The Acquisition of the English Locative Alternation by Korean EFL Learners: What Makes L2 Learning Difficult?*

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The present research investigates the acquisition of the English locative alternation by Korean EFL learners, which poses a learnability paradox, taking Pinker's framework of learnability theory as its basis. It addresses two questions (1) how lexical knowledge is represented initially and at different levels of interlanguage development and (2) what kinds of difficulty Korean learners find in the acquisition of English locative verbs and their constructions. Three groups of learners at different proficiency levels with a control group of English native speakers are examined by two instruments: elicited production task and grammaticality judgment task. According to different levels of proficiency, the learners exhibit gradual sensitivity to a change-of-state meaning and obtain complete perception of the meanings of locative verbs (manner-of-motion and change-of-state) and their constructions. Overgeneralization errors are observed in their performance. The errors are due to misinterpretations of particular lexical items in conjunction with the universal linking rules. More fundamental cause of difficulty is accounted for by partial use of learning mechanisms, caused by insufficient L2 input.

[argument structure alternations/developmental pattern/locative verbs, 논항구조 교체/발달패턴/처소격 동사]

I. INTRODUCTION

Due to the recognition of the centrality of the lexicon for second language acquisition (SLA) theory and its complexity associated with argument structure, last few years have witnessed an increased interest in understanding how the lexico-syntactic interface is mentally represented. More recently, SLA researchers thus turned their attention to the learnability issue in the acquisition of the dative alternation (BleyVroman & Yoshinaga, 1992; Inagaki, 1997; Wolfe-Quintero, 1992) and the locative alternation (Bley-Vroman & Joo, 2001; Joo, 2003; Juffs, 1996a, 1996b). The present study investigates the acquisition of the locative alternation by Korean EFL learners within the framework of Pinker's learnability theory. It focuses on the kinds of difficulty Korean learners at different proficiency levels find in the acquisition of English locative verbs and thus provides pedagogical implications on how to approach the lexicon and argument structure in L2 instruction based on potential sources of difficulty.

Argument structure is a complex level of representation of a predicate. It mediates between two other types of representations: the semantic or conceptual information of the lexical entries on the one hand and the syntactic projection of arguments on the other. Furthermore, argument structure alternations pose more challenge for learners: for example, why are both *John loaded eggs into the basket* and *John loaded the basket with eggs* acceptable in English, while not *John poured the glass with water* but *John poured water into the glass* is acceptable?

Regardless of productivity in language use and arbitrariness in the choice of argument structure, children acquire adult-like knowledge with little or no negative evidence (Brown & Hanlon, 1970). More specifically, they learn to distinguish between alternating verbs such as *load* and non-alternating verbs such as *pour*. Concerning second language acquisition, Juffs (1996a) suggested that the learnability problem also exists with the L2 acquisition of the lexico-syntactic interface because L2 learners have to discover which aspects of meaning are relevant to acquire argument structure alternations in the target language through exposure to input. In other words, learners do not usually encounter all verbs in their possible syntactic frames in the input, having to arrive at the correct lexico-syntactic representation from a few representative

exemplars.

In the following, the concept of semantic criteria is discussed as a solution to the logical problem of learnability in the acquisition of locative verbs. Relevant L2 acquisition literature is reviewed both in terms of theory－i.e., in the framework of Pinker's learnability theory－and data related to the acquisition of locative verbs and their constructions.

1. Learnability of Locative Verbs and "Criteria-Governed Productivity"

Locative verbs all encode the relationship between a moving object (theme, content, or figure), which I will refer to as the 'Figure,' and a location (goal, container, or ground), which I will refer to as the 'Ground.' The class of locative verbs in English consists of at least three subclasses based on their syntactic possibilities, as shown in (1-3).

(1) a. John poured water into the glass.   **Figure**
        Alice spilled soup on the table.
     b.*John poured the glass with water.
        *Alice spilled the table with soup.

(2) a. *John filled water into the glass.   **Ground**
        *Alice covered the blanket over the baby.
     b. John filled the glass with water.
        Alice covered the baby with blanket.

(3) a. John loaded apples onto the truck.   **Alternating**
        Alice splashed water on the floor.
     b. John loaded the truck with apples.
        Alice splashed the floor with water.

In English the verbs in (1) allow only the Figure construction, in which the Figure-object is encoded as a direct object and the Ground-object as a prepositional phrase (PP). In contrast, the verbs in (2) allow only the Ground construction, in which the Ground-object is encoded as a direct object and the Figure-object as PP. The verbs in (3) allow both the Figure and Ground

constructions.

The locative constructions in English pose a learnability paradox in L1 acquisition. When children hear *pour water into the glass* and *fill the glass with water*, they could form such argument structures as [V NP into NP] and [V NP with NP] and overgeneralize them to produce such expressions as those in (1b) and (2a). How do they know *Alice spilled the table with soup* and *Alice covered the blanket over the baby* are ungrammatical without being explicitly told? Another aspect of the problem is arbitrariness in the choice of argument structure (Pinker, 1989). There are no simple semantic cues; for instance, near-synonyms, such as *spill* and *splash* or *pour* and *load*, have different kinds of argument structure not indicating where productive rules can be applied and where they are blocked. Furthermore, how do the children know that some verbs like *load* and *splash* in (3) alternate in their syntactic structures, whereas other verbs like *pour* and *fill* do not? The question is how a child figures out which verbs allow which syntactic structures. Most children are able to avoid such errors as in (1b) and (2a) in the absence of negative evidence (Gropen et al., 1989).

Pinker's solution to the learnability rests on the assumption that a child who knows the semantic properties of words and semantic constraints on the alternations can use the constraints as criteria in deciding how far to extend productive rules, which is called "criteria-governed productivity" (Pinker, 1989, p. 52). According to Pinker (1989), criteria arise from an interaction between the nature of lexical rules and inherent meanings of verbs. He argues that lexical rules are, at least in part, semantic operations, so part of what lexical rules do is to change the semantic structures of lexical entries of verbs. Argument structures are projections of verbs' semantic structures via universal linking rules.

Then what semantic criteria do children use to constrain the application of alternation rules? Pinker (1989) proposed that children learn and use 'broad-range rules' and conflation classes constraining the selection of the argument structure and 'narrow-range rules' and conflation classes distinguishing verb classes. At the broadest level of the semantic structures, each semantic structure has a thematic core[1] that expresses only the semantic

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1) It is a schematization of the core of the meanings of a class of possible verbs. The

features that are linked to grammatical structures, and these semantic structures can be shared by broad-range conflation classes that broad-range rules apply to. At the narrowest level, each lexical entry of a verb has a unique semantic structure shared by no other verb, which is parameterized for non-thematic semantic features, and these parameterized structures can be shared by narrow-range conflation classes that narrow-range rules apply to.

1) Broad-Range Rules and Broad Conflation Classes

Broad-range rules for locativization convert a verb of which the thematic core of the argument structure in (4a) is 'X moves Y into/onto Z'[2] into a new verb whose semantic structure contains the thematic core, 'X causes Z to change its state by means of moving Y to Z.' Consequently, its argument structure also changes as shown in (4b) through linking rules.

(4) a. V[NP$_{Figure}$ into/onto NP$_{Ground}$] (e.g., John sprayed paint$_{Figure}$ onto the wall$_{Ground}$.)

     b.   V[NP$_{Ground}$ with NP$_{Figure}$] (e.g., John sprayed the wall$_{Ground}$ with paint$_{Figure}$.)

According to Talmy (1985), when a verb specifies a motion or change, it can also specify the manner of such a motion and some of the properties of the entity that undergoes the change. Verbs in the conflation class corresponding to the thematic core of the argument structure in (4a) specify the manner of causation of the motion of a Figure or content to a Ground or container. They, however, do not have to specify how the Ground or container changes as the result of putting something into or onto it. For example, if you *pour water into a glass*, you have to cause the water to move only in a continuous stream

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thematic core of an argument structure is an example of what Talmy (1985) calls a conflation of semantic elements. Each conflation defines a set of possible predicates in a language.

2) X, the agent, is the subject; Y is the thing that changes a location or theme and is an affected entity or patient and thus is the object; and Z defines both the end of the path that Y moves along and the location with respect to which Y is situated following the motion.

regardless of the end state of the glass; the glass can be full, partially full, or even empty (in case the glass leaks). In contrast, verbs in the conflation class associated with the thematic core of the argument structure in (4b) specify that a Ground or container undergoes a particular change resulting from the addition of material to it. All that is captured in the thematic core schematization is that the state of the Ground or container is seen different as a result of the addition; the manner in which the material was caused to move is irrelevant. For instance, if you *fill a glass with water*, the glass must be completely occupied by water, but the water could have gotten there by being poured, by dribbling, or even by being sprayed into the glass.

2) Narrow-Range Rules and Narrow Conflation Classes

Compatibility with broad-range rules is only a necessary, not a sufficient, condition for a verb to alternate. Broad-range rules and conflation classes still cannot rule out ungrammatical sentences in English like (6b) and (7b).

(5) a. I sprayed paint on the floor.
    b. I sprayed the floor with paint.
(6) a. I dribbled paint onto the floor.
    b. *I dribbled the floor with paint.
(7) a. I covered the floor with paint.
    b. *I covered paint onto the floor.

You can certainly imagine an event in which dribbling paint over a floor results in affecting it as completely as spraying paint on it. Yet you can naturally say *I sprayed the floor with paint* but not *I dribbled the floor with paint*. Another example is that although you covered a floor by means of spraying paint on it, you do not say *I covered paint onto the floor* because *cover* belongs to the non-alternating narrow conflation class "verbs of covering a surface completely", whereas *spray* belongs to the alternating narrow class "verbs of causing ballistic motion along a trajectory" (see Pinker, 1989, pp. 126-127 for details).

A necessary criterion for a verb to participate in the locative alternation is

that it should allow us to predict both a type of motion and an end state. Yet membership in the verb classes (5), (6) and (7) is not completely predicted by the broad constructional meaning of the locative. Thus we cannot just skip the question of why some verbs participate in the locative alternation and others do not. Following Rappaport and Levin (1988), Pinker (1989) suggested that there are "finer-grained criteria" that antecedently determine whether a verb can retain components of meaning for end states or motions. That is, sufficient conditions for alternation are determined by a set of narrow-range rules that classify verbs into narrowly defined semantic classes, so-called narrow conflation classes. The motivation for the classes comes from the Principle of Contrast (Clark, 1987). Figure verbs as in (6) cannot merely specify the movement of a substance to a location but must specify some particular manner of motion or some particular kind of substance. Likewise, Ground verbs as in (7) should specify some particular change of state, not just the fact that a change of state has occurred by covering or filling. The same applies to alternating verbs as in (5); the verbs should contain information that specifies a particular change of state and what kind of thing moves or how it moves.

2. Research in the Acquisition of Locative Verbs

Similar to the course of development of other argument structure alternations (e.g., the causative/intransitive, the dative, the passive), the developmental sequence for the locative alternation follows the general pattern: early conservative usage preceding onset of errors, overapplication of argument structure alternations (i.e., the onset of overgeneralization), and progression toward the adult state.

Bowerman (1982, 1988, 1990) argued that children in the stage of conservative forms make their lexical entries conform to the argument structures in the input; some of the very early uses may reflect not semantic and argument structures that linking rules apply to, but some kind of preliminary, unanalyzed placeholder. She (1982) reported that children correctly used both Figure verbs (e.g., *put, pour, spill*) and Ground verbs (e.g., *touch, cover, hit, bump*) before the age of 2;0 and that overextension of the locative alternation did not begin until around the third birthday. According to Pinker

(1989), a salient aspect of the development of locative constructions in the stage is that neither version of alternation consistently emerges first. Thus there is no consistent acquisition order governing the appearance of verbs whose post-verbal arguments are Figures or Grounds. At some point children cease being conservative learners and apply rules productively. Bowerman (1982) found that children between the ages of 4 and 7 often overuse the Figure-object form as in (8b) and (8c). Errors involving overextension of the Ground-object form also occur as in (8a) and (8d) but far less frequently. Gropen et al. (1991) also paralleled Bowenman (1982) in their findings.

(8) a. (7;2)   My belly holds water! Look, Mom, I'm gonna pour
                          it with water, my belly.
     b. (5;0)   Can I fill some salt into the bear? [= a bear shaped
                          shaker]
     c. (4;5)   I'm going to cover a screen over me.
     d. (2;11)   Pour, pour, pour. Mommy, I poured you.
                          [Waving empty container near M. M: You poured me?]
                          Yeah, with water.

                                        (In Pinker, 1989, pp. 25-26)

A question arises whether there is any developmental pattern in the L2 acquisition process of locative verbs. Unlike in L1 research, a relatively limited amount of empirical research has been devoted to the investigation of developmental sequence and features for the locative alternation in SLA. In the following, previous L2 studies on the locative alternation are reviewed and discussed as to participants at different levels of proficiency to examine developmental features in the acquisition process of the locative alternation.

Juffs (1996a, 1996b) carried out an experiment with Chinese-speaking learners of English at four different proficiency levels under the hypothesis that they would have difficulty in learning non-alternating Ground verbs such as *cover, block, decorate*, and *stain* since the target structure forms a subset of the Chinese counterpart. Unlike the hypothesis, the advanced Chinese learners and native speakers behaved very similarly on the elicited production task for the class of verbs. Nevertheless, all the Chinese subject groups showed a tendency to favor the Figure-object frame.

Even though the advanced learner group seemed to show native-like competence in the elicited production task, their responses to the grammaticality judgment task were significantly different from the native speakers' they accepted Figure-object frames for non-alternating Ground verbs, which are not possible in English. In this regard, Juffs (1996a, 1996b) noted that L1 influence persists until quite advanced stages of acquisition in case positive L2 input fails to pre-empt overgeneralizations based on the representation transferred from L1.

Kim (2004) took the same approach as Juffs (1996a, 1996b) in the way that the study put its basis on a cross-linguistic perspective. She tried to look into the acquisition of locative verbs by Korean EFL learners on the basis of a cross-linguistic comparison of English and Korean locative constructions from the perspective of the Subset Principle (Berwick, 1985) and the transferability of lexical properties (see Adjmian, 1983). She tested the knowledge of English locative verbs of the beginner group of 40 EFL learners enrolled in a university in Korea using a grammaticality judgment task. The results, rejecting her hypothesis, indicated that 'a partial overlap between L1 argument structure and L2 argument structure demonstrates strong L1 effects, regardless of whether L2 argument structure forms a subset or a superset of its L1 counterpart.' (p. 119).

Based on Joo (2000) and Bley-Vroman and Joo (2001), Joo (2003) argued that Korean EFL learners have knowledge of the constructional meaning of the locative alternation (i.e., knowledge of the holism effect), which is associated with the broad-range rules, but that even advanced Korean EFL learners have not achieved native-like knowledge of the narrow-range rules. Fifty-nine college students in Korea, whose TOEFL scores ranged from 550 to 650, responded to two tests in the experiment: a forced-choice picture selection task and a forced-choice sentence selection task. On the basis of the results from the experiment, Joo claimed that the learners' knowledge of locative constructions reflects the holism effect but no narrow-range constraints. With respect to this interpretation of the results, Schwartz et al. (2003) pointed out that her conclusion was premature on two counts. First, the instruments were inappropriate for the conclusion because they tested interpretive effects, not acceptability or grammaticality. Second, the tasks may have caused the phenomenon known as 'coercion'[3] the learners may have contextually coerced

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3) Jackendoff (1997) noted that strict compositionality does not suffice for certain aspects

verbs beyond their lexical specifications so that the verbs could describe pictures in the experimental task even through they have target-like lexico-semantic representations.

In sum, the previous studies have shown that the broad-range constraint is acquired by L2 learners, while the narrow-range constraint is not readily accessible and that overgeneralization errors very often occur in a learner's production: L2 learners extend argument structure alternations to verbs that do not alternate or overextend other constructions to the wrong class of verbs. Although the studies made a contribution to the introduction of the area of learnability of semantics-syntax correspondences with the emphasis on the semantic constraints, they do not seem to provide sufficient implications for development of a SLA theory and pedagogy; the studies did not consider any developmental sequence of the acquisition of the semantic constraints, which is essential to yield a complete understanding of the acquisition process of the English locative alternation. Juffs (1996a, 1996b) was the only study carried out with an attempt to test for developmental effects-Four groups of Chinese EFL learners at different proficiency levels participated in the study, but the research was not specifically designed to explore the availability and acquisition of the broad- and narrow-range constraints. Besides, practical implications for pedagogy were not discussed in relation to the kinds of difficulty that learners at different levels of proficiency may face. The findings brought L1 influence into focus indicating that L1 influence persists until quite advanced stages of acquisition. However, the interpretation of the results may have been misled since the research started off with presupposed L1 effects based on cross-linguistic analyses of Chinese and English. Despite the examination of a developmental sequence observed in the four groups of participants, no particular aspects of a developmental pattern were found, which may have been due to dependence on L1 transfer for the interpretation of the results.

As for research methodology, all the previous research on the acquisition of the English locative employed an experimental paradigm, which uses

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of language use in which an expression is used in a manner that does not conform to its lexical specification. In this case, the context coerces the expression to function in some other capacity. In other words, the context can play a role in extending the lexical meaning of an expression along some natural dimensions, beyond its lexical semantic restrictions.

two-dimensional pictures to elicit a participant's response and production. However, such an experimental framework does not seem appropriate to fully present a manner-of-motion and a change-of-state meaning of locative verbs as in authentic settings, thereby eliciting what is to measure.

In sum, the picture of the status of both the semantic constraints is far from complete due to lack of L2 empirical data, especially on developmental patterns. In this regard, the present study is intended to investigate if there is any developmental sequence with distinctive features in the acquisition of the locative alternation. Besides, the study is designed to present more natural cues to elicit what is intended to measure using a video clip of acted-out scenes as a way to overcome shortcomings of previous research methods.

II. RESEARCH QUESTIONS

The present study investigates the acquisition of the English locative alternation by Korean EFL learners within the framework of Pinker's learnability theory (1989). The main focus of the study is on a developmental pattern in the acquisition of the English locative alternation and learner difficulty and potential sources of the difficulty. Subsequent research questions of the study are:

1. Is there any developmental pattern observable in the process of interlanguage development of English locative verbs by Korean EFL learners?
2. What kinds of difficulty do Korean EFL learners find in the acquisition of English locative verbs and their constructions?

III. RESEARCH DESIGN

1. Participants

Four groups—three experimental and a control native-speaker groups participated in the present study. Learners of different levels of proficiency were

chosen in order to test for developmental effects. The first group was 40 Korean EFL learners, whose TEPS (Test of English Proficiency developed by Seoul National University) scores ranged from 150 to 350. They were drawn from a variety of undergraduate programs in Seoul Women's University: Science (14), Mathematics (8), Business Administration (7), Korean Language and Literature (5), English Language and Literature (3), Arts (2), and Philosophy (1). They were 20 freshmen and 20 sophomores, who had learned English as a foreign language for at least six years mostly in a public educational setting, where the focus was primarily on reading and listening.

The second group consisted of 38 Korean EFL learners, whose TEPS scores varied from 550 to 750. They were juniors (18) and seniors (20) who were majoring in English Language and Literature, with four of them taking English as a minor at Seoul Women's University. The participants whose learning environment had been mostly a classroom situation had received an average of 7.6 years of instruction in English as a foreign language.

The third group was comprised of 26 graduate students who were enrolled in a master's (22) or a Ph.D. (4) program in English Education at Seoul National University. They were so-called high-level learners in SLA studies, whose TEPS scores ranged from 801 to 990. They were highly advanced in terms of grammar, vocabulary, and reading skills with comparatively good listening, speaking, and writing skills as well. They had taken formal linguistic courses. They had all learned English as a foreign language for an average of 9.2 years, mostly in a classroom setting in the same way as the other two learner groups. Yet some of them had taken a short-term intensive English course in the U.S. with the experience of interacting with native speakers of English during their stay.

As for the control group, there was a group of 20 native speakers of English (ENS), who completed the same two tests as the Korean EFL learners. They are instructors of English teaching at two different universities in Seoul, Korea: Konkuk University (10) and Seoul Women's University (10).

2. Materials and Procedures

In order to investigate the knowledge of the locative alternation, two tests—

an elicited production task and a grammaticality judgment task—were used in the experiment. The study included 14 English locative verbs—four non-alternating Figure verbs, four non-alternating Ground verbs, and six alternating verbs—based on the classification of English locative verbs reported by Rappaport and Levin (1985) and Pinker (1989) as shown in (9):

(9) a. Figure class: *pour, coil, spill, dump*
　　b. Ground class: *fill, cover, decorate, clog*
　　c. Alternating class: *pile, spray, scatter, spread, stuff, load*

　　Test items were developed based on Gropen et al. (1991), Juffs (1996b), and Pinker (1989).

　　The elicited production task was first administered followed by the grammaticality judgment task in order to avoid any influence of input from the grammaticality judgment task on the participants' responses. For the Korean EFL learner (KEFL) groups, the tests were administered during class hour by the researcher and the instructors who were in charge of the courses in which the participants were enrolled. The researcher made sure that they read the instructions, written in Korean, about how to respond to each task. They were given maximum of twenty-three minutes to finish the grammaticality judgment task and 16 minutes to complete the production task—the length of the video clip was 16 minutes including 30 second intervals between test events, which were devised to give the participants adequate time to write down a sentence describing each event. As for the English native speaker (ENS) group, the participants completed both tests individually. Even though there were no time constraints on their task, most of the participants took less than 26 minutes to finish.

　1) Elicited Production Task

　　The participants were to describe in writing a videotaped event using a specific verb as they watch a video clip (see Appendix A). The video clip included 18 sets of events: 2 sets of examples and 16 sets of actual test items. In the video clip, each verb was presented once except *spray* and *load* they

were presented twice in both contexts—partly affected Ground and completely affected Ground, whereas other alternating verbs such as *pile*, *spread*, and *scatter* were presented only in the context of partly affected Ground, with *stuff* presented only in the context of completely affected Ground. Both in paper handouts and video clips, all the participants were given specific instructions concerning how they should respond to the task. The nouns that the participants were to use were shown underneath the corresponding objects in the scenes they were watching. The verb they were to use also appeared as the man in the video clip acted it out. The nouns of the objects in each scene and the verb were also given in the handout, where they were to write a sentence after watching each scene.

2) Grammaticality Judgment Task

A questionnaire containing 28 sentences, which requested the subjects to judge their grammaticality using a four-point (0—3) Likert-type scale, was used (see Appendix B). Pictures depicting meanings of given verbs in the test were provided since the knowledge of locative verbs could not be assessed if the participants had not yet encountered the verbs under consideration. In the written instructions, the participants were asked to refer to the pictures in case they were not sure about the meaning of the verb in a test sentence.

The questionnaire items contained two types of sentences: a Figure-object frame and a Ground-object frame. The 28 test sentences were classified into six subtypes devised to investigate the effect of the verb class and sentence type: (a) a Figure verb in the Figure-object frame (FF) (e.g., *John poured water into the cup.*); (b) a Figure verb in the Ground-object frame (FG) (e.g., **John spilled the table with wine.*); (c) a Ground verb in the Figure-object frame (GF) (e.g., **Mary covered the tablecloth on the table.*); (d) a Ground verb in the Ground-object frame (GG) (e.g., *Mary filled the bowl with soup.*); (e) an alternating verb in the Figure-object frame (AF) (e.g., *Mary piled books on the shelf*); (f) an alternating verb in the Ground-object frame (AG) (e.g., *Mary piled the shelf with dishes.*).

3. Analyses

Data from two different types of tests were separately analyzed considering their distinctiveness in test method facets. For the elicited production task, 16 sets of videotaped events were all included in data analysis. The 16 test items were classified into four subtypes: (a) Figure verbs in Figure scene[4] (4 items); (b) Ground verbs in Ground scene[5] (4 items); (c) alternating verbs in Figure scene (5 items); (d) alternating verbs in Ground scene (3 items).

The dependent variable was the scores of produced sentences in response to videotaped events. In case the target frame was taken depending on a given verb and a videotaped event, the response sentence was scored 2. That is, a score of 2 was assigned to the responses in which a Figure scene was described using the Figure-object frame and a Ground scene using the Ground-object frame. When an alternative frame was taken in case of an alternating verb, the response was scored 1. That is, a score of 1 was assigned to the responses in which the Ground-object frame was taken to describe a Figure scene and the Figure-object frame to describe a Ground scene with an alternating verb. The use of non-targetlike frame for a given verb was scored 0. The cases of scoring are exemplified in the following:

FIGURE 1
Examples of Scoring Produced Sentences

a. *He spilled some coffee on his shirt.* (2 points)

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4) In Figure scene, the Ground argument was presented as not being wholly affected, which rather highlighted a manner of motion meaning of the verb.

5) In Ground scene, the Ground argument was presented as wholly affected, which highlighted a change of state meaning of the verb.

b. *He sprayed some black ink onto the doll.* (1 point)

c. *He filled some salt into the jar.* (0 point)

A three-way ANOVA was performed with scores of sentence production as the dependent variable and Group Type treated as a grouping factor, whereas Type of Scene (Figure scene and Ground scene) and Verb Class (Figure verbs, Ground verbs, and alternating verbs) were considered as repeated measure factors in order to test for interaction between two factors. Four two-way repeated measures ANOVAs were done for each group separately (ENS, Advanced, Intermediate, and Beginner groups) in order to make the discussion of results more accessible for accurate interpretations. The alpha level was first set at .05 experiment-wise and then divided by five (the number of ANOVAs conducted) to adjust for the family-wise error rate[6]. Hence, the significance level was set at $\alpha < .01$ for individual statistical decisions.

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6) The family-wise error rate is the rate at which a statistical test would be expected to produce one or more false positives among a class (family) of tests, under the null hypothesis.

As for the grammaticality judgment task, 28 sentences were all included in data analysis. The test sentences were grouped into six subtypes(a) Figure verbs in Figure-object frame (FF), (b) Figure verbs in Ground-object frame (FG), (c) Ground verbs in Figure-object frame (GF), (d) Ground verbs in Ground-object frame (GG), (e) alternating verbs in Figure-object frame (AF), and (f) alternating verbs in Ground-object frame. Each of the subtypes FF, FG, GF and GG consisted of four test sentences respectively, and the subtypes AF and AG had six test sentences each.

A three-way analysis of variance (ANOVA) was performed with the four-point Likert scale scores as the dependent variable and Group Type treated as a grouping factor, while Verb Class (Figure verbs, Ground verbs and alternating verbs) and Sentence Frame (Figure-object and Ground-object) were treated as repeated measure factors in order to test for interaction between the two factors. Four two-way repeated measures ANOVAs were also conducted for each group separately, and thus the significance level was set at $\alpha < .01$ for individual statistical decisions.

IV. RESULTS

The results of elicited production data analysis are associated with the status of broad constructional meaning of the locative alternation in the development of interlanguage, whereas those of grammaticality judgment test mainly concern the status of narrow verb classes in interlanguage grammar. It is the interaction of the main variables that receives a focus of interpretation since a significant interaction effect of Verb Class and Type of Scene and that of Verb Class and Sentence Frame reflect knowledge of the broad-range constraint and that of the narrow-range constraint respectively.

1. Elicited Production Test

The means and standard deviations for the production by the ENS and KEFL groups are shown in Table 1. The four subtypes, FF, GG, AF and AG, were classified on the basis of the context of the scene: (a) Figure verbs presented in

the Figure scene (FF) (e.g., *The man spilled coffee on his shirt.*); (b) Ground verbs presented in the Ground scene (GG) (e.g., *The man covered the table with a tablecloth.*); (c) alternating verbs presented in the Figure scene (AF) (e.g., *The man sprayed some black ink onto the paper.*); and (d) alternating verbs presented in the Ground scene (AG) (e.g., *The man sprayed the doll with black ink.*).

The descriptive statistics indicate that all the participants marked the lowest points in AG, which suggests they had more trouble with the alternating verbs presented in the Ground scene. For the test items with Figure scenes, the KEFL groups did better on the alternating verbs than on the Figure verbs unlike the native speakers, who did better on the Figure verbs.

TABLE 1
Descriptive Statistics for Group Types and Subtypes of Scene

Group Type	Subtype of Given Scene			
	FF M (SD)	GG M (SD)	AF M (SD)	AG M (SD)
ENS (*n* = 20)	2.00 (.00)	2.00 (.00)	1.94 (.57)	1.28 (.99)
Beginner (*n* = 40)	1.55 (1.91)	1.07 (2.54)	1.79 (2.26)	1.01 (.89)
Intermediate (*n* = 38)	1.66 (.94)	1.68 (1.76)	1.96 (.39)	1.17 (.69)
Advanced (*n* = 26)	1.69 (.99)	1.96 (.54)	1.92 (.58)	1.50 (.90)

For Ground scene items, both the ENS and KEFL groups performed better on the Ground verbs than on the alternating verbs. The comparison of the standard deviations of ENS and KEFL scores (see Table 1) shows that the ENS group's performance on the subtypes is somewhat more homogeneous than that of the KEFL groups, as indicated by the smaller standard deviations for the ENS group.

In both the ENS and KEFL groups, the interaction effect as well as the two main effects was significant (see Table 2-5). Since the significant interaction effect indicates knowledge of the broad-range constraint, it may be interpreted that all the participant groups have knowledge of the broad-range constraint.

However, a great care should be taken in this interpretation. Although the eta[27] shows that the interaction overrides the main effects in all the participant groups, the eta^2 of Beginner group does not seem to indicate a very strong relationship accounted for by the interaction compared with that of the ENS group; the interaction accounts for 82% of the variability in the ENS group and 58% in the Beginner group.

Besides, the group effect was significant in the three-way ANOVA with repeated measures (F = 25.602 p < .01). According to post hoc tests (Tukey HSD and Scheffe), between the KEFL groups and the ENS group, there was a significant difference only between the ENS and the Beginner group, but no significant difference was found between the ENS and the other KEFL groups (Intermediate and Advanced). Among the KEFL groups, there was a significant difference between the Intermediate and the Beginner group as well as between the Advanced and the Beginner group. That is, the Beginner group was the only group that behaved differently from the rest of the groups.

TABLE 2
Repeated Measures ANOVA within the ENS Group

Source	SS	df	MS	F	eta^2
Verb Class	205.350	2	102.675	903.857*	.12
Type of Scene	114.075	1	114.075	355.802*	.06
Class × Scene	1508.150	2	754.075	2351.971*	.82
Total	1827.575	5			

*p < .01

---

7) In order to test the strength of association in the data, that is, to consider the proportion of variance in the dependent variable for which can be accounted by the independent variable, eta^2 was estimated for the significant factors (Hatch & Lazaraton, 1991).

TABLE 3
Repeated Measures ANOVA within the Beginner Group

Source	SS	df	MS	F	eta^2
Verb Class	639.108	2	319.554	160.575[*]	.26
Type of Scene	408.204	1	408.204	164.187[*]	.16
Class × Scene	1432.508	2	716.254	345.236[*]	.58
Total	2479.82	5			

*$p < .01$

TABLE 4
Repeated Measures ANOVA within the Intermediate Group

Source	SS	df	MS	F	eta^2
Verb Class	557.158	2	278.579	335.153[*]	.18
Type of Scene	244.281	1	244.281	231.441[*]	.09
Class × Scene	2211.509	2	1735.146	1735.146[*]	.73
Total	3012.948	5			

*$p < .01$

TABLE 5
Repeated Measures ANOVA within the Advanced Group

Source	SS	df	MS	F	eta^2
Verb Class	413.744	2	206.872	725.540[*]	.19
Type of Scene	66.692	1	66.692	172.939[*]	.03
Class × Scene	1654.308	2	827.154	1697.842[*]	.78
Total	2134.744	5			

*$p < .01$

2. Grammaticality Judgment Test

The means and standard deviations for the grammaticality judgments by the ENS and the KEFL groups are shown in Table 6. The scores reported here are

based on the four-point scale (0, 1, 2, 3). The standard deviations of ENS and KEFL scores show that the ENS group's performance on the four subtypes is somewhat more homogeneous than the KEFL groups'. For the ENS group, the means on the two subtypes, FF and GG (2.84 and 2.85 out of 3), contrast with those on the other two subtypes, FG and GF (.01 and .03 out of 3) because FF (Figure verbs in Figure-object frame) and GG (Ground verbs in Ground-object frame) included grammatical sentences—e.g., *John poured water into the cup* and *Mary filled the bowl with soup*, while FG (Figure verbs in Ground-object frame) and GF (Ground verbs in Figure-object frame) included ungrammatical sentences—e.g., *John spilled the table with wine* and *Mary covered the tablecloth on the table*.

TABLE 6
Descriptive Statistics for Group Types and Sentence Subtypes

Group Type	Subtype of Test Sentence					
	FF M (SD)	FG M (SD)	GF M (SD)	GG M (SD)	AF M (SD)	AG M (SD)
ENS (n = 20)	2.84 (.74)	.01 (.22)	.03 (.37)	2.85 (.59)	2.36 (2.83)	1.76 (3.38)
Beginner (n = 40)	2.44 (1.93)	1.50 (2.01)	1.82 (2.29)	2.06 (2.19)	2.28 (2.11)	1.71 (3.10)
Inter- mediate (n = 38)	2.53 (1.71)	1.09 (2.43)	1.44 (3.14)	2.33 (2.08)	2.27 (2.47)	1.17 (3.72)
Advanced (n = 26)	2.48 (1.47)	.93 (2.39)	1.03 (2.39)	2.50 (1.79)	2.19 (2.71)	1.36 (2.64)

The other subtypes, AF (alternating verbs in Figure-object frame) and AG (alternating verbs in Ground-object frame), on the other hand, addressed a preference tendency, not a grammar problem, since alternating verbs allow both sentences—e.g., *Mary piled books on the shelf* and *Mary piled the shelf with books*.

As in the results of the elicited production test, the interaction effect (ENS: F = 1304.135 p < .01, Beginner: F = 32.381 p < .01, Intermediate: F = 84.453 p < .01, and Advanced: F = 74.509 p < .01) as well as the two main effects was significant in all the participant groups. The results of the eta^2 strength of

association test show that in the Beginner group Verb Class accounts for more
of the variability than the interaction of Verb Class and Sentence Frame (see
Table 7). In case of the Intermediate group, the interaction accounts for more of
the variability in the dependent variable, which seems to reflect their knowledge
of narrow-range rules and verb classes. However, post hoc tests revealed that
there was a significant difference in their judgments between the ENS and the
Intermediate group as well as between the ENS and the Beginner group (F =
14.625 p < .01). Only the Advanced group behaved similarly to the native
speakers judging the test sentences.

TABLE 7
Proportions of Variability Observed in the ENS and KEFL Groups

Group Type	Source		
	Verb Class	Sentence Frame	Class x Frame
ENS	30 %	1 %	69 %
Beginner	16 %	18 %	19 %
Intermediate	20 %	23 %	57 %
Advanced	28 %	7 %	65 %

V. DISCUSSION

1. Development of Knowledge of English Locative Verbs

The results showed that the learners' knowledge of English locative verbs
and their alternation was predictable by the level of general proficiency in
English. The beginners, as indicated by significant difference between their
judgment and that of the native speakers on the classes of verbs, clearly had
shaky intuitions about English locative verbs, especially about Ground class. In
the production test, the learners failed to show sensitivity to a predicate
meaning of the change of state of locative verbs, thus producing ungrammatical
sentences, taking the Figure-object construction for Ground verbs. Nevertheless,
no much difference was found between the beginners and the native speakers in
using alternating verbs.

The intermediate learners did better than the beginners in their judgment

tasks, especially on ungrammatical sentences (Figure verbs in Ground-object sentences and Ground verbs in Figure-object sentences) and grammatical sentences with Ground verbs. As for their performance on the elicited production test, the intermediate learners exhibited a lot more sensitivity to a change-of-state meaning than did the beginners; they eventually scored better on Ground verbs than on Figure verbs despite very small difference in the means between Figure verbs presented in Figure scene and Ground verbs presented in Ground scene (.02). That is, they reached a somewhat stable stage in distinguishing the thematic core of different argument structures, whereas the beginners were still in the middle of the development process.

No statistically significant differences were found between the judgment of the advanced learners and that of the native speakers. The advanced learners had clear intuitions about English locative verbs and their constructions. In the production test, they performed much better than the intermediate learners; the mean difference observed in Ground verbs is larger (.28) than in Figure verbs (.03). They were consistent in using their knowledge of the thematic core of the meanings of a set of similar verbs sharing an argument structure and of three distinctive classes of English locative verbs and their argument structures.

No distinctive developmental feature was observed in the Korean EFL learners' performance on Figure verbs, but there was a noticeable development in their performance on Ground verbs (including alternating Ground verbs) by different proficiency levels. The findings suggest that learners gradually develop sensitivity to a change-of-state meaning and thus keep the balance between the meanings of manner of motion and change of state. The developmental sensitivity to a change of state meaning is reflected in the gradual growth by the groups at the different level of proficiency in Figure 2.

FIGURE 2
Performance on Non-alternating and Alternating Ground Verbs by the
Groups of Korean EFL Leraners
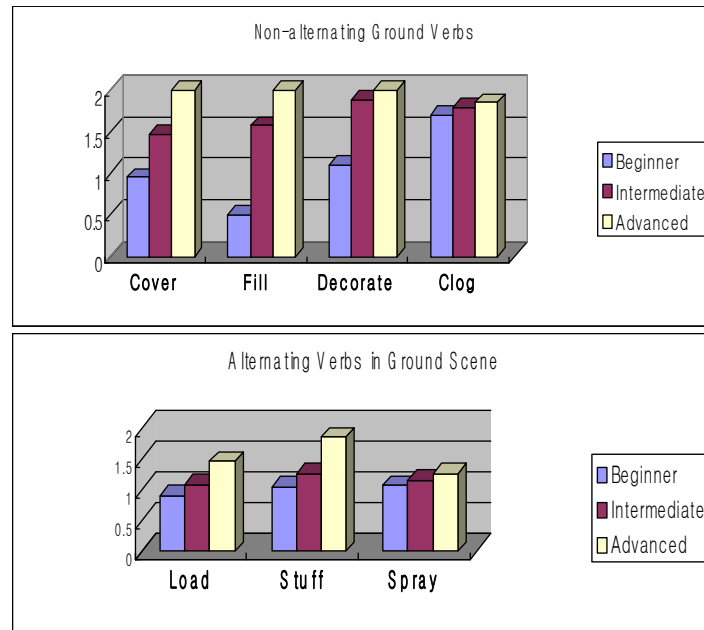
The acquisition of English locative verbs and their alternation may have the following states and patterns. However, it should be noted that these stages are not entirely discrete but rather represent significant patterns on a developmental continuum.

Stage 1: There is over-application of the locative alternation, assigning the Figure, rather than the Ground, to the object argument in case of Ground verbs. Limited perception of predicate meanings of the locative leads to heavy reliance on the meaning of the manner of motion. The semantic constraints are not generally operative or at least not processed at this stage.

Stage 2: The knowledge of semantic constraints begins to play a significant role in the locative alternation, along with a reorganization of the lexical entries to reflect L2 patterns. However, overgeneralization errors persist.

Stage 3: The semantic constraints imposed by the English locative alternation are acquired, and non-attested forms are expunged. Nevertheless, the lack of the knowledge of L2 lexicosemantic structures of isolated verbs may still cause errors.

2. Difficulty in the Acquisition of English Locative Verbs

The learners in the Beginner and Intermediate groups did not reject ungrammatical sentences containing Figure verbs in Ground-object construction and Ground verbs in Figure-object construction and produced ill-formed sentences of Ground-object construction for Figure verbs and Figure-object construction for Ground verbs. In other words, they overgeneralized argument structures of English locative verbs.

1) Overgeneralization Errors

Pinker (1989, p. 292) accounted for overgeneralization errors in first language acquisition: "Children's overgeneralization errors are due either to the application of broad-range lexical rules or to systematic misconceptions about the meanings of particular verbs." If errors are caused by application of broad-range rules, the errors are expected to decrease and disappear as the existence-predicting narrow-range rules develop in learners' language system. Thus there would be no unlearning problem. Therefore, overgeneralizations stemming from incorrect verb meanings are more serious. Gropen (1989) also argued that the syntactic overgeneralization of the locative results from misinterpretations of particular lexical items in conjunction with the universal linking rules. The overgeneralization errors observed in the Korean EFL learners seem to be ascribed to the same reason as in the case of L1 children.

Under the assumption that the learners' errors are based on incorrect lexico-semantic structures for particular verbs, there seemed to be more problems grasping correct meanings of Ground verbs; the KEFL learners made more errors with Ground verbs. Of the Figure verbs used in the study (*pour, coil, spill,* and *dump*), *coil* was the only verb that the Korean EFL learners had trouble with. Although the verb *coil* belongs to the non-alternating Figure class

in English, the overspecified meaning of the verb-probably due to the L1 influence-had the learners treat the verb as an alternating verb.

In contrast, the learners in the Beginner and Intermediate groups had trouble with most Ground verbs used in the study (*fill, cover,* and *decorate*) except *clog,* of which lexico-semantic structure seems to have been readily acquired *clog* is a Ground-oriented alternating verb in Korean. According to Gentner (1978), among the verb biases that have been demonstrated experimentally is a high sensitivity to the manner of motion combined with a low sensitivity to the end-state, which could result in argument structure errors as well. Pinker (1989) also supported Gentner arguing that there are semantic biases in acquiring verb meanings. Gentner's manner-over-end state bias appears to account for the errors the learners made; for example, the manner-over-end state bias actually tainted the Korean learners' understanding of the meaning of *fill,* causing it to denote something like pouring, filling by means of pouring or increasing the contents by means of pouring.
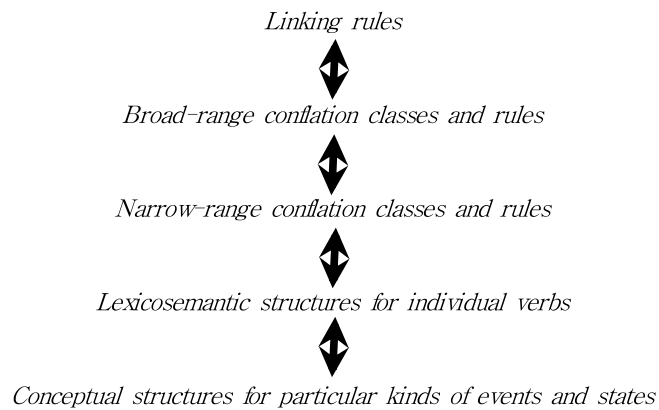
2) Potential Sources of Difficulty

The previous section discussed the difficulty pertaining to the learners' overgeneralization errors, and the cause of the errors was ascribed to the learners themselves. In the current section, on the other hand, more fundamental sources of difficulty will be explored and discussed. When comparing L1 and L2 acquisition in terms of the learnability issue, we tend to ask the question why L2 learners do not retreat from overgeneralization although L1 children do without negative evidence. Thus we further ask how children learn to do the right kind of learning. It is necessary to take the learning mechanisms child learners utilize into account in order to make an exact diagnosis of the difficulty L2 learners face in the process of learning English locative verbs. Pinker (1989) provided an account of learning mechanisms in the form of a hierarchy of mutually constraining structures as shown in Figure 3.

Children get to posses all the structures in hierarchy. Pinker (1989) claimed that, of the structures shown in Figure 20, the lexicosemantic structures and narrow-range lexical rules are two crucial ones. Provided that acquisition of one structure constrains the acquisition of the ones above and below it,

narrow-range rules are formed by preservation of argument-relevant lexicosemantic structures.

FIGURE 3
Hierarchy of Learning Mechanisms (adapted from Pinker, 1989, p. 247)

Linking rules

⬍

Broad-range conflation classes and rules

⬍

Narrow-range conflation classes and rules

⬍

Lexicosemantic structures for individual verbs

⬍

Conceptual structures for particular kinds of events and states

At this point, a question arises as to how child learners then obtain lexicosemantic structures for individual verbs. Pinker (1989, pp. 253-64) presented three mechanisms in cooperation as follows:

Event-Category Labeling:
   The process of linking verbs to conceptual structures upon hearing them used in a situation

Semantic Structure Hypothesis Testing:
   The process of adjusting or eliminating any incorrect hypotheses based on the observation of the behavior of the verb across situations

Syntactic Cueing of Semantic Structures:
   The arrangement and composition of hypothesis structures is affected by grammatical rules to the extent they are known at several possible levels of specificity by syntactic cueing using the presence of arguments, linking rules

and the grammatical functions of arguments,   conflation classes, and sets of argument structures associated with a stem.

It is true that child learners use all of the three mechanisms, which are different but complementary to one another in the process of learning lexicosemantic structures. On the other hand, Korean EFL learners seem to rely most on syntactic cueing. Joo (2003) argued that partial use of the learning mechanisms results in L2 learner's insufficient knowledge of lexical argument structures. Since EFL learners are provided with input mostly in an educational setting, they have much fewer opportunities to observe how the verb is used across situations in natural real life contexts and to adjust incorrect hypothesis structures in their interlanguage. EFL learners rely on the discourse contexts within listening or reading passages. In order to test and adjust their hypotheses, they check verb meanings from argument structures presented in example sentences in a dictionary or from corrections provided in the form of instruction in class.

Considering the fact that the advanced learners behaved similarly to the native speakers, which suggests that they had success in retreating from overgeneralization like L1 learners, overcoming overgeneralization seems to be still possible even though it takes much time due to the difficulty imposed by the unavailability of other sources of learning mechanisms. As for mechanisms they used, it is unlikely that they depended only on syntactic cueing. Relying on syntactic cueing may not always work for learners at various levels of proficiency. Since learners at an early developmental stage are likely to depend more on meanings than sentence structures due to insufficient knowledge of structures, it seems implausible for them to take advantage of syntactic cueing.

The amount and frequency of input as well as the type of input (naturalistic, discourse input as opposed to classroom, text input) interplay with the three learning mechanisms. Rappaport and Levin (1985) reported that most locative verbs are infrequently used despite a fairly large number of locative verbs in English (over 145). Hence, in an EFL setting the amount of input given to learners is expected to be much less, which also restricts full utilization of the learning mechanisms. According to the 7th National English Curriculum for elementary, middle, and high schools promulgated by Korean Ministry of

Education (1997), only seven locative verbs, i.e., *cover, decorate, fill, load, pour, spill,* and *spread,* are included in the list of basic vocabulary to learn, and no locative construction is on the list of target forms. Juffs (1998) also pointed out that ESL materials seem to provide insufficient input on verbs with their syntactic behaviors based on a corpus analysis of the frequency of verbs and their syntactic requirements in an ESL textbook. He added to argue that some ESL materials under-represent some verb classes that are considered problematic to learners. It seems both the type and the amount of input could confine learners to a limited use of the learning mechanisms causing difficulty in learning English locative verbs and their constructions.

VI. CONCLUSION

In order to test for developmental effects, the data of the learners at different levels of English proficiency were examined. In an attempt to identify the kinds of difficulty they had, a question was raised as to the major cause of difficulty in the acquisition of the locative alternation. The difficulty was found closely associated with the problem of insufficient L2 input in an EFL setting.

Input is a crucial aspect of language acquisition, especially in restricted settings. In discussing fundamental difficulty learners face in the acquisition of the English locative alternation, it was noted that both the type and the amount of input are associated with the limited use of three mechanisms (Event-category labeling, Semantic structure hypothesis testing, and Syntactic cueing of semantic structures). Not only does the lack of input but also artificial text input hinder full use of the learning mechanisms. Complete use of the mechanisms is difficult in an EFL setting because EFL learners receive L2 input from an educational setting only. For example, relying on the discourse context of listening or reading passages does not guarantee opportunities to observe how the verb is used across situations in real life contexts (Event-category labeling). Besides, it is not good enough to check verb meanings from argument structures presented in example sentences in a dictionary in order to test and adjust learners' hypotheses (Semantic structure hypothesis testing). As Juffs (1998) and Toth (2000) pointed out, both the

amount and type of L2 input have not met learners' need to develop the knowledge about lexico-syntactic correspondences and argument structure alternations.

EFL learners would benefit from more authentic and natural discourse input in the form of audiovisual materials rather than written or audio passages, observing how the verb is used across situations. For instance, when teaching locative verbs, audiovisual materials promote inductive learning in that students notice and figure out both the meanings of manner of motion and change of state from given contexts. However, if the teacher presents a written definition of the verb or reading passages containing the verb from the start, students tend to get only partial meaning of the verb. In addition, as the value of interactionally modified input was supported by previous research (Canale & Swain, 1980; Kim, 2006; Larsen-Freeman & Long, 1991; Long, 1985; Seong, 2006), aspects of classroom learning should be emphasized in the way that various kinds of interaction aid are provided to assist learners with refining linguistic input available to them and adjusting their hypothesis structure in interlanguage grammar.

Hopefully, the pedagogical implications provided here will inspire both researchers and classroom practitioners to seriously consider the interplay between semantic and syntactic aspects of verb meanings and problematic aspects found in the acquisition of the locative alternation so that they develop instructional materials and methods in the way that they provide EFL learners with suitable input. Even though the locative alternation is just a little piece of the whole English grammar, knowledge on the semantics-syntax correspondences of the locative alternation extends to facilitate the acquisition of other parts of English grammar in the sense that all argument structure alternations virtually interact with semantics in one way or another.

REFERENCES

Adjmian, C. (1983). The transferability of lexical properties. In S. Gass & L. Selinker (Eds.), *Language transfer in language learning* (pp. 250-268). Rowley, MA: Newbury House.

Berwick, R. (1985). *The acquisition of syntactic knowledge.* Cambridge, MA: MIT Press.

Bley-Vroman, R. (1989). What is the logical problem of foreign language learning? In S. Gass & J. Schachter (Eds.), *Linguistic perspectives on second language acquisition* (pp. 41-68). Cambridge: Cambridge University Press.

Bley-Vroman, R., & Yoshinaga, N. (1992). Broad and narrow constraints on the English dative alternation: Some fundamental differences between native speakers and foreign language learners. *University of Hawaii Working Papers in ESL, 11*, 157-199.

Bley-Vroman, R., & Joo, H. (2001). The acquisition and interpretation of English locative constructions by native speakers of Korean. *Studies in Second Language Acquisition, 23*, 207-219.

Bowerman, M. (1982). Reorganizational processes in lexical and syntactic development. In E. Wanner & L. R. Gleitman (Eds.), *Language acquisition: The state of the art* (pp. 319-346). Cambridge: Cambridge University Press.

Bowerman, M. (1988). The 'No negative evidence' problem: How do children avoid constructing an overly general grammar. In J. Hawkins (Eds.), *Explaining language universals* (pp. 73-101). Oxford: Basil Blackwell.

Bowerman, M. (1990). Mapping thematic roles onto syntactic functions: Are children helped by innate "linking rules"? *Linguistics, 28*, 1253-1289.

Brown, R., & Hanlon, C. (1970). Derivational complexity and order of acquisition in child speech. In J. R. Hayes (Ed.), *Cognition and the development of language* (pp. 163-181). New York: Wiley.

Canale, M., & Swain, M. (1980). Theoretical bases of communicative approaches to second language teaching and testing. *Applied Linguistics, 1*, 1-47.

Clark, E. V. (1987). The principle of contrast: A constraint on language acquisition. In B. MacWhinney (Ed.), *Mechanisms of language acquisition* (pp. 43-61). Hillsdale, NJ: Erlbaum.

Gentner, D. (1978). On relational meaning: The acquisition of verb meaning. *Child Development, 49*, 988-998.

Gropen, J. (1989). *Learning locative verbs: How universal linking rules constrain productivity.* Unpublished doctoral dissertation, MIT.

Gropen, J., Pinker, S., Hollander, M., Goldberg, R., & Wilson, R. (1989). The learnability and acquisition of the dative alternation in English. *Language, 65*, 203-257.

Gropen, J., Pinker, S., Hollander, M., & Goldberg, R. (1991). Affectedness and direct objects: The role of lexical semantics in the acquisition of verb argument structure. *Cognition, 41*, 153-195.

Hatch, E., & Lazaraton, A. (1991). *The research manual: Design and statistics for applied linguistics.* New York: Newbury House.

Inagaki, S. (1997). Japanese and Chinese learners' acquisition of the narrow-range rules for the dative alternation in English. *Language Learning, 47*, 637-669.

Jackendoff, R. S. (1997). *The architecture of the language faculty.* Cambridge, MA: MIT Press.

Joo, Hye-Ri. (2000). *Acquisition of the argument structure of locative verbs by Korean EFL learners.* Unpublished master's thesis, University of Hawaii at Manoa.

Joo, Hye-Ri. (2003). Second language learnability and the acquisition of the argument structure of English locative verbs by Korean speakers. *Second Language Research, 19*, 305-328.

Juffs, A. (1996a). *Learnability and the lexicon: Theories and second language acquisition research.* Philadelphia, PA: John Benjamins.

Juffs, A. (1996b). Semantics-syntax correspondences in second language acquisition. *Second Language Research, 12*, 177-221.

Juffs, A. (1998). The acquisition of semantics-syntax correspondences and verb frequencies in ESL materials. *Language Teaching Research, 2*, 93-123.

Kim, Meesook. (2004). Korean EFL learners' acquisition of locative verbs structures. *English Teaching, 59*(1), 107-125.

Kim, Bu-Ja. (2006). A study on vocabulary instruction to improve English communicative competence: Focus on English verbs. *English Language & Literature Teaching, 12*(1), 131-158.

Larsen-Freeman, D., & Long, M. (1991). *An introduction to second language acquisition research.* London: Longman.

Long, M. (1985). A role for instruction in second language acquisition: task-based language teaching. In K. Hyltenstam & M. Pienemann (Eds.),

Modeling and assessing second language acquisition (pp. 46-71). Clevedon, Avon: Multilingual Matters.

Pinker, S. (1989). *Learnability and cognition: The acquisition of argument structure*. Cambridge, MA: MIT Press.

Rappaport, M., & Levin, B. (1985). *A case study in lexical analysis: The locative alternation*. Unpublished manuscript, MIT Center for Cognitive Science.

Rappaport, M., & Levin, B. (1988). What to do with theta-roles. In W. Wilkins (Ed.), *Thematic relations* (pp. 86-101). New York: Academic Press.

Schwartz, B. D., Dekydtspotter, L., & Sprouse, R. A. (2003). Pouring the fire with gasoline: Questioning conclusions on L2 argument structure. In J. M. Liceras, H. Zobl & H. Goodluck (Eds.), *L2 Links: Proceedings of the 2002 Generative Approaches to Second Language Acquisition (GASLA-6) Conference*. Somerville, MA: Cascadilla Press.

Seong, Guiboke. (2006). Pedagogical functions of conversational repair strategies in the ESL classroom. *English Language & Literature Teaching, 12*(1), 77-101.

Talmy, L. (1985). Lexicalization patterns: semantic structure in lexical patterns. In T. Shopen (Ed.), *Language typology and syntactic description* (pp. 57-149). Cambridge: Cambridge University Press.

Toth, P. (2000). The interaction of instruction and learner internal factors in the acquisition of L2 morphosyntax. *Studies in Second Language Acquisition, 22*, 169-208.

Wolfe-Quintero, K. E. (1992). *The representation and acquisition of the lexical structure of English dative verbs: Experimental studies of native Englishspeakers and Japanese and Chinese adult learners of English*. Unpublished doctoral dissertation, University of Hawaii.

APPENDIX A
Elicited Production Test Sheet

▶ 화면에 등장하는 인물의 행동을 끝까지 다 관찰한 후에, 각 항목에 주어진 모든 단어를 사용해서 문장을 쓰세요. (*Be sure to watch each scene until the man's action is completed, and then compose a complete sentence using all the words given.*)

1. paper   black ink   ⓥ spray
_____
2. table-cloth   table   ⓥcover
_____
3. glass   juice   ⓥ pour
_____
4. shoes   waste-basket   ⓥ dump
_____
5. blocks   truck   ⓥ load
_____
6. clothes   bag   ⓥ stuff
_____
 7. shirt   coffee   ⓥ spill
_____
8. table   books   ⓥ pile
_____
9. doll   black ink   ⓥ spray
_____
10. salt   jar   ⓥ fill
_____
11. wire   pole   ⓥ coil
_____
12. ribbons   box   ⓥ decorate
_____
13. bread   jam   ⓥ spread
_____
14. salt   table   ⓥ scatter
_____
15. cloth   sink   ⓥ clog
_____

16. car	truck	Ⓥ load

APPENDIX B
Grammaticality Judgment Test

▶ 다음에 28개의 영어문장이 있습니다. 한 문장씩 읽고 **0부터3**중에서 <u>문법적인 정도에 따라</u> 해당되는 숫자를 동그라미로 표시하세요. 단어의 뜻을 모르는 경우 주어진 그림을 보고 뜻을 유추해서 문장을 해석하면 됩니다. (*The following are 28 English sentences. Read each sentence and rate it according to the degree of grammaticality. In case you are not sure about a meaning of a given verb, refer to the corresponding picture given at the end of the test sheet.*)

```
] ----- ] ----- ] ----- ]
0      1      2      3
매우  비문법적인        매우  자연스럽고
    문장                문법적인문장
```

1. John poured water into the cup.] -----] -----] -----]
                                     0   1   2   3

2. Mary piled books on the shelf.] -----] -----] -----]

3. John sprayed paint on the car.] -----] -----] -----]

4. John coiled the rope around the tree.] -----] -----] -----]

5. Mary decorated bells on the Christmas tree.
                                     ] -----] -----] -----]

6. Mary filled the bowl with soup.] -----] -----] -----]
                                     0   1   2   3

7. John scattered the floor with salt.] -----] -----] -----]

8. John spread some oil on Mary's back.] -----] -----] -----]

9. Mary clogged the sink with a cloth.] -----] -----] -----]

10. Mary stuffed feathers into the pillow.] -----] -----] -----]

11. John spilled the table with wine.] -----] -----] -----]
                                          0   1   2   3
12. Mary covered the tablecloth on the table.
                                      ] -----] -----] -----]

13. Mary piled the shelf with dishes.] -----] -----] -----]

14. John poured the cup with orange juice.] -----] -----] -----]

15. Mary dumped the wastebasket with books.
                                          ] -----] -----] -----]

16. John loaded the boxes on the truck.] -----] -----] -----]
                                          0   1   2   3
17. John sprayed the wall with yellow paint.] -----] -----] ----]

18. Mary coiled her foot with a bandage.] -----] -----] -----]

19. Mary filled pencils in the basket.] -----] -----] -----]

20. John spilled water on the floor.] -----] -----] -----]

21. The farmer scattered seeds on the field] -----] -----] -----]
                                               0   1   2   3
22. John spread toast with butter.] -----] -----] -----]

23. Mary dumped trash on the street.] -----] -----] -----]

24. Mary decorated cake with chocolate cream.
                                          ] -----] -----] -----]

25. John clogged cotton into his ear.] -----] -----] -----]

26. Mary stuffed a doll with cotton.   ] -----] -----] -----]
                                          0   1   2   3
27. Mary covered the bed with blanket.] -----] -----] -----]

28. John loaded the truck with apples.] -----] -----] -----]

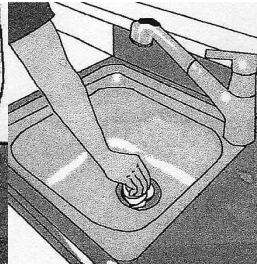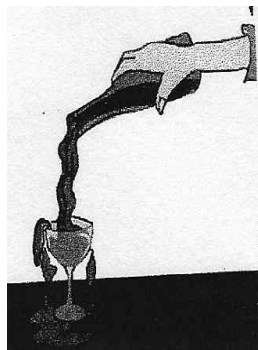Pile   Coil   Scatter
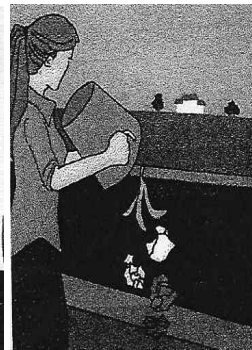
Spread   Clog   Stuff
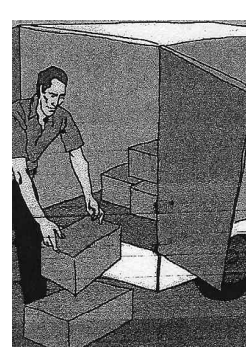
Spill   Dump   Load

예시 언어(Examples in): English
적용가능 언어(Applicable Languages): English
적용가능 수준(Applicable Levels): Secondary/College

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