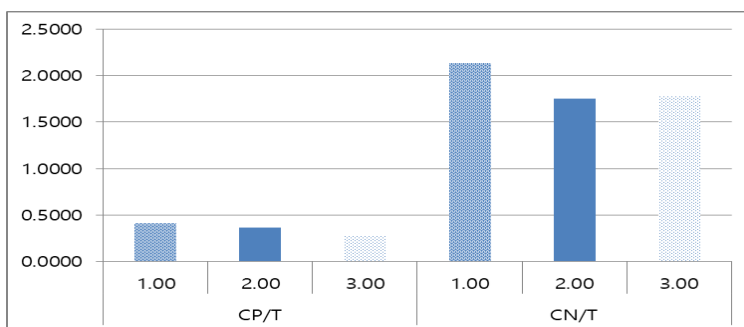


Figure 3. Comparisons of syntactic complexity in students' cause-effect essays.

In the case of argumentative essays, the results of all 14 syntactic complexity measures were not statistically significant across the proficiency levels. According to previous related research by Liu and Li (2016), Lu (2011), Park (2012), and Kim (2014), there were statistically significant differences between

the levels either negatively or not at all. Even though there was not a statistically significant difference of the syntactic complexity in the argumentative essay across proficiency levels in the present study, it was possible to find syntactic differences between level 1 and level 3 as well as between level 2 and level 3 respectively. For example, the results of three measures of length of production, three subordinate phrase measures, and three particular structure measures were increased linearly across all three levels. Interestingly, between level 1 and level 2, there were no statistically significant increases or decreases of certain syntactic complexity measures. In other words, there were no regularly increasing and decreasing tendencies of CN/C, CP/C, CP/T (mainly coordination and particular structure categories) between level 1 and level 2 in the argumentative text genre. It, therefore, can be inferred that more proficient L2 writers produce more complex sentences in their argumentative writings.

Discussion and Implications

The first research question asked what the different syntactic complexity features of academic essays by Korean L2 college learners were in their narrative, comparison, cause-effect, and argumentative text genres. With regard to syntactic complexity (Length of Production: MLT, MLC, MLS; Sentence Complexity: C/S; Subordination: C/T, CT/T, DC/C, DC/T; Coordination: CP/C, P/T, T/S; Particular Structure: VP/T, CN/C, CN/T), 13 out of 14 measures showed statistically significant genre differences at the .05 level. To be specific, participants in the present study produced longer lengths of sentences, T-units, and clauses in their argumentative and cause-effect writings, and their narrative writings. Similarly, the longer length of productions was found in expository and argumentative text genres compared to narrative writings. In addition, the results of the particular structure measures were similar to the results of the length of production; that is, participants' argumentative and cause-effect writings also included more complex nominal and verb phrases than their narrative essays. On the other hand, the results of the coordination measures showed that Korean L2 learners tended to use coordination clauses more frequently in their expository genres, such as comparison and cause-effect essays than their argumentative essays, and the use of coordination clauses in their narrative writings was the least among four different text genres. This result is consistent with Lu (2011) that argumentative essays showed higher syntactic complexity than narrative essays by adding two more expository text genres: comparison and cause-effect essays.

In contrast, the categories of sentence complexity and subordination in this study indicated different results from Lu (2011). Participants' narrative writings showed use of more complex sentences and more frequent use of subordination clauses than in argumentative writings. Furthermore, participants produced fewer complex sentences and more restrictive subordination clauses in their cause-effect and comparison essays, especially in expository genres. This result did not support Wolfe-Quintero et al.'s (1998), and Lu's (2011), but this part of the result is consistent with Hwang's (2012) result that Korean EFL college learners produced significantly higher complex sentences and frequent subordination clauses in their narrative writing than those in argumentative writings. To conclude, the findings of the genre analysis of syntactic complexity showed that Korean L2 college students produced more complex coordination clauses and particular structures in their expository writings because of its genre-feature of reasoning (Bae & Min, 2017; Folse, 2014), and this conclusion implied that Korean students have some genre-specific knowledge because they produce more syntactically diverse sentences in their expository and argumentative essays than in narrative essays.

The second research question investigated the syntactic complexity features of the different writing genres of Korean college learners based on their L2 proficiency levels within in each genre. All results of the syntactic complexity did not show statistically significant difference across three different English proficiency levels, and these results did not support previous studies (Hwang, 2012; Kim, 2014; Lu, 2011; Park, 2012; Ruiz-Funes, 2015; Wolfe-Quintero et al., 1998; Yoon & Polio, 2016). However, the result showed increasing trends across writing proficiency levels in all four genres of writing in the present

study. This means that Korean EFL college writers produce more complex sentences and structures by using subordination clauses, coordination clauses, complex nominal, and verb phrases as their English proficiency increases in each genre even though the means of all syntactic measures were not statistically significantly different across proficiency levels. When it comes to the results of the multiple comparison tests in each genre, sentence complexity and subordination measures in participants' narrative writings showed the statistically significant difference across the proficiency groups. On the other hand, the length of production and particular structure measures were the distinctive features for participants' comparison essays, and coordination and particular structure measures were statistically significant indicators among three different proficiency groups in their cause-effect essays. Therefore, advanced L2 writers produced more complex syntactic features in their different genres (Kim, 2014; Park, 2013; Quin & Uccelli, 2016; Ruiz-Funes, 2015; Yoon & Polio, 2016). Interestingly, participants' argument writings did not have the distinctive syntactic complexity features across the English proficiency levels in the present study. In conclusion, the present study suggests that complex nominals are the most reliable indicators to decide that the syntactic complexity yields to the writing quality in especially expository text genres. Additionally, the coordination measures were appropriate indices to show complexity at L2 beginning levels in expository and argumentative genres, and the particular structures were strong predictors to measure syntactic complexity for advanced learners in all genres.

The current study has some significant pedagogical implications. Most of all, this study tries to extend the scope of genres in L2 writing. Previous studies of analysis of syntactic complexity of L2 writings only focused on comparing and contrasting two genres, narrative and argumentative writings, but this study included two more genres, comparison and cause-effect writings. This is the first syntactic complexity analysis of Korean students' L2 writings with four different genres. Therefore, the present findings according to four different genres can be used to help such genre-based writing instruction and assessments studies in investigating what factors are critical to determining L2 learners' syntactic complexity in their writings. Especially, it is necessary to figure out which syntactic measures are genre-sensitive and how to interpret the genre differences observed in these measures.

Another implication of the present study is that L2 proficiency levels and writing genres should be considered in L2 writing instruction and assessments. Actually, the results of syntactic complexity measures in the present study were not critical features of deciding L2 learners' writing qualities. However, the details of the results proved that different proficiency level students wrote syntactically different L2 texts in different genres. Therefore, text genres and syntactic complexity of L2 writings should be appropriate measures for use in assisting both language teachers and L2 learners in order to improve L2 learners' writing competence across the English proficiency levels.

The limitations of the present study should be discussed. A major limitation is that the present study involves a small number of participants and thus may not be generalized. In addition, the contents of prompts of each genre were not controlled as an important variable. Therefore, future studies with a wider range topics and controlled difficulties would suggest greater test validity.

For future research, it is necessary to investigate the lexical complexity, accuracy, and fluency, etc, in order to identify critical factors and more detailed genre effects in L2 writings. Additionally, as the current research proved the importance of genre effects in L2 writings for different English proficiency levels, the future research should examine instructional strategies and assessment to assist L2 students to acquire genre knowledge by different text genres.

Conclusion

The twofold purpose of this study was to investigate the syntactic complexity of Korean college learners' L2 writings with first, whether the writing genres affect syntactic complexity in Korean L2 learners' written performance and second, what are different syntactic complexity measures of Korean EFL learners across L2 writing proficiency levels in different text genres, such as narrative, comparison,

cause-effect, and argumentative writings. A total of 61 participants wrote in four genres of writing through the writing classes and received analytic writing scores from two raters. Finally, 244 Korean L2 participants' writings (61 essays in each genre) were collected for the research data, and these were classified into three different proficiency groups based on their writing scores. Finally, these data were analyzed by 14 syntactic complexity measures through the L2 syntactical complexity analyzer program, and a series of one-way ANOVA tests across text genres and participants' English proficiency levels was conducted to answer the research questions of the present study.

The first research question asked what the different syntactic complexity features of academic essays by Korean L2 college learners were in their narrative, comparison, cause-effect, and argumentative text genres. Thirteen out of 14 measures of syntactic complexity showed statistically significant genre differences at the .05 level; especially, the argumentative genre was more syntactically complex than other genres. The second research question investigated the syntactic complexity features of the different writing genres of Korean college learners based on their L2 proficiency levels within in each genre. The results of the syntactic complexity showed no statistically significant differences across three different English proficiency levels. In conclusion, the present study suggests some significant pedagogical implications to extend the scope of genres in L2 writing and needs of consideration about L2 proficiency levels and writing genres in L2 writing instruction and assessment. As suggested by this study, text genres and syntactic complexity of L2 writings are instrumental in assisting both language teachers and L2 learners.

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