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교육학석사학위논문

Effects of Input Frequency Distribution
Manipulation through Input-driven Instruction
on Korean Students' English Argument
Structure Construction Learning and Passage-
level Reading Comprehension

입력중심 교수를 통한 입력빈도분포 조절이 한국인
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Effects of Input Frequency Distribution
Manipulation through Input-driven
Instruction on Korean Students' English
Argument Structure Construction Learning
and Passage-level Reading Comprehension

by
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ABSTRACT

Assuming the usage-based and constructionist's approach to language learning as its theoretical background, this study explored effects of input frequency distribution manipulation on learning of English argument structure constructions (EASC) by Korean secondary school learners of English and their passage-level reading comprehension based on input-driven learning approach.

92 Korean secondary school students were divided into three groups: skewed input distribution group (SID), balanced input distribution group (BID) and control group (CONT). Three target EASCs—caused-motion construction (CMC), double object construction (DOC) and transitive resultative construction (TRC)—and six target verbs for each construction were chosen to be used during 12 input-driven learning sessions. In the SID, the most prototypical verb for each construction was presented 8 times while, in the BID, all six verbs were equally distributed. All target stimuli were included in passage-level readings with a couple of comprehension checkup questions and no explicit instructions about target constructions were provided throughout the input sessions. Finally, all groups took three tests—two tests for measuring construction knowledge and one for checking reading comprehension performance—in the pretest and posttest.

The results showed that there were no significantly advantageous effects of the skewed input frequency distribution over the balanced input distribution.

However, in the translation test, the SID showed greater improvement with the TRC than the BID. With regard to the effects of input-driven learning, both the SID and the BID showed the greatest improvement with the DOC and the least with the CMC. Although most participants gained the high scores with the TRC in the English-to-Korean translation test, which ran counter to expectation, the results should be further explored in that Korean resultative constructions have differing properties from English in terms of syntactic and semantic properties. In terms of students' reading performance, the results indicated that there were moderate correlations between EASC knowledge and reading comprehension as a whole.

All in all, the study showed that, for Korean secondary learners of English, there were no notable differences in the effectiveness of skewed and balanced input at learning EASC. However, it revealed the effects of input-driven learning in learning EASC, which in turn is closely related to their English reading performance.

Key Words: English argument structure constructions, Input frequency distribution, Input-driven learning, Input enhancement, Passage-level reading comprehension

Student Number: 2014-20897

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CHAPTER 1.

INTRODUCTION

This study is primarily concerned with the manipulation of the input frequency distribution affecting the learning of the English argument structure constructions and the passage-level reading comprehension of Korean high school learners. This chapter begins with the statement of the problem and the purpose of the study, followed by the research questions. The last section outlines the organization of the thesis.

1.1. The Purpose of the Study

It is widely acknowledged that the language input lies at the center of the successful first and second/foreign language acquisition (Gass, 1997; Lightbown, 1992; Swain, 1988). In the same way, the usage-based approach to language learning emphasizes the importance of input in that language emerges from the learners' accumulated experience with the linguistic input (Bybee, 2007, 2008; Goldberg, Casenhiser, and Sethuraman, 2004). Specifically, contrary to the nativist linguistic perspective which presupposes the innate grammatical knowledge for language generation, constructionists argue that the linguistic input (data) encountered in everyday life exerts a vital role in forming constructions, which are considered as the primary units of linguistic knowledge and for delivering fluent and grammatical speech. As

learners are repeatedly exposed to input, the constructions are argued to go through developmental sequences from lexically-specific construction to fully-abstract construction such as argument structure constructions (e.g., caused-motion construction, transitive resultative construction).

Since the frequency of input learners hear or say is greatly concerned with the entrenchment of constructions, a bulk of research (e.g., Akhtar, 1999; Abbot-Smith, Lieven, & Tomasello, 2001; Matthews, Lieven, Theakston, & Tomasello, 2005; Theakston, Lieven, Pine & Rowland, 2004; Wilson, 2003) has explored the effects of input frequency on the language acquisition. In particular, of great relevance is the study on the effect of input frequency distribution, which is generally divided into two types, i.e., skewed and balanced input distribution. The focus of the studies (Casenhiser & Goldberg, 2005; Goldberg, Casenhiser, & Sethuraman, 2004; Goldberg, Casenhiser, & White, 2007; McDonough & Nekrasova-Becker, 2014; McDonough & Trofimovich, 2013; Year & Gordon, 2009) was how differing input frequency distribution of specific verbs affected the acquisition of a particular construction. The results of the study, however, were divergent; most L1 studies (Casenhiser & Goldberg, 2005; Goldberg, Casenhiser, & Sethuraman, 2004; Goldberg, Casenhiser, & White, 2007) claimed the advantageous effect of skewed input distribution over balanced input distribution whereas the effects of input distribution were not clearly proven or balanced input distribution was reported to be more effective in L2 research (McDonough & Nekrasova-Becker, 2014; McDonough & Trofimovich, 2013; Year & Gordon,

2009).

However, those studies have some limitations. First, most of the input frequency distribution studies provided the target construction (input) as a decontextualized single item at a sentence level. This item-by-item experimental environment contrasts with a real situation where learners are usually exposed to a series of contextualized conversations or texts. A related suggestion made by McDonough et al. (2014) is worth noting; in the study comparing the effect of input frequency distribution on the comprehension of the ditransitive construction, they argued for the need to “explore whether the processes of category formation and expansion are affected by discourse contexts” with the target construction “embedded in more situated language use, such as longer texts or conversations.” (p.435) Furthermore, those previous studies were carried out in the explicit instruction settings, which is also far from the input-driven real situation. Lastly, just one target construction was dealt with in the most studies. For example, in a well-known experiment with L1 English speakers, Goldberg et al. (2007) involved just one novel construction of ‘appearance’. Subsequent L2 study by Year and Gordon (2009) also adopted a dative construction as a focus.

With these caveats in mind, the present study attempts to investigate the effects of different input frequency distribution on the learning of three argument structure constructions (henceforth, ASCs): the caused-motion construction, the double object construction and the transitive resultative construction (henceforth, the CMC, DOC and TRC respectively), which has

been identified as the demanding constructions for L2 learners (Lee & Kim, 2011; Shin, 2010). Especially, the current study draws on input-driven learning approach as a possible pedagogical application of construction-based grammar. Furthermore, although there have been several studies (Jang, 2014; Kim, 2012; Kim, 2013; Rah, 2014; Sung, 2014) on the effects of construction-grammar-based instruction studies on the sentence production skills, i.e., speaking and writing, little research has been done to explore the effects of construction learning on the comprehension ability. Therefore, the current study also aims to uncover the relationship between the argument structure construction learning and the reading comprehension.

1.2. Research Questions

The present study will be guided by the following questions:

1. Is input-driven instruction effective in learning English ASCs?
2. Which type of input distribution between is more facilitative in Korean secondary school students' learning English ASCs?
3. What is the strength of association between the knowledge of English ASCs and passage-level English reading comprehension?

1.3. Organization of the Thesis

This thesis is organized into five chapters. Chapter 1 introduces the purpose of the present study with research questions. Chapter 2 provides a review of the literature on theoretical background of English argument structure constructions, input frequency effects in construction learning and the relative significance of grammatical knowledge in reading comprehension. Chapter 3 describes the research methods, including participants, target structures, instrument and procedure, data collection and analyses. Chapter 4 reports the results of the study and discusses the central issues exploring the research questions. Chapter 5 summarizes major findings of the study and concludes the study with pedagogical implications, limitations, and suggestions for future research.

CHAPTER 2.

LITERATURE REVIEWS

This chapter discusses some basic concepts related to the present study. The chapter begins with the introduction of construction grammar as the theoretical foundation for the current study with a focus on Goldberg's (1995) argument structure constructions. The next section overviews the effects of input frequency on construction learning, which is followed by the presentation of the concept of input enhancement technique. The last section concludes the chapter considering the effect of grammatical knowledge on reading comprehension.

2.1. Construction Grammar as a Theoretical Framework

Generative perspectives assumed that human beings are endowed with knowledge that is specific to language, called 'universal grammar.' That is, language learning is argued to be a domain-specific process using language acquisition device (Langacker, 1999). Constructionists, however, argue that human language can be learned on the basis of domain-general mechanisms of cognitive ability (Goldberg, 1995, 2006; Goldberg and Suttle, 2010). They held that children encounter a tremendous number of utterances they have never heard before in an item-specific fashion, and as their cognitive abilities grow up, they can generalize and categorize those unrelated items into more

abstract and organized systems (Goldberg, 2006; Tomasello, 2003). In particular, Goldberg (2008) contended that construction learning “is clearly necessary and central to the overall task of learning a language” (p.199).

The term *constructions* basically implicates the correspondences of forms and meanings that “exist independently of particular verbs” (Goldberg, 1995, p.1). Constructions are strongly argued to serve as the basic units of language and grammatical analyses and vary in size and complexity ranging from the word to complex sentence structures (Bybee, 2008; Goldberg, 2006). To illustrate, the sentence in (1) is a construction in which the particular form ‘*the + comparative phrase ~, the + comparative phrase ~*’ is associated with its special meaning which is not predictable from its component parts.

(1) The more you think about it, the less you understand.

As is illustrated in (1), in order for any linguistic pattern to be recognized as a construction, some aspects of its form and function should not be predicted from its component parts (Goldberg, 1995, 2006).

2.2. English Argument Structure Constructions

Constructions, which are defined as pairing of forms and meanings, are of varying size and complexity. Of a variety of constructions, the current research especially focuses Goldberg’s (1995) argument structure

constructions (ASC, hereafter), which represent basic human experiences and thus “provide basic means of clausal expressions in a language” (p.3). Table 2.1 lists examples of English argument structure constructions with their types and meanings.

Table 2.1
Basic English Argument Structure Constructions

Types	Meaning	Abstract form and example
Intransitive motion	X moves Y	Subj V Obl The fly buzzed into the room.
Intransitive resultative	X becomes Y	Subj V Xcomp She felt happy.
Transitive	X acts on Y	Subj V Obj Pat hit the wall.
Ditransitive	X causes Y to receive Z	Subj V Obj ₁ Obj ₂ Pat faxed Bill the letter.
Caused-motion	X causes Y to move Z	Subj V Obj Obl

Pat sneezed the napkin off the
table.

Resultative X causes y to become Z Subj V Obj Xcomp

She kissed him unconscious.

(Adapted from Goldberg, 1995)

In the so-called traditional verb-centered approach (Levin, 1993), a verb plays a crucial role in determining the overall meaning and form of a sentence. For instance, in the sentence *Pat sneezed*, the verb, *sneeze* is an intransitive, one place predicate. This approach to argument structures, however, can be challenged by the following examples in (2), in which the verb *sneeze* appears in various argument structure configurations with variations in meaning.

(2) a. Pat *sneezed* the foam off the cappuccino.

(Caused-motion construction)

b. Pat *sneezed* a terrible sneeze. (Cognate object construction)

c. Pat *sneezed* his nose red. (Resultative construction)

(From Goldberg, 1999, p.198)

One way to account for occurrences of diverse argument structures with

the same single verb as in (2) is to argue that the verb may have multiple senses in each syntactic representation in which it appears. When the verb *sneeze* occurs in the form of ‘Subj₁ V Obj₂ Obl₃,’ for instance, it can indicate ‘X₁ causes Y₂ to move Z₃ by sneezing.’ On the other hand, when it occurs in the syntactic representation, ‘Subj₁ V Obj₂ AP₃,’ it can carry the meaning of ‘X₁ causes Y₂ to become Z₃ by sneezing.’

As opposed to the multiple-sense views on verbs abovementioned, constructionist (Goldberg, 1995; 2006) posits argument structure constructions as basic units of language, defined as pairings of form and function, and holds that the constructions contribute to the overall meaning of a sentence with its own syntactic and semantic constraints. In other words, the constructionist approach shifts the focus from a lexical verb to a construction. Accordingly, in the sentence (2c), the resultative ASC meaning ‘X causes Y to become Z’ works with the verbal lexical meaning, resulting in the causative meaning of ‘*Pat caused his nose to become red by sneezing.*’

2.2.1. Target Argument Structure Constructions

In the current study, three ASCs—caused-motion, resultative and double object constructions—are targeted for two main reasons. First, Lee and Kim’s (2012) study with three different age groups—middle school students in Grade 7, high school students in Grade10 and college students majoring in English

education—showed that in the Korean EFL setting, learning of English ASCs arises in a developmentally different and gradual sequence. That is, while the intransitive-unergative construction like the sentence “*She ran fast.*” is the easiest, the resultative, the caused-motion and the ditransitive are placed in the top 3 in difficulty in order of the developmental sequence. More interestingly, this difficulty patterns appeared across all the three age groups in a similar manner. Figure 2.1 summarizes the developmental sequence of English argument constructions. Notably, Lee and Kim (2012) put an emphasis on the fact that the high school students showed a significant weakness in the three constructions, concluding that those constructions develop relatively slowly.

		Subj. - Pred. Construction	
		Intransitive	Transitive
early development		Intransitive-unergative	Simple Transitive
		Intransitive-unaccusative	
↓ late development		Intransitive-motion	
		Intransitive-resultative	
			Ditransitive
			Caused-motion
			Resultative

(Lee & Kim, 2012, p. 593)

Figure 2.1
Developmental Sequence of English Argument Constructions

Another reason to select those constructions in the present study is that they

are systematically interconnected to each other by the inheritance links, which indicates that learning of one construction makes it easy for learners to learn another in an efficient and meaningful way. Specific relations between target constructions will be discussed in the next section. Presently, let's examine briefly the caused-motion, ditransitive and resultative in order.

As can be shown in Table 2.1 above, the caused-motion construction (CMC) is structurally represented as 'Subj₁ V Obj₂ Obl₃,' which expresses "the causer argument directly causes the theme argument to move along a path designated by the directional phrase: that is, 'X₁ causes Y₂ to move Z₃.'" (Goldberg, 1995, p. 152). In the constructionist perspective, hence, the following sentences (3a) and (3b), which are assumed to alternate with each other with no semantic deviations in the generative grammar, differ in their syntactic representations as well as semantics.

(3) a. Pat loaded hay onto the truck.

b. Pat loaded the truck with hay.

(Goldberg, 1995, p. 153)

Since both (3a) and (3b) have superficially different configurations, each sentence meaning also diverges: in (3a), the focus is on the change of location of hay to the direction specified by the oblique argument onto the truck, whereas, in (3b), the theme *the truck* is directly affected by the action of 'loading', thus *the truck* in (3b) may have more hay than the one in (3a) in the amount of hay.

Consequently, (3a) can be classified into the caused-motion construction while (3b) consists of combination of “a causative construction and an independent construction headed by *with*” (Goldberg, 2006, p. 36).

The English ditransitive construction or double object dative construction (DOC), syntactically realized as the structure ‘Subj V Obj₁ Obj₂,’ has the core meaning of the actual transfer between a volitional agent and a recipient. Thus, the following sentence (4) should have the meaning that ‘*Pat baked a cake with the intention of giving it to his brother.*’ It cannot be understood that *Pat* baked the cake for someone else and later happened to give it to *his brother*.

(4) Pat baked his brother a cake.

It is also worthwhile to note that DOC has the important semantic constraint as in the sentence (5b) despite the same surface structures with (5a).

(5) a. Pat tossed her a book.

b.* Pat tossed the bookshelf a book.

The ungrammaticality of the sentence (5b) can be explained by the lack of willingness of the transfer in the recipient: since the indirect object *the bookshelf* is an inanimate object, the actual transfer cannot occur.

The English transitive resultative construction (TRC) is realized in the form of ‘Subj₁ V Obj₂ Xcomp₃,’ implying that “X₁ causes Y₂ to become Z₃.” TRC can

be categorized into two sub-groups depending on its characteristics as in the follows:

(6) Jessica made him tired.

(7) Willy watered the plants flat.

In the sentence (6), the verb *make* is inherently resultative in that its lexical meaning is parallel with constructional meaning, consequently being labeled as *the verbal resultative*. The sentence (7) is composed of two subevents: one is the verbal event in which *Willy* performed the action of watering while the other is related to the constructional event in which *Willy* caused the plants to become flat. In combination of these two events, the sentence (7) is construed as ‘*Willy caused the plants to become flat by watering.*’ To put it different, when a verb in the TRC indicates “the means by which the constructional event takes place” (Goldberg & Jackendoff, 2004, p. 540), the sentence is categorized as *the constructional resultative*. Both types of TRC can have as the resultative phrases an adjective phrase and a prepositional phrase¹.

¹ When a resultative phrase (RP) is realized as a prepositional phrase (PP), PP can express either a property or a spatial path as follows:

- (a) Bill broke the bathtub into pieces. (property)
(b) The critics laughed the play off the stage. (spatial path)

2.2.2. Networking of Argument Structure Constructions

According to Goldberg (1995, 2006), ASCs are connected to each other in a hierarchical order by inheritance links which are related in both semantic and syntactic manners. That is, through the hierarchically networked system, constructions at lower levels inherit common shared features from the higher constructions.

The caused-motion construction, with the core meaning of ‘X causes Y to move Z’ is associated with several polysemic senses as follows:

(8) a. ‘X causes Y to move Z’ (central sense)

Example: Pat pushed the piano into the room.

b. Conditions of satisfaction imply ‘X causes Y to move Z’

Example: Pat ordered him into the room.

c. ‘X enables Y to move Z’

Example: Pat allowed Chris into the room.

d. ‘X causes Y not to move from Z’

Example: Pat locked Chris into the room.

e. ‘X helps Y to move Z’

Example: Pat assisted Chris into the room.

(Goldberg, 1995, p. 76)

Interesting to the present study is that the DOC has the similar patterns as in the (9).

(9) a. 'X causes Y to receive Z' (central sense)

Example: Joe gave Sally the ball.

b. Conditions of satisfaction imply 'X causes Y to receive z'

Example: Joe promised Bob a car.

c. 'X enables Y to receive Z'

Example: Joe permitted Chris an apple.

d. 'X causes Y not to receive Z'

Example: Joe refused Bob a cookie.

e. 'X intends to cause Y to receive Z'

Example: Joe baked Bob a cake.

f. 'X acts to cause Y to receive Z at some future point in time'

Example: Joe bequeathed Bob a fortune.

(Goldberg, 1995, p. 75)

In the examples above, several extensions from the central sense can be identified in each construction. An important thing is that some of extensions are semantically parallel even though they have different verbs. For example, extension (b), (c) and (d) in both constructions share the meaning such as 'conditions of satisfaction', 'enables' and 'causes Y not to.' Thus it is argued that CMC and DOC are mutually related through polysemy links.

The CMC also is semantically connected to the transitive resultative construction (TRC) via a metaphorical link as shown in (10) and (11).

(10) Pat hammered the metal flat.

(11) Pat threw the metal off the table.

In the CMC sentence (11), *Pat* caused the metal to change its location from the state of '*being on the table*' to the resultant goal of '*being off the table*' by the action of '*throwing*.' In a similar vein, in the TRC sentence (10), the resultant state of the metal—'*being flat*'—can be construed as a metaphorical interpretation of the result phrase as 'metaphorical type of goal.' To sum up, as semantically compared to the core meaning of the caused-motion, the resultative identifies the event or the situation in which the theme or the patient argument undergoes the change of state.

2.3. Input Frequency Effects in Learning Constructions

Constructions are learned on the basis of language input (Boyd & Goldberg, 2009; Bybee, 2008; Ellis & Ferreira-Junior, 2009; Goldberg, 1995, 2006, 2008; Year & Gordon, 2009). Based on item-based nature of language acquisition, constructionists contend that providing a sufficient amount of well-organized input plays a crucial role in learners' generalizing over instances that are consistent. Given the importance of input in language

acquisition, input frequency is argued to play a critical role in the process of forming and generalizing a construction since repeated exposure to exemplars in the linguistic input may facilitate pattern detection and categorization (Bybee, 2006, 2008; Ellis & Collins 2009; Kidd, Lieven, & Tomasello, 2010). Hence, it is worthwhile to note that a crucial distinction can be made regarding input frequency: token and type frequency. Token frequency refers to the total number of frequency of particular items in the input whereas type frequency indicates the frequency with which distinct lexical items can appear in the same slot in the input. Token frequency is widely acknowledged to be closely related to the entrenchment of irregular forms or idioms; in contrast, type frequency plays a determinant role in promoting generalization over the varying items along with consistency, leading, thus, to more productivity.

Input frequency can also be further categorized into the skewed and the balanced distribution depending on the token frequency of a key lexical item in the sentence, typically a lexical verb. The former is characterized by the occurrence of one lexical item with high token frequency while the other refers to the case where all lexical items appear with equal token frequency across exemplars. In a naturalistic circumstance, the input children usually receive tend to be skewed toward certain verbs, which is empirically proved to facilitate the acquisition of a particular construction especially at the initial status of development (Goldberg et al. 2004). Accordingly, numerous previous studies explored the impacts of the distinct input distribution on the learning of constructions (Boyd & Goldberg, 2009; Ellis & Ferreira-Junior, 2009;

Goldberg, Casenhiser & Sethuraman, 2004; Year & Gordon, 2009).

In the English L1 circumstance, Goldberg et al. (2004) carried out an extensive corpus-based study to investigate children's early use of particular verbs in reaction to mothers' speech in particular constructions. Based on the Bates corpus (Bates, Elizabeth, & Goodman, 1998), they probed the speech of all 27 children and the speech of 15 mothers to their children, and found that a large amount of use of a specific verb in a particular construction had a direct effect on the children's speech patterns. For example, out of 43 types of verbs used in the caused-motion construction, *put* accounted for 38 % in the speech of mothers to their children, simultaneously occupying 31% in the speech of children. They also investigated as to why the meanings of the most frequent verbs used in particular ASCs— e.g., *go*, *put*, *give*, and *make* —coincide with constructional meaning to a significant degree, leading to the conclusion that the high frequency of a single verb in a particular construction promoted the association of the semantics of those abstract patterns. That is, “the highly frequent verb serves as a readily available prototype with which other verbs may be associated”(p. 304).

Ellis and Ferreira-junior (2009) also investigated the effects of input frequency on construction learning in the second language context based on corpus. They confirmed that in the second language input, verbs with semantically generic and prototypical meanings appear with high frequency in each ASCs and learning of these verbs in the initial stage of language development may help learners with ASCs. Additionally, Wulff, Ellis, Romer,

Bardovi-Harlig, and Leblanc (2009) examined the frequency distribution of the tense-aspect morphology and recurring occurrences of verbs with which they are associated. In accordance with the previous studies, they found that learning of the tense-aspect construction is sensitive to input frequency and prototypicality as well.

Year and Gordon's (2009) EFL study on the facilitative effects of input frequency and distribution of verbs on construction learning contrasted with the previous studies, though. In the study centering on ditransitive constructions, they provided secondary school students with 5 ditransitive verbs holding the overall type and token frequency constant in two different conditions; in the skewed frequency condition, the prototypical ditransitive verb *give* occurred much more frequently than the other four verbs whereas, in the balanced condition, all the verbs appeared with the even frequency. The results were that both groups showed improvements in comprehending and producing the target constructions, but no significant differences between two conditions were found. On these seemingly conflicting results, Boyd and Goldberg (2009) asserted that on a closer inspection into the learners' judgment task, skewed group did significantly better than the balanced group. Interestingly, they also found that after 8 weeks exposure, the advantage for the skewed condition was neutralized. Hence they claimed that, in the early stage of learning, skewed frequency condition predominates over the balanced condition but, over time, "learners exposed to balanced input will ultimately catch up" (p. 426).

Following Year and Gordon's (2009) study, a good deal of studies (e.g., McDonough and Nekrasova-Becker, 2014; McDonough and Trofimovich, 2013; Nakamura, 2012) were conducted with L2 speakers of English to address the issue of facilitative roles of skewed and balanced input in construction learning. Of those studies, McDonough et al. (2014) explored the effectiveness of the skewed and balanced input in promoting the comprehension of the double object dative construction with a sample of 78 Thai university students. Interesting was that they varied the presentation order for the skewed input condition, so that the experimental groups consisted of the skewed first, skewed random and balanced group. For the skewed first group only, eight sentences with the target lexical verb (*send*) were presented first in a row ahead of other target lexical verbs (*pass, owe, teach* and *fix*) and all tokens were in the mixed order for the skewed random and balance group. In the research, they differentiated the treatment task items from the comprehension test items; the prototypical double object sentences embodying animate recipient expressed as pronouns were provided in the treatment while inanimate noun phrases were employed for the comprehension test. The results from the comprehension test where participants were asked to identify appropriate pictures corresponding to aural texts showed that the balanced input group performed the best with no significant difference between the skewed groups. They reported that the skewed input may foster the understanding of the specific construction, but hinder the productive extension of the construction.

As discussed so far, there has been conflicting research concerning the effects of differing input frequency distribution. Prior studies, however, share the common ground that they provided the decontextualized target items; that is, target items were placed out of the meaningful context. Therefore, further research embedding the test items in discourse contexts is needed in order to reduce the unnaturalness.

2.4. Input Enhancement and Grammar Learning

The issues of how learners process meanings and forms in the input have been debated to date in a number of research (Schmitt, 1992; VanPatten, 1990; 2002). VanPatten (1990, 2002) claimed that learners should pay a focal attention to informational contents (meaning) first in order to comprehend the input prior to forms, which leads partially to the conclusion that it would be difficult or burdensome for learners to simultaneously process both form and meaning. In a meaning-based reading class, consequently, it would interrupt or at least bother learners' cognitive processing for comprehension to have their attention explicitly directed to linguistic features or forms.

Input enhancement, which uses perceptually salient typographical enhancement method such as underlining, **bold facing**, *italicizing*, CAPITALIZING and using different fonts (Lee, 2007), is argued to be placed somewhere in between more explicit method of rule instruction and implicit input flood (Doughty & Williams, 1998; White, 1998) as shown in the Figure 2.2

effect on the form recognition as well as the meaning processing. Since these studies have provided ample support for the use of input enhancement, the current research employed the technique for drawing learners' attention to the ASC while reading.

2.5. Grammatical Knowledge and Reading Comprehension

Recent componential approach to reading comprehension views reading (Grabe, 2009; Koda, 2005, 2007; Stanovich, 2000) as a combination of multiple skills such as decoding, vocabulary knowledge, syntactic or grammatical knowledge and metacognition. This approach allows the researchers and educators to probe into how different factors interact with one another and how much each independent skill contributes to reading comprehension. Given the multi-componential properties of reading (Grabe, 2009; Koda, 1996, 2005), it follows that numerous previous empirical studies (Alderson, 1984; Barnet, 1986; Nassaji, 2003; Yamashita, 2002) have been conducted to explore the relative contributions of each component skill to reading.

Through the studies, it is now well-established that vocabulary knowledge and grammatical knowledge can be strong predictors of reading performance. However, research on the relative significance of these two contributory factors still remains left to be investigated; or the importance of vocabulary knowledge seemingly outweighs the contributions made by knowledge of grammar (Guo & Roehrig, 2011 ; Nassaji, 2003; Zhang, 2012).

For instance, in the Nassaji's (2003) study, where 60 adult Farsi speakers who were graduate students at a Canadian university attended, the researcher confirmed that the vocabulary knowledge along with such factors as word recognition, phonological processing skills, orthographic processing skills and syntactic processing skills had substantial correlations with L2 reading comprehension. Of those components, vocabulary knowledge and syntactic processing skills were distinguished to be significantly correlated with reading comprehension from other component skills; however, the research findings gave more weights to the vocabulary knowledge as compared to syntactic processing skills. In addition, Zhang (2012) examined the contribution of vocabulary and grammatical knowledge to reading comprehension performance among 190 advanced Chinese English learners. On the basis of structural equation modeling analysis, he showed that vocabulary knowledge was more strongly predictive of learners' reading comprehension when controlling for grammatical knowledge, which is different from Shiotsu's (2010) study.

In Shiotsu's (2010) and Shiotsu and Weir's (2007) study, they compared the effects of the relative contribution of vocabulary and grammatical knowledge to reading comprehension with EFL Japanese college students. Through multiple regression analyses, they found that grammatical knowledge explained a larger variance in reading comprehension. Jeon (2012) and Van Gelderen et al. (2003) also identified the grammar knowledge as a major contributing factor for reading comprehension, thereby recommending rethinking the relationship between text reading comprehension and vocabulary knowledge.

2.6. Summary

This chapter discussed some essential concepts regarding the current study. Major research findings and gaps left for further investigation can be summarized as follows:

First, most input frequency distribution studies provided target input in a fragmentary and decontextualized way, which shows a sharp difference from a situated language use to which language learners are typically exposed. Thus, with input distribution types varied, it is worth providing target input incorporated into a contextualized reading text to explore the probability of learning target ASCs without explicit instruction.

Second, the majority of input distribution studies explored the effectiveness of acquisition of a particular construction, focusing mainly on one single ASC (Year & Gordon, 2009; McDonough & Nekrasova-Becker, 2014; McDonough & Trofimovich, 2013), or non-existing novel construction (Goldberg et al., 2007). However, ASCs are connected to each other by inheritance links in a logical and meaningful way, which implicates that second or foreign language learners may be able to learn ASCs in a systematic and efficient way (Rah, 2013) when those related ASCs are taught in order. Thus, it is required to investigate whether presentation of several ASCs, which are closely connected to one another, affects the learning of constructions.

Third, the component skill approach to reading (Grabe, 2009; Koda, 2005, 2007; Stanovich, 2000) postulates that reading is a composite of distinct

capabilities. Of the various skills underlying reading performance, especially vocabulary knowledge and grammatical knowledge have been reported to have strong correlations with successful reading comprehension in a number of studies (e.g., Guo & Roehrig, 2011; Nassaji, 2003; Zhang, 2012; Shiotsu, 2010; Shiotsu & Weir, 2007). Those studies showed opposing results on the relative significance of the two reading factors. It is important to note, however, that they all narrowly defined the grammatical knowledge in terms of the structural and morphosyntactic features such as tense, agreement and word orders. Furthermore, little research has studied the effects of ASC learning on the paragraph-level reading comprehension. Thus, it is meaningful to investigate if learning of English ASCs, as a newly extended concept of grammar would make progress in learners' reading comprehension.

CHAPTER 3.

METHODOLOGY

This chapter presents the methodology employed for the current study. It begins with the details of the participants in the main study and presents the target constructions used in the testing and treatment. The subsequent section describes instruments and procedures adopted in the study, which is followed by the section dealing with process and methods of data coding and analysis.

3.1. Participants

At the beginning of the study, 156 Korean EFL students in five intact classes at a local boys' high school participated. Initially, the students in the five classes were randomly assigned to three groups: skewed input distribution group (SID), balanced input distribution group (BID) and control group (CONT). The control group did not participate in any treatment sessions and they just took the pretest and posttest for comparison only. However, many students missed either the pretest or the posttest, and did not finish the tasks provided during the allotted class time. Because of these, sixty four were excluded from the analysis and the three groups had a total of ninety two students. Table 3.1 displays the composition of the participants for each group.

Table 3.1
Composition of Participant Groups

Group	SID	BID	CONT	Total
Number of Ss.	33	30	29	92

At the time of the study, the participants were all 11th graders, and all the students had never been abroad for the purpose of studying English except for 9 students, whose length of stay ranged from one or two months (7 students) to two, or seven years (one student for each). Of those 92 students, 75 of them reported they started studying English as a formal education subject at the elementary school and the rest 17 students as early as 5~7 years old; thus, it is claimed that most students experienced at least 10 years of English learning. Moreover, 48 students have been taking a variety of private English lessons such as personal tutoring, institute, or internet lectures, and 44 students have attended only regular English classes at school. These responses show that the participants in the current study are considered typical high school students.

3.2. Target Structures and Input Frequency Distribution

As target constructions, the present research selected three argument structure constructions based on Lee and Kim's (2011) empirical study:

double object construction (DOC), caused-motion construction (CMC), and transitive resultative construction (TRC). According to Lee and Kim (2011), Korean learners of English were reported to have more difficulty with those three constructions and thus show delayed development in the developmental sequence compared to other constructions such as intransitive and simple transitive constructions. In particular, as for the CMC and TRC, the same study revealed that the improvement was not that much even in the high school students. These relatively difficult constructions were covered in the testing and input treatment phases in the present study.

Along with the target constructions abovementioned, another consideration should be given to the manipulation of input frequency distribution. Usage-based models of language acquisition hold that distributionally regular and high frequency items play a vital role in forming abstract schemas (Bybee, 2008). Of those possible candidates of lexical items in a sentence-level structure, nothing is more regular and frequent than verbs (Matthews et al., 2005). Ellis et al. (2015) also discussed the importance of verbs as the “cornerstone of the syntax-semantics interface”(p.166) in the construction acquisition. Moreover, Goldberg and her colleagues (2004) found that in a certain argument structure construction, one particular verb with high frequency and prototypical meaning accounted for the lion’s share of the exemplars; for instance, the verb ‘*give*’ mostly occurred with DOC, the verb ‘*put*’ with CMC and the verb ‘*make*’ with TRC. The current research, therefore, controlled the frequencies of six verbs (e.g., *put*, *throw*, *take*, *push*,

kick, send for caused-motion construction) for each target construction while holding the total number of tokens constant across constructions. In the skewed input distribution group (SID), one particular verb occurred predominantly frequently while other verbs were presented with relatively low token frequency. In the balanced input distribution group (BID), in contrast, all the verbs were with equally low token frequency. Table 3.2 describes verbs used in the reading input and the number of tokens presented in each group.

Table 3.2
Types and Tokens of Verbs by Input Distribution

Group	SID			BID		
	CMC	DOC	TRC	CMC	DOC	TRC
Verb	Put(8)	Give(8)	Make(8)	Put(3)	Give(3)	Make(3)
Types	Throw(2)	Tell(2)	Get(2)	Throw(3)	Tell(3)	Get(3)
and	Take(2)	Bring(2)	Cut(2)	Take(3)	Bring(3)	Cut(3)
Tokens	Push(2)	Offer(2)	Transform(2)	Push(3)	Offer(3)	Transform(3)
	Kick(1)	Send(1)	Break(1)	Kick(3)	Send(3)	Break(3)
	Send(1)	Pay(1)	Change(1)	Send(1)	Pay(1)	Change(1)

3.3. Instrument and Procedures

3.3.1. Instruments

The present study aims to explore the effects of different types of input distribution through passage-level readings on comprehension of ASCs and reading comprehension. To this end, two disparate types of tests were necessarily required which measure improvements in both construction knowledge and reading comprehension performance. In order to assess students' knowledge of constructions, therefore, a sorting test (Bencini & Goldberg, 2000) and English-to-Korean translation test were implemented while a multiple-choice reading comprehension test was administered to all students to check their improvements in understanding of the given texts. Additionally, for the treatment sessions, a total of 24 reading materials were prepared.

3.3.1.1. English-to-Korean Translation Test (EKT)

In the English-to-Korean translation test, students were asked to translate 16 English sentences into Korean. The sixteen sentences consisted of 12 target constructions (4 sentences for each construction) and 4 distracters

(intransitive motion construction). Based on the pilot test, 10 minutes were given to complete the test. In the pretest and posttest, each item was composed of the same verb with different nominals in the subject and object slot. The examples are illustrated in Figure 3.1 (See **Appendix 1** for the complete items).

◆ 다음 문장들을 잘 읽고 우리말 문장으로 표현해 보시오. (Read the following sentences and translate them into Korean)
8. Muffy painted the house green. → 우리말 뜻 : _____ (Pretest)
5. Mary painted the room white. → 우리말 뜻 : _____ (Posttest)

Figure 3.1

Example Sentences of English-to-Korean Test

3.3.1.2. Construction-based Sorting Test (CBS)

Bencini and Goldberg (2000) designed a sorting test to study the use of English argument structure constructions by native speakers of English. In the test, participants were provided with 16 sentences, in which 4 verbs—*throw*, *slice*, *get* and *take*—were employed across 4 different target constructions, and asked to sort the sentences based on the overall sentence meaning.

In the current study, the same 16 sentences with 4 verbs as those in Bencini and

Goldberg (2000) were used across 4 target constructions except for the verb *slice*, which instead was replaced with the verb *cut*, being more frequent and prototypical than *slice* with similar meaning. Table 3.3 illustrates the sentence stimuli used in posttest of the present study (See Appendix 2 for the complete items). The sorting tests were administered for 20 minutes and consisted of three separate but closely related parts: translation section, sorting section, and rationale for sorting section (written protocol). For the test, a piece of paper, on which 16 sentences were randomly printed, was handed out to all students. Students were first asked to translate each sentence into Korean equivalent in order for them to pay more attention to the overall sentence meanings. Then they made 4 separate groups using those given sentences with the overall meaning of the sentences in mind. Consequently, each group was supposed to contain 4 sentences which are closer in meaning. When they finished sorting, they were finally required to write in the last section of the test sheet, if any, what rationale they had during the given test. In the current monograph, students' rationale for sorting is termed as written protocols henceforth.

In order to create two sets of parallel-form tests as much as possible, two CBS in both testing phases contained the different stimuli; all of them, however, had the same core meanings—e.g., someone causes something to move or change state— and employed the same verbs. Note that test items in each test were put in random orders to prevent students from guessing answers based on the preceding test.

Table 3.3
Sentence Stimuli Used

Constructions					
Verb	CMC	DOC	TRC	TC	
Throw	Pat threw the keys onto the roof.	Chris threw the pencil.	Linda threw the box apart.	Linda threw the hammer.	Amy threw the
Cut	Meg cut the ham onto the plate.	Jennifer cut an apple.	Terry cut the tire open.	Nancy cut the bread.	Barbara cut the
Get	Laura got the ball into the net.	Beth got Liz an invitation.	Dana got the mattress inflated	Lee got the book.	
Take	Kim took the rose into the house.	Paula took Sue a message.	Rachel took the wall down.	Larry took the watch.	

(adapted from Bencini & Goldberg, 2000)

3.3.1.3. Multiple-choice Reading Comprehension Test (MRC)

In a conventional type of multiple-choice reading comprehension test, students encountered a total of 12 passages with one question attached to each. Each passage was carefully selected to contain at least two sentences representing each target construction. Of those 12 passages nine passages were comprised of three sets of target-construction-embedded passages, while the rest three passages consisted of sentences in combination of basic argument

structure constructions and a small amount of complementation structures — e.g., Subj₁ V₁ (NP) that Subj₂ V₂ — and modification structures — e.g., relative clause-structures, leading probably to an increase in difficulty as compared to the former 9 texts. All the readings were taken from preliminary CSATs (College Scholastic Aptitude Tests) of English administered by Metropolitan and Provincial Office of Education throughout 2008 to 2011 for the high school second graders (See **Appendix 3** for the whole readings).

Moreover, stringent procedures were taken to ensure the equivalent form reliability. To begin with, two sets of reading passages were computed in terms of mean sentence length (average length of a sentence in the text) and the total number of words used, leading to the conclusion that pretest and posttest were similar in the test difficulty (mean sentence length for the pretest and posttest was 14.28 and 13.82 respectively while the total number of words used were 1452 and 1444 respectively). In addition to this, two other English teachers² were asked to assess the difficulty of both tests on the basis of the given criteria³. For the pretest items, two teachers' ratings were coincided exactly with 8 items: 2 high levels, 4 intermediate- and 2 low-level items. With the rest 4 items, they diverged, but the ratings ranged from intermediate to low levels. Results from the posttest ratings showed the similar trend; that is, they rated 2 items as high level, 3 intermediate level, and 2 low level. It is

² Two teachers have been teaching English more than 7 years at public high schools.

³ The criteria consisted of sentence length, syntactic complexity, breadth of vocabulary, and content familiarity. For exactness and raters' convenience, three example passages and their corresponding ratings were provided.

notable that with the rest 5 items, the ratings were either in the intermediate or high levels. To sum up, two tests were apparently claimed to be at the similar difficulty level as a whole, or the posttest was considered more demanding in some way.

For the test, students were given 25 minutes in total and recommended not to mark the answers unless they understand the given passages to some extent.

3.3.1.3. Input-driven Instruction Materials

Each of the reading passages was approximately 80 to 150 words in length and target sentences were contained as inherent parts of the passages. The passages in the sessions were collected and filtered out with care in much the same way those reading passages in both tests were adopted. Some passages in the pretest phase were employed once again in this phase as input. Each reading consisted of one multiple-choice question and 2~3 additional short-answer questions which were deliberately designed for the participants to attend to and process the target constructions. Additionally, as another method for drawing the participants' attention, target constructions in every reading passage were typographically enhanced via bold facing, bigger and different fonts as in Figure 3.2 (See **Appendix 4** for more materials). The reading materials used for the sessions were identical across the groups – SID and BID – with the exception of input distribution types of verbs in the target sentences.

6. 다음 빈칸에 들어갈 말로 가장 적절한 것은?

Any kid working in a garage knows you can't push more gas into a full tank. If you add more gas, it splashes onto the ground. Likewise, your listener's brain is always full of her own thoughts, worries, and enthusiasm. If **you push your ideas into your listener's brain**, which is full of her own notions, you'll get a polluted mixture, then a spill. If you want your ideas to flow into her tank, drain her tank completely first. Whenever you are discussing emotionally charged matters, let the speaker finish completely before you jump in. Count to ten if you must speak. It will seem like an eternity, but letting the angry speaker finish is the only way that she'll _____.

Figure 3.2

Example Passage of Input-driven Instruction Materials

3.3.2. Procedures

For the experiment, all the participants underwent two procedures – testing phases and input treatment sessions. Table 3.4 describes overall procedures for the current study.

Table 3.4
Procedures for the Current Study

Procedures	Week	Measures or Target Input	Time Allotment
Pretest	1 st week	English-to-Korean translation test	10 minutes
		Construction-based sorting test	20 minutes
		Multiple reading comprehension test	25 minutes
Input treatment	2 nd week	Caused-motion construction input	80 minutes
	3 rd week	Double-object construction input	80 minutes
	4 th week	Transitive resultive construction input	80 minutes
Posttest	5 th week	English-to-Korean translation test	10 minutes
		Construction-based sorting test	20 minutes
		Multiple reading comprehension test	25 minutes

3.3.2.1. Pretest and Posttest

In both testing phases, students' understanding or knowledge of target constructions was examined on the one hand; on the other hand, their improvements in reading comprehension ability were also measured. All the tests were done during the parts of regular English lessons.

In line with the purpose of the present study, two tests for measurement of construction knowledge — EKT, CBS— were administered in the same period. After the two tests, in the following lesson, the MRC tests were conducted.

3.3.2.2. Treatment: Input-driven Learning

The current study excluded the formal instructions on the target constructions: no explicit explanations on the syntactic and semantic features of each target construction were given. Instead, sentences containing the target constructions were recurrently provided as inherent parts of complete reading passages since language learning and processing are adequately driven by input exposure and experience. In other words, it is posited that constructional knowledge can be formed through abstracting and generalizing regularities implicit in reading input. In this regard, the treatment given in the current study is basically input-driven.

All the input-driven learning sessions were incorporated into 50-minute regular class time, during which 30 minutes were spent in teaching an English textbook officially adopted at the participants' high school, and the rest 20 minutes were spared for the current experimentation. At the time of the research, the high school had 4 periods of English lessons per week and 20 minutes were assumed to be enough to cover two reading passages. Since a total of 16 tokens for each target construction were due to be provided, the learning sessions were planned as a 3-week schedule as a whole; in other words, the participants were exposed to one target construction for 80 minutes in total during each week. Caused-motion constructions were initially provided as input, followed by double object ditransitive constructions and transitive resultative constructions respectively.

During each period, two different reading passages were given to the

participants, who then, for 10 minutes, were asked to read the passages, choose the correct answer for the single multiple-choice question and write appropriate short answers for the additional questions. They were allowed to, if any, ask questions to the researcher or consult each other. For the remaining 10 minutes, the answers were checked as a whole class work, and the participants were guided to comprehend the overall meanings and details of the given texts. In cases of questions for the enhanced target sentences, the researcher nominated other students and got them to answer questions.

3.4. Data Coding and Analyses

This section outlines the procedures of coding the students' responses and introduces the statistical devices for the analyses of the data.

3.4.1. Data Coding

3.4.1.1. English-to-Korean Translation Test

The students read English sentences and wrote their Korean meanings during the EKT test. There were a total of 16 English sentences; 4 sentences per each target construction and 4 distracters. The students' answers were assessed with regard to the central meanings of each target construction. For example, in

the sentence, *Larry took the rose into the house*, if the central meaning, ‘Larry caused the rose to move into the house’ —that is, the agent *Larry*, the theme *rose*, the act of *moving* and its *resultant location* should be embodied—was clearly expressed, it was considered correct even though it was nuanced slightly differently. One point was given to each correct answer and the maximum total amounts to 16 points.

3.4.1.2. Construction-based Sorting Test

Following Bencini and Goldberg (2000), verb deviation score (Vdev) and construction deviation score (Cdev) were computed. According to them, Vdev was computed by counting the number of changes that would have to be made for a sort to be completely constructed by verb; Cdev was calculated by counting the number of changes that would have to be made for a sort to be completely formulated by construction (Bencini & Goldberg, 2000). Thus, the smaller the Cdev score of a student is, the more likely he is to conduct the sorting task on the basis of constructions. Specifically, Cdev scores ranges from 0, the case where complete construction-based sorts were conducted, to 12, the case where complete verb-based sorts were performed. Vdev scores also have the same range, but 0 for the entire verb-based sort, and maximum 12 for the total construction-based sorts.

3.4.1.3. Multiple-choice Reading Comprehension Test

One point was awarded to each question, resulting in maximum 12 points in total. Only if the answer is correct, one point was given.

3.4.2. Data Analyses

For the analyses, 2 individual statistical measures were employed. First, as a whole, two-way ANOVA was computed to see if there were any effects of input-driven learning and differing input frequency distribution depending on groups and sessions. If there were any meaningful differences among groups, Scheffe post-hoc analyses were implemented to identify the differences.

With regard to the relationship between students' construction knowledge and reading comprehension performance, Pearson correlation coefficients were calculated for the whole experimental groups and the filtered students only. Table 3.5 further displays the statistical procedures adopted in the current study.

Table 3.5
Statistical Procedures and Purposes

Types of Statistics	Independent Variables	Dependent Variable	Purpose
One-way ANOVA	Groups	EKT CBS	To compare mean values among groups in the pretest
Two-way ANOVA	Groups Sessions	EKT	To compare mean scores between the pretest and posttest and find any interaction effects
One-way ANOVA	Groups	CBS	To compare mean values among groups in the posttest
Descriptive statistics	—	CBS	To compare the difference in the sorting behavior between the pre- and posttest
Two-way ANOVA	Groups Sessions	<u>EKT(CMC)</u> <u>EKT(DOC)</u> EKT(TRC)	To compare mean scores between the pretest and posttest and find any interaction effects
Paired-sample t-test	Construction	EKT	To compare mean values of each construction between the pre- and posttest
Pearson correlation coefficient	—	MRC EKT	To examine relations between students' knowledge of ASCs and their reading performance

CHAPTER 4.

RESULTS AND DISCUSSIONS

This chapter reports the results of the statistical analyses on the current research, followed by an in-depth discussion of the results

4.1. Results

The beginning section deals with the effects of input-driven instruction on the learning of target ASC, and the following section the effects of differing input frequency distribution on the learning of target ASC. The final section reports the extent to which the increased ASC knowledge correlates with the students' performances in reading comprehension.

4.1.1. Effects of Input-driven Instruction on ASC Learning

The effects of input-driven instruction are presented depending on the EKT test (Section 4.1.1.1.) and the CBS test (Section 4.1.1.2.).

4.1.1.1. Results from EKT Test

In the pretest results, one-way ANOVA ($F(2,89)=2.473$, $p=.09$) compared the three groups, and showed that there were no significant differences among groups, thus if there is any difference between groups after the input session, it should be attributable to the effect of distinct input-driven learning.

Mean scores and standard deviations of the three participant groups for the EKT test are shown in Table 4.1. The results are arranged in the order constructions were presented in the input-driven learning session

Table 4.1
Descriptive Statistics of EKT Test

Construction Types	Test Types	Pretest		Posttest		N
		Mean	SD	Mean	SD	
CMC	EKT	2.815 ^a	.983	2.837	1.169	92
DOC	EKT	3.032	1.063	3.369	.910	92
TRC	EKT	3.423	.879	3.598	.696	92

^a. The maximum possible scores were 4.

As shown by the means, students performed better in the posttest than in the pretest. Specifically, in the posttest, students did get the highest scores ($M=3.598$) for the TRC and the second highest ($M=3.369$) for the DOC while they got the lowest scores ($M=2.837$) for the CMC.

In order to find any differences depending on groups and session and clarify any interaction effects of test session and groups on the whole construction types, two-way ANOVA was calculated on the EKT test scores. The results for the whole constructions are displayed in Table 4.2.

Table 4.2
Two-way ANOVA Results of Total Constructions

Source	df	MS	F	Sig.(2-tailed)
Group	2	39.837	8.016	.000*
Session	1	12.094	2.433	.121
Group*Session	2	3.173	.638	.5290

*p<.01

As shown in the Table 4.2, there were no significant interaction effects between groups and test sessions as a whole. The only difference was found among groups ($F=8.016$, $df=2$, $p=.000$).

Scheffe post-hoc test was analyzed to clarify the difference among groups. The results of the analysis are presented in Table 4.3.

Table 4.3
EKT Results of Scheffe Post-hoc Analysis

(I)Group	(J)Group	Mean Difference	Sig.
SID	BID	.065	.987
	CONT	1.446*	.002*
BID	SID	-.065	.987
	CONT	1.381*	.004*
CONT	SID	-1.446*	.002*
	BID	-1.381*	.004*

*p<.01

The results indicated that the significant effect was evident only between the two experimental groups and control group, which means that students in the SID and BID made a significant improvement with the target ASCs. This suggests that students can acquire the constructional knowledge, —e.g., CMC, DOC, TRC— when they are exposed to a sufficient amount of and well-organized input with no direct or explicit instruction.

4.1.1.2. Results from CBS Test

In the pretest phase, one-way ANOVA ($F(2,89)=.289$, $p=.75$ for the Cdev , $F(2,89)=.466$, $p=.63$ for the Vdev) showed that there were no significant differences among groups. As with the EKT test, accordingly, if

there is any difference among groups after the input session, it should be due to the effect of input-driven learning.

First of all, mean scores and standard deviation of the three participant groups are presented in Table 4.4.

Table 4.4
Descriptive Statistics of CBS Test

Group	Test	Pretest		Posttest		N	
		Mean	SD	Mean	SD		
SID	CBS	Cdev	8.39	5.30	4.91	5.30	33
		Vdev	4.06	5.25	7.39	5.21	
BID	CBS	Cdev	7.93	5.50	4.20	5.27	30
		Vdev	4.67	5.48	8.03	5.31	
CONT	CBS	Cdev	8.97	4.82	8.48	5.36	29
		Vdev	3.34	5.04	3.90	5.43	

As shown by the means, in the experimental groups—SID and BID—students performed better than those in the control group. In other words, while construction deviation (Cdev) scores of the two experimental groups lowered as compared to the results in the pretest, the mean Cdev scores in the control group remained nearly unchanged.

One-way ANOVA calculation for the three groups strongly supported the

results in Table 4.4. Compared to the pretest results, in the posttest, the students' performance ($F(2,89)=5.529$, $p=.005$ for Cdev scores, $F(2,89)=5.204$, $p=.007$ for Vdev scores) differed substantially among groups as in the Table 4.5. However, the post-hoc analyses (Table 4.6) indicate that the differences came from the gap between the experimental groups and control groups; in other words, the analyses showed that there was not any significant difference between SID and BID group.

Table 4.5
One-way ANOVA of CBS Test in the Posttest

Test	SS	df	MS	F	Sig.
CBS(Cdev)	311.710	2	155.855	5.529	.005*
CBS(Vdev)	293.465	2	146.732	5.204	.007*

* $p<.01$

Table 4.6

Results of Scheffe Post-hoc Analysis in the Posttest

Test	(I)Group	(J)Group	Mean Difference	Sig.
CBS(Cdev)	SID	BID	.70909	.859
		CONT	-4.53918	.003*
	BID	SID	-.70909	.859
		CONT	-5.24828	.001*
	CONT	SID	4.53918	.003*
		BID	5.24828	.001*
CBS(Vdev)	SID	BID	-.63939	.886
		CONT	4.39394	.005*
	BID	SID	.63939	.886
		CONT	5.03333	.001*
	CONT	SID	-4.39394	.005*
		BID	-5.03333	.001*

*p<.01

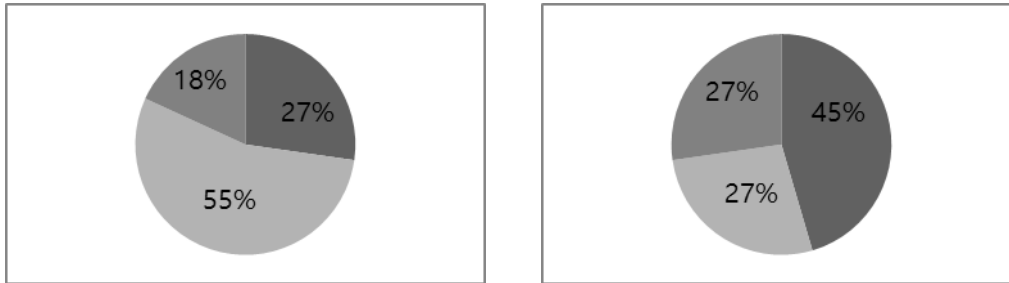
When it comes to the two experimental groups, even though the mean difference between Cdev ($M=4.57$, $SD=5.25$) and Vdev ($M=7.70$, $SD=5.22$) was still quite huge compared to the result from the pretest ($M=8.17$, $SD=5.36$ for Cdev, $M=4.35$, $SD=5.32$ for Vdev), the mean score of Cdev was much lower than that of Vdev ($t(124)=-3.35$, $p=.001$), which means that the students' sorting

became more construction-based. This change is supported by the paired-sample t-test results between the pretest and posttest; the Cdev scores ($t(62)=5.315, p=.000$) and Vdev scores ($t(62)=-4.792, p=.000$) differed significantly after the input-driven learning.

In order to give credence to the dramatic quantitative changes in students' behaviors reported above and uncover underlying phenomena behind the results, more in-depth analyses were executed. Figure 4.1 graphically represented the percentage of students' sorting sentences by either construction-based or verb-based behavior.

■ Construction-based ■ Verb-based ■ Mixed

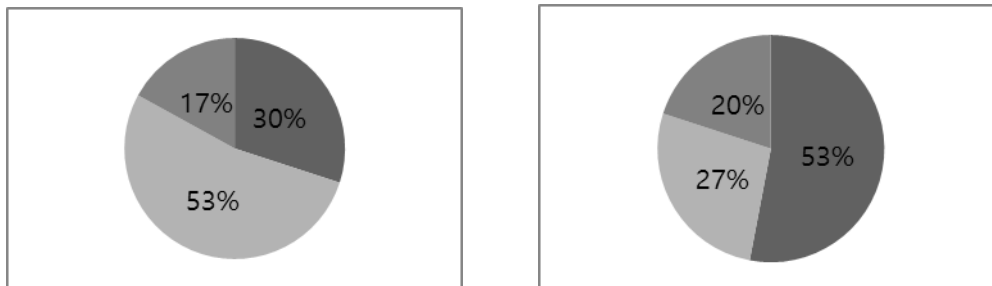
SID



Pretest

Posttest

BID



Pretest

Posttest

Figure 4.1

Percentage of Sorting Types in Pretest and Posttest

As shown in Figure 4.1, in the posttest, almost half of the students produced construction-based sorts and the number of students who performed mixed sorts apparently increased compared to the pretest results. These quantitative changes, however, could not correspond directly to the fact that students might have

reasonable rationale for classifying the given sentences. Thus, for those who changed their sorting behaviors from verb-based or mixed sorts to construction-based sorts, analyses of the written protocols were conducted. Their explanations for sorts are presented in Table 4.7.

Table 4.7
Analyses of Students' Written Protocols

Student	Sorting Behavior	Sorted Group	Rationale for Sorting
A	Verb-based	CMC	The sentences in the group have the meaning of someone placing something somewhere
		TRC	The sentences in the group have the meaning of someone acting on something, led to a particular state.
↓			
B	Construction-based	TRC	In the group, subject (someone) acted on its object (something) and it was led to a state.
C		CMC	In this pile, sentence meanings are related to changes of (the object's) locations.
		TRC	In this pile, (the sentence subject) changed the state (of the object)
D		CMC	In the pile, (a person) moved things to a different location.

		TRC	In the pile, (a person) changed the state of something.
E		TRC	In this group, sentences have the meaning of the subject causing the object to be in a state.
F	Mixed	CMC	In this group, the subject moved the object to a different location, which was specified by the prepositional phrases. The verbs seemed to not play important roles.
	↓	TRC	In this group, the subject caused the object's appearances or properties to be changed, in which the final end state was depicted using adjectives etc.
	Construction-based	CMC	In this group, the subject moved the object to a particular location.
G		DOC	In this group, the subject gave his belongings to the first object in a sentence. The transfer of possession.
		TRC	In this group, the subject caused the object to be the object complement. That is, the state of the object is changed to the object complement.

The analyses of written protocols showed convincingly that students' sorting

performances were not accidental, but most of them had clear and reasonable rationales to classify the stimuli, focusing mainly on the overall meaning of the sentences.

4.1.2. Effects of Input Frequency Distribution Manipulation on ASC Learning

4.1.2.1. Results from EKT Test

Table 4.3 showed that there were no significant differences between SID and BID in terms of the whole constructions. In order to explore if there are any differences between the two groups in terms of each construction type, two-way ANOVA and post-hoc tests were conducted.

Table 4.8
Two-way ANOVA Results of CMC

Source	df	MS	F	Sig.(2-tailed)
Group	2	7.819	7.126	.001*
Session	1	.010	.009	.925
Group*Session	2	.734	.669	.513

*p<.01

Table 4.9
EKT Results of Scheffe Post-hoc Analysis on CMC

(I)Group	(J)Group	Mean Difference	Sig.
SID	BID	-.018	.995
	CONT	.618*	.005*
BID	SID	.018	.995
	CONT	.636*	.005*
CONT	SID	-.618*	.005*
	BID	-.636*	.005*

*p<.01

Table4.10
Two-way ANOVA Results of DOC

Source	df	MS	F	Sig.(2-tailed)
Group	2	4.402	4.680	.010*
Session	1	4.893	5.202	.024
Group*Session	2	1.052	1.118	.329

*p<.01

Table 4.11**EKT Results of Scheffe Post-hoc Analysis on DOC**

(I)Group	(J)Group	Mean Difference	Sig.
SID	BID	-.033	.982
	CONT	.454*	.036*
BID	SID	.033	.982
	CONT	.487*	.026*
CONT	SID	-.454*	.036*
	BID	-.487*	.026*

*p<.05

Table 4.12**Two-way ANOVA Results of TRC**

Source	df	MS	F	Sig.(2-tailed)
Group	2	2.222	3.606	.029*
Session	1	1.363	2.211	.139
Group*Session	2	.220	.357	.700

*p<.05

Table 4.13

EKT Results of Scheffe Post-hoc Analysis on TRC

(I)Group	(J)Group	Mean Difference	Sig.
SID	BID	.1167	.707
	CONT	.3736*	.032*
BID	SID	-.1167	.707
	CONT	.2569	.209
CONT	SID	-.3736*	.032*
	BID	-.2569	.209

Whereas the results ($F=7.126$, $p=.001$ for CMC, $F= 4.680$, $p=.01$ for DOC, $F=3.606$, $p=.029$ for TRC) from two-way ANOVA for each construction revealed that students' performance differed among the three groups, the post-hoc analyses showed that there were no meaningful contrasts between SID and BID as far as the CMC and DOC are concerned (Table 4.9 and 4.11). It is notable, however, that students' performance with TRC differed significantly only between SID and CONT (Table 4.13) while there were no difference between BID and CONT. More specifically, it was calculated the extent to which students' performance improved by construction types in each group by paired sample t-test.

Table 4.14**Paired- sample T-Tests by Construction Types in Each Group**

Group	Constructions	Mean Difference	T	df	Sig. (2-tailed)
SID	CMC	-.15152	-1.044	32	.304
	DOC	-.54545	-3.464	32	.002**
	TRC	-.24242	-2.101	32	.044*
BID	CMC	-.13333	-1.000	29	.326
	DOC	-.40000	-3.525	29	.001*
	TRC	-.03333	-.239	29	.813
CONT	CMC	.24138	1.022	28	.316
	DOC	-.03448	-.171	28	.865
	TRC	-.24138	-1.316	28	.199

*p<.05, **p<.01

As shown in Table 4.14, no input learning effects were observed for caused-motion constructions (CMC). With regard to double object constructions (DOC), however, there were significant differences between the pretest and the posttest in SID and BID group. This result indicates that the students' performance improved substantially on the DOC. It is also worthwhile to note the results from transitive resultative constructions (TRC), for which each group showed divergence in its performance: only the group exposed to input with a skewed distribution

performed significantly better than the BID. This indicates that learning effects may differ depending on the combination of the property of target construction and corresponding input frequency distribution. The implication of the result will be discussed in more detail in the DISCUSSION chapter.

4.1.2.2. Results from CBS Test

Although students' sorting behavior markedly contrasted between the pretest and the posttest (Table 4.4), little difference between the SID and BID is found as shown in the Table 4.6 and Figure 4.1. The results suggest that overall, different types of input distribution did not lead to distinct effects.

4.1.3. Strength of Association between ASC Knowledge and Passage-level Reading Performance

In order to assess the effects of improved ASC knowledge on learners' reading comprehension performance, correlation coefficients were computed. The results showed that there was a moderate to strong correlation between the two variables (Table 4.13). In calculating the correlation, Cdev and Vdev scores were excluded because they did not satisfy the conditions for the correlational analyses. In other words, in order to conduct correlational analyses, the data should be in linear relation and the distribution of the data should not be truncated. In the

current study, however, if the input sessions affected students' construction learning and, thus, student performance of sorting became more construction-based, Cdev and Vdev scores were more likely to be skewed toward 0 and 12 point respectively. Therefore, it is not appropriate to employ the data for the correlational analysis.

Table 4.15

Pearson Correlations between MRC and EKT Tests (Total Participants)

		MRC	EKT
MRC	Pearson Correlation	1	.479**
	Sig. (2-tailed)		.000
	N	63	63

**p<.01

In addition to data analysis of total participants, a further analysis was made for those whose sorting in the post session was more construction-based than in the pretest session. Of those 63 participants, only 23 showed critical and radical changes in the sortings from verb-based or mixed sorts to construction-based sorts. As shown in Table4.14, in comparison with the analysis of total participants, the results of the filtered students showed there was a greater strength of association between translation tests and reading comprehension tests.

Table 4.16

Pearson Correlations between MRC and EKT Tests (Filtered Participants)

		MRC	EKT
MRC	Pearson Correlation	1	.574**
	Sig. (2-tailed)		.004
	N	23	23

**p<.01

4.2. Discussions

In this section, the research findings are presented and the issues posed by the research questions are explored. The section begins with the discussion of the effects of input-driven learning through the passage-level readings on construction learning depending on its type (Section 4.2.1). In Section 4.2.2, the effects of differing input frequency distribution are intensively discussed. The last section (4.2.3) discusses the noticeable effects of argument structure construction learning on students' improved reading performance.

4.2.1. Effects of Input-driven Instruction by Construction Types

4.2.1.1. Effect of Input-driven Learning on DOC

In the current study, the effects of input-driven learning on construction learning were investigated with regard to the two types of input frequency distribution. In particular, it should be noted that the target ASCs were embedded in the written discourse, namely, a complete passage while typographically enhanced. Despite the lack of explicit instructions on the target constructions, the results of the study indicated that input-driven learning based on the passage-level readings facilitated the non-native learners' overall construction knowledge. Especially, as displayed in Table 4.1 and 4.14, the significant improvement with

the DOC is argued to fully validate the effects of providing input based on passage readings. In order to explore the specific improvement with the DOC, it is required to categorize the errors according to their features. The followings show specific types of translation errors made in EKT pretest :

(1) Conflation of two arguments into one

Target stimulus: James kicked me[Obj₁] a stone[Obj₂].

Perceived sentence: James kicked my stone[Obj₁].

Target stimulus: Wilson bought her[Obj₁] a ring[Obj₂].

Perceived sentence: Wilson bought her ring [Obj₁].

Target stimulus: Pat threw Linda[Obj₁] a pencil[Obj₂].

Perceived sentence: Pat threw Linda's pencil[Obj₁].

(2) Treating the second object as an adjunct with a figurative meaning

Target stimulus: James kicked me[Obj₁] a stone[Obj₂].

Perceive sentence: James kicked me[Obj₁] hard[Adjunct].

Related to the ongoing discussion, of particular interest is the case (1) where the majority number of the student learners gave the 'transitive construction' translations. Specifically, the two arguments following the matrix verb—the indirect object[Obj₁] and the direct object[Obj₂]—were conflated into and

construed as one single argument. In the DOC construction, the referent of the first object should be understood as a possessor of the referent of the second object by the act of transferring whether it be literally or metaphorically; however, some students mistook the new possessor for the original possessor of the second object, which means they perceived the first indirect object as the possessive form.

These observations of the students' errors might be simply considered that students just processed two post-verbal complements as one since more elements caused more processing load to them. In the perspective of constructionist approach to language development, however, it suggests students' incomplete knowledge on construction. In the pretest and posttest, each set of stimuli had the same verbs: *kick*, *send*, *throw*, and *buy*. Basically, these verbs feature common properties such as punctuality, volitionality, and affectedness of object, all of which are closely connected to the degree to which an action is transferred from a subject agent to a direct object patient (Hopper & Thompson, 1980). It is likely, therefore, that a sentence involving one of these verbs is conceived to carry the scene where an agent (normally realized as a subject) intentionally instigates an action that affects a patient (normally realized as a direct object) (Talmy, 1985). In addition to this verbal feature of strong transitivity, it is also noteworthy that most students conducted verb-centered sorts in the pretest sorting test as shown in Table 4.4 and Figure 4.1. Taking these two facts into account, some students were likely to focus mainly on the verbs and falsely recognize two independent arguments as one single argument at the time of the pretest phase.

However, when a sentence instantiating the DOC is placed into a written

discourse as part of it, the readers are more likely to discern the two post-verbal objects as different individual entities since the old and non-dominant constituent, which is normally realized as a pronominal form, precedes the new and dominant one (Arnold et al., 2000; Erteschik-Shir, 1979)⁴. That is, in the process of reading comprehension, the readers can recognize that the rightmost object in a double object sentence becomes most likely the one that the writer intends to draw the readers' attention to in the following sentences. Consequently, the written discourse encourages the readers to clarify their comprehension of the syntactic and semantic features of the DOC. That is why student learners showed the greatest improvement with the DOC in the present study.

Moreover, in (2) above, a few learner students translated the direct object[Obj₂][—]in constructionist approach, a theme transferred to the recipient[Obj₁][—]as adjunct; in other words, they must have thought the direct object as an adverbial with metaphorical meaning, thus modifying the matrix verb as other adverbials usually do in a sentence. In (2), therefore, the direct object '*a stone*' was construed as a degree modifier encoding the meaning, '*hard*.' This kind of error is also easily recovered in the passage readings, since readers can check their understanding by continuously comparing it to the context.

⁴ From the discourse perspective, *the given-before-new* principle specifies that old and given information comes before new information in a double object construction (Gundel, 1993). In a similar vein, Erteschik-Shir (1979) proposed a notion of dominance as a discourse constraint. It reads that a dominant constituent, which is meant to bring a hearer's attention, is placed at a sentence-final position.

4.2.1.2. Effect of Input-driven Learning on CMC

It should be noted that, despite a series of input-driven sessions, it seemed that the students' learning of the caused-motion construction is delayed the most. As shown in Table 4.1, the translation test result of the caused-motion was the lowest of the three construction types in the initial test and the result persisted in the final test. This delayed development of the caused-motion was somewhat surprising in that average EFL Korean learners were reported to have more difficulty with the transitive resultative over the caused-motion in the learning development (Lee & Kim, 2011)⁵.

First of all, this gap between the former and the present study is attributable to cross-linguistic difference between English and Korean. Talmy's (1985, 2000)⁶ classification of languages suggested that some languages, including Korean and Spanish, conflate Path, which is claimed to be a core semantic element of a motion event, with the main verb while others such as English, Russian and Chinese encode Path in the 'satellites to verbs' such as *in*, *out*, and *up* etc. Included in the

⁵ Goldberg's (1995) L1 study of English speakers also reported that the resultative construction is likely to be acquired later, but since the current participants' L1 is Korean, the following discussion is compared only to Lee et al.(2011).

⁶ Talmy(1985) proposed that a motion event can be analyzed into basic semantic elements, which also consist of internal components(a-d) and external co-event components (e,f) summarized as follows:

- a. Figure: a moving or conceptually movable object
- b. Ground: a reference-frame, or a reference object stationary within a reference-frame, with respect to which the Figure's path or site is characterized
- c. Path: the course followed or the site occupied by the Figure objects
- d. Motion: the presence per se of motion or location in the event
- e. Manner: the type of motion
- f. Cause: causing events

former group of language are “verb-framed” languages and the latter, “satellite-framed” languages.

Based on Talmy’s typology of languages, English and Korean exhibit different lexicalization patterns for expressing caused motion event (Choi & Bowerman, 1991; Kim, 1995) as illustrated in (1):

(1) a. English : John kicked the ball into the box.

b. Korean : John-i kong-ul sangca-ey cha-se nhe-ess-ta.

John-NOM ball-ACC box-LOC kick-by put.in-PAST-DECL

(adapted from Choi, 1997)

ACC: accusative DECL: declarative LOC: locative

NOM: nominative PAST: past tense marker

As displayed in (1) above, for the caused motion event, English expresses two individual events⁷ with the same verb, and encodes the Path of the event in the satellite, the preposition *into*. This conflation pattern of semantic components allows English speakers to incorporate the caused-motion event into one single sentence. In contrast, in Korean, Path (*nhe-*, ‘*put in*’) is conflated into the verb root and Manner (*cha-*, ‘*kick*’) is expressed by adding the suffix *-se*, which means

⁷ According to Talmy’s (2000) analysis, example (1a) consists of two simpler event: a framing event and a co-event. Put simply, a framing event refers to a particular motion event while a co-event relates to the cause or manner through which the motion is performed. Therefore, (1a) is construed as ‘John moved the ball into the box (the framing event) by kicking it (the co-event).

either *by/by means of* or *and*. In other words, Korean language employs the way in which the sentence embodying the Manner/Cause of the motion should be coordinated or embedded into another independent sentence expressing the Path. It is argued, therefore, that the discrepancy to express the caused motion event between English and Korean contributes to the learning delay of the caused-motion construction.

However, the difference in the lexicalization patterns of the motion event does not suffice to explain the delayed learning. Meaningful for further discussion is the particular stimulus in the translation test, “*Tom blew the tissue/paper off the table*” because more than half of the students still did not give the proper translation to the test item. Compared to other verbs in the current and Lee and Kim’s (2011) study such as *hit, throw, slice, get and take*, the verb *blow* is considered to be less transitive in terms of affectedness of object (Hopper & Thompson, 1980; Tsunoda, 1985). In fact, it usually appears in the intransitive sentence (2) or simple transitive sentence (3):

(2) The cold wind is blowing from the east.

(3) The referee blew his whistle.

Even in (3), the degree to which the act of *blowing* affects the direct object (*his whistle*) seems to be relatively weak, which in turn leads students to have difficulty guessing its use in the construction with the caused-motion interpretation. The fact that most of the incorrect answers to the test stimuli can be translated into

the sentence, *'Tom blew the tissue/paper at or on the table'* provides support for the reasoning. Furthermore, in the learning session, the tokens provided during the readings were either a prototypical verb (*put*) for the CMC or verbs (*throw, take, push, send* and *kick*) with relatively high transitivity, resulting in students' poor performance with the semantically idiosyncratic stimuli.

4.2.1.3. Effect of Input-driven Learning on TRC

In the current research, unlike the previous studies (Goldberg, 1995; Lee & Kim, 2010), the students scored the most with TRC items in the translation tests. However, care should be taken in analyzing the results in that the test measurement does not provide a comprehensive picture of students' learning of the TRC.

English resultative constructions are different from Korean resultative constructions in terms of syntactic and semantic properties (Kim, 2016). Kim (2016) claims that Korean learners' understanding of English resultative constructions is affected by syntactic and semantic properties of Korean across all proficiency levels. To be specific, Korean learners tend to treat the resultative phrase in resultative constructions as adverbials or adjunct denoting result, manner or degree. Furthermore, previous studies (Wechsler & B. Noh, 2001; Yeo, 2006) argued that the Korean morphological marker *'-key'*, which is usually used as a Korean translation counterpart for English AP-resultatives, has a dual function, that is, as a resultative predicate and an adverbial suffix. In fact, in the current

study, the 42.9% of the students in the pretest and the 66.7% of the students in the posttest used the morphological marker ‘-key’ to translate the English AP-resultatives. Other translation morphemes primarily used to treat the English AP-resultatives included ‘-lo’ (25% in the pretest, 8.3% in the posttest) and ‘-tolok’ (7.1% in the pretest, 8.7% in the posttest), which, according to Kim, also implies that the students were likely to perceive the resultative phrases as adverbs denoting degree, result and manner. Analyses of students’ written protocols (Table 4.7) after sorting tests, however, showed that some students seem to develop a clear and correct understanding of the TRC. Therefore, it is required to look further into the students’ understanding of English resultative constructions using another testing measures including grammaticality judgment test or sentence completion test.

4.2.2. Effects of Input Frequency Distribution Manipulation on Construction Learning

Comparing the translation test results in the pretest and posttest by construction types (Table 4.14), the distinct learning effects were found with the transitive resultative; in other words, students in the SID only made a significant progress in the translation test. According to the previous studies (Bybee, 2008; Johnson and Goldberg, in progress; Goldberg et al., 2007; McDonough & Nekrasova-Becker, 2014), in the initial phase of construction formation, the skewed input distribution is argued to be more effective than the balanced input distribution since it can assist learners in finding the concrete similarity among

exemplars and in turn recognizing an abstract category and fostering generalization. This claim is in line with the current result in two ways: a) few students have learned the construction in question throughout formal English lessons and b) the resultative construction is uncovered to be one of the most demanding constructions for Korean EFL learners (Lee & Kim, 2011). Consequently, the result partially supports the argument that skewed input distribution plays a facilitative role in initial construction learning, which, in turn, ensures that different input distribution should be provided by considering students' proficiency and familiarity with the target item.

Overall, however, as shown in Tables 4.6, 4.9, 4.11 and 4.13, the results of the study did not find any statistically significant differences between the skewed and balanced input distribution conditions. Unlike studies with L1 English speakers, the majority of L2 research also found little evidence of significant effects for skewed input on the learning of target constructions (McDonough & Nekrasova-Becker, 2011; McDonough & Trofimovich, 2013; Nakamura, 2012; Sung, 2014; Year & Gordon, 2009), which is largely congruent with the current research.

Regarding the divergent results, two factors can be examined. First of all, whereas the L1 studies (Goldberg et al., 2004, 2007) introduced a novel construction with the novel English word order (NP-NP-V) indicating the appearance of something—so called, APPEARANCE construction, the current study employed the natural linguistic constructions. In addition, the participants of this study have learned at least two of the target constructions—caused-motion and

double object ditransitive construction—in their English lessons throughout formal education⁸. This means that at the initial time of the research most of the students have been already familiar with some constructions to some extent. The fact that students gained high scores in EKT in the pretest as in Table 4.1 gives support to the reasoning. Consequently, it is claimed that their familiarity with the target constructions cancelled off the advantages the skewed input might have brought. In other words, facilitative effects of skewed input on construction learning are beneficial at one's early stage (Casenhiser & Goldberg, 2005; Ellis & Ferreira-Junior, 2009; Goldberg et al., 2004, 2007); however, as the learning experiences accumulate—that is, when an abstract and constrained schema for a specific construction is roughly formed, its effects are not guaranteed. At the later stage of learning, where established category should be broadly expanded or generalized, balanced input distribution is claimed to be more effective and productive (Bybee, 2008; Johnson & Goldberg, in progress; McDonough & Nekrasova-Becker, 2014)

Another discrepancy between research findings is methodological and attributable to the way the target sentence stimuli were presented. In the prior L1 studies, the total number of tokens and frequency of target items were able to be controlled with rigidity, since the target items were provided one by one along

⁸ In English classroom settings in Korea, the grammar learning has been the center of the instruction for decades of years. In the curriculum, students are generally taught prepositional dative construction as an alternate form, but with no changes in meaning, of double object dative. Thus, it is reasonable to assume that most students are acquainted with the superficial structure of CMC and DOC to a large degree. It is notable, however, that a typical grammar instruction is totally different from construction grammar-based approach in that the grammar teaching focuses mainly on the structural features to the exclusion of their corresponding meanings.

with pictures or video clips. In contrast, in the present study, which based its input on passage-level readings, it was inevitable that learners were recursively exposed to either target sentences using non-targeted verbs or other non-targeted sentences including target verbs such as *get*, *take*, and *make*. With regard to the CMC, for instance, the sentences such as “*Ben Gibson escorted him through the factory,*” or “*I plugged my digital camera into my computer*” were not targeted and thus not enhanced, but included in the readings. Importantly, some participants mentioned that given the paucity of the specific verbal knowledge such as *escort* and *plug* above, intended sentence meanings were amply derived from the information given in the readings. Consequently, the redundancy from the input readings is maintained to contribute greatly to reducing the impacts of the skewed input distribution.

4.2.3. ASC Knowledge and Passage-level Reading Comprehension Ability

In the present experiment, learners’ performance in the reading comprehension was investigated by means of multiple-choice reading comprehension tests. More specifically, it examined to what extent the learning of ‘argument structure construction’ affected the learners’ reading performance.

The results of the posttest revealed that, in the experimental groups, there were significant improvements of performance in reading. Furthermore, in the analysis of the total participants of the experimental groups (N=63), learners’

enhanced construction knowledge was moderately correlated with their reading comprehension ($r=.479, p<.001$) while, for the screened participants (N=23), who conducted more construction-based sorts compared to their performance in the pretest, the strength of association became intensified to the level of moderate to strong correlation ($r=.574, p<.05$).

This implies that learning of argument structure constructions helped the learners to analyze syntactic information at clause or sentence level, which is crucially required for achieving comprehension. To be specific, given that one of the key abilities to comprehend the sentence or the text is closely intertwined with extracting and reconstructing propositional meanings by parsing sentences into appropriate meaningful units, learned argument structure construction knowledge might enable learners to process sentences more efficiently since the constructionist approach posits argument structure constructions as basic units of language and language analyses. It means that students' load of processing sentences is lessened by shifting the critical determinant of overall sentence meaning from verbs to larger argument structure constructions. In actuality, it was reported that good comprehenders are so excellent at parsing sentence into bigger meaningful chunks that they show more progress in the reading speed and accuracy of reading comprehension compared with the poor comprehenders (Nuttall, 2008). Nuttall's (2008) study still holds true for the present research, since the argument structure constructions examined in this study are one of the possible candidates for the parsing units.

In keeping with the discussion above, the argument structure construction

itself encodes its own meaning, thereby guiding the learners' attention to overall propositional meanings, while backgrounding the specific verbal meaning. In other words, students can process sentences including unknown verbs and derive their overall denotations using configurations of each argument without reference to specific meanings of verbs. This way of reading may exert facilitative effects on readings in that it can alleviate readers' cognitive load —e.g., working memory execution—for processing unknown words and direct their remnant cognitive resources to grasp overall gist of the given paragraph.

Importantly, this finding between the ASC knowledge and reading comprehension suggests that it is of necessity to expand a frame of grammar. In the reading research, a variety of terminologies were used including syntactic awareness, syntactic knowledge and grammar knowledge, but it was common that the focus of the study was “primarily concerned with the well-formedness (or ill-formedness) of a sentence or parts of a sentence such as a clause or a phrase” (Shiotsu, 2010, p.27). In other words, most reading research to date has conceptualized grammar knowledge as morphosyntactic knowledge such as tense, word order and subject-verb agreement, thereby resulting in separating the semantic dimension from grammar. Larsen-Freeman (2003) also cautioned the act of teaching grammar by focusing solely on the form/structure and suggested a three-dimensional grammar framework including form, meaning, and use. Accordingly, as a newly extended concept of grammar, a greater focus on the English argument structure constructions could produce interesting findings that support the importance of grammar in reading comprehension.

CHAPTER 5.

CONCLUSION

This chapter draws the conclusion to the current research and discusses the major findings and pedagogical implications (Section 5.1). In section 5.2, the limitations of the present study and suggestions for future study are provided.

5.1. Major Findings

The present study investigated the effects of differing input frequency distributions on EFL secondary students' learning argument structure constructions based on input-driven instruction approach. In addition, the relationship between enhanced knowledge on ASCs and general reading comprehension performance was also explored. The major findings of the study are summarized as follows:

First, the input-driven instruction based on passage-level readings was effective enough to promote learners' understanding of the target argument structure constructions. In particular, the approach contributed the most to learning of the DOC because the sufficient information and context created from a written discourse aided learners in discerning the first and second objects of the construction. No progress, however, was found with the CMC, which is presumably attributable to the two factors. One factor lies in the cross-linguistic

difference in lexicalization patterns of caused-motion event. In other words, in Korean, which is classified as verb-framed language, an individual sentence embodying the Cause or Manner of a motion event should be incorporated into another separate sentence expressing the Path while, in English, a satellite-framed language, the Path of the event can be realized as either a particle or a preposition along with a main verb embodying the Manner. The other is related to the fact that one of the test items includes a verb, *blow*, which is considered low in the degree of affectedness of object.

Second, skewed input distribution seemed to better affect the acquisition of the TRC, but overall it showed no overwhelmingly advantageous effects over the balanced input distribution. This may come from the fact, on the one hand, that most students are more or less familiar with the target ASCs. On the other hand, the way input is provided may interfere with the accurate manipulation of input frequency distribution. In other words, since it is inevitable that students encounter many uncontrolled-for verbs and argument structure constructions while reading a series of passages, the effects of input distribution may be weakened compared to previous L1 (Casenhiser & Goldberg, 2005; Goldberg et al., 2004, 2007) and L2 (McDonough & Trofimovich, 2013; Sung, 2014; Year & Gordon, 2009) studies where most target stimuli were given sentence by sentence at a sentence level. In relation to this, however, it is worthwhile to note that without explicit instructions input-driven learning through passage-level readings takes effects in students' acquisition of ASCs.

Finally, students' knowledge on the ASCs seemed to have a substantial

association with their reading performance. The Pearson correlation analysis indicated that the association got stronger when students' translation accuracy increased and sorting performances were based more on construction. This positive correlation between ASCs learning and reading comprehension can be ascribed to the fact that as a basic unit of language analysis, each ASC enabled students to parse sentences into more meaningful chunks.

5.2. Implications for Pedagogical Practices

Based on the major findings above, the present study addresses the following implications for pedagogical practices.

First, previous studies (Jang, 2014; Kim, 2012; Rah, 2014; Shin, 2009; Sung, 2014) thus far have paid much attention to the instructional methods with which the acquisition of argument structure constructions is facilitated in an efficient way. The current study, however, opens the door to feasibility of input-driven learning as a viable and practical way of teaching argument structure constructions independently of explicit instructions. Therefore, it is recommended that well-organized input provision be considered in the process of teaching or designing the curriculum along with establishing bountiful and meaningful contexts.

Second, the current study confirmed the facilitative roles of input-driven instruction in construction learning, but lends partial support to beneficial effects of the skewed input distribution over the balanced input distribution as far as the

transitive resultative construction, which is reported to be delayed in the sequence of constructional development and unfamiliar with the present participants students, is concerned. Therefore, it is essential that teachers make the best use of differing merits of input distribution depending on learners' proficiency and acquaintance with the target item.

Finally, componential approach to L1 and L2 reading (e.g., Grabe, 2009; Koda, 2007; Stanovich, 2000) explored a variety of subskills of reading ability such as morphological knowledge, phonological awareness, decoding skill, vocabulary knowledge and grammar knowledge, to name a few, and uncovered the correlation of strength between reading comprehension performance and those factors through empirical studies. In particular, according to Jeon and Yamashita's (2014) meta-analysis, it was found that of 10 reading correlates, grammar and vocabulary knowledge factors are the strongest correlates of L2 reading ($r=.85$ for grammar, $r=.79$ for vocabulary on average). Although English argument structure construction-based grammar education differs inherently from traditional grammar-based education concentrating mainly on the structural and morphosyntactic features, the results from the current study suggest that ASCs be considered an influential correlate of learners' reading performance. Thus, it seems essential that L2 learners should have a chance to learn argument structure constructions that facilitate their L2 reading development at a passage level.

5.3. Limitations and Suggestions for Future Research

Although the present study presented some insightful findings, it admittedly has several limitations to be further investigated.

First, the amount of input, that is, the number of token frequency required for accurate research was not certain. In the current study, the prototypical lexical verb in each target construction occurred at best 8 times for the skewed input distribution group, which was considered relatively higher token frequency as compared to the previous studies. It is not positive, however, that the given token frequency was sufficient enough for there to be any learning effect. Therefore, in future studies, it is necessary to ponder upon the appropriate number of token frequency based on theoretical and empirical evidence.

Second, due to the practical constraints, such as the duration of experimentation and regular class schedules, the current study could not administer a delayed posttest, which hindered the retention of the target construction from being measured. Further study should be equipped with a delayed posttest to see if distinct input distributions make a difference in the amount of retention.

Third, in the current study, during the input sessions, the CMC was presented first in order. This was because the construction was considered to be connected to DOC through polysemy links and TRC through metaphorical links, which was likely to facilitate students' learning. However, the present study revealed that putting the CMC first might not play a facilitative role in learning

ASCs; thus, when providing several ASCs in a row, it is required to think of the better presentation order based on more convincing empirical and theoretical evidence.

Forth, regarding the estimated benefits of the ASCs learning to reading performance, more empirical studies based on passage-level readings should be conducted. As a unit of linguistic analyses, the ASC is likely to expedite readers' sentence processing at a discourse level and thus lead to speedy and efficient reading comprehension. In particular, it is expected that readers who process sentences on a construction basis do not linger on a certain verb because the overall sentence meaning is derived largely from the ASC itself. Therefore, in order to empirically verify the impact of construction learning on reading, it would be worth keeping track of the readers' eye movement and measuring self-paced reading time using eye-tracking.

Lastly, the multiple-choice reading question format is generally considered to deliver higher level of objectivity than other types of test formats. However, it carries the inherent flaws that readers can answer to question without reference to the text. They also find the correct answer by eliminating inappropriate distractors lacking complete understanding of the text. Thus, this naturally requires that future research implement another test or additional forms of questions for more credible research. It can include having students recall or reproduce the text they read or adding short-answer questions to the multiple-choice questions.

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APPENDICES

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APPENDIX 1. English-to-Korean Translation Test

1.1. Pretest

반 : ___ 번호 : ___ 이름:

◆ 다음 문장들을 잘 읽고 우리말 문장으로 표현해 보시오.

1. Laura threw the ball into the net.
→ 우리말 뜻 : _____
2. Pat threw Linda the pencil.
→ 우리말 뜻 : _____
3. Terry walked down the street.
→ 우리말 뜻 : _____
4. Lee wiped the table clean.
→ 우리말 뜻 : _____
5. Andrew rubbed the hands warm.
→ 우리말 뜻 : _____
6. James kicked me the shoes.
→ 우리말 뜻 : _____
7. Larry took the rose into the house.
→ 우리말 뜻 : _____
8. Muffy painted the house green.
→ 우리말 뜻 : _____
9. A ball rolled into the garden.
→ 우리말 뜻 : _____
10. Sarah sent him an email.

→ 우리말 뜻 : _____

11. Kim went up the stairs.

→ 우리말 뜻 : _____

12. Tom blew the tissue off the table.

→ 우리말 뜻 : _____

13. Joe ran out the room.

→ 우리말 뜻 : _____

14. Wilson bought her a ring.

→ 우리말 뜻 : _____

15. Pat kicked the door open.

→ 우리말 뜻 : _____

16. David hit the ball across the road.

→ 우리말 뜻 : _____

1.2. Posttest

반 : ___ 번호 : ___ 이름:

◆ 다음 문장들을 잘 읽고 우리말 문장으로 표현해 보시오.

1. Pat blew the paper off the table.
→ 우리말 뜻 : _____
2. Joe hit the ball across the field.
→ 우리말 뜻 : _____
3. Matt threw James the eraser.
→ 우리말 뜻 : _____
4. Raymond went up the mountain.
→ 우리말 뜻 : _____
5. Mary painted the room white.
→ 우리말 뜻 : _____
6. Joe sent her a postcard.
→ 우리말 뜻 : _____
7. Terry walked down the stairs.
→ 우리말 뜻 : _____
8. Mat wiped the window clean.
→ 우리말 뜻 : _____
9. Muffy threw the box into the garage.
→ 우리말 뜻 : _____
10. Chris kicked me the ball.
→ 우리말 뜻 : _____

11. Sally kicked Bill black and blue.
→ 우리말 뜻 : _____
12. A ball rolled into the room.
→ 우리말 뜻 : _____
13. Paul rubbed the hands warm.
→ 우리말 뜻 : _____
14. Andrew took the present into the car.
→ 우리말 뜻 : _____
15. Laura bought him a flower.
→ 우리말 뜻 : _____
16. Joe ran out the classroom.
우리말 뜻 : _____

APPENDIX 2. Construction-based Sorting Test

2.1. Pretest

반 : ____ 번호 : ____ 이름:

◆ 다음 문장들을 잘 읽고 지시에 따라 과제를 수행하시오.

<보 기>	
Example sentences (16문장)	
(1) Chris threw Linda an eraser.	(9) Jennifer cut Terry a tomato.
(2) Laura got the coin into the hole.	(10) Paula took Sue a notebook.
(3) Nancy cut the ball open.	(11) Dana got the car fixed.
(4) Lyn threw the chair apart.	(12) Barbara cut the banana.
(5) Lee got the letter.	(13) Rachel took the tower down.
(6) Pat threw the book onto the desk.	(14) Beth got Liz a present.
(7) Kim took the box into the car.	(15) Meg cut the meat onto the pan.
(8) Amy threw the ring.	(16) Larry took the spoon.

1. 다음은 <보기>에 제시된 문장들이다. 제시된 문장들을 잘 읽고 그 의미(뜻, 해석)를 우리말로 빈 칸에 적으시오.

(1) Chris threw Linda an eraser.

의미 (뜻) : _____

(2) Laura got the coin into the hole.

의미 (뜻) : _____

- (3) Nancy cut the ball open.
의미 (뜻) : _____
- (4) Lyn threw the chair apart.
의미 (뜻) : _____
- (5) Lee got the letter.
의미 (뜻) : _____
- (6) Pat threw the book onto the desk.
의미 (뜻) : _____
- (7) Kim took the box into the car.
의미 (뜻) : _____
- (8) Amy threw the ring.
의미 (뜻) : _____
- (9) Jeniffer cut Terry a tomato.
의미 (뜻) : _____
- (10) Paula took Sue a notebook.
의미 (뜻) : _____
- (11) Dana got the mattress inflated.
의미 (뜻) : _____
- (12) Barbara cut the banana.
의미 (뜻) : _____
- (13) Rachel took the tower down.
의미 (뜻) : _____
- (14) Beth got Liz a present.

의미 (뜻): _____

(15) Meg cut the meat onto the pan.

의미 (뜻): _____

(16) Larry took the spoon.

의미 (뜻): _____

2. <보기>에 제시된 문장들을 전체적인 의미를 고려하여 아래에 제시된 것처럼 분류하시오. 단, 문장을 다시 쓰지 말고 번호를 적고, 각 그룹이 동일한 개수의 문장이 되도록 할 것.

<문장분류>

Group A		Group B		Group C		Group D	
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

3. 문제 2번에서 <보기>의 문장들이 각각의 그룹에 속하도록 분류한 기준이 있었다면 빈 칸에 그 기준을 적으시오.

<분류 기준>

Group A	Group B	Group C	Group D

2.2.Posttest

반 : ___ 번호 : ___ 이름:

◆ 다음 문장들을 잘 읽고 지시에 따라 과제를 수행하시오.

<보 기>	
Example sentences (16문장)	
(1) Chris threw Linda the pencil.	(9) Jennifer cut Terry an apple.
(2) Laura got the ball into the net.	(10) Paula took Sue a message.
(3) Nancy cut the tire open.	(11) Dana got the mattress inflated.
(4) Lyn threw the box apart.	(12) Barbara cut the bread.
(5) Lee got the book.	(13) Rachel took the wall down.
(6) Pat threw the keys onto the roof.	(14) Beth got Liz an invitation.
(7) Kim took the rose into the house.	(15) Meg cut the ham onto the plate.
(8) Amy threw the hammer.	(16) Larry took the watch.

1. 다음은 <보기>에 제시된 문장들이다. 제시된 문장들을 잘 읽고 그 의미 (뜻, 해석)를 우리말로 빈 칸에 적으시오.

(1) Chris threw Linda the pencil.

의미 (뜻) : _____

(2) Laura got the ball into the net.

의미 (뜻) : _____

(3) Nancy cut the tire open

의미 (뜻) : _____

(4) Lyn threw the box apart.

의미 (뜻) : _____

(5) Lee got the book.

의미 (뜻) : _____

(6) Pat threw the keys onto the roof.

의미 (뜻) : _____

(7) Kim took the rose into the house

의미 (뜻) : _____

(8) Amy threw the hammer

의미 (뜻) : _____

(9) Jennifer cut Terry an apple.

의미 (뜻) : _____

(10) Paula took Sue a message.

의미 (뜻) : _____

(11) Dana got the mattress inflated.

의미 (뜻) : _____

(12) Barbara cut the bread.

의미 (뜻) : _____

(13) Rachel took the wall down.

의미 (뜻) : _____

(14) Beth got Liz an invitation.

의미 (뜻) : _____

(15) Meg cut the ham onto the plate.

의미 (뜻): _____

(16) Larry took the watch.

의미 (뜻): _____

2. <보기>에 제시된 문장들을 전체적인 의미를 고려하여 아래에 제시된 것처럼 분류하시오. 단, 문장을 다시 쓰지 말고 번호를 적고, 각 그룹이 동일한 개수의 문장이 되도록 할 것.

<문장분류>

Group A		Group B		Group C		Group D	
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

3. 문제 2번에서 <보기>의 문장들이 각각의 그룹에 속하도록 분류한 기준이 있었다면 빈 칸에 그 기준을 적으시오.

<분류 기준>

Group A	Group B	Group C	Group D

APPENDIX 3. Multiple-choice Reading Comprehension Test

3.1. Pretest

학번 : _____ 이름 :

※ 다음 글을 잘 읽고 문제에 대한 답을 답안지에 표시하시오.

1. 밑줄 친 They[they]가 가리키는 대상이 나머지 넷과 다른 것은? ()

Movies may seem to be just amusement and entertainment, but to me, ①they are the best answer to the loneliness and boredom of my life. In movies I meet wonderful people and see places I would never be able to see. ②They are a time machine, taking us back into the past or even giving us a glimpse of the future. From ancient Egypt to *Star Wars*, ③they are a trip through time. Another reason I like movies is that for a few hours in the dark, I can feel that all people in the audience are on my side. ④They may be strangers, but we laugh and cry together. Movies can be thrilling or joyous. ⑤They take us away from our sadness and problems. *glimpse : 잠깐(힐끗) 봄

2. 다음 빈칸에 들어갈 말로 가장 적절한 것은? ()

Any kid working in a garage knows you can't pump more gas into a full tank. If you add more gas, it splashes onto the ground. Likewise, your listener's brain is always full of her own thoughts, worries, and enthusiasm. If you pump your ideas into your listener's brain, which is full of her own notions, you'll get a polluted mixture, then a spill. If you want your ideas to flow into her tank, drain her tank completely first. Whenever you are discussing emotionally charged matters, let the speaker finish completely before you jump in. Count to ten if you must speak. It will seem like an eternity, but letting the angry speaker finish is the only way that she'll _____.

- ① admit her mistake
- ② have her own way
- ③ come up with a new idea
- ④ hear you when it's your turn
- ⑤ start again when she recovers

3. 주어진 글 다음에 이어질 글의 순서로 가장 적절한 것은? ()

Why was 1816 known as the year without a summer? In 1816 the eruption of a volcano in Indonesia threw billions of dust into the atmosphere.

- (A) For instance, some parts of Europe experienced average temperatures of 2.5°C below normal. In England heavy snow fell in summer and frost occurred every month of the year.
- (B) When the dust entered the atmosphere, wind spread it all over the world. As a result of this volcanic activity, normal weather patterns were greatly changed.
- (C) Moreover, Western Europe and Canada experienced crop failures. It took more than a year for the dust to settle and the climate to return to more normal conditions.

*eruption: (화산) 폭발

- ① (A)-(C)-(B) ② (B)-(A)-(C) ③ (B)-(C)-(A)
- ④ (C)-(A)-(B) ⑤ (C)-(B)-(A)

4. 다음 글이 시사하는 바를 한 문장으로 요약하고자 한다. 빈칸 (A)와 (B)에 들어갈 말로 가장 적절한 것은? ()

One Sunday, Ben Gibson, the chairman of a huge fruit processing company, decided to give his guests a quick tour of one of his plants. Since the plant was closed on Sundays, the only person there when they arrived was the security guard. Looking as if he were carrying the weight of the world on his hunched shoulders, he answered Ben's knock. But when Ben introduced himself and asked the guard for *his* permission to look around the plant, he straightened right up with a smile. He replied, "Certainly, sir." Then, after saying, "I'll bet you know this plant better than anyone," Ben Gibson asked the guard to escort him through the plant. The man's posture improved even more. In fact, he looked four inches taller and much younger than he had looked before. By the end of the ten-minute tour, he seemed like a new man.

*escort : 안내하다, hunched : 구부정한, 굽은



Giving _____ (A) _____ to a person is likely to raise the level of his _____ (B) _____.

- | (A) | | (B) |
|-----------|-------|-------------|
| ① respect | ..... | confidence |
| ② advice | ..... | dependence |
| ③ advice | ..... | expectation |
| ④ advice | ..... | confidence |
| ⑤ respect | ..... | dependence |

5. Atlantis에 대한 다음 글의 내용과 일치하는 것은? ()

There is a story about a mysterious city called Atlantis that comes out of Greek legend. Atlantis was a very rich city located in the middle of the Atlantic Ocean. The climate on the island was so good that two harvests were possible each year. Because Atlantis was an island, it served Poseidon. Poseidon gave Atlanteans enough fresh water to drink. He also gave the city some laws to follow. At first the people kept his laws, but later they began to ignore Poseidon's laws. That caused the god to destroy Atlantis with a powerful flood

- ① 태평양에 위치한 부유한 도시였다.
- ② 매년 수확을 한 번만 할 수 있었다.
- ③ 수많은 작은 섬들로 이루어졌다.
- ④ 신선한 마실 물이 부족했다.
- ⑤ 홍수로 인해서 멸망했다.

6. 다음 글의 내용과 일치하지 않는 것은? ()

When I got back to my hotel room after taking a lot of pictures, I was eager to upload the photos to my blog. I plugged my digital camera into my computer, and when the process was complete, no photos were there! Worse, the photos on my memory card were gone. When I told my friend what had happened, he sent me a certain program designed to recover photos that were deleted from flash memory cards by mistake. I tried the program. It filled a folder with most of the photos I had lost. I hope you will never have an occasion to use this kind of program. But you need one to have lost files recovered in case things go wrong.

- ① ‘I’는 호텔방에 돌아와서 찍은 사진을 블로그에 올리려고 했다.
- ② ‘I’는 디지털 카메라의 메모리 카드를 뽑아서 컴퓨터에 연결하였다.
- ③ 당일 찍었던 사진뿐만 아니라 모든 사진 파일이 존재하지 않았다.
- ④ 친구가 메모리 카드에서 삭제된 파일을 복구하는 프로그램을 보내주었다.
- ⑤ ‘I’는 삭제된 사진의 대부분을 복구할 수 있었다.

7. 다음 글의 내용과 일치하지 않는 것은? ()

Has the smell of something ever made you think of a spring day? Have some scents made you happy? Scientists discovered what certain smells do. One thing they know is that lemons remind people of things that are fresh and clean. People who make cleaners and soaps for the home often use a lemon scent. The smell of vanilla helps people relax. It may be very helpful for patients in hospitals. A peppermint scent makes people awake. Since people need to be alert when they're working, this may be used in office buildings. Cinnamon and apple smells remind many people of their homes. Some stores put these scents in the air to make customers comfortable. That way they'll want to buy more. *Cinnamon 계피

- ① 레몬향은 상큼하고 깨끗한 것들을 상기시킨다.
- ② 가정용 청소 세제나 비누를 만들 때 레몬향이 종종 사용된다.
- ③ 바닐라향은 병원에 있는 환자들에게 유용하다.
- ④ 페퍼민트 향은 사람들이 깨어있게 한다.
- ⑤ 계피향은 사람을 편안하게 하므로 많은 사람들이 그것을 구매하고 싶어한다

8. 다음 글의 주제로 가장 적절한 것은? ()

Like all animals, it is our natural instinct to be afraid of fire. However, we were able to go beyond our natural fears and we used fire to protect ourselves from predators, cook food and transform formless clay and iron into tools. We also learned to domesticate wild animals such as cows, pigs, and chickens and cultivate wild rice, wheat, and vegetables as a means of producing and storing food. We managed to transform our natural enemies, such as dogs and cats, into our friends. As the population increased, we could also increase our agricultural efficiency to produce more food from the land and livestock. Our intentionality, forethought, self-reactiveness and self-reflectiveness are what makes human beings different from animals.

*domesticate : 길들이다, 사육하다

- ① 농업의 발달과 인구증가의 관계
- ② 불의 사용이 문명에 가져온 변화
- ③ 가축의 증가가 환경에 미친 영향
- ④ 환경을 이용한 동물들의 생존 방식
- ⑤ 환경을 통제하는 인간 고유의 능력

9. 다음 글의 주제로 가장 적절한 것은? ()

In the middle of winter, homes are sealed tight. Householders want to cut down on heating bills, so they make their home air tight. But while keeping the cold out, they keep in a surprising amount of air pollution. Then do we have to stop breathing the air in our home? According to a scientist, house plants can help make indoor air breathable. He found that some common house plants had an appetite for certain poisons in the air. Lilac takes in large amounts of toxic chemicals, and ivy loves benzene. Someday all homes and offices will have indoor gardens built into them. They will be a normal part of the design of the building's air control system. *toxic: 유독한

- ① 겨울철 온실 관리 방법
- ② 실내화초의 공기 정화 능력
- ③ 밀폐된 실내 공기의 유독성
- ④ 가상 미래 주택의 냉난방 장치
- ⑤ 온도에 따른 식물성장의 차이점

10. 다음 글의 요지로 가장 적절한 것은?()

There are many things in life that we do not know, and there is freedom in saying “I don’t know.” When we admit this, we can then open ourselves up to the opportunity to learn—and there is power in that. We cannot possibly know everything. And when we think we do, we limit ourselves from growing and learning more. People who can admit not knowing tend to be more intellectually and emotionally confident than those who pretend to know everything. They are also likely to be more comfortable with who they are, and thus don’t feel the need to cover up their ignorance. People can actually end up appearing more foolish when they act as if they had knowledge that they do not.

- ① 편안한 학습 분위기를 조성해야 한다.
- ② 모른다는 사실을 인정할 줄 알아야 한다.
- ③ 상대방의 입장을 이해하려고 노력해야 한다.
- ④ 새로운 것에 대한 지적 호기심을 가져야 한다.
- ⑤ 어려운 상황에서도 자신감을 잃지 말아야 한다.

11. 글의 흐름으로 보아 주어진 문장이 들어가기 가장 적절한 곳은? ()

You could, for example, have a notice board in your room, where you can pin up important notes.

Display your class work in noticeable positions so that you can be constantly reminded of it.

(①) You can also use the board as a place to post all those sticky notes reminding you of things you have to do for your classes. (②) If you don't have space for a board, you can try the refrigerator. (③) For this you can use fridge magnets to hold your work in place. (④) By displaying your work in this way, you can have a constant visual reminder of it. (⑤) You can also check your progress in your studies and have a feeling of pride and achievement.

*sticky: 붙일 수 있는

12. 다음 글의 빈칸에 들어갈 말로 가장 적절한 것은? ()

What does it mean to say that an informative speech is too technical? It may mean the subject matter is too _____ for the audience. Any subject can be popularized—but only up to a point. Say your subject is electronic amplifiers. The important thing for a speaker to know is what can be easily explained to an ordinary audience and what cannot. For example, it's relatively easy to explain in words how to operate an amplifier. But to give a full scientific account of how an amplifier works cannot be done in any reasonable time unless the audience knows the principles of audio technology. The material is just too technical to be understood by a general audience.

*informative: 유용한 정보를 주는

- ① informal ② subjective
③ specialized ④ reasonable
⑤ instructive

3.2.Posttest

학번 : _____ 이름 :

※ 다음 글을 잘 읽고 문제에 대한 답을 답안지에 표시하시오.

1. 밑줄 친 He (he, him)가 가리키는 대상이 나머지 넷과 다른 것은? ()

The plane took off, and thirteen minutes later, it was at 17,300 feet. Thomas, the flight attendant, walked into the cockpit and asked the pilot if ①he would like some tea. Thomas was walking out of the cockpit when there was an enormous explosion. ②He turned around and saw that the pilot's windshield was completely gone. The wind was pulling the pilot out through the window. ③He was already halfway out. Thomas grabbed the pilot's legs and tried to pull ④him back into the plane, but he couldn't. The wind was too strong. So, the pilot stayed where ⑤he was — half in and half out of the plane.

*cockpit (비행기) 조종실

2. 다음 빈칸에 들어갈 말로 가장 적절한 것은? ()

When I made my debut as a television talk show host, I was so nervous because I had never been on TV before. The producer sat me on a swivel chair. Big mistake. Because of my nerves, I kept swiveling back and forth. And every viewer out there could see it. It got to be amusing, so I went with my instinct. I put the viewers in my position. I told the viewers I was nervous. I said I had been in radio for three years, but this was my first time on television. And somebody had put me in this swivel chair. So everyone knew my situation, and I wasn't nervous anymore. That made me talk better, which made me more successful on my first TV show all because I _____

- ① respected their opinions
- ② read their body language
- ③ was honest with my emotion
- ④ was satisfied with my viewers
- ⑤ carefully observed their responses

3. 주어진 글 다음에 이어질 글의 순서로 가장 적절한 것은? ()

A Russian man named Rasputin developed a reputation for holiness and faith healing. However, he also became known as the “mad monk” because he drank heavily, rarely bathed, and acted strangely.

- (A) Soon he became the most influential person in the government. All of the new appointments in both the Government and Church passed through his hands. He even put his illiterate friend in a high position.
- (B) Despite his odd behaviors, Rasputin had a strong charm that drew many people to him including the Russian empress who had a seriously ill son. When Rasputin showed himself able to heal her son, their bond became truly stronger.
- (C) Many nobles couldn't stand him anymore. To them, Rasputin was no healer; instead, he was using his relationship with the empress for his own benefit. So, they planned to get rid of him and succeeded.

- ① (A) - (C) - (B) ② (B) - (A) - (C)
- ③ (B) - (C) - (A) ④ (C) - (A) - (B)
- ⑤ (C) - (B) - (A)

4. 다음 글의 화자(I)에 관한 내용과 일치하지 않는 것은? ()

Whenever I remember my experience in the Mexican Air Force, I think of my flight instructor because he taught me how to fly a fighter jet. His nickname was Ice-Man because he was always calm. This was a positive characteristic because he had to teach students not to panic in a dangerous situation. For example, one time, I made a big mistake while we were flying in the clouds. Most instructors would take control and fix the situation, but Ice-Man didn't. He just gave me instructions to fix the problem. I corrected the mistake and developed confidence in my abilities.

- ① 공군에서 전투기 조종사를 배웠다.
- ② 그의 비행교관은 대단히 차분한 성격을 가지고 있었다.
- ③ 그의 비행교관에게서 위험한 상황에서도 겁을 먹지 않도록 배웠다.
- ④ 비행 중 실수를 했을 때, 그의 교관이 직접 상황을 통제하고 해결했다.
- ⑤ 실수의 경험을 통해 자신감을 얻었다.

5. 다음 글의 주장으로 가장 적절한 것은? ()

Young kids have no idea what things cost. There's no difference to them between the cost of a candy bar and that of a video game. Older kids may know what things cost, but they may have little idea about whether they're getting value for their money. They may know that a pair of sneakers cost \$100, but are they worth the money? That's why it's important to help your child understand what things cost and whether there's value in that cost. There is a good way you can do this. Give your child an allowance. Nothing teaches kids quicker about what things cost than by giving them their own money to spend. This decision-making freedom allows them to get the feel of prices.

- ① 가격 비교는 현명한 소비를 가능하게 한다.
- ② 부모가 검소한 소비습관의 본보기가 되어야 한다.
- ③ 어린 시기의 과한 용돈은 성장 후 과소비로 이어진다.
- ④ 자녀들로 하여금 용돈을 스스로 벌게 하는 것이 좋다.
- ⑤ 자녀에게 용돈을 주어 물건의 값어치를 가르칠 수 있다.

6. Robert De Vincenzo에 대한 다음 글의 내용과 일치하는 것은? ()

Robert De Vincenzo, the great golfer, once won a tournament. After the awards ceremony, he walked alone to his car in the parking lot. Then, a young woman came to him. She congratulated him on his victory and told him that her child was seriously ill and near death. She could not afford to pay the hospital expenses. He was touched by her story and gave her his prize money for payment. The next week he was having lunch in a country club when one of his friends came to his table. "Some of the boys told me you met a young woman in the parking lot after you won that tournament." De Vincenzo nodded. "Well, I have the worst news for you." said he. De Vincenzo was told by the friend that she had no sick baby. She cheated him to get the money. At this, De Vincenzo said, "You mean there is no baby who is dying? That's the best news I've heard all week."

- ① 우승 시상식이 끝난 후 지인들과 함께 차를 타러 이동했다.
- ② 주차장에서 만난 여성은 그와 만난 적이 있었던 사람이었다.
- ③ 그가 받은 상금 전부를 그 여성에게 자녀의 병원비로 주었다.
- ④ 그의 친구는 주차장에서 만난 여자에 대한 좋은 소식과 나쁜 소식을 전해주었다.
- ⑤ 친구가 전한 나쁜 소식에 대단히 안타까워 했다.

7. 다음 글의 제목으로 가장 적절한 것은? ()

In conditions of true free trade, goods, services, capital, and labor are all able to move from one country to another with little or no restriction. Generally, though, while goods, services, and capital can come and go freely, the movement of labor is closely controlled by immigration policies. Even so, economic globalization has been accompanied by the migration of large numbers of people. Economic migration is nothing new, but globalization has apparently made western culture more familiar to people in developing countries. Similarly, worldwide transportation and communications networks have made the migration easier.

- ① Merits and Demerits of Migration
- ② Definitions of Economic Migration
- ③ Limits of Free Trade across Countries
- ④ What Motivates Economic Migration?
- ⑤ Factors Affecting Economic Globalization

8. 다음 글의 내용과 일치하지 않는 것은? ()

Koreans have a long history of papermaking and have always used native good-quality paper. Korea's oldest paper, called *Maji*, was made from hemp. *Maji* is produced using the following steps. First, you should soak small pieces of hemp in water for some time and then cut them into tiny pieces. Next, you are supposed to turn those tiny pieces into a slippery pulp by using a grindstone. After that, it is steamed, cleansed with water, ground again and placed in a tank. This raw material is pressed onto a frame and sun-dried while being whitened. This method of papermaking was most popular during the Three Kingdoms period.

*hemp대마 *soak 담그다 적시다

- ① 한국은 종이 만들기의 오랜 역사를 가지고 있다.
- ② 한국의 가장 오래된 종이를 마지라고 한다.
- ③ 대마를 물에 불려 잘게 잘라서 마지를 만든다.
- ④ 마지의 원료를 틀에 넣어 누른 후 그늘에서 말린다.
- ⑤ 삼국시대 때 마지 제조법이 널리 성행하였다.

9. 다음 글의 내용을 한 문장으로 요약하고자 한다. 빈칸 (A)와 (B)에 들어갈 말로 가장 적절한 것은? ()

Throughout history, scientists have wondered about body organs that don't seem to do anything useful. The appendix is a popular example. Actually, we can live without this little worm-like organ. However, a recent study found that the appendix serves as a "safe house" for good bacteria, which help people digest food and fight off "bad" bacteria. Wisdom teeth are another example of a body part with hidden powers. Today, most people get their wisdom teeth removed before they can squeeze other teeth out of place or get infected. However, millions of years ago, human faces weren't as flat as they are today and mouths had more room for wisdom teeth. Our ancestors might have benefited from them when chewing and grinding raw food.

*appendix 충수 *digest 소화하다



Some body parts seem ____ (A) ____ but, in fact, they have or used to have certain ____ (B) ____.

- | (A) | | (B) |
|---------------|-------|-------------|
| ① unnecessary | ..... | purposes |
| ② separated | ..... | links |
| ③ damaged | ..... | strengths |
| ④ healthy | ..... | defects |
| ⑤ similar | ..... | differences |

10. 글의 흐름으로 보아 주어진 문장이 들어가기에 가장 적절한 곳은? ()

To fix it, you might try sitting farther away from the screen so that it doesn't fill your field of vision.

Occasionally, when teenagers play video games, they get motion sickness. (①) That kind of motion sickness has been called simulator sickness. (②) It doesn't affect just video-game players. (③) A 1995 report by the US Army Research Institute found that almost half the military pilots who used flight simulators developed aftereffects. (④) Like motion sickness, simulator sickness seems to occur when there is a disagreement in the brain between what you're seeing and what your inner ear reports. (⑤) Experience also helps you get over it. It seems that after enough exposure to dizzying graphics, your brain gets used to them.

*dizzying 어지럽게 만드는, 어지러운

11. 다음 글의 요지로 가장 적절한 것은? ()

Immortality, which means living forever, has been an unreachable ambition for many people. Now we are getting closer as medicine and science are curing countless diseases. Perhaps in time we will find a way to stop or turn back aging. However, imagine if your problem had nothing to do with sickness or old age—if you had a mental health problem, for instance, or if your partner died before the immortality treatment became available and you were left without him or her forever. You would go completely insane. So if we are able to become immortal, we would be responsible for the suffering that goes along with it. *ambition 야망

- ① 사람은 누구나 오래 살고 싶어 한다. ② 영원한 삶이 언제나 좋은 것만은 아니다.
- ③ 배우자의 죽음만큼 고통스러운 것은 없다.
- ④ 정신적인 건강이 노화방지에도 도움이 된다.
- ⑤ 인류는 질병 치료를 위해 의학을 발전시켜 왔다.

12. 다음 글의 빈칸에 들어갈 말로 가장 적절한 것은? ()

Imagine having dinner in an expensive restaurant with someone special. Your server, however, is invasive and short-tempered. How would you feel? Most people would say annoyed or angry. Now imagine that a friend who is eating at the restaurant knows the server, comes over to inform you that the server's son was killed in a car accident the previous day, but she had to work anyway because she was broke. Now how would you feel? Most people would say sorry. How can your emotions switch from anger one second to compassion in the next? The server has not changed. She is still being her irritating self. If so, what neutralized anger? _____ did. It can liberate you from narrow and negative thinking and help you to be less quick to judge. *invasive 공격적인

- ① Empathy ② Complaint ③ Service ④ Fortune ⑤ Determination

APPENDIX 4. Input-driven Instruction Materials

4.1. Skewed Input Distribution

4.1.1. Caused-Motion Construction

※ 다음 글을 읽고 물음에 맞는 답을 고르고 (객관식), 알맞은 답을 우리말로 쓰시오(주관식).

1. 밑줄 친 This가 가리키는 것으로 가장 적절한 것은?

This is one of the numerous traditional Korean games, which was normally played during the winter season. **Players kicked a Korean-style shuttlecock into the air.** The shuttlecock was made of old coins. People wrapped several coins with cloth and **put feathers into the hole in the center.** Then the shuttlecock was kicked with one foot or both feet into the air. The person who kicked it the most number of times without dropping it on the ground won the game.

- ① 활쏘기 ② 공기놀이 ③ 제기차기
④ 팽이치기 ⑤ 연날리기

Q1 : 한국적 스타일의 셔틀콕을 사용해서 선수들이 어떤 행동을 하나요?

Q2: 한국적 스타일의 셔틀콕을 만들기 위한 과정을 쓰세요.

2. 다음 글에 드러난 'I'의 심정으로 가장 적절한 것은?

I put the bag of food inside my shirt. I tried to look calm with a paper bag down the front of my shirt, walking towards the fence. I was about fifty feet from the fence when I heard Milo shout, "Hey, you! Come back here!" I started running for the fence. Milo screamed again. "Come back here or I'll send my dog after you!" That only made me run even faster for the fence. And Milo yelled, "Get him, Chopper! Go and get him!" **I threw the bag over the fence.** Behind me, I could hear Chopper coming, shaking the earth, breathing fire and ice from his nose.

- ① relaxed ② lonely ③ pleased
④ terrified ⑤ envious

Q1 : 'I'는 음식이 든 가방을 어디에 두었나요?

Q2 : Milo가 'I'를 쫓아올 때, 'I'는 가방을 어떻게 했나요?

Q3 : 'I'를 쫓고 있는 Milo의 모습을 어떻게 그리고 있는지 써보세요

4.1.2. Double Object Construction

※다음 글을 읽고 물음에 맞는 답을 고르고 (객관식), 알맞은 답을 우리말로 쓰시오(주관식).

1. 다음 글의 주제로 가장 적절한 것은?

Lately some pop music has been criticized for having bad effects on teens' minds. For example, rap music is being blamed for all the crimes in cities all over America. Rock music is also being blamed for **giving teens only dark images and thoughts in their minds**. Despite the public concerns on their lyrics, (A)rap and rock music actually give many teenagers an outlet from their life problems. They can get away from their boring daily life and just have time on their own. Besides, why should pop music have any 'message' at all? People don't listen to music and analyze the lyrics thoroughly at the same time. They simply listen and enjoy it.

*lyrics: 가사 *outlet: 탈출구

- ① the origin of rap and rock music ② how to better understand your parents
③ the unjust criticism on rap and rock music ④ why classical music is important to teens
⑤ famous artists in American pop music

Q1: 록음악이 미국 사회에서 많은 비난을 받는 이유는 무엇인가?

Q2: 밑줄 친 (A) 문장을 우리말로 해석하고, 구체적인 사례를 본문에서 찾아서 쓰시오.

(1) 우리말 해석:

(2) 구체적인 사례:

2. 다음 글의 빈칸에 들어갈 말로 가장 적절한 것은?

Augustus, one of the Roman emperors, made sure the empire had natural frontiers and placed soldiers there. He was not interested in gaining new territory for Rome. Instead, he worked on _____ . For this, **he gave local governors documents that guaranteed long terms of position.** This allowed them to gain experience in their jobs. **He also paid them large salaries:** They would not feel the need to overtax the people. In this way, he kept borders that would be easy and safe to manage as they were. Besides, to make sure that people did not pay too little or too much tax, he ordered a census, a population count, to be taken from time to time.

- ① governing the existing empire
- ② expanding the Roman empire
- ③ reorganizing the military force
- ④ dividing territory for soldiers
- ⑤ developing new diplomatic policies

Q1: 로마 황제 아우구스투스가 자신의 대외 정책을 실행하기 위해서 실시한 세가지 정책은 무엇이었는지 구체적으로 쓰시오.

(1)

(2)

(3)

4.1.3. Transitive Resultative Construction

※다음 글을 읽고 물음에 맞는 답을 고르고 (객관식), 알맞은 답을 우리말로 쓰시오(주관식).

1. 다음 글의 주제로 가장 적절한 것은?

In the middle of winter, homes are sealed tight. Householders want to cut down on heating bills, **so they get their home airtight**. But while keeping the cold out, they keep in a surprising amount of air pollution. Then do we have to stop breathing the air in our home? **According to a scientist, house plants can help make indoor air breathable**. He found that some common house plants had an appetite for certain poisons in the air. Lilac takes in large amounts of toxic chemicals, and ivy loves benzene. Someday all homes and offices will have indoor gardens built into them. They will be a normal part of the design of the building's air control system.

- ① 겨울철 온실 관리 방법
- ② 실내화초의 공기 정화 능력
- ③ 밀폐된 실내 공기의 유독성
- ④ 가상 미래 주택의 냉난방 장치
- ⑤ 온도에 따른 식물성장의 차이점

Q1: 겨울철 난방 요금을 줄이기 위해서 가정에서 어떤 방법을 사용하는가?

Q2: 빈칸에 들어갈 표현을 본문에서 찾아서 쓰시오. (어형변화 시킬 것)

House plants like lilac and ivy can be helpful in _____

4.2. Balanced Input Distribution

4.2.1. Caused-Motion Construction

※다음 글을 읽고 물음에 맞는 답을 고르고 (객관식), 알맞은 답을 우리말로 쓰시오(주관식).

1. 밑줄 친 This가 가리키는 것으로 가장 적절한 것은?

This is one of the numerous traditional Korean games, which was normally played during the winter season. **Players kicked a Korean-style shuttlecock into the air.** The shuttlecock was made of old coins. People wrapped several coins with cloth and **took feathers into the hole in the center.** Then the shuttlecock was kicked with one foot or both feet into the air. The person who kicked it the most number of times without dropping it on the ground won the game.

- ② 활쏘기 ② 공기놀이 ③ 제기차기
⑥ 팽이치기 ⑤ 연날리기

Q1 : 한국적 스타일의 셔틀콕을 사용해서 선수들이 어떤 행동을 하나요?

Q2: 한국적 스타일의 셔틀콕을 만들기 위한 과정을 쓰세요.

2. 다음 글에 드러난 'I'의 심정으로 가장 적절한 것은?

I put the bag of food inside my shirt. I tried to look calm with a paper bag down the front of my shirt, walking towards the fence. I was about fifty feet from the fence when I heard Milo shout, “Hey, you! Come back here!” I started running for the fence. Milo screamed again. “Come back here or I’ll send my dog after you!” That only made me run even faster for the fence. And Milo yelled, “Get him, Chopper! Go and get him!” **I kicked the bag over the fence.** Behind me, I could hear Chopper coming, shaking the earth, breathing fire and ice from his nose.

- ① relaxed ② lonely ③ pleased
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4.2.2. Double Object Construction

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*lyrics: 가사 *outlet: 탈출구

- ① the origin of rap and rock music ② how to better understand your parents
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(1)

(2)

(3)

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※다음 글을 읽고 물음에 맞는 답을 고르고 (객관식), 알맞은 답을 우리말로 쓰시오(주관식).

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Q2: 빈칸에 들어갈 표현을 본문에서 찾아서 쓰시오. (어형변화 시킬 것)

House plants like lilac and ivy can be helpful in _____

2. 다음 글의 빈칸에 들어갈 말로 가장 적절한 것은?

Nowadays, many people are rediscovering the benefits of _____ . They remember the sweet smell of apple pie in their ovens, or the warmth of homemade macaroni and cheese on the stove. The memories of these comforting foods include the people who prepared them and ate them together. Eating those delicious foods together is the way **we transform weak relationships into strong ones**. It is also the way we show we care for each other. (A) Food is more than calories and nutrients for the body; it is something that **gets the soul rich as well**.

*nutrient: 영양소

- ① sharing meals
- ② going on a diet
- ③ keeping a diary
- ④ working together
- ⑤ buying healthy food

Q1: 집에서 직접 만든 맛있는 음식(comforting foods)을 함께 나눠먹는 것은 어떤 효과(장점)를 갖는지 두 가지를 찾아서 영어로 쓰시오. (변형 금지)

- 1) It can help _____
- 2) It can show that _____

Q2: 밑줄 친 (A)가 의미하는 바를 바로 다음에 이어지는 문장 "it is something that gets the soul rich as well"과 관련 지어 쓰시오.

국 문 초 록

본 연구는 사용기반 언어학습과 구문문법주의자들의 언어학습에 대한 접근법을 이론적 배경으로 삼아 입력중심 학습에 기반한 입력빈도분포의 조작이 한국 중등학교 영어 학습자들의 영어 논항구조구문 학습과 단락 수준의 읽기 이해에 미치는 영향을 살펴보았다.

92명의 한국 중등학교 학생들은 세 개의 집단으로 나뉘었다: 왜곡 입력 분포 집단, 균형 입력 분포 집단 그리고 통제집단. 세 개의 목표 영어 논항구조구문—타동이동구문, 이중목적어구문, 그리고 타동결과구문—과 각 구문당 6개의 목표 동사들이 12번의 입력 중심 학습 기간 동안에 사용되기 위해 선택되었다. 왜곡 입력 분포 집단에서는 각 구문에 가장 전형적인 동사가 8번씩 제공되었던 반면, 균형 입력 분포 집단에서는 모든 여섯 개의 동사들이 동일 횟수로 제공되었다. 모든 목표 문장들은 두 세 개의 이해 확인 질문들과 함께 단락 수준의 읽기 지문에 포함되었으며, 입력학습이 이루어지는 내내 목표 구문들에 대한 어떠한 명시적 교수도 제공되지 않았다. 마지막으로, 모든 집단들은 사전 및 사후 평가에서 세 가지의 평가—구문 지식을 측정하기 위한 두 개의 평가와 읽기 이해 수행을 측정하기 위한 한 가지 평가—에 참여하였다.

연구결과는 균형 입력 분포에 비해 왜곡 입력 분포가 유의미할 정도의 유리한 효과가 없다는 것을 보여주었다. 하지만, 번역 평가의 경우 왜곡 입력 분포 집단이 균형 입력 분포 집단에 비해 타동 결과 구문에 있어서 더 큰 향상 정도를 보여주었다. 입력 중심 학습의 효과에 대해서는, 왜곡 입력 분포 집단과 균형 입력 분포 집단 모두 이중목적어구문에 있어서 가장 큰

향상을 보였고 타동이동구문에 대해서는 가장 향상 정도가 낮았다. 비록 대부분의 실험참가자들이, 예상과는 반대로, 영어-한국어 번역 평가의 타동결과구문에서 높은 점수를 얻었지만, 그 결과는 한국어 결과구문이 영어 결과구문과는 통사적 의미적 특질에 있어서 다른 특질을 가지고 있다는 점에서 더욱 심도 있게 연구되어야 한다. 학생들의 읽기 수행 결과는 영어 논항구조구문 지식과 읽기 이해가 전반적으로 적절한 상관관계가 있음을 보여주었다.

분석 결과를 종합해보면, 본 연구는 한국인 중등 영어 학습자들에게 있어 왜곡 입력과 균형 입력은 영어 논항구조구문을 학습하는데 있어서 뚜렷한 효과의 차이를 가져오지 못함을 보여주었지만, 영어 논항구조구문에 대한 입력중심 학습의 효과와 그로 인한 학습자들의 영어 읽기 수행의 밀접한 관련성을 드러내었다.

주요어: 영어 논항구조구문, 입력 빈도 분포, 입력 중심 학습, 입력 강화, 단
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