

L2 Learners' Use of Verb Transitivity Information in English Written Production*

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[Abstract]

This study examined whether L2 learners were able to make use of two types of English verb transitivity information in written production. Thirty-one L2 learners of English took part in a written production task, in which they were asked to provide a complete grammatical sentence for thirty-nine English verbs varying in degree of transitivity. The verbs were selected to represent the transitivity bias continuum, ranging from intransitive verbs to highly transitive verbs. The results of the study showed a significant positive correlation between the percentage of transitive use per verb and each verb's transitivity bias quotient. This was mainly due to fewer uses of the transitive construction for the intransitive verbs, indicating that the L2 learners' knowledge of verb subcategorization information was reflected in their written production. A higher rate of ungrammatical sentences was found for intransitive verbs, supporting claims that intransitive verbs pose more difficulty in L2 acquisition. The results of the present study suggest L2 learners display different degrees of sensitivity regarding the nature of verb subcategorization and verb transitivity bias.

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Key Words: verb transitivity information, verb subcategorization, verb bias continuum, written production, L2 acquisition

1. Introduction

Successful parsing of a sentence entails not only building a phrase structure tree that matches the received input, but also making accurate predictions regarding the linguistic categories that are most likely to follow. In order to make these predictions, two kinds of verbal information must be stored and accessed: verb subcategorization information and verb bias information. Verb subcategorization includes information regarding a verb and its complement: whether a verb requires a complement or not, and also the type of complement that each particular verb requires. In contrast, verb bias information is related to the usage-based frequencies for the different sentence frames in which different verbs appear. For example, verb subcategorization information specifies that *watch* and *propose* are both transitive verbs, and verb bias information specifies that the verb *watch* is more likely to select a noun phrase as a direct object complement (*I watched the movie*), whereas the verb *propose* more often selects a sentential complement (*Bill proposed that we reduce the budget*), or no complement at all (*Bill proposed*).

The role that the successful acquisition and use of verbal information plays in language processing has been widely recognized in the field of second language acquisition, leading to an abundance of research investigating the acquisition and use of different types of verbs by L2 learners of English (Balcom 1997; Chung 2014; Montrul, 2001; Ju 2000). Most of these studies have been centered around the question of whether L2 learners have fully acquired verb subcategorization

information and are sensitive to the differences between transitive and intransitive verbs.

However, relatively few studies have investigated L2 learners' knowledge of verb bias information, such as whether L2 learners are sensitive to the statistical frequencies with which an optionally transitive verb is used with or without a complement. Furthermore, the few previous studies that have inquired into L2 learners' acquisition of verb bias information have adopted a distinct categorization approach in constructing the experimental stimuli by dividing transitive verbs into subgroups of transitively-biased vs. intransitively-biased verbs (Dussias, Marful, Gerfen & Molina, 2010), or high-transitive, mid-transitive and intransitive verbs (Yang & Kim 2018).

This type of strict categorization of verbs poses several problems because verb transitivity bias is a continuous variable in naturally-occurring speech, and not a categorical variable with a clear-cut boundary between transitively-biased and intransitively-biased verbs. Therefore, conducting experimental studies with categorized verbal stimuli may yield misleading results regarding L2 learners' representation of verb bias information. In order to investigate the nature of L2 learners' sensitivity to verb transitivity bias, the experimental stimuli must be constructed to more accurately represent the full range of transitivity in English verbs, from obligatorily intransitive to highly transitive verbs.

The present study examines whether Korean L2 learners are sensitive to graded differences in transitivity bias along the English verb bias continuum through a written sentence production task. The nature of the grammatical errors found in the L2 written production data due to misuse of verb transitivity information are also explored. By employing experimental stimuli which more accurately reflect the range of verb bias frequencies in naturally-occurring speech, the results of the present study

are expected to provide a clearer window into L2 learners' knowledge of verb transitivity information in English.

The organization of this paper is as follows. The next section provides a review of the previous studies in L2 acquisition literature regarding verb subcategorization and transitivity bias information. The research questions and predictions of the present study are presented next, followed by the experimental methodology and results. The paper concludes with a discussion of the relevant findings and implications for future studies.

2. Literature Review

In English, verbs are grouped into either the transitive or intransitive verb category based on whether they take a complement or not. For example, verbs such as *watch*, which take a direct object belong to the transitive verb category, whereas verbs such as *appear* are not allowed to take a direct object and therefore belong to the intransitive verb category. Intransitive verbs are further divided into two subcategories: unaccusative verbs and unergative verbs. Although both unaccusative and unergative verbs share similarities in that they both do not allow a direct object, they differ in that the subject of an unaccusative verb such as *disappear* takes the thematic role of theme while the subject of unergative verbs such as *laugh* will assume the role of agent.

Most previous studies in L2 acquisition have investigated whether L2 learners have successfully acquired verb subcategorization information, focusing on testing whether L2 learners are sensitive to the differences between transitive and intransitive verbs through various tasks, including acceptability judgment tasks and oral/written

production tasks (Balcom 1997; Brooks, Tomasello, Dodson & Lewis, 1999; Montrul, 2001; Oshita, 2000). The results of these studies suggest that for L2 learners, acquisition of the intransitive construction poses more difficulty compared to the transitive construction. Difficulty with intransitive verb use was observed for both unaccusative and unergative verbs, and was found in L2 learners from various L1 backgrounds, including Korean, Japanese, French, Dutch, and Turkish (Montrul, 2001; Oshita, 2000; Yip, 1995). Furthermore, studies in L1 acquisition showed similar results, with monolingual child learners of English showing a general preference for the transitive structure, manifested as a tendency to produce overgeneralization errors in which an intransitive verb is used incorrectly in a transitive construction such as *'The boy disappeared the toy'* (Friedmann, Tarnato, Shapiro & Swinney 2008).

In contrast to verb subcategorization information, which neatly categorizes verbs into distinct categories, verb bias information specifies the relative probabilistic frequencies for the different syntactic constructions that each verb appears in. Experimental studies in psycholinguistics have shown that verb bias information plays a crucial role in the construction of a mental syntactic representation during parsing (MacDonald, Pearlmuter & Seidenberg 1994; Pickering & van Gompel 2006). Sufficient exposure to naturally-occurring speech is necessary to acquire these probabilistic frequencies and enable accurate predictive analyses of the incoming linguistic input during sentence processing.

Most of the experimental studies concerning verb bias effects on online syntactic processing have been centered around the probabilistic frequencies with which a transitive verb is accompanied by a noun phrase (NP) complement or a sentential complement (SC). For example, in a series of self-paced reading and eyetracking experiments, adult monolingual speakers of English were able to use their knowledge of verb bias to predict whether a verb was more likely to be followed by an NP

complement or SC (Ferreira & Schotter, 2013; Gamsey, Pearlmutter, Mylers & Lotocky, 1997; Trueswell, Tanenhaus & Kello 1993). Subsequent studies with L2 learners of English have shown evidence that with a substantial amount of exposure to naturally-occurring speech data, highly proficient L2 learners can also become sensitive to verb bias information and can use these probabilistic frequencies to guide their real-time parsing strategies (Dussias & Cramer-Schaltz 2008; Frenck-Mestre & Pynte 1997).

In contrast to the abundance of research on the probabilistic frequencies of NP-biased vs. SC-biased verbs, relatively fewer studies have investigated verb transitivity bias. Instead of focusing on the probability of a verb taking a particular complement, verb transitivity bias specifies the relative frequencies with which an optionally transitive verb is used with or without a complement. Optionally transitive verbs are verbs that can be used grammatically in both transitive and intransitive structures. However, optionally transitive verbs may differ in the degree of transitivity, i.e., the frequency with which they occur in transitive constructions. For example, *visit* and *stop* are both optionally transitive verbs that are allowed in transitive and intransitive structures, as shown in (1) and (2) below.

(1) Transitivity-biased verb

- a. The student visited the teacher yesterday. (transitive frame)
- b. The student visited yesterday. (intransitive frame)

(2) Intransitivity-biased verb

- a. The policeman stopped the car suddenly. (transitive frame)
- b. The policeman stopped suddenly. (intransitive frame)

Although both transitive and intransitive uses are grammatically acceptable for *visit* and *stop*, the two verbs differ in verb transitivity bias: the ratio of transitive versus

intransitive uses found in naturally-occurring speech data for *visit* is 9.67 : 1, and 0.29:1 for *stop*.¹⁾ Therefore, *visit* is more likely to be found in a transitive sentence structure, and is referred to in the literature as a 'high-transitive' or 'transitively-biased' verb. In contrast, *stop* is more likely to appear in intransitive structures and referred to as a 'low-transitive' or 'intransitively-biased' verb (Gahl, Jurafsky & Roland, 2004). Previous studies have found that knowledge of verb transitivity bias affects how native English readers process syntactically ambiguous sentences (Dede 2010; Staub 2011) and that impaired knowledge of verb transitivity bias information in aphasics influences sentence comprehension (Kim & Thompson 2000; Shapiro & Levine 1990).

A potential concern regarding the few existing studies on verb transitivity bias is that the experimental stimuli used in these studies were based on a split-group design, so that verbs were classified into two or three sub-categories. However, as discussed briefly in the introduction, transitive verbs cannot be divided into a strict dichotomy. In contrast with the transitive verb versus intransitive verb dichotomy, where transitivity is a categorical variable, transitivity bias information represents the probabilistic frequencies with which a verb is observed in transitive and intransitive constructions and is therefore a continuous variable. Therefore, the results of studies which employ experimental materials based on a strict dichotomous categorization may result in a misrepresentation of how verb transitivity bias information is stored and used. Transitive verbs which are grouped into the same category will differ in the actual probabilistic frequencies with which they are used in transitive and intransitive sentence structures, and treating all of these verbs as a single homogeneous group is very likely to mask any differences among these verbs that may have been present in the data.

Building on the findings from previous studies in the monolingual and L2

literature, the present study aims to investigate how L2 learners' knowledge of verb subcategorization and verb transitivity bias is reflected in their written production. By including both the categorical variable *verb subcategorization information* and the continuous variable *verb transitivity bias information* as factors, the results of this study are predicted to yield a more accurate mental representation of L2 learners' knowledge of verb information in English. The research questions that will be addressed in the present study are as follows:

- (2a) Are L2 learners sensitive to the different nature of verb subcategorization and verb transitivity bias information in English verbs? If so, is this knowledge reflected in their written production data?
- (2b) Is the pattern of grammatical errors found in the L2 production data consistent with previous studies investigating L2 acquisition of transitivity?

3. Research Method

3.1. Participants

The participants were thirty-eight undergraduate students who were taking courses in the English department at a large Korean university. Before taking part in the main experiment, the participants completed a language background questionnaire which collected information including self-ratings of overall English proficiency, proficiency in reading, writing, listening and speaking, and also information regarding experience residing in an English-speaking country. A comprehensive test designed to evaluate English proficiency in grammar, vocabulary, reading and writing was also administered prior to the main experiment. Participants who reported having spent

longer than twelve months in an English-speaking country did not take part in the main experiment in order to control for exposure to naturally-occurring speech in an English-speaking environment. This resulted in the exclusion of seven participants, and a total of thirty-one participants took part in the main written production task. A summary of the participants is presented in Table 1.

Table 1. Summary of L2 Participants' Background Information

	Age	L2 proficiency ²⁾	Self-rated proficiency ³⁾				
			R	W	S	L	O
Mean	25.09	23.58	3.94	2.87	2.52	3.35	3.16
SD	2.52	3.34	0.67	0.81	0.72	0.91	0.52

3.2. Experimental Materials

Based on the dataset of 281 English verbs compiled by Gahl, Jurafsky and Roland (2004), the statistical frequencies of the transitive and intransitive occurrences of each verb were used to calculate the transitivity quotient by dividing the total number of occurrences in transitive structures by the number of occurrences in intransitive structures ($TQ = TR \text{ frequency} / IT \text{ frequency}$). Instead of dividing the transitive verbs into three distinct groups as was originally done in the Gahl et al. (2004) database, calculating the transitivity quotient for each verb provides an objective measure of the transitivity bias of each verb which is continuous in nature and therefore more accurately reflects how verbs are used in naturally-occurring speech.

After the transitivity quotient for each of the 281 verbs was calculated, thirty-nine verbs were selected to represent the transitivity bias continuum, ranging from intransitive verbs with a transitivity quotient of 0 to high transitive verbs with a

transitivity quotient of 76 ($M=10.68$, $SD=18.46$). Nine verbs were obligatorily intransitive verbs for which use in a transitive sentence structure resulted in ungrammaticality. The remaining thirty verbs were transitive verbs and seven of these verbs had a transitivity quotient of 1 or less. A transitivity quotient of 1 implies that a verb is equally likely to be used in a transitive or intransitive construction, and a transitivity quotient of less than 1 indicates that although this verb may be used in a transitive structure, it is used with higher frequency in intransitive structures. Detailed information regarding the range and distribution of the verbs used as experimental stimuli is presented in Table 2.

Table 2. List of Experimental Verbs and Transitivity Quotients

review (76.00)	offend (5.50)	fight (0.45)
confirm (61.00)	entertain (4.45)	stop (0.29)
kill (56.00)	estimate (4.00)	sink (0.18)
encourage (40.00)	perform (3.22)	stand (0.04)
announce (33.50)	check (3.05)	advance (0)
propose (24.50)	draw (2.52)	arrive (0)
order (20.00)	pull (2.34)	die (0)
criticize (17.33)	kick (1.93)	disappear (0)
attack (14.71)	drink (1.84)	emerge (0)
hire (12.17)	wash (1.72)	succeed (0)
choose (11.60)	hunt (1.00)	remain (0)
visit (9.67)	pass (0.64)	fall (0)
study (6.30)	prove (0.54)	wait (0)

The thirty-nine English verbs were randomly ordered in a list to create a written production task. In contrast to previous studies probing written production which presented sentence fragments and required participants to complete the sentence, the

present study allowed the participants to freely construct a sentence containing the required word. Providing a sentence fragment for the participants to complete such as *Adverb + Subject + Verb* _____ (e.g., *While the politician stopped _____*) may have advantages in that the resulting production data is limited to the transitive or intransitive use of the verb in question. However, in the process of completing a list of similar sentence fragments all ending with a verb, it is also likely that the participants will perceive that the sentence may be completed with either the transitive or intransitive use of the verb. In order to rule out the possibility of the participants becoming aware of the purpose of the task, the present study opted to simply present a list of words which were to be used in a complete and grammatical sentence.

3.2. Experimental Procedure

The written production task was administered to the L2 learner participants in a quiet classroom after they had completed the English proficiency test and the language background questionnaire. Instructions were written on the worksheet and also explained orally. The participants were asked to provide a complete and grammatical sentence for each of the thirty-nine English words on the worksheet. The entire procedure took approximately forty minutes.

3.3. Data Coding and Analysis

The written production data was coded based on an adapted version of the data coding framework in Gahl et al. (2004). The sentences were primarily coded as either transitive (TR) or intransitive (IT) based on whether the verb was followed by

a complement or not. Transitive verbs were further classified into one of three subcategories: *TR_NP* if a noun phrase direct object followed the verb, *TR_SC* if the verb took a sentential complement, *TR_PT* if the verb was followed by a particle and NP object, and *TR_PA* if the transitive verb was used in a passive sentence structure. The intransitive uses of the verb fell into one of two subcategories: *IT_(ADV)* if the sentence ended with the intransitive verb or an adverbial clause following the verb and *IT_PT* if the intransitive verb was used with a particle but without a complement. Transitive and intransitive uses of the verb that resulted in ungrammatical sentences were classified under the *ungrammatical* category. Sentences in which the given word was not used as a verb but as some other grammatical category were classified as *other*. A summary of the coding framework used in the present study with examples for each subcategory is presented In Table 3.

Table 3. Coding Framework

Type	Subtype	Example
Transitive (TR)	TR_NP	<i>The boy <u>kicked</u> his brother.</i>
	TR_SC	<i>She <u>announced</u> that class was canceled.</i>
	TR_PT	<i>Don't <u>fight</u> with your friends.</i>
	TR_PA	<i>He was <u>offended</u> by the guard.</i>
Intransitive (IT)	IT_(ADV)	<i>You must <u>study</u> hard.</i>
	IT_PT	<i><u>Stand up</u> everybody.</i>
Ungrammatical		<i>*The fog was <u>disappeared</u>.</i>
Other		<i>We talked about it in <u>advance</u>.</i>

4. Results

The summarized results of the coded data obtained as results of the written production task are presented below in Table 4.

Table 4. Verb Use by Category

Type	Subtype	Number of occurrences (percentage of all answers)
Transitive (TR) n = 719 (59.47%)	TR_NP	574 (47.48%)
	TR_SC	38 (3.14%)
	TR_PT	46 (3.80%)
	TR_PA	61 (5.05%)
Intransitive (IT) n = 325 (26.88%)	IT_(ADV)	312 (25.81%)
	IT_PT	13 (1.07%)
Ungrammatical		48 (3.98%)
Other		117 (9.67%)

A total of 1209 sentences were obtained as data from the written production task. Transitive uses of the thirty-nine verbal stimuli constituted 59.47% of the entire dataset, and intransitive uses made up 26.88%. An analysis of the transitive sentence structures revealed that a transitive structure with a verb followed by an NP direct object occurred most frequently, accounting for 79.83% of all transitive structures, followed by the passive structure (8.48%), a verb + particle sequence (6.40%) and a sentential complement (5.29%). Transitive structures with a sentential complement were used most frequently with the five verbs *announce* (n=10), *estimate* (n=8), *prove* (n=6), *confirm* (n=5) and *propose* (n=4), which accounted for 86.84% of the total number of cases in which a sentential complement was used. Transitive constructions with the verb followed by a particle were used most frequently with the

‘verb + particle’ sequences of *fight with* (n=14) and *wait for* (n=11), accounting for 54.35% of this subcategory. The passive structure subcategory constituted 8.48% of all transitive constructions, and was not dominated by a few particular verbs, but showed relatively equal distribution.

For the intransitive constructions, which made up 26.88% of the data, 96% of these sentences ended with the verb or the verb followed by an adverbial clause. Thirteen cases (4%) were sentences where the verb was followed by a particle. Eight of these thirteen cases were accounted for by the ‘verb + particle’ sequence *stand up*.

Of the forty-eight ungrammatical sentences, twenty-two were found for transitive verbs and twenty-six for intransitive verbs. All twenty-six of the ungrammatical sentences with intransitive verbs were due to incorrect transitive use of an intransitive verb (**I succeed studying*). Ungrammaticality due to misuse of verb subcategorization information occurred for six out of the nine intransitive verbs used as experimental stimuli. The twenty-two ungrammatical sentences with transitive verbs were found for eleven out of the thirty transitive verbs, and ten of these errors were due to use of an incorrect complement for the verb *propose*, such as **Bill proposed Mary*. A correlational analysis with English proficiency (measured as the total score obtained on the English proficiency test) and number of ungrammatical sentences showed that the two factors were not significantly correlated ($r=.22$, $p=.21$)

Regarding the 117 cases where the given word was used as a grammatical category other than a verb, the most cases occurred for the verbs *advance* (n=27), which was used most frequently in the phrase ‘*in advance*,’ *entertain* (n=14), which was used in the noun form *entertainer*, and *order* (n=9), which was used as a noun.

Next, further analyses were conducted with the purpose of examining whether the L2 learners in this study consistently showed a preference for transitive and intransitive uses of a verb that correlated with the probabilistic frequencies in the

corpus data obtained from native English speakers. First, a correlation analysis was conducted with the two factors of transitivity quotient and the actual percentage of transitive use for each verb obtained in the written production task. A significant positive correlation was found between transitivity quotient and percentage of transitive use ($r=.45$, $p=.005$) for the thirty-nine verbs employed as experimental stimuli. A second correlation analysis was conducted for the two factors of transitivity quotient and actual transitive use for the optionally transitive verbs only (excluding the nine intransitive verbs). The results of the second correlation analysis yielded a positive correlation that was marginally significant ($r=.35$, $p=.06$).

When each transitive use per verb was coded as 1 and each intransitive use was coded as 0, The mean proportion of transitive to intransitive sentence structures used for the intransitive verbs was 0.21 and 4.89 for the thirty transitive verbs. The difference in frequency of transitive use for the two verb categories was statistically significant ($t=11.76$, $p<.0001$).

5. Discussion

This study investigated Korean L2 learners' sensitivity to verb subcategorization and verb transitivity bias information in English by collecting written production data for thirty-nine English verbs spanning the transitivity bias continuum. In contrast to most previous studies on L2 learners' knowledge of verb transitivity bias, the present study did not categorize verbs into distinct subgroups, but treated verb transitivity bias as a continuous variable. This allowed for a more accurate representation of the wide range of probabilistic frequencies with which verbs are used transitively and intransitively in naturally-occurring speech. Furthermore, instead of using a sentence

completion task where participants are presented with a sentence fragment which mandates the use of the experimental stimuli as a verb, the present study allowed the participants to freely use the words in a written production task. This experimental methodology presents advantages in that it does not draw attention to the purpose of the task, but still resulted in more than 90 percent of the obtained written productions as valid data eligible for analysis.

The first research question concerned whether L2 learners are sensitive to the different nature of verb subcategorization and verb transitivity bias information in English verbs. The analysis of the written production data showed that when the percentage of transitive uses compared to intransitive uses per verb was averaged across all participants, frequency of transitive use was positively correlated with the transitivity quotient. The significant positive correlation implies that the participants in this study were using the thirty-nine verbs in transitive and intransitive structures with probabilistic frequencies that matched how these verbs were actually used by native English speakers in the corpus data.

However, when the correlation analysis between percentage of transitive use and transitivity quotient was conducted with only the thirty transitive verbs, the results were marginally significant. These results indicate that although the L2 learners showed a trend toward using optionally transitive verbs in transitive structures to a degree that patterned with the use of these verbs in naturally-occurring speech data, this trend was not quite statistically significant. The significant positive correlation between degree of transitive use and transitivity quotient for the entire set of verbal stimuli was therefore mainly driven by the low proportion of transitive use compared to intransitive use for the intransitive verbs (0.21) compared to the transitive verbs (4.89).

These analyses suggest that the degree of sensitivity shown by the L2 learner

participants to the two types of verbal information differ. First, the significantly smaller proportion of transitive uses for the intransitive verbs compared to the transitive verbs indicate that the L2 learners have acquired verb subcategorization information. Although acquisition of verb subcategorization was not complete (hence the twenty-six ungrammatical uses of intransitive verbs in transitive constructions), the L2 learners were able to use this knowledge in their written production to a certain degree that reflected transitive vs. intransitive differences. The second correlation analysis excluding the intransitive verbs showed that the participants had not yet acquired sensitivity to the continuous nature of verb transitivity bias information to a degree that resulted in patterns of transitive use in written production that correlated with the frequencies found in naturally-occurring speech.

A possible reason for the lack of a significant positive correlation between actual transitive use and transitivity quotient may be attributed to the amount of exposure the participants had to naturally-occurring speech in English. Exposure-based accounts of L2 acquisition claim that a sufficient amount of exposure to language is critical to obtain native-like proficiency. Previous studies show that the relative amounts of exposure to L1 and L2 play an important role when processing difficult sentences or sentences with ambiguity (Dussias & Sagarra, 2007; Dussias & Cramer-Schaltz, 2008). Also, studies have shown that with sufficient input, it is possible for late L2 learners to reach a level of sensitivity to probabilistic frequencies in naturally-occurring speech that is equal to that of native speakers.

A second possibility for the non-significant correlation is more methodological in nature. The number of stimuli in the present task was limited due to concerns regarding loss of focus on the part of the participants with too long a task. However, it is possible that increasing the number of optionally transitive verbs could result in a wider range of data obtained, which might push the marginally significant positive

correlation found in the present study towards statistical significance.

The second research question concerned the pattern of grammatical errors due to misuse of verb transitivity information found in the L2 production data. The results showed that the proportion of ungrammatical sentences due to errors in verb usage constituted 3.93% of the entire dataset, suggesting that the L2 learner participants had obtained a relatively high level of proficiency in the use of verb transitivity information. A greater number of errors was found for the intransitive verbs, with a mean number of 2.89 errors per intransitive verb when averaged across participants compared to a mean of 0.73 errors per transitive verb. Furthermore, the nature and pattern of the grammatical errors found for transitive and intransitive verbs differed. All of the errors found in with intransitive verbs were due to overgeneralization of the transitive structure and were distributed across six out of nine (66.67%) of the intransitive verbal stimuli. In contrast, grammatical errors for the transitive verbs were limited to approximately a third of the transitive verb stimuli (11 out of 30), and one verb in particular (*propose*) accounted for 45.45% of these errors.

The difficulties that the L2 learner participants displayed in using the intransitive verbs stemmed from incorrect knowledge or application of verb transitivity and was of a more general nature, applicable across the majority of intransitive verbs. On the other hand, the grammatical errors observed for the transitive verbs was more lexically specific in nature, with roughly half of all errors attributed to the use of an incorrect complement for a single verb. These results are consistent with previous studies in L2 acquisition, where L2 learners from various L1 backgrounds have been observed to show more difficulty in the acquisition of intransitive verbs, resulting in the overgeneralization of the transitive construction and incorrect passivization errors (Montrul, 2001; Oshita 2000, Yip 1995). A similar pattern has also been observed in the errors of child L1 learners of English. At twenty-three to twenty-seven months of

age, L1 children show a general preference for the transitive construction that is manifested as a tendency for a greater number of overgeneralization errors in which an intransitive verb is incorrectly used in a transitive construction, such as '*The boy disappeared the toy*' (Friedmann, Tamato, Shapiro & Swinney, 2008). Therefore, the pattern of grammatical errors found in the L2 production data in this study confirms the findings of previous L1 and L2 studies on verb transitivity.

Possible reasons for the relative difficulty for the intransitive sentence structure may lie in the canonical SVO word order that language learners rely on as the default in the beginning stages of acquisition. Furthermore, this difficulty with the intransitive construction and for unaccusative verbs in particular has been reported to continue even in the later stages of L2 acquisition for highly proficient L2 learners, and is one of the most frequent structures in which fossilization is found (Montrul, 2001; Yip, 1995), which is also consistent with the results obtained in the present study.

6. Conclusion

This study examined Korean L2 learners' sensitivity to verb subcategorization and verb transitivity bias information in a written production task. The results of the present study support previous L2 studies in verb acquisition by showing that even L2 learners who have achieved a high level of proficiency in the use of verb subcategorization information still experience difficulty in the use of intransitive verbs during written production. Regarding sensitivity to the nature of the verb transitivity bias continuum, the participants showed a trend toward a pattern of usage mirroring the probabilistic frequencies in the naturalistic corpus data. However, this correlation

did not fall within the boundaries of statistical significance. Further studies with L2 participants who have been exposed to naturally-occurring speech in English-speaking countries for longer periods of time are expected to test the predictions of exposure-based theories. The results obtained from this study and follow-up production studies with different groups of L2 learners may be used as a database for developing online processing studies.

Notes

- 1) Transitive vs. intransitive ratios calculated from the database provided by Gahl, Jurafsky & Roland (2004).
- 2) The English proficiency test consisted of thirty questions total and was obtained with permission from the University of New Hampshire. A full copy may be provided by contact to the author.
- 3) Self-rated proficiency was rated on a Likert scale of 1 (not proficient) to 5 (very proficient). O: overall English proficiency, R: Reading, W: Writing, S: Speaking, L: Listening

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국문초록

제 2 언어 학습자의 영어 글쓰기에 나타난 동사의 타동성 정보 활용

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본 연구는 제 2 언어 학습자의 영어 글쓰기에 나타난 동사의 타동사 정보 활용을 살펴 보았다. 영어를 제 2 언어로 학습하는 31명의 한국어 화자들은 39개의 영어 동사가 포함된 글쓰기 과제에서, 각각의 동사로 하나의 영어 문장을 작문했다. 실험 문장에서 사용된 동사들은 자동사부터 고빈도 타동사까지 영어 동사의 타동성 편향 연속선 상에서 고루 선별되었다. 실험 결과, 타동사 구문 사용 빈도와 각 동사의 타동성 편향 수치 사이에 유의미한 양의 상관관계가 발견되었다. 이 결과는 제 2 언어 학습자들이 자동사를 목적어와 함께 사용하는 타동사 구문에서 사용하는 빈도가 타동사를 목적어와 함께 사용하는 빈도에 비하여 상대적으로 낮다는 것에서 기인한 것으로 보인다. 또한, 영어 글쓰기 과제에서 나타난 문법적 오류 분석에서는 자동사를 타동사 구문에 사용하여 비문법적인 구문이 발생하는 오류가 반대의 경우보다 많이 발견되어 자동사 구문 습득의 어려움을 뒷받침하였다. 결과적으로 본 연구는 제 2 언어 학습자들이 영어 동사의 하위범주화 정보를 습득하고 글쓰기에 적용할 수 있으며, 이와 비교하여 연속성 가지고 있는 타동성 편향 정보 대한 민감성은 상대적으로 낮다는 것을 보여준다.

주제어: 동사 타동성 정보, 동사 하위범주화, 동사 편향 연속선, 글쓰기 과제, 제 2 언어습득

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