

The Effect of L1-L2 Lexico-Semantic Differences on Korean EFL Learners' Preposition Use

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Abstract

The present study addresses Korean EFL learners' difficulties in preposition learning due to cross-linguistic differences between Korean and English at the lexico-semantic level. Specifically, it attempts to explore Korean learners' productive knowledge of English prepositions that are not lexically differentiated in Korean (overdifferentiated prepositions (ODPs), henceforth) such as *until* and *by*. A total of 109 adult Korean learners of English and seven native English speakers participated in the study and were asked to provide prepositions appropriate to the context in a cloze test. The analysis of their responses revealed that Korean learners indeed make production errors due to their confusion between prepositions in ODP pairs. Learners tended to show biased use of ODPs, overusing one member in an ODP pair over the other. While the accuracy of using ODPs in their proper context increased as the learners' proficiency increased, even advanced learners recorded low accuracy in differentiating some ODPs such as *on* and *above*. The findings highlight the need for special attention to L1-L2 differences at the lexico-semantic level when teaching prepositions.

INTRODUCTION

L2 prepositions are widely known to be difficult to master even for advanced learners. Despite their high frequency in the input, learners have difficulties in acquiring them due to their abstract meanings, low saliency, idiosyncrasy, and polysemy, among others. The problem is more serious when it comes to Korean learners acquiring English prepositions. While English

prepositions are generally believed to correspond to Korean postpositions, or *cosa* (조사), there exists no single syntactic category in Korean that corresponds to English prepositions. Only a subset of English prepositions like *to* and *with* have their rough counterparts in Korean like *-ey* (-에) and *-wa* (-와). Some prepositions like *during* are mapped onto nouns like *tongan* (동안) in Korean. Some like *in* and *on* are noun+postposition combinations in Korean like *an+ey* (안+에) and *wi+ey* (위+에). Others like *by* in passive constructions are translated as *-ey uihaye* (-에 의해), which is a combination of a postposition and an adverbial derived from a verb. In this respect, for Korean learners of English, learning English prepositions requires learning a whole new syntactic category.

Moreover, many such Korean equivalents are not sensitive to the semantic (and lexical) distinctions that are important in English preposition system. For example, English prepositions *by* and *until* are not lexically differentiated in Korean. They are both mapped onto Korean postposition *-kkaci* so that 'by midnight' and 'until midnight' are both merged into 'caceng-*kkaci*.' Korean particle *-kacci*, which simply denotes an endpoint in time, is insensitive to whether the sentence is about an action/event lasting up to the endpoint or about an action finished no later than the deadline. Such lexical/semantic underdifferentiation in Korean—and overdifferentiation in English—are highly likely to mislead Korean learners to form misconceptions about English prepositions. They may hypothesize that *until* also means *by* or that *on* also means *above*. As a result, they might use *until* in the context where *by* is required, or use *on* when the context requires *above*. Indeed, learning to distinguish the contexts for *until* from those for *by* means learning a new way to analyze and classify the reality from L2 perspectives. To correctly use *until* and *by* (and many other prepositions in English that are not lexically differentiated in Korean), learners must overcome L1 interference and acquire new semantic features associated with L2 prepositions.

Despite the strong need to address the difficulty of preposition learning from cross-linguistic perspectives, there is a limited body of research focusing on L1-L2 differences. Much little attention has been given to differences at the lexico-semantic level. While some initial attempts have been made (e.g., Hahn, 2022), little has been revealed on how the differences affect Korean EFL learners' actual use of prepositions in context. The present paper addresses learning problems Korean learners have in acquiring English prepositions from the perspectives of L1-L2 lexico-semantic differences, centering on four pairs of prepositions. To be specific, it examines whether the lexico-semantic differences induce learners to misuse one preposition to mean the other. It further explores how the learners gradually distinguish the separate contexts for each of these prepositions.

THEORETICAL BACKGROUND

Acquiring L2 prepositions has been long recognized as notoriously difficult even for advanced learners (Celce-Murcia & Larsen-Freeman, 1999; Cowan, 2008; Davy, 2000; Hahn, 2022; Tanaka, 1983). Despite learners' frequent exposure to prepositions, learners experience difficulties in using prepositions appropriate to their contexts. The learning difficulties may be ascribed to many different reasons. Some difficulties are associated with the properties inherent to prepositions themselves. Other difficulties are related to cross-linguistic differences between the learner's L1 and L2 at structural, conceptual, and lexical levels. In this section, we will discuss these potential obstacles in some detail.

Difficulties Associated with Preposition Learning

Low Saliency

As mentioned, prepositions are highly frequent in the input. According to Oxford English Corpus, prepositions including *of*, *in*, *to*, *on*, *for*, and *with* are among the 30 most frequently used words in English (Cheon, 2020). Despite their frequent exposure to prepositions, however, learners are not likely to perceive them as salient because function words like prepositions are unstressed elements in conversation. As it is difficult for L2 learners to attend to meaning and form simultaneously due to their limited attentional resources, they are likely to give priority to lexical words when processing linguistic data (Schmidt, 1990; VanPatten, 2004). As a result, unstressed items like prepositions can easily go unnoticed.

One Form, Multiple Functions

Most of high-frequency prepositions in English are polysemous. That is, a single preposition is associated with multiple functions. The preposition *by*, for example, is used to indicate spatial relationship in "by the riverbank," a deadline in time

in “*by* 7:30,” the agent performing an action in “The car was driven *by* a drunk driver,” a means of transportation in “They traveled *by* train,” the part of body that is touched in “He grabbed her *by* the arm,” and even as an adverb in “A car passed *by*.” Such one-to-many relationship is one of the major stumbling blocks in language learning as well as learning in general (MacWhinney, 1984; Quirk et al., 1985).

Abstract Meaning and Subtle Differences

As highly grammaticized function words, prepositions denote abstract concepts such as ‘inclusion,’ ‘surface,’ ‘contact,’ ‘verticality,’ ‘covering,’ ‘movement,’ ‘duration,’ ‘punctuality,’ and ‘continuity,’ among others. These abstract meanings that constitute prepositions do not have matching referents, events, or situations in the real world, and are therefore difficult to pin down. Simple metalinguistic explanation in the classroom may not be sufficient for learners to grasp their meanings.

Moreover, many English prepositions overlap in meaning yet are subtly different from one other. For example, *on*, *above*, and *over* are all used to refer to height relationship. However, *on* is differentiated from *above* in terms of the semantic feature ‘contact.’ ‘Contact’ is an essential semantic component of *on* so that *on* can even denote the spatial relationship in which one object is not higher in altitude than the other whereas *above* cannot, as in (1). *Above* and *over* are used synonymously on many occasions, but *over* indicates ‘a direct vertical relationship or proximity,’ while *above* simply indicates ‘at a higher level than’ and does not necessarily involve a direct vertical relationship, as exemplified in (2). *Over* also denotes coverage depending on the context whereas *above* does not, as in (3). These overlapping yet slightly different aspects of meaning and use should be extremely difficult for learners to discern. Examples (1-3) are from Quirk et al. (1985, p.677-678).

- (1) A notice was pasted *on*/**above* the wall.
- (2) The castle stands *on* a hill *above*/**over* the valley.
- (3) Keep this blanket *over*/**above* you.

Idiosyncrasy and Crosslinguistic Differences

What makes L2 preposition learning even more difficult is the idiosyncratic ways languages encode these abstract concepts. Languages have different ways of analyzing external reality. Especially, each language has its unique ways of recognizing spatial relations between objects and temporal relations between situations (Fillmore, 1968; Mackenzie, 1988). As mentioned above, English distinguishes *on* and *above*, which are both used to denote a height relation between two objects. But they differ in terms of whether the foreground object is in contact with the background object. This difference is important in English so as to be encoded as two separate lexical items. The notion of ‘contact’ is also lexicalized in languages like Italian, which differentiates between *su* (‘*on*’) and *sopra* (‘*above*’). On the other hand, notions like ‘contact’ are not so significant as to be lexicalized in languages such as Korean and Japanese so that ‘*on* the table’ and ‘*above* the table’ are both translated as ‘table *wui-e* (테이블 위/에)’ in Korean and ‘*tēburu-no ue ni*’ in Japanese, respectively.

Indeed, the idiosyncratic nature of prepositions in each language and cross-linguistic differences are most evident at the lexical level in that lexis is the means of conceptualizing and analyzing the reality. Given that language and thought are intertwined and that a language influences how its speakers perceive and categorize the world (Sapir, 1929; Whorf, 1956; Hickmann, 2000), learning L2 lexical items would necessarily involve learning a new way of perceiving and categorizing the reality. Therefore, Korean EFL learners, who are not familiar with the semantic distinctions that are critical in English, are highly likely to make errors in using prepositions that are not lexically distinct in their L1. In the remainder of this section, we will look into how distinct English prepositions are not differentiated in Korean, centering on four pairs of prepositions that are potentially confusing to Korean learners.

L1-L2 Differences at the Lexico-Semantic Level

Korean EFL learners’ difficulties with prepositions at the lexico-semantic level is mostly due to underdifferentiation in Korean. That is to say, the semantic/conceptual differences that are essential in discriminating English prepositions are not lexicalized in the Korean language so that different English prepositions are mapped onto a single lexical item. From Korean learners’ point of view, English prepositions are overdifferentiated. According to Prator (1967), this one-to-many relationship corresponds to Level 5 (so called ‘Split’), the highest level in his hierarchy of difficulty. Table 1 presents some examples of prepositions that are distinct lexical items in English but merge into a single lexical item in Korean. We will name these prepositions “overdifferentiated prepositions (ODPs, henceforth)”

and discuss the overdifferentiation/underdifferentiation issue in further details.¹

TABLE 1

Prepositions in ODP Pairs

English Preposition	Korean Equivalent	Korean Notation
<i>on/above/over</i> (the head)	(meri) <i>wui-ey</i>	(머리) 위에
<i>at/in</i> (the restaurant)	(siktang)- <i>eyse</i>	(식당) 에서
<i>for/during</i> (the winter)	(kyewul) <i>tongan</i>	(겨울) 동안
<i>until/by</i> (midnight)	(caceng)- <i>kkaci</i>	(자정) 까지

On vs. Above

The prepositions *on* and *above* are both used with a foreground NP that is at a higher location than a background NP. As mentioned earlier, ‘contact’ and ‘surface’ are the central notions that constitute the meaning of *on*; *above* denotes ‘higher than’ and excludes the notion of ‘contact.’ The distinction is not salient in Korean lexico-semantics of space, and *on* and *above* are both realized as *wui-e* (위에) as in (4).

(4a) Ku-nun table-*wui-ey* cup-kwa cepsi-rul noh-ass-ta. ‘He put the cup and knife *on* the table.’

(4b) Ku-nun kurim-*wui-ey* kewul-ul kel-ess-ta. ‘He hung the mirror *above* the picture frame.’

In vs. At

Quirk et al. (1985) describes the spatial preposition *at* as a zero-dimensional preposition in that it indicates a mere “point” in space. By contrast, *in* is described as a two-dimensional or three-dimensional preposition. It is used to refer to an object that is contained within a space boundary. Compare:

(5a) She is waiting for her mother *at* the school gate.

(5b) The kids are sleeping *in* the bedroom.

The distinction between *at* and *in* is not clear in Korean. In Korean, *at* and *in* in the above sentences are mapped onto the postposition of location *-eyse* (-에서).²

For vs. During

While *for* and *during* are both used to express a time period, *during* is used when something happens in or over a period, whereas *for* is used to talk about time span in which some action/situation lasts (Cambridge Dictionary Online). Examples in (6) are from Cambridge Dictionary Online.

(6a) She phoned me *during*/**for* the week to tell me that she was getting married.

(6b) We were in the cinema *for*/**during* three and a half hours.

The choice between these two prepositions is sensitive to the sentential context. *For* cannot be used in sentences describing one-time events. In terms of Vendler’s (1967) lexical aspects, predicates that combine with a *for* phrase must be [-punctual]. The semantic notion of continuity thus matters in choosing between *for* and *during*, and the user must go beyond the local context of PP to refer to the lexical/temporal aspect of the predicate at a global level. Such distinction is not required in using Korean expression of duration *tongan* as it is not sensitive to whether the predicate indicates a one-time, repeated, or continued action.

¹ One reviewer suggested that our term “overdifferentiated prepositions (ODPs)” should be used with caution because it can have a negative connotation. We used the term “overdifferentiation” not from linguists’ point of view but from learners’ point of view, to indicate the type of difficulties perceived by Korean learners of English.

² Sometimes *an-eyse* is used to specifically denote the inclusive relationship, but *-eyse* is much more common. Notions such as ‘point,’ ‘inclusion,’ or ‘dimension’ are not conceptually salient enough to be lexically expressed.

Such underdifferentiation in Korean—and overdifferentiation in English—is likely to induce errors in Korean learners’ use of *during* and *for*. In practice, however, the choice between *for* and *during* seems to be quite straightforward in most cases because *during* is typically used with a noun denoting a certain time period, as in “*during* the week” and “*during* the vacation” whereas *for* combines with expressions that denote time length, as in “*for* two hours” and “*for* three days.” We will return to this issue later in our discussion of the results.

By vs. Until

While prepositions *by* and *until* are both used for denoting an endpoint in time, *by* denotes a deadline before which an action is finished, whereas *until* denotes a process that lasts up to the endpoint. Compare:

- (7a) John has to work *until* 7 p.m.
 (7b) John has to submit the paper *by* 7 p.m.

In (7a), John has to continue working until 7 p.m., whereas in (7b), paper submitting has to be done at a time no later than 7 p.m., and the act of submitting does not continue for an extended period. In terms of Vendler’s (1967) lexical aspects, *by* is typically used with an achievement verb/predicate with [+punctual, +telic] features such as ‘finish’ and ‘arrive’; *until* is used with activity verbs/predicates with [-punctual, -telic] features such as ‘work,’ and ‘practice soccer.’ Unlike the preposition pair *for* and *during*, whose choice can be easily made by referring to the immediately following time expression within the PP, the choice between *by* and *until* depends entirely on the lexical aspects of the predicate.

Again, the semantic/conceptual distinction between *by* and *until* is blurred in Korean. The two prepositional meanings are both covered by the Korean adnominal marker *-kkaji* (-까지), which simply denotes an endpoint, as in (8a) and (8b).

- (8a) John-un caceng-*kkaci* ilhayya hanta. ‘John has to work *until* midnight.’
 (8b) John-un caceng-*kkaci* kwacey-rul ceychwulhayya hanta. ‘John has to submit the paper *by* midnight.’

So far, we have listed some of the ODP pairs that are underdifferentiated in Korean lexico-semantic system and therefore are potentially confusing to Korean EFL learners. While educators must certainly have noted that such differences would pose serious challenges to L2 learners’ acquisition of prepositions, there has been only a handful of research on preposition acquisition that addressed L1-L2 cross-linguistic differences at the lexico-semantic level.

Previous Studies on L2 Preposition Acquisition

There has been recent growth in studies on L2 preposition learning in the Korean EFL context. Some studies examined how Korean learners of English acquire the semantic structures or functions of prepositions (Baik, 2012; Kim & Choe, 2020; Rosch, 1973). They limited their scope to a small number of prepositions (or just one preposition) and examined how their semantic/functional networks are expanded. Baik (2012), for example, focused on the preposition *to* and attempted to explore how its meanings and functions develop over time from a cognitive perspective. Kim and Choe (2020) focused on three prepositions of place *in*, *at*, and *on*, and questioned whether L2 learners go through the same stages of meaning expansion as L1 children do, starting from concrete, archetypal meanings and expanding to more abstract and metaphorical meanings.

Other studies attempted to analyze and classify Korean EFL learners’ preposition errors (Cheon, 2018; Kwon, 2015; Lah & Yoo, 2015; Lee et al., 2020). Lah and Yoo (2015) analyzed Korean adult learners’ written corpus to investigate their use of *of*, and classified their errors into different types like addition, misordering, and malformation. Cheon (2018) collected and analyzed adult Korean learners’ spoken corpus data and classified their preposition errors into omission, addition, substitution, and misordering. She found that substitution accounted for the largest proportion of learner errors. A similar finding was reported by Lee et al. (2020). They analyzed Korean university students’ use of prepositions in lexical bundles and found that substitution errors (“misuse errors” in the authors’ own words) accounted for the largest proportion of the total errors.

Some attention was given to crosslinguistic differences and its implications in L2 preposition learning. It has been noted that the Korean language does not have an equivalent to English preposition system, and concerns have been expressed about the effects of crosslinguistic differences on Korean learners’ preposition learning (Cheon, 2018; Lee & Park, 2015; Park et al., 2013). Park et al. (2013), for example, pointed out that Korean learners’ strategy to find similarity between Korean and English would make their preposition learning even more difficult.

Despite the recent interest in the crosslinguistic differences, however, systematic studies focusing on learning difficulties

and errors at the lexico-semantic level have been surprisingly rare. Only recently, Hahn (2022) raised the issue of L1-L2 lexico-semantic differences in addressing L2 preposition learning difficulties. Noting that the Korean language does not lexicalize the distinction between prepositions such as *for* and *during*, she examined whether Korean learners of English experience confusion due to the lexical underdifferentiation in their L1. She selected five pairs of prepositions (*on/above*, *under/below*, *for/during*, *by/until*, and *in/at*) whose members are distinct from each other in English but are not differentiated in Korean. She presented stimulus sentences in two conditions as in (9) and asked her participants rate the acceptability of the sentences. The following is from Hahn (2022, p. 204).

(9a) Correct condition: All students remained in their seats *until* late afternoon.

(9b) Incorrect condition: *All students remained in their seats *by* late afternoon.

She found that the learners were confused by the similarity of the prepositions such as *until* and *by*. However, she also found that the learners gave higher ratings to the sentences in the correct condition than to those in the incorrect condition. Based on her findings, Hahn (2022) concluded that her participants were generally able to distinguish the separate contexts for ODPs.

Importantly, however, her findings were based on learners' receptive performance on self-paced reading and acceptability judgment tasks. Her participants only had to determine whether a sentence containing a given preposition was acceptable. There is thus no guarantee that the same participants would also produce *by* rather than *until* in the context requiring *by*. Further, the experiment was conducted under time pressure and did not allow the learners to go back to the previous words in the sentence, which constitute a critical context for the choice of a preposition.

To complement these limitations and to tap into Korean learners' productive use of ODPs in much richer context, we asked our participants to actually write the preposition in a cloze test context. In our study, we asked whether Korean adult English learners confuse ODPs and use them in wrong contexts. We also asked whether they gradually learn to differentiate ODPs, and if so, whether some ODPs are more difficult to differentiate than others.

Research questions are:

- 1) Do Korean learners make errors due to their confusion between ODPs?
- 2) Do Korean learners gradually differentiate the distinct members of ODP pairs with the increase of proficiency?
- 3) Are some ODP pair members more difficult to distinguish than others?

METHOD

Participants

A total of 109 adult Korean learners of English participated in this study. They were undergraduate students in their twenties, attending universities located in Cheongju, Seoul, and Incheon, Korea. Fifty-four of them were English education majors at a university in Cheongju, and the others were non-English majors taking college English courses at two different universities (19 participants at a university in Seoul and 36 participants at a university in Incheon). Their English proficiency generally ranged from intermediate to low-advanced. They were later divided into five proficiency groups according to their scores on the cloze test (see the Materials section). In addition, seven native speakers of English were also asked to participate in this study as a control group to secure baseline data on the use of English prepositions.

Materials

To obtain data on the participants' prepositions use, we designed a cloze test, which required the participants to fill in the blanks in an English passage. As a type of fill-in-blank test, the cloze test presented items as blanks embedded in a passage and required the participants to write words for the blanks in larger linguistic context. The passage was a story about two friends *Tom* and *Jane*, and included many place and time expressions so that it required multiple use of prepositions of time and space. The text was constructed by the researchers and was edited by three native speakers. On average, a deletion (i.e., a blank) was made in 7.2 words. It contained 41 blanks, among which 12 items required prepositions (see Appendix A).

The prepositions for the blanks included eight prepositions from four ODP pairs: *on* and *above*, *in* and *at*, *for* and *during*, and *until* and *by*. As mentioned, the members of each pair are not lexically differentiated in Korean, and thus were expected

to cause difficulties for the learners. The other four prepositions were *before*, *after*, *with*, and *to*.³ These prepositions were non-ODPs, which did not involve overdifferentiation/underdifferentiation issues. Their inclusion in the test was expected to provide baseline data as to whether non-ODP prepositions pose less difficulties compared with ODPs. The frequency counts of the ODPs and non-ODPs in COCA database are presented in Appendix B.

The remaining 29 blanks were used as filler items, where words in other syntactic categories should be inserted such as nouns, pronouns, determiners, and verbs. The primary purpose of the test was to tap into the participants' productive knowledge of prepositions in context. At the same time, the test was also utilized as a tool to measure their general English proficiency. As a measure of overall ESL proficiency, cloze is known to assess learners' integrative language skills in that filling the gaps in the text requires receptive and productive knowledge of vocabulary and grammar as well as the ability to process information across sentences. For this reason, cloze tests have been widely used as a test of proficiency in many L2 studies (Bachman, 1985; Brown, 2002; Cohen, 1980; Oller & Conrad, 1971).⁴

Procedure

Participants were asked to individually read a story in the cloze and fill each blank in the text with the most appropriate word as they go through the story. The task took 15 to 20 minutes to complete.

Data Analysis

Participants' responses in each item were recorded and scored (correct = 1, incorrect = 0). The mean accuracy rate for each preposition was calculated in terms of the number of correct answers out of total responses. The accuracy rates were compared across prepositions in order to compare their relative difficulty of acquisition, and further, to obtain the order of acquisition. The participants' responses were further analyzed to see if one member of an ODP pair was overused in the context for the other by running Chi-square tests. To explore whether and how learners gradually differentiate the prepositions in the ODP pairs as their L2 proficiency increases, the learners' performances on prepositions were compared across levels.

RESULTS

Native Speakers' Use of ODPs

Native speakers were almost unanimous in their responses for ODP items. Table 2 presents the seven native speakers' responses to the eight ODP items.

TABLE 2

Native Speakers' Responses to ODP Items: Native Speakers

Preposition	Tokens (%)	Others
<i>on</i>	7 (100%)	
<i>during</i>	7 (100%)	
<i>at</i>	7 (100%)	
<i>until</i>	7 (100%)	
<i>in</i>	7 (100%)	
<i>for</i>	7 (100%)	
<i>above</i>	6 (85.7%)	1 (14.3%)
<i>by</i>	7 (100%)	

³ Since had also been included in the test as a non-ODP items at the materials design phase. However, as it turned out later at the stage of data analysis, we found that *since* can be confused with *from* in that they can be both translated as *-pwute* (-부터) in Korean. As we did not include *from* in our design, *since* alone did not constitute an ODP pair, either, so *since* was excluded from the analysis.

⁴ One reviewer pointed out that cloze tests cannot be a proficiency test. While cloze tests were first used to measure text readability, studies have confirmed their value as a proficiency test (Alderson, 1979; Cohen, 1980; Hahn, 2018; Hale et al., 1989; Stubbs & Tucker, 1974) as well as a test of reading comprehension (Anderson, 1976; Oller & Jonz, 1994).

As shown in Table 2, native speakers provided correct members of each ODP pairs, yielding 100% accuracy for all the items except *above*, where one native speaker provided *over* instead of *above*. As *above* and *over* were exchangeable in the present cloze test context, all the native speakers can be said to have provided the expected correct responses, differentiating the separate contexts for each of the ODPs. No one confused the prepositions in the ODP pairs.

Korean EFL Learners' Use of ODPs

Unlike the native speakers, the Korean EFL participants were found to have difficulties distinguishing the separate contexts for ODPs, showing 49.1% accuracy on average. In addition, some ODPs were found to be more difficult for them. Table 3 presents the accuracy rates of the eight ODPs arranged in order of accuracy, with the top being the most accurate. Participants were 100% accurate in their use of *on*. None of them used *above* in the context where *on* was required. *During* was the next most accurately used preposition (72.5%). Only 32.1% and 31.2% of the participants correctly supplied *in* and *for*, respectively. The accuracy rates of using *above* and *by* in their proper contexts were as low as 15.6% and 13.8%, respectively. The accuracy order of the eight ODPs is as follows:

on > during > at > until > in > for > above > by

On the face of it, the learners seem to have mastered the use of *on* because all of them supplied *on* in its correct context. However, when we compared their performances in the *on* context and the *above* context side by side, we found that many learners used *on* in the *above* context. A preposition that appears to be correctly used in its context, therefore, should be also checked in terms of whether it is not incorrectly used in a wrong context. When we compared the learner performance on ODPs in pairs, we found that our learners used one member of an ODP pair in the context for the other.

TABLE 3
Korean Learners' Responses to ODP Items

Preposition	Correct Response (Tokens)	Accuracy (%)
<i>on</i>	109	100
<i>during</i>	79	72.5
<i>at</i>	77	70.6
<i>until</i>	62	56.9
<i>in</i>	36	32.1
<i>for</i>	33	31.2
<i>above</i>	17	15.6
<i>by</i>	15	13.8

On vs. Above

As mentioned, the learners achieved 100% accuracy rate in its proper context ("She made tomato soup ... and then put forks and knives on the table"). On the other hand, only 15.6% of them correctly provided *above* in its context ("Then she remembered the picture of them and hung it above the fireplace"). Notably, 53.2% of the participants chose *on* instead of *above*. The difference between their use of *on* and that of *above* was highly significant in the *above* context ($\chi^2 = 22.413$, $p < .001$), which proves that *on* is much more prevailing in the context where *above* is required. Unlike native speakers, no one used *over* instead of *above*. Table 4 presents the proportions of *on* and *above* used in the *on* context and the *above* context, respectively.

TABLE 4
Learner Responses in the On and Above Contexts

Correct Answer	<i>On</i>			<i>Above</i>		
Learner Responses	<i>on</i>	<i>above</i>	others	<i>above</i>	<i>on</i>	others
Tokens	109	0	0	17	58	34
%	100%	0%	0%	15.6%	53.2%	31.2%

At vs. In

About 70% of the learners used *at* in its correct context (“So we meet at the restaurant, right?”). While some learners (12.8%) wrote *in* instead of *at*, a chi-square results confirmed that *at* was the dominant preposition ($\chi^2 = 63.000, p < .001$). In the context requiring *in* (“This time I will come early and be sitting in the restaurant”), only 32.1% of participants used it correctly. More learners (41.3%) used *at* instead of *in*. The frequency difference between *in* and *at* was not significant ($\chi^2 = 1.412, p = .235$), which means that *in* and *at* were almost evenly used in the context of *in*. Table 5 presents the proportions of *at* and *in* used in the *at* context and the *in* context, respectively.

TABLE 5
Learner Responses in the At and In Contexts

Correct Answer	<i>At</i>			<i>In</i>		
Learner Responses	<i>at</i>	<i>in</i>	others	<i>in</i>	<i>at</i>	others
Tokens	77	14	18	35	45	29
%	70.6%	12.8%	16.5%	32.1%	41.3%	26.6%

During vs. For

In the context where *during* is required, 72.5% of the learners correctly used *during* as in “He did not allow us to use our smartphones during the meeting.” Only three learners used *for*. The difference in use between *during* and *for* was highly significant ($\chi^2 = 55.537, p < .001$).

By contrast, only 32.1% of the learners correctly used *for* in the context where *for* is required. Two-thirds (67.9%) of them provided wrong answers. Interestingly, 54.1% of participants wrote “Tom” or “him” as answers in the context sentence “Jane had waited _____ more than an hour,” where *for* is the correct word for the blank. Their provision of a direct object “Tom” or “him” immediately after ‘wait’ suggests that they have a wrong subcategorization rule concerning ‘wait,’ which is probably due to their L1 transfer. The Korean verb ‘kitarita (기다리다),’ the equivalent of ‘to wait,’ can be used as a transitive verb that takes an accusative NP (typically, a person) as in “Tom-ul kitarita (‘to wait for Tom’).”

Among those who supplied prepositions in the same context, 66% of the participants correctly used *for*; and no one used *during* instead of *for*. Therefore, most of their errors can be ascribed to their lack of structural knowledge rather than their lack of differentiation between *for* and *during*. The results suggest that learners hardly made errors due to their confusion between *during* and *for*. The learner responses and their distributions in the *for* and *during* contexts are summarized in Table 6.

TABLE 6
Learner Responses in the During and For Contexts

Correct Answer	<i>During</i>			<i>For</i>		
Learner Responses	<i>during</i>	<i>for</i>	others	<i>for</i>	<i>during</i>	others
Tokens	79	3	27	34	0	75
%	72.5%	2.8%	24.7%	32.1%	0%	67.9%

Until vs. By

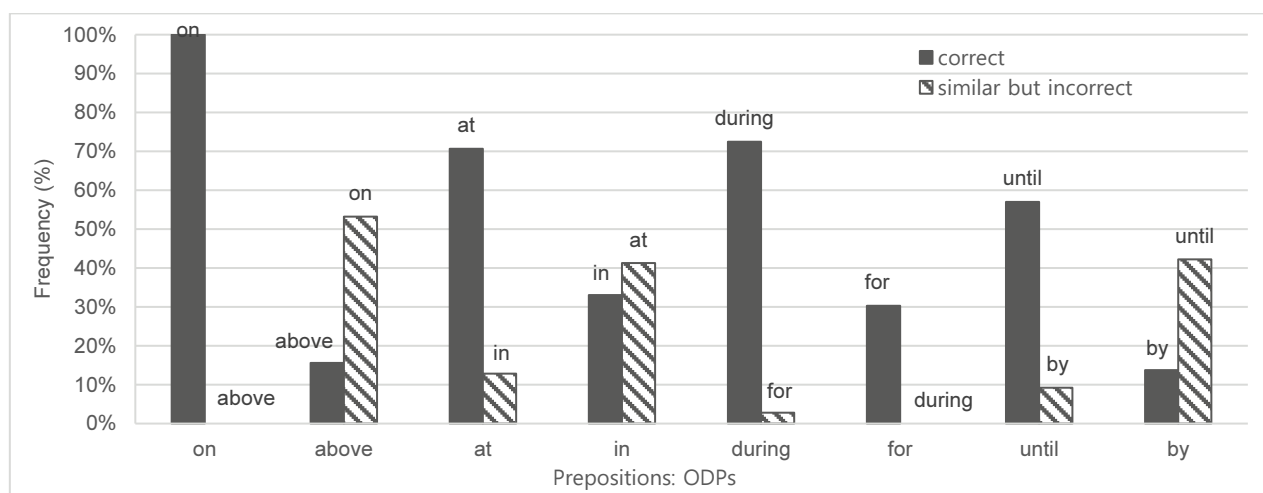
In the context where *until* is required, sixty-two learners (56.9%) correctly provided *until*, as in “We had to work until 7:00.” Much smaller number of them (9.2%) wrote *by* as an answer. The difference in use between *until* and *by* was highly significant ($\chi^2 = 37.556, p < .001$), which shows that the participants preferred *until* to *by* in the context requiring *until*. Interestingly, 12.8% of participants chose *at* in the same context.

As for *by*, only 13.8% of participants provided the correct answer, as in “We must finish our work by 7:00.” More learners (42.2%) incorrectly provided *until* instead of *by* as in “*We must finish our work until 7:00.” The frequency of *until* was significantly higher than that of *by* ($\chi^2 = 15.754, p < .001$). Notably, 17.4% of them used *at* in the place of *by*, which will be discussed in the Discussion section. The learner responses and their distributions in the *until* and *by* contexts are summarized in Table 7.

TABLE 7*Learner Responses in the Until and By Contexts*

Correct Answer	<i>Until</i>			<i>By</i>		
Learner Responses	<i>until</i>	<i>by</i>	others	<i>by</i>	<i>until</i>	others
Tokens	62	10	37	15	46	48
%	56.9%	9.2%	33.9%	13.8%	42.2%	44.0%

Figure 1 summarizes the distribution of competing ODPs in the learners' responses.

**FIGURE 1***Distributions of Learner Responses: ODPs*

As demonstrated in Figure 1, one member of an ODP pair tends to be more dominant than the other. *On* is found to be more dominant in the *on/above* pair so that *on* is overused in the context where *above* is required. Between *at* and *in*, *at* is overused; and between *until* and *by*, *until* is overused. By contrast, there is little evidence for confusion between *during* and *for*: neither of them was overused in the context for the other.

Korean EFL Learners' Use of Non-ODPs

The Korean learners tended to be more accurate in using non-ODPs, showing 79.6% accuracy on average. Table 8 presents their accuracy in providing non-ODPs. Their accuracy with non-ODPs was significantly higher than their accuracy with ODPs ($t = 1.94, p < .05$), which suggests that ODPs are more difficult to acquire than non-ODPs.

TABLE 8*Korean Learners' Responses to Non-ODP Items*

Preposition	Correct Response (Tokens)	Accuracy (%)
<i>after</i>	97	89.0%
<i>with</i>	89	81.7%
<i>to</i>	85	78.0%
<i>before</i>	76	69.7%

Ninety-seven out of 109 participants (89.0%) correctly provided *after*, whereas a few students used *in* and *for* instead of *after*. Their accuracy with *before* was slightly lower (69.7%). Some wrote *at* and *after* as their answers in the *before* context (9.2% each). While it is not clear why some wrote *after* even though the meanings of the two prepositions are completely opposite, they seem to have provided *after* because they failed to figure out the sequence of the events in the story at a global

context. The learners' performance on the preposition *with* showed 81.7% accuracy; a few wrote *for* (2.8%) or *from* (2.1%) as an answer. The majority of the participants (78%) correctly provided *to*; other responses included *toward* (4.6%). To summarize, the learners were generally more accurate with non-ODPs. No evidence for confusion due to lexico-semantic overdifferentiation was found.

Performance by Level

To figure out how learner performance varied depending on their proficiency level, the L2 participants were divided into five proficiency groups based on their cloze test scores, as shown in Table 9. The cloze score average of the whole group was 30.8 out of 41, showing 75.1% accuracy. As the learners' cloze test scores were found to be highly correlated with their preposition scores ($r = .801$), it can be assumed that their performance on the cloze test would also represent their knowledge of L2 prepositions.

TABLE 9
Proficiency Levels Based on Learners' Cloze Test Performance

	Accuracy Rate in the Cloze Test				
	Below 60%	60-70%	70-80%	80-90%	Above 90%
Level	1	2	3	4	5
n	10	21	30	41	7

The analysis of performance by level revealed that learners at higher levels were more accurate in their use of ODPs. Table 10 presents the accuracy of the five proficiency levels. In this study, acquisition of a preposition was operationally defined as 70% accuracy.⁵ Following this criterion, items whose accuracy rate exceeded 70% have been shaded in the table to mark acquired prepositions.

Table 10 quite clearly demonstrates the gradual process of preposition acquisition, in which prepositions are acquired item by item. To begin with the preposition that showed the highest accuracy rate, *on* reached 100% accuracy in all proficiency groups. *At* followed *on*, satisfying the acquisition criterion of 70% in Levels 3, 4, and 5. Only Levels 4 and 5 were found to have acquired *during* and *until*. Prepositions *for* and *in* met the acquisition criterion only in Level 5. None of the proficiency groups were found to have acquired *above* or *by*, according to our acquisition criterion.

TABLE 10
Accuracy Rates by Level: ODPs

	Accuracy (%) by Level				
	Level 1	Level 2	Level 3	Level 4	Level 5
<i>on</i>	100	100	100	100	100
<i>at</i>	20	57.1	70	87.8	85.7
<i>during</i>	40	57.1	63.3	90.2	100
<i>until</i>	20	33.3	50	75.6	100
<i>for</i>	30	14.3	20	36.6	100
<i>in</i>	20	9.5	33.3	39	71.4
<i>above</i>	10	9.5	6.7	22	42.9
<i>by</i>	0	4.8	6.7	22	42.9

Looking at the learner performances level by level, Levels 1 and 2 reached the acquisition criterion only in *on*; Level 3 in *on* and *at*; Level 4 in *on*, *at*, *during*, and *until*; and Level 5 in *on*, *at*, *during*, *until*, *for*, and *in*. Notably, the acquisition pattern in Table 10 reveals that there is an implicational scale in the acquisition order: all the prepositions acquired by lower-level

⁵ We also applied a criterion of 80% accuracy, but a 70% accuracy criterion was found to display a more graded change in preposition acquisition with the increase in proficiency.

learners are also found to have been acquired by higher-level learners, and prepositions not acquired by higher-level learners are also found to have been unacquired by lower-level learners. From these progressive acquisition patterns, we derived the following acquisition order (*above* and *by* have been put in parenthesis since they met the acquisition criterion in none of the five levels):

on > *at* > *during* > *until* > *for* > *in* (> *above* > *by*)

The learners also showed a gradual acquisition of non-ODPs as illustrated in Table 11. Overall, the groups showed better performance on non-ODPs than on ODPs. While Level 1 reached the acquisition criterion only in their performance on *after*, Level 2 and Level 3 met the acquisition criterion in *after*, *with*, and *to*. Levels 4 and 5 were found to have acquired all the non-ODPs.

TABLE 11

Accuracy Rates by Level: Non-ODPs

	Accuracy (%) by Level				
	Level 1	Level 2	Level 3	Level 4	Level 5
<i>after</i>	70	81	83.3	100	100
<i>with</i>	40	71.4	83.3	92.7	100
<i>to</i>	50	71.4	73.3	87.8	100
<i>before</i>	20	52.4	66.7	90.2	85.7

DISCUSSION

To summarize the findings so far, the Korean learners were found to make errors due to their difficulties in distinguishing ODPs. They provided similar prepositions in the wrong contexts, causing overuse errors. The findings clearly demonstrate that crosslinguistic differences at the lexico-semantic level indeed pose a serious problem to L2 preposition learning. Second, the participants were found to gradually distinguish the different contexts for these ODPs as their proficiency increased. Level 5 learners achieved over 70% accuracy in six prepositions (*on*, *during*, *at*, *until*, *for*, *in*) out of eight ODPs. Interestingly, the acquisition order obtained from the five proficiency groups almost coincided with the whole group accuracy order.

This accuracy/acquisition order appears to suggest that *on* is the easiest among these eight prepositions. However, it should be noted that 100% supply of *on* in the correct context does not mean that learners have mastered its use. Recall that many learners incorrectly supplied *on* to mean *above*. Indeed, their use of *on* instead of *above* was the main reason for the low accuracy with *above*. In other words, the learners overused *on* and underused *above*. The misuse of *on* instead of *above* was prevailing across all proficiency levels, including those at the highest proficiency level in our study.

Importantly, one member of an ODP pair tended to be overused for the other, but not vice versa. In other words, one preposition tended to represent both prepositions of the ODP pair: *on* was dominant in both *on* and *above* contexts; *until* was dominant in both *until* and *by* contexts; and *at* was dominant in both *at* and *in* contexts. Only *for* and *during* tended to be used in their separate contexts.

on > *above*

until > *by*

at > *in*

These results contrast with Hahn (2022), who reported that her EFL learners preferred *above* to *on* in the *above* context and preferred *by* to *until* in the *by* context. Our findings demonstrate the opposite. More people provided *on* instead of *above* in the *above* context, and *until* instead of *by* in the *by* context. The discrepancy in findings between Hahn (2022) and our study suggests that L2 learners' ability to perceive a preposition used in a proper context does not go hand by hand with their ability to "produce" it in a proper context. The findings are in line with the widely shared consensus in the field of language acquisition that comprehension and production follow different timetables (Bates, 1993; Clark & Hecht, 1983; Kern, 2007) and that comprehension does not always predict production (Bauer et al., 2002).

Two questions arise at this juncture. The first is what makes some ODPs easier to differentiate than others. Another

concerns what makes one member of an ODP pair more dominantly used than the other. To begin with the first question, why are *during* and *for* easier to distinguish than *until* and *by* or than *on* and *above*? While there might be several factors that affect the ease or difficulty in differentiating ODPs, one strong possibility is that learners employ a local strategy in choosing a preposition. That is, L2 learners, especially beginners, are likely to choose a preposition by referring to its local context. Specifically, many learners seem to refer to only the noun phrase that immediately follows the preposition, without taking the global context into account. The local strategy can be effective when they are to choose between *for* and *during*, because *for* usually combines with numerical time length expressions like ‘three hours,’ whereas *during* combines with time period expressions such as ‘summer’ or ‘vacation.’ However, the same strategy does not work with pairs like *until* and *by*. When it comes to *until* and *by*, the choice cannot be locally made within a PP context because both *until* and *by* can combine with the same time expressions, as in “We must finish our work *by* 7:00” and “We must work *until* 7:00.” To determine which preposition to use, the user must go beyond PP and refer to the lexical aspect of the predicate. It is interesting to note that many learners, especially, those at lower levels used *at* in the contexts requiring *by* and *until*. Here again, the learners seem to have adopted the strategy of looking at the local context of PP. As the time expression that immediately followed the blank was “7:00,” the learners might have mechanically chosen *at*, which is frequently used with clock time as in “*at* 7:00.” Table 12 shows that the incorrect use of *at* instead of *by* and *until* is more characteristic of lower-level learners.

TABLE 12*Use of At in the By and Until Contexts*

	Level 1	Level 2	Level 3	Level 4	Level 5
<i>at</i> instead of <i>until</i>	30.0%	19.0%	20.0%	2.4%	0%
<i>at</i> instead of <i>by</i>	40.0%	33.3%	13.3%	9.8%	0%

The overuse of *at* instead of *in* can also be explained in terms of the local strategy. The choice between *at* and *in* cannot be made within the local PP domain: both *at* and *in* can be used with the same place expression as in “*in* the restaurant” and “*at* the restaurant.” The choice depends on more global context, including the predicates, preceding and following sentences, and even situational context and world knowledge. In our cloze test context, “the restaurant” occurred twice, in different places of the text, as in “Let’s meet *at* the restaurant ... This time, I’ll come early and be sitting *in* the restaurant.” The ability to process contextual information is an essential part of preposition use. Our work increased the relevance of contextual information by providing rich textual context by means of a cloze test. This experimental condition allowed us to tap into learners’ ability to make use of global as well as local context. Many learners’ overuse of *at* indicates that they rely on the local context of PP and fail to take broader context into account.

Turning to the second question, it is never easy to explain what makes one member of an ODP pair more dominant than the other. Frequency might be partially responsible for the biased use of prepositions. For example, in the case of *on* and *above*, *on* is by far more frequent than *above* (6,900,306 tokens vs. 167,213 tokens in COCA corpus). In Korean public educational setting, *above* is hardly introduced in middle school textbooks. According to our analysis of five Grade 7 and 8 English textbooks, *on* occurs 182 times whereas no case of *above* is found in the same textbooks. Due to their frequent exposure to *on* and lack of exposure to *above*, students might build their initial hypothesis that *on* corresponds to *wui-e* in Korean and use it in the *above* context as well, until they encounter and notice evidence that tells them otherwise.

Form-function relationship is another potential candidate that might be responsible for the biased use of prepositions. In terms of meaning and function, *until* is quite simple and straightforward in that it is combined with a time expression. In contrast, *by* is multifunctional as mentioned earlier. The opacity and unreliability of the form-function relationship are highly likely prevent learners from identifying *by* as a means to denote deadline, although *by* is by far more frequent in the input than *until* (3,452,629 tokens vs. 382,304 tokens in COCA).

CONCLUSION

The present study addressed the crosslinguistic differences at the lexico-semantic level between Korean and English and predicted that Korean learners of English would make production errors due to their confusion between ODPs that are not lexically distinct in Korean. The findings of our study can be summarized as follows. First, Korean learners had difficulty in differentiating prepositions in ODP pairs, confusing one member of the pair with the other. They were found to gradually differentiate the distinct contexts for ODPs as their proficiency increased. Second, they used one member of the ODP pair in the context for the other. Third, the learners showed little confusion between ODPs like *for* and *during* although even

advanced learners made errors with some ODP pairs like *on/above* and *by/until*. We proposed that the differences in learning difficulty and biased use of ODPs are attributable to factors such as frequency, complexity of form-function relationship, and learners' use of local strategy.

This paper has a unique contribution to understanding Korean EFL learners' preposition learning in that it called attention to L1-L2 differences at the lexico-semantic level and tapped into L2 learners' productive knowledge in context. While receptive task such as acceptability judgement simply has learners decide whether a given preposition is correctly used, it does not guarantee that they can retrieve the right preposition from their mental lexicon and produce it in the right context. Our cloze test design required the participants to use their active knowledge in context and revealed that most of the advanced learners had difficulties using ODPs like *until* and *by*. The learning difficulties with ODPs call for more comprehensive future studies on the effects of lexico-semantic differences on preposition learning by learners with different L1 backgrounds.

Our findings have some important pedagogical implications. First, the distinction between prepositions like English ODPs are difficult to be naturally acquired by Korean learners because ODPs are lexically and conceptually underdifferentiated in their L1. Moreover, prepositions can easily go unnoticed due to their low saliency. Even if they might vaguely understand the meaning of prepositions in comprehension, they might not be able to use them correctly in production. To help learners differentiate ODPs and use them properly, more explicit explanations about the crosslinguistic differences might be desired. Techniques such as input enhancement, input processing, and corpus-based grammar discussion would help learners raise their awareness of the subtle differences in their meaning and use. Students also need be warned that too heavy reliance on local strategies and mechanical memorization can be harmful.

The present study has a few important shortcomings. The cloze test we used to explore learners' knowledge of prepositions has advantages in that it provides natural contexts for preposition use. It allowed us to investigate how learners utilize contexts in determining the correct prepositions. However, it did not strictly control confounding variables such as immediate surrounding contexts. Using a design that controls potential confounding variables in more rigorous experimental conditions will complement our findings in a more natural discourse context.

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Appendix A

Cloze Test

다음 글이 자연스럽게 이어지도록 빈 칸에 알맞은 말을 써 넣으시오.

Jane and Tom are close friends. They have been friends since elementary school. One day, Jane invited Tom for dinner. It was already 5:00. So Jane ran home and hurriedly cleaned the house. _____ made tomato soup and some pasta, and then put forks and knives _____ the table. Everything looked perfect. Then _____ remembered the picture of them and hung it _____ the fireplace.

Now it was 7:30. _____ had waited _____ more than an hour. Yesterday, _____ had told _____ that _____ would be able _____ come around 6:00, but _____ did not come on time. "Something must have happened to _____," _____ said to herself. Then the doorbell rang. _____ rushed _____ the door and opened it. _____ was standing at the door. _____ said, "I am sorry I'm late. Our team had _____ important meeting _____ the boss. _____ said that we must finish our work _____ seven." _____ continued, "I wanted to call you, but _____ did not allow us to use our smartphones _____ the meeting. We had to work at the office _____ seven without a break. So sorry." _____ said that it was okay and took _____ to the dinner table. They began to eat. The soup and _____ were already cold. While eating, Jane _____ unhappy and did not talk much. _____ tried to make _____ laugh, but it wasn't funny at all.

_____ a few quiet minutes, _____ said, "Hey, I'm so sorry. How about _____ to a concert this weekend?"

"A concert?" _____ said.

"Yes, I'll buy the tickets. The concert will start at 9:00, so let's have dinner _____ the concert, around 6:00. I'll buy dinner, too," _____ said.

"Sounds great. So we meet _____ the restaurant, right?" _____ said.

"Right. I know a good restaurant named Pete's Steak House. It's _____ the concert hall and Starbucks. This time I will come early and be sitting _____ the restaurant."

Appendix B

Frequency of the ODPs and non-ODPs in COCA database

ODPs		Non-ODPs	
on	6,900,306	after	1,086,169
at	4,526,185	with	6,443,234
during	423,650	to	25,554,050
until	382,304	before	822,174
for	8,498,056		
in	16,541,741		
above	167,213		
by	3,452,629		
Mean	5,111,511		6,880,134