Tracing Developmental Changes in L2 Learners' Structuring of Phrasal Verbs: A Corpus Study of Native and Non-native Argumentative Essays

MIN-CHANG SUNG
Department of Foreign Language Education
Seoul National University
South Korea
minchang.sung@gmail.com

HYUNWOO KIM
Department of Second Language Studies
University of Hawaii
USA

ABSTRACT

This study investigates the production patterns of English phrasal verbs (PV) by Korean-speaking foreign language learners of English, with a special focus placed on two structural features of PVs, namely, transitivity and particle placement. It offers a developmental perspective by analysing the production performance of PVs for three learner corpora at different proficiency levels (basic, intermediate, and advanced) and a native corpus. The results show that, while the basic- and intermediate-level learners significantly underused both transitive and intransitive PVs compared to the native speakers, the proportions of transitive and intransitive PVs in the advanced-learner corpus were statistically indistinguishable from those in the native corpus. In addition, verb-particle separation was identified only in the advanced-leaner and native corpora, indicating the specific developmental aspects underlying the L2 acquisition of PVs. The advanced learners, however, were found to be less capable of adhering to the end-weight principle and the givenness condition when structuring transitive PVs compared to the native speakers. These results suggest that associating contextual information with PV structures may be a major source of difficulty when teaching and learning PVs.

Keywords: phrasal verbs; learner corpora; particle placement; end-weight principle; givenness condition

INTRODUCTION

Learning English phrasal verbs (PVs: e.g., *figure out* and *hold on*) has been a chronic difficulty for learners of English as a second or a foreign language (ESL or EFL). Although PVs are one of the most frequent constructions in English (Biber, Johansson, Leech, Conrad & Finegan 1999), they are generally underused by ESL or EFL learners (Houshyar & Talebinezhad 2012, Liao & Fukuya 2004). Even advanced learners of English have been reported having difficulties in achieving native-like production of PVs (Laufer & Eliasson 1993, Siyanova & Schmitt 2007). These persistent difficulties with English PVs have mostly been accounted for by language-external factors, e.g., L1 influence (Dagut & Laufer 1985) and inefficient instruction (Yasuda 2010) as well as language-internal idiosyncratic features of PVs, for example, semantic opaqueness (Lennon 1996), synonymous one-word verbs (Waibel 2007), and register- or context-appropriateness (Kovács 2014).

Among these sources of the difficulties underlying the acquisition of PVs by ESL or EFL learners, syntactic complexity is known to constitute a major challenge for mastering this construction (McPartland-Fairman 1989). For instance, the (in)transitivity of PVs is not solely dependent on their verbal components, as even verbs whose lexical semantics is associated with intransitivity (*come* and *sit*) often exhibit transitive properties in PVs (*She came across the boy*; *The teacher sat us down*). The converse case is also observed where PVs containing transitive verbs (*hold* and *pay*) can be used intransitively in some contexts (*Will the water hold out?*; *Their efforts really paid off*). Another structural complexity of PVs

is concerned with particle placement. When PVs are transitive, the particles can be placed either preceding or following the objects (i.e., [V Prt OBJ] or [V OBJ Prt]: *pick up the book* or *pick the book up*). According to Gries (2003), particle placement is a complicated issue, as it is influenced by a variety of linguistic factors such as — to list a few — the complexity of objects, determiners, the degree of idiomaticity, previous (non-)mention, and registers.

Although the structural complexities of PVs have been noted as a primary cause of difficulty in learning PVs in earlier studies (Johnston & Slobin 1979, Side 1990), there remains an evident gap when addressing this area of difficulty. Despite a fair amount of research on the acquisition of figurative and idiomatic meanings of PVs (Akbari 2009, Geld 2009, Houshyar & Talebinezhad 2012, Lennon 1996, Liao & Fukuya 2004, Takahashi & Matsuya 2013, Waibel 2007, Yasuda 2010), very little research has addressed the learner's acquisition of their structural complexities. A recent effort by Gilquin (2015), however, brought to light this less studied, but yet important, aspect of learning PVs. Using two learner corpora representing French-speaking EFL learners' spoken and written production and two native corpora of a similar nature, Gilquin examined whether and to what extent the advanced learners differed from the native speakers in their production of the three structural patterns — i.e., [V Prt], [V Prt OBJ], and [V OBJ Prt]. Her results demonstrated that the EFL learners patterned along with the native speakers in the proportion of these structures in their essays, albeit slightly different in the degree of their preference for certain structures.

Although Gilquin's findings suggest meaningful implications in terms of the kind of knowledge that is stored in the interlanguage system of these learners and how EFL learners exploit this knowledge in their production of PVs, there still remain some unexplored factors related with second language (L2) acquisition of English PVs. The data samples were limited to essays written by French-speaking learners, and learner variability, such as English proficiency, was not fully considered in this analysis. Such problems are also well reflected in Gilquin's (2015 p. 84) recognition that further studies should include "data produced by learners from other mother tongue backgrounds, or data produced by learners from different proficiency levels." Another issue that was not clearly addressed in Gilquin's (2015) study is how particle placement is influenced by the information structure of the ongoing discourse. Since the structural form of particle placement is closely associated with suprasentential conditions that determine the information status of the object (Gries 2003), L2 acquisition of particle placement needs to be investigated in terms of these specific discourse factors.

These aforementioned gaps call for a more systematic investigation of L2 acquisition of PVs by a) scrutinising L2 production of PVs for their structural and discourse aspects; b) including a learner population with a different first language (L1) background; and c) taking into account the English proficiency of learners as a measure for assessing the learners' development of PVs. To this end, the present study analyses the structural patterns of PVs produced by EFL learners with a different mother tongue, i.e., the Korean language, which is, like French, known to lack PVs. Exploring three written learner corpora from different proficiency levels and a native corpus with a similar nature, the current investigation attempts to unveil the developmental aspects underlying the L2 acquisition of PVs.

THE STRUCTURAL PATTERNS OF PHRASAL VERBS

In traditional English grammar, PVs are categorised as multi-word verbs along with other types of [verb + α] combinations, such as prepositional verbs (*cope with*) and prepositional phrasal verbs (*look forward to*). Indeed, Greenbaum and Quirk (1997) introduced six types of multi-word verbs and two types of free combinations, as illustrated below in Table 1.

TABLE 1. Greenbaum and Quirk's (1997) classification of multi-word verbs

Classification	Category	Type	No.	Structure & Example
Multiword Verb	Phrasal Verb	Intransitive	C1	Verb + Particle *Take off*
		Transitive	C2	Verb + Particle + NP (or NP + Particle) *Blow up the building*
	Prepositional Verb	Type 1	C3	Verb + Preposition + NP *Cope with the issue*
		Type 2	C4	Verb + NP + Preposition + NP *Remind me of the time*
	Prepositional Phrasal Verb	Type 1	C5	Verb + Adverb + Preposition + NP *Look forward to the wedding*
		Type 2	C6	Verb + NP + Adverb + Preposition + NP *We put our success down to hard work*
	Free Combination		C7	Verb + (pure) Preposition + NP *Fly to the airport*
			C8	Verb + (pure) Adverb + (NP) *Run up (the hill)*

This categorisation notes the structural pattern of PVs for intransitive and transitive types (C1 and C2) and particle placement (C2). It also helps draw a clear distinction between prepositional verbs (C3 and C4), and prepositional PVs (C5 and C6). However, there are some limitations seen in this framework. First, the distinction between PVs (C1 and C2) and prepositional PVs (C5 and C6) is not always obvious. For example, a sequence of a verb and a particle can be followed by a prepositional phrase, which is then either obligatory or optional, e.g., *look forward to the meeting* vs. *come back (to the meeting)*. While the former example contains an obligatory prepositional phrase and thus is definitely categorised as a prepositional PV, it is uncertain whether the latter is categorised as a PV or a prepositional PV since the prepositional phrase, *to the meeting*, can be left out. This confusion can cast doubts on suggesting an independent class for prepositional PVs.

More importantly, Greenbaum and Quirk's (1997) categorisation relies exclusively on the semantic properties of predicates when it distinguishes multiword verbs from free combinations. For example, the list classifies a combination of a verb and a particle as a PV (C1 or C2) when that combination is a fixed expression with an aspectual or idiomatic meaning (*blow up the building*), but then it categorises the same structure as a free combination (C7 or C8) when the combination denotes a literal meaning (*run up the hill*). Biber et al. (1999 p. 403) noted, however, that "it is hard to make an absolute distinction between free combinations and fixed multi-word verbs; one should rather think of a cline on which some verbs or uses of verbs, are relatively free and others relatively fixed". Therefore, verb-particle combinations with literal meaning as well as those with aspectual or idiomatic meaning should be understood as constituting a continuum using the general concept of PVs.

Attributing these limitations to surface-level analyses, which overlook the underlying principles of human language, many linguists working within the generative-transformational grammar framework have offered a variety of in-depth analyses on the structural patterns of PVs. In particular, they have placed a special focus on allo-sentences[i] that are related to particle placement, describing fine-grained structural configurations based on semantic relationships between the constituents of PVs. For example, it has been argued that "the relationship of the noun phrase to the verb preceding it is not that of direct object" (Ramchand & Svenonius 2002 p. 388). Rather, it is contended that the noun phrase and the neighboring particle build a predicational structure—namely, a small clause (den Dikken 1995, Guéron 1987, Hoekstra 1988, Kayne 1985). This so-called small clause analysis focuses on the relationship between an object and a particle, as illustrated in the following example sentences where the italicised noun phrases have direct semantic relationships not with the preceding verbs, but rather with the particles that follow.

(1)   a. We talked [SC *the lady* out of her crazy schemes].
       b. They danced [SC *their days* away]. (Adapted from Hoekstra 1988, p. 115)

Other researchers, however, have challenged the small clause analysis, arguing that particles alone are often far from clear in the meaning needed to build small clause relationships with the neighboring noun phrases (*they let the pressure up*). Instead, they propose a complex predicate analysis, which states that the combination of a verb and a particle is stored in the lexicon of a language user as a single lexical entry with two linguistic parts (Chomsky 1955, Johnson 1991, Neeleman 1994, Stiebels & Wunderlich 1994, Zeller 2001).

Although both the small clause and the complex predicate analysis can provide sophisticated accounts of the structural properties of PVs in certain respects, these contradicting approaches have resulted in "a dramatic lack of consensus" in the discussion of the structural patterns of PVs (Ramchand & Svenonius 2002 p. 387). In addition, both approaches are limited in the sense that only sentence-level propositional meanings have been considered when describing the structural configurations of PVs. Provided that the structures of PVs, especially particle placement, are influenced by a number of variables, such as information structures (Bock 1977, Peters 2001) and the complexity of direct objects (Fraser 1966, Ross 1986), a more comprehensive analysis is needed that goes beyond sentence-level semantics.

Gries (2003) offered such a comprehensive analysis of PVs by considering a variety of factors in the investigation of transitive PVs in the British National Corpus. In the corpus analysis, he encoded variables that have been argued as affecting particle placement in previous research, namely, (a) four morphosyntactic (complexity of the direct object); (b) nine discourse-functional (last mention of the referent of the direct object); (c) four semantic (animacy of the direct object); and (d) four miscellaneous variables (register). In his reviews of the correlation coefficients between particle placement and these variables, higher correlation coefficients were obtained for certain variables, such as the complexity of the direct object and last mention of the referent for the direct object. These findings support the processing hypothesis that a speaker's assessment of the processing costs involved in the communication with hearers determines the choice of an utterance (whether to place a particle before or after an object). Gries (2003) further disclaimed the transformational-generative account for particle placement, arguing that the two structural patterns, i.e., [V OBJ Prt] and [V Prt OBJ], are simply not in a derivational relationship since each structure is characterised by the interplay between all the relevant variables and thus serves to achieve different communicative purposes.

Recently, Gilquin (2015) acknowledged the psychological plausibility of assigning idiosyncratic features to the structures of transitive PVs and expanded the research scope by including the intransitive structure of PVs, [V Prt]. She analysed the distribution and frequencies of the three structural patterns in two learner corpora representing French-speaking EFL learners' spoken and written production and compared these results with those in two native corpora of a similar nature. One of her major findings was that the native speakers and the learners showed the same tendency in the distribution of the three structures: the [V Prt] structure was produced most frequently, but the [V OBJ Prt] structure was produced least frequently in both groups. She also found that particle placement in the corpora was closely associated with the semantic variable of idiomaticity: there was "a strong association between [V OBJ Prt] and concrete movement on the one hand, and between [V Prt OBJ] and idiomaticity on the other" (p. 81). This observation, however, was further elaborated by Deshors (2016), who investigated semantic attractions of PVs in a French-speaking and a German-speaking learner corpora and revealed that "French and German

English learners (and different populations of English learners in general) may operate at different levels of semantic complexity when using PVs in their L2" (pp. 22-23).

Although these findings offer a new perspective for examining the production of PVs in L2 learners based on a multi-level analysis of the three structural patterns of PVs, they are difficult to generalise across different learner populations since the research was restricted to European-language-speaking learners of English, and the learner corpus only contained production data from advanced learners. In addition, the influential role of discourse information in placing particles was neglected as the study lacked investigation into the relationship between particle placement and discourse requirements, such as the complexity of the object and information structure. In an attempt to resolve these issues, the present study investigates the structural patterns of PVs produced by Korean-speaking EFL learners at three English proficiency levels and examines the influence that discourse requirements can have on the learners' particle placement.

METHOD

DATA COLLECTION

The data collected here were college students' argumentative essays extracted from a learner corpus, the Yonsei English Learner Corpus (YELC: Rhee & Jung 2012), and from a native corpus, the Louvain Corpus of Native English Essays (LOCNESS: Granger, Sanders, & Connor 2007). The population of the learners in the YELC was Korean EFL learners. As was the case for Gilquin (2015), which involved French-speaking learners, the selection of this particular learner population allowed for a more objective analysis of the data because the Korean language, like French, lacks PVs, a factor that obviates the need to consider L1 influence when explaining the learners' knowledge of PVs.

The learner samples were aligned at three proficiency levels based on the proficiency information provided by the YELC. Each learner's writing proficiency had been rated by trained native speakers of English according to the revised version of the Common European Framework of Reference for Languages[ii] (Verhelst, Avermaet, Takala, Figueras & North 2009). Since there were only 39 argumentative essays at C-levels (advanced level: YELC-ADV), the same number of argumentative essays were randomly extracted from B-levels (intermediate level: YELC-INT) and from A-levels (basic level: YELC-BAS). As a result, a total of 117 learner essays were compared to 39 essays written by native speakers of American English (LOCNESS-US).

DATA ANALYSIS

Each token of PVs in the sample writings was searched for with reference to a set of particles provided in Huddleston and Pullum (2002, p. 281). Among the particles listed in this study, 'home' and 'together' were eliminated from the current analysis because 'home' was far from being "grammaticalised enough to qualify as a particle" (Gilquin 2015, p. 60), and 'together' lacked the meaning of directionality, which is the core semantic property of a particle (Lakoff & Johnson 1980). As a result, the following 23 particles were selected and used for identifying PVs in the current analysis:

> aboard, about, across, ahead, along, apart, around, aside, away, back, by, down, forth, forward, in, off, (up)on, out, over, round, through, under, up

While these words help to identify PVs, one should not rule out the possibility that they can also be used as other grammatical categories than particles in a typical sentence. For

example, the word 'in' serves as a preposition rather than a particle in the sentence "He took the coin in the box". This phrasing contrasts with another sentence in which the same word is used as a particle "He dropped the report in on his way to work". For this reason, we scrutinised each token to filter out non-particle usage of the 23 words listed above.

The PVs were extracted from the corpora and then analysed in terms of two structural patterns: transitivity (i.e., intransitive vs. transitive) and particle placement (i.e., [V OBJ Prt] vs. [V Prt OBJ]). Transitivity of a PV was determined by the argument structure of its base form. For example, a PV was analysed as being transitive even when it was expressed in the passive voice (*the experiment was carried out*). In addition, when an intransitive verb (*come*) was combined with a particle and used transitively (*She came across the boy*), the PV was analysed as being transitive. Conversely, when a transitive verb (*pay*) was combined with a particle that projected an intransitive structure (*Their efforts really paid off*), the PV was analysed as being intransitive. The inspection of PVs according to their transitivity is expected to inform on whether these EFL learners underused particular structures of PVs and also whether that tendency was consistent across the learner groups at different English proficiency levels.

We further examined under what conditions a particle was dislocated from or put together with the verb in the transitive PVs. Two conditions were considered for that analysis: One discourse-functional and one morphosyntactic variable, which were found to be highly correlated with particle place (Gries 2003). First, the present analysis examined whether an object of a PV was mentioned in the previous discourse within 10 T-units (Hunt 1965). According to the givenness condition, old information tends to precede new information (Clark & Clark 1977, Gundel 1988), and thus the [V OBJ Prt] structure is preferred when the object has already been mentioned in the previous discourse. Second, particle placement was examined in relation to the complexity of the direct object. According to the end-weight principle, which states that the longer and syntactically more complex entity tends to appear later than the shorter and less complex one (Collins 1995, Hawkins 1994, Quirk, Greenbaum, Leech & Svartvik 1985, Thompson 1990), the [V Prt OBJ] structure is preferred when the object has a complex structure.

The syntactic complexity of an object was measured into one of three categories, namely, simple, intermediate, and complex, following Gries (2003). An object was categorised as simple when it consisted of a pronoun (*it*) or an article and a noun without any modifying phrase (*the ball*); it was coded as intermediate when it consisted of a noun phrase and a simple modifier, such as an adjective (*the blue ball*) and/or a prepositional phrase (*the ball on the table*). Finally, a complex object consisted of a noun phrase and a clause-level modifier (*the ball that she bought me*). Taking these discourse-functional and the morphosyntactic variables into consideration, we investigated whether the learners were as attentive to both variables as native speakers were when placing particles in PVs.

RESULTS

STRUCTURE TYPE

The proportion of occurrences of PVs was calculated by dividing the token frequency of PVs by the total number of lexical verbs. To meet the normal distribution requirement of the data, the proportions of intransitive and transitive PVs obtained from the sample texts were transformed into arcsine values (Sokal & Rohlf 1995). The arcsine-transformed proportions were then entered into an ANOVA having two factors – Structure type (intransitive and transitive PVs) and Group (YELC-BAS, YELC-INT, YELC-ADV, and LOCNESS-US).

The mean proportions of each structure type across the four groups are shown in Table 2, followed by a graphical illustration in Figure 1. The results revealed a main effect of Group, F(3, 152) = 13.291, *p* < .001, which suggests that the four groups differed significantly in their productions of PVs. However, there was no main effect of Structure type or an interaction between Structure type and Group. Post-hoc tests demonstrated that the effect of Group was driven by a significant difference between LOCNESS-US and the three learner groups (*p* < .001), as the native speaker group produced more PVs than every one of the learner groups. When the production of intransitive PVs was compared for the leaner groups and the native speaker group, LOCNESS-US showed a significantly higher proportion of intransitive PVs than did YELC-BAS and YELC-INT (all *p* < .05). However, no significant difference was found between any pair of the three learner groups (all *p* > .05). The same pattern was obtained for transitive PVs: LOCNESS-US had significantly more transitive PVs than YELC-BAS and YELC-INT (all *p* < .05), but the differences in the proportion of transitive PVs among the three learner groups were not significant (all *p* > .05). These results suggest that the learners produced PVs much less frequently in their essays than did the native speakers, a pattern reminiscent of previous findings showing that L2 learners generally underuse PVs (Dagut & Laufer 1985).

TABLE 2. Mean proportions and standard deviations for intransitive and transitive PVs across learner and native speaker groups

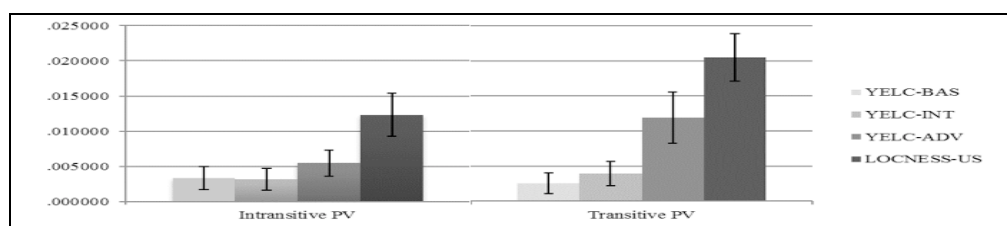| Group	Intransitive PV			Transitive PV		
	N	Mean	SD	N	Mean	SD
YELC-BAS	39	.00337	.0102	39	.0026	.0091
YELC-INT	39	.00316	.0097	39	.0040	.0107
YELC-ADV	39	.00544	.0116	39	.0119	.0228
LOCNESS-US	39	.01231	.0190	39	.0205	.0212

FIGURE 1. Mean proportions for intransitive and transitive Ps across learner and native speaker groups (error bars denote 95% confidence intervals)

It should be noted as well that, while there was no statistical difference between the learner groups for both intransitive and transitive PVs, the overall proportions of both types increased in concomitance with the learners' proficiency levels. In particular, the advanced learner group produced much more PVs than the other two learner groups did. The difference in the production patterns among the learner groups was statistically attested by an ANOVA that merged intransitive and transitive PVs as a single variable and compared group performance. Pair-wise comparisons across the groups showed that YELC-ADV was significantly different from YELC-BAS in the total production of PVs (*p* < .05). Although such a significant gap was not found between YELC-ADV and YELC-INT (*p* > .05), the total production of PVs in the former was distinctively higher than that in the latter, as indicated by the graphs in Figure 1.

In sum, the learner groups at all proficiency levels performed below the native speaker mark in their production of PVs (see Figure 1), but the increasing proportions of PVs along with the learners' proficiency levels also demonstrated certain developmental aspects in the L2 acquisition of PVs.

PARTICLE PLACEMENT

Among all the instances of PVs supplied by the corpora, transitive PVs were further analysed to investigate particle placement. Each occurrence of transitive PVs was scrutinised in terms of the position of a particle with reference to the verb and the direct object (i.e., [V OBJ Prt] vs. [V Prt OBJ]), as well as the discourse conditions, including the complexity of the object and whether or not the direct object of a PV had been mentioned in previous sentences.

Table 3 presents the token frequencies of the two transitive structures in the learner and the native corpora. Of the two structures, [V Prt OBJ] was produced more frequently than [V OBJ Prt] in every group. The difference of frequency between the two structures was also statistically significant, t(155) = 5.568, $p < .001$. For the individual groups, YELC-BAS and YELC-INT showed an overwhelming preference for the [V Prt OBJ] over the [V OBJ Prt] structure: there was no case where these learner groups produced the [V OBJ Prt] structure. Likewise, YELC-ADV relied heavily on the [V Prt OBJ] structure when this group produced transitive PVs. Although this advanced learner group produced 3 cases of [V OBJ Prt], their production of this structure was much less frequent than that of the native speaker group (11 cases). Overall, the production patterns of the learners demonstrated a strong preference for the [V Prt OBJ] structure over the [V OBJ Prt] structure.

TABLE 3. Token frequencies of structural types of transitive PVs across learner and native speaker groups

Structural Types	YELC-BAS	YELC-INT	YELC-ADV	LOCNESS-US
[V OBJ Prt]	0	0	3	9
[V Prt OBJ]	1	6	14	19

The participants' particle placement was also examined in terms of two major conditions where different types of PV structures were selected—a morpho-syntactic variable (complexity of the object) and a discourse-functional variable (whether or not the reference of the object was previously mentioned). Each of these variables is closely associated with two rules that affect sentence-formation: the end-weight principle (Collins 1995, Hawkins 1994, Quirk et al. 1985) and the givenness condition (Clark & Clark 1977, Gundel 1988), respectively. Recall that the end-weight principle states that a syntactically complex object appears later in a sentence, i.e., [V Prt OBJ], while the givenness condition requires an object with any old information status to appear earlier in the sentence, i.e., [V OBJ Prt].

Table 4 shows the token frequencies of the two transitive structures that the native speakers and the advanced learners produced under two conditions, i.e., complexity of the object and the previous mention of the object. Here the analyses focused on the production results of LOCNESS-US and YELC-ADV because YELC-BAS and YELC-INT did not have any [V OBJ Prt] structure, which made it impossible to analyse particle placement in these groups for the aforementioned discourse conditions.

TABLE 4. Token frequencies of transitive PV structures under two conditions

Group	Object Complexity	Previously Mentioned		Not Mentioned	
	Simple	VPO: 2	VOP: 6	VPO: 7	VOP: 3
LOCNESS-US	Intermediate	VPO: 0	VOP: 0	VPO: 3	VOP: 0
	Complex	VPO: 0	VOP: 0	VPO: 7	VOP: 0
	Simple	VPO: 3	VOP: 2	VPO: 2	VOP: 1
YELC-ADV	Intermediate	VPO: 3	VOP: 0	VPO: 6	VOP: 0
	Complex	VPO: 0	VOP: 0	VPO: 0	VOP: 0

Note. VPO = [V Prt OBJ]; VOP = [V OBJ Prt]

The investigation of particle placement in the collected data revealed that the native speakers were sensitive to both conditions. For example, when the object of a transitive PV

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was a complex or intermediate noun phrase, this group exclusively produced the [V Prt OBJ] structure (… *handing over a confidential confession of a murderer to the police* …), and they selected the [V OBJ Prt] structure only when the object was simple (… *taking many children away* ...), a pattern consistent with the end-weight principle. Further, when the reference of the object had been mentioned in the preceding discourse, the native-speaker group adhered to the givenness condition by choosing [V OBJ Prt] (6 cases) over the [V Prt OBJ] structure (2 cases). It was further revealed that when the two variables conflicted with each other, thus requiring different structures, the discourse-functional variable won over the morpho-syntactic one in the native speaker group. For instance, when the objects of transitive PVs were simple, but newly introduced, the [V Prt OBJ] structure, which was preferred by the discourse-functional variable, but dispreferred by the morpho-syntactic variable, was used more frequently than was the [V OBJ Prt] structure (7 cases vs. 3 cases).

The advanced learners, in contrast, showed limited sensitivity only to the morpho-syntactic variable, namely complexity of the object. When the complexity of objects was intermediate, the advanced learners always produced the [V Prt OBJ] structure, a tendency preferred by the end-weight principle. This tendency suggests that this group had achieved a certain level of proficiency sufficient enough to utilise end-weight information. Nevertheless, the lack of complex objects in this group rendered it difficult to examine whether they would observe the end-weight requirement in every condition. In addition, even when the object was structurally simple and light, the advanced learners still preferred the [V Prt OBJ] structure over the [V OBJ Prt] one (5 cases vs. 3 cases), which led us to question their consistent adherence to the end-weight requirement. Therefore, it may be argued that the advanced group, like the native speakers, observed the end-weight principle, while their sensitivity to the morpho-syntactic variable seemed weaker when compared to that of the native speakers.

On the other hand, a more noteworthy difference between YELC-ADV and LOCNESS-US was found in their sensitivity to the discourse-functional variable (whether or not the object was previously mentioned). It appeared that unlike the native speakers, who strongly adhered to the givenness condition, the advanced learners were impervious to this variable: YELC-ADV had eight transitive PVs whose objects were previously mentioned and thus were old information; yet, six of them involved the [V Prt OBJ] form (*take in the smoke*), the structure that was not opted for with the previously mentioned objects. Since the givenness condition requires a previously mentioned entity to appear earlier as old information, the advanced learners' dominant use of [V Prt OBJ] for previously mentioned objects indicated their insensitivity to this discourse requirement.

In summary, the analysis of particle placement revealed several important aspects of Korean EFL learners' acquisition of PVs. First, these learners across all proficiency levels underused the [V OBJ Prt] form and instead overwhelmingly used the [V Prt OBJ] structure, suggesting that [V Prt OBJ] was established as the default structure of transitive PV for these learners with the [V OBJ Prt] structure yet to be developed. Second, despite the overall underuse of [V OBJ Prt] among these learners, YELC-ADV produced three instances of this structure, thus reflecting the transitional nature of these learners in the development of verb-particle separation. The inspection of syntactic complexity of a direct object in a PV further demonstrated that the advanced learners obeyed the end-weight principle, as they placed the objects of intermediate complexity after the particle, i.e., [V Prt OBJ], although more cases involving complex objects are still needed to confirm that finding.

This structuring pattern exhibits the finding that the advanced learners may have been aware of the association between the morpho-syntactic requirement regarding the complexity of the object and the structures of transitive PVs, thus selecting a more appropriate form that corresponded to the end-weight principle. In contrast, the advanced learners seem to have been incapable of noticing the relationship between the givenness condition and particle

placement, thus exhibiting a persistent problem when structuring transitive PVs in accordance with the information status of the object.

DISCUSSION

UNDERUSE OF PVS

This corpus-based analysis of argumentative essays revealed that, regardless of their English proficiency, the Korean EFL learners underused PVs. The proportion of PVs in the learner corpora across all three proficiency levels was significantly lower than that in the native corpus. This finding is in line with the previous research, which has reported L2 learners' underuse or avoidance of PVs (Dagut & Laufer 1985, Laufer & Eliasson 1993, Sjöholm 1995). It has been argued that a majority of the problems regarding L2 acquisition of PVs are attributable to the lack of PVs in their L1 (Zarifi & Mukundan 2014). For example, Laufer & Eliasson (1993) found that Hebrew-speaking learners of English whose mother tongue does not have PVs significantly avoided PVs compared to Swedish-speaking learners of English whose mother tongue has PVs.

A similar evaluation is proposed for the results of the present study. As noted earlier, the Korean language, like Hebrew, has neither PVs nor any equivalent structure. In particular, Korean lacks particles. The lack of PV structures and particles in Korean can be discussed with reference to the typological differences between English and Korean. English is a satellite-framed language that expresses the path information in satellites to verb roots, such as particles and prepositional phrases, while Korean is a verb-framed language, which conflates the path information with the motion information contained in its verb roots (Choi & Bowerman 1991, Slobin 2006, Talmy 1975):

English: V + Particle[PATH]   e.g., *John came in*[PATH].
Korean: V[PATH] + V   e.g., *John-i   tul*[PATH]-*e   o-ass-ta.*
                   John.SUB enter-CONN come-PST-DECL
                   (Adapted from Choi & Bowerman 1991, p. 88)

The above examples clearly depict the typological difference between the two languages in their ways of delivering path information. The English sentence expresses the path or the direction of the agent's movement via the particle 'in', while the Korean counterpart expresses the same information via the verbal component 'tul', which corresponds to the English verb 'enter'. Considering that the basic sense of particles in PVs is "locational, directional, spatial, or [involving] movement" (Waibel 2007, p. 17) and that other extended senses can be captured by the basic sense (Boers 2004, Boliger 1971, Lindner 1983), the typological difference when marking path information may have rendered it difficult for the Korean EFL learners to understand the syntactic and semantic role of particles in PVs and, consequently, combine them with lexical verbs, leading to an underuse of PVs in their production.

Another possible cause of the learners' underuse of PVs may be the limited amount of their exposure to PVs. It has been argued that the quantity and quality of input play a determinant role in the acquisition of PVs (Chen 2013, Dagut & Laufer 1985, McPartland-Fairman 1989, Sjöholm 1995, Waibel 2007). Provided that the evident cross-linguistic difference between Korean and English effectively rules out the possibility of positive L1 influence in the Korean learners' acquisition of English PVs, it can be assumed that any knowledge of PVs that these learners have may have come from their instructional and/or environmental exposure to PVs. Accordingly, the finding that the learners did not produce as

many PVs in their writings as the native speakers may indicate that the learners had been provided with insufficient L2 input of PVs.

This input-based account receives further support from another finding in our study, namely, that the learners' use of PVs increased in concomitance with their English proficiency levels. This finding suggests that the amount of L2 input may greatly influence the learners' production of PVs. Indeed, the most severe underuse of PVs was found among the basic-level learners, who are assumed to have been provided the least exposure to PVs. In contrast, there was no significant difference in the proportion of either intransitive or transitive PVs between the advanced learners and the native speakers, indicating that the advanced learners had relatively ample exposure to the target structures.

The input-based account is especially relevant for particle placement, as the structure [V OBJ Prt], which is less frequent than [V Prt OBJ] and [V Prt] in naturally-occurring language data (Deshors 2016), was produced only by the advanced learners and the native speakers. It appears that the productive use of verb-particle separation may be possible only after receiving a certain amount of exposure to PVs, as this structure was not observed in the basic- and intermediate-level learners whose exposure to English might have been comparatively limited. In addition to the input-based account, however, several other factors may also account for the learners' difficulty with [V OBJ Prt]. This issue is further investigated in the following section.

PARTICLE PLACEMENT

The analysis of particle placement revealed the Korean EFL learners' difficulties in structuring transitive PVs. First, it was found that the learners across all proficiency levels significantly underused the [V OBJ Prt] form, i.e., neither the basic- nor intermediate-level learners produced this structure in their essays, and even the advanced learners evinced a restricted use of this form, producing only three cases in total. Another major problem found in the learners' particle placement was that they failed to integrate discourse information when producing PVs. While the native speakers selected between [V Prt OBJ] and [V OBJ Part] according to both the end-weight and the givenness condition, such conditional selection was absent in the basic- and intermediate-level learners' production of PVs. Even the advanced learners' particle placement was found to be relevant only for the end-weight condition with the givenness condition having no effect:

(2) a. Just *taking some grades off* wouldn't do it.
   b. … campaigns to *clean up opinion boards and commentary places* ...
   c. non-smokers have to inhale *the smoke* without a filtering process.
      … *breathing in cigarette smoke* could cause mental stress to non-smokers.
                              (Extracted from advanced learners' essays)

In (2a-b), the advanced learners adhered to the end-weight condition: the simple nominal object in (2a), *some grades*, was placed between the verb *taking* and the particle *off,* while the complex nominal object in (2b), *opinion boards and commentary places*, is placed after the PV *clean up*. In (2c), however, the givenness condition was violated as the direct object *cigarette smoke*, though its referents had been previously mentioned, was placed after the PV *breathing in*.

The problems that the learners of our study persistently have in terms of particle placement may have arisen from a variety of language-internal and language-external factors. In this section, three major factors are offered as the main loci of these learners' difficulties with particle placement: L1 interference, cognitive demands, and a lack of instruction on

particle placement at the discourse level.

As was the case for the Korean EFL learners' general underuse of PVs, their reluctance to apply the separation of verb and particle — i.e., [V OBJ Prt] — may have been caused by the cross-linguistic differences between Korean and English. The English language encodes manner and path information in two separable linguistic components, i.e., verbs and particle, respectively, while the Korean language integrates the two types of information into a non-separable phrase consisting of two verbal components. Influenced by such verb-framed characteristic of the Korean language, the learners in the present study might have experienced difficulty in separating verbs and particles in their production of transitive PVs.

Another major source of problems related to the learners' particle placement can be found in the cognitive demands imposed on the learners when they were required to produce two different structures of a transitive PV and associate this syntactic knowledge with the discourse information. First of all, the learners' production of the two structural patterns presupposed their acquisition of the lexico-syntactic knowledge of each structure, which placed great cognitive demands on them. The lower-level learners' syntactic bias toward [V Prt OBJ], therefore, might be explained in terms of the relatively less cognitive load associated with the production of this structure, for as Gilquin (2015, p. 64) pointed out, "the [V Prt OBJ] construction corresponds to the basic transitive scenario of an agent acting upon a patient [and] it requires less processing effort." In other words, the lower-level learners may have acquired only the [V Prt OBJ] structure for transitive PVs, which is syntactically less complex and thus cognitively less demanding than the [V OBJ Prt] structure (den Dikken 1995; Johnson 1991).

Advanced learners, on the other hand, may have experienced a different kind of cognitive burden when required to produce different structures of PVs according to the conditions of the discourse. It is generally argued that L2 learners experience cognitive difficulties when integrating more than two sources of information (Sorace 2011), for example, the syntactic information of PV structures and the contextual conditions in an ongoing discourse. In particular, relative to the less demanding cognitive load required for the end-weight principle where the learners had to integrate two types of information — the structure of a PV and the complexity of the object — within a sentence-level domain, the cognitive demands required for the givenness principle may have been even greater since the learners had to go beyond the sentence-level domain and refer back to the previous discourse in order to integrate their structure knowledge with the information structure. Such increased cognitive burdens may have hindered the advanced learners from observing the givenness condition, whereas the relatively less cognitive demands associated with the end-weight condition may have allowed the learners to easily integrate the relevant information under this discourse condition.

Last but not least, the learners' lack of learning experience with particle placement at the discourse level may also have been related to their underuse of [V OBJ Prt] and their weak sensitivity to the discourse conditions in the current study. A substantial body of previous L2 research has reported that acquiring and deploying discourse knowledge in written production poses a major challenge for EFL learners (Callies & Szczesniak 2008, Kang 2004, 2005, Kim & Kim 2005, Kim & Yoon 2014, Marefat 2005, Park 2014). Nevertheless, systematic approaches to teaching discourse components in the EFL setting have received little attention with an overemphasis instead placed on teaching linguistic forms and structures (Muncie 2002). In this regard, the results of the current study point to the need to incorporate the discourse function into the language form in the English language teaching and learning practice. Indeed, as Kim and Kim (2005 p. 8) have argued, EFL teachers should "help their students understand that grammatical rules and linguistic forms aid in clear understanding of meaning and are always related to its function in the discourse."

Particularly, in the context of the current study, teaching students the relationship between the structure of English PVs and the specific discourse requirements that realise relevant structures will help these learners to better understand the precise functions of English PVs in discourse and ultimately lead them to notice the requirements of the discourse and produce contextually appropriate PVs.

PEDAGOGICAL IMPLICATIONS

PVs are of great importance in English language learning and teaching since they are very frequently used both in spoken and written communication (Biber et al. 1999). In addition, PVs are far more productive than other types of verbs, as a great number of different meanings can be expressed by combining only a small number of lexical verbs and particles (Gardner & Davies 2011). Despite their importance, however, the present study found that PVs were significantly underused in the Korean EFL learners' argumentative essays, regardless of their individual English proficiency levels.

Considering that one of the major causes of this problem is the lack of PVs in the learners' mother tongue, a special effort should be made to prevent transfer of irrelevant L1 features and help the learners acquire new constructional knowledge of PVs (Goldberg 2016). For example, teaching PVs in comparison with one-word synonyms may conceal the important characteristics of particles as satellites and increase the risk of activating and eventually transferring the verb-framed properties of Korean to the production of PVs. Rather, learners should be taught to be more aware that PVs are representative characteristics of English as a satellite-framed language and that the semantic prototype of particles is path information (Waibel 2007).

The present study also ascribes the Korean EFL learners' underuse of PVs to their limited exposure to PVs. As English classrooms are the primary source of input in the EFL context (Washburn 2001), English teachers should commit to providing learners with greater exposure to PVs by using a variety of authentic language data that contain a sufficient number of PV examples. This type of instruction will help the learners perceive the frequent use of PVs in natural environments used for English.

Another problem related to the learners' PVs is that they are incapable of using discourse-functional information when producing the two structural patterns of particle placement, i.e., [V Prt OBJ] and [V OBJ Prt]. The problem can possibly be ascribed to the common ways of teaching particle placement in the EFL classrooms, wherein an exclusive focus is placed on the NP type of objects (noun vs. pronoun: *turn it on* vs. **turn on it*) as a sole variable for particle placement (Lee 2009; Park 2013). This approach can lead L2 learners to misunderstand that the placement of nominal objects and particles (*turn the radio on* vs. *turn on the radio*) is an arbitrary decision. Therefore, these learners should be taught to look for other influential variables, keeping in mind that PVs construct a comprehensive knowledge system that integrates a variety of linguistic aspects, including syntax, semantics, and information structure. For example, teachers can present a sample dialogue of English conversation between two native speakers wherein an ample number of transitive PVs are used and ask learners what types of discourse conditions are commonly observed either for [V OBJ Prt] or [V Prt OBJ]. It will be also fruitful to involve learners in pair-work in which they can evaluate their partner's writing by examining whether the particles of PVs have been correctly placed according to the necessary variables.

LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

In this article, we highlighted the most neglected, but still important, issues in the L2 acquisition of PVs — their structural variations and major contextual variables for particle placement. Although the current findings are meaningful in the sense that specific areas of difficulties in learning PVs were identified, further studies are needed to generalise these findings to a broader range of ESL or EFL contexts.

First, the present study focused only on the corpora of argumentative essays; therefore, future research can expand on this framework to investigate the corpora of other written genres (narratives or research papers) or those of spoken English. Another limitation is that, despite the considerable number of essay samples, the total token frequency of PVs was found to be quite low in the current corpora. Construction of mega-size L2 learner corpora using various L1 backgrounds would render the analysis more valid and reliable.

Moreover, the finding that the L2 learners are far less capable of associating particle placement with discourse-functional variables implies that the knowledge of English PVs and particle placement has been partially entrenched for these learners. In this regard, it is highly probable that these learners may have difficulties with PVs in diverse areas. Such general problems surrounding the learners' acquisition of PVs, therefore, call for more systematic and extensive approaches that can encompass a broader variety of influential factors, such as the degree of idiomaticity and definiteness of the object, so as to identify and assess individual learner problems in multifaceted manners.

ENDNOTES

[i] Allo-sentences refer to "semantically equivalent, but formally and pragmatically divergent sentence pairs" (Lambrecht 1994, p. 4).

[ii] Three new levels — i.e., A1+, B1+, and B2+ — have been added in the revised framework, resulting in a nine-level scale: A1, A1+, A2, B1, B1+, B2, B2+, C1, and C2. The revision was made to make the six-level scale of the CEFR comparable to the nine-level scale of the College Scholastic Aptitude Tests in Korea (Rhee & Jung 2014).

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