

L2 Learners' Beliefs Regarding Their Acquisition of English Prepositions

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While there has been extensive research on L2 learners' beliefs, few studies have examined these beliefs as they pertain to specific features of language. The current study used survey data to examine the beliefs of advanced L2 learners from Korean, Chinese, and Spanish L1 backgrounds with a focus on their acquisition of prepositions. The results showed that these three groups of learners, for the most part, did not attribute their acquisition of this word class to pedagogical materials in textbooks and dictionaries. Instead, they attributed their learning primarily to unconscious processes and to the memorization of prepositions within collocations. However, the Spanish L1 learners reported more intentional learning of collocations, whereas the Korean learners believed that their learning was based more on their implicit acquisition of collocational patterns. The pedagogical implications of the study are discussed along with some concrete examples of questionable pedagogical exercises targeting prepositions in popular English textbooks.

Keywords: prepositions, learner beliefs, collocations, incidental, intentional

INTRODUCTION

Second language instructors and material developers have specific ideas regarding how languages are learned and the optimal strategies for acquiring a second language. Yet these ideas, which form the basis for classroom instruction and curriculum development, do not exist in a vacuum. Students also come to the task of learning with their own presumptions gleaned from a wide assortment of sources, including pedagogical practices in their home country, their prior exposure to learning materials (both inside and outside of the classroom), and their own personal learning experiences. These beliefs are important to understand, since they may be associated with the students' motivation to engage in certain learning tasks, their development of realistic expectations, and their ability to acquire a second language most effectively.

Interest in this topic began in earnest with the research of Horwitz (1987), who developed the Beliefs About Language Learning Inventory (BALLI) based on the teachers', students', and laypersons' typical beliefs about L2A (second language acquisition). The survey has been used to study the beliefs of a wide range of L2 learners and instructors, including junior high school students (Pan & He, 2024), high school students (Aziz & Quraishi, 2017), college undergraduates (Mohebi & Khodadady, 2011), graduate students (Mueller, 2018), older learners (Johari et al., 2017), and pre-service teachers (Liu & Rutledge, 2020). The BALLI surveys a wide

range of beliefs that range across five general areas: foreign language aptitude, learning difficulty, characteristics of L2A, strategies, and motivation. Unfortunately, few studies have examined the learners' attitudes regarding the acquisition of specific linguistic features or aspects of language, whether these be lexical, semantic, syntactic, morphological, phonological, or pragmatic. This study aims to fill this lacuna by focusing narrowly on the learners' beliefs regarding their acquisition of prepositional senses.

POSSIBLE ROUTES TO THE ACQUISITION OF PREPOSITIONS

As a word class, prepositions occur frequently in English. In fact, 11 prepositions (*of, in, to, for, with, on, at, by, from, into, and about*) each occur over 1,000 times per million words in the Brown Corpus of American English, and the most frequent six prepositions account for three-quarters (74.4%) of all prepositional use (Mindt & Weber, 1989). In spite of this frequency, prepositions are notoriously challenging for L2 learners (Mueller, 2022; Munnich, 2002). This difficulty is likely to stem from a number of factors, including the prepositions' low phonological salience (cf. Collins et al., 2009), the highly polysemous nature (and hence low form–meaning contingency) of core prepositions (Ellis, 2006; Tyler, 2012b; Zhao & MacWhinney, 2018), and mismatches in how different languages extend core prepositional senses (Brenda & Mazurkiewicz-Sokołowska, 2022; Tyler, 2012b). This last point can be viewed from the perspective of crosslinguistic influence. When first acquiring a target L2 form, the learners' default strategy is to learn its meaning based on its rough equivalence with a similar L1 form (Andersen, 1984; MacWhinney, 2005). As Kroll and Stewart (1994) argued, this results in an L2 interlanguage lexicon that initially has strong associations with paired L1 lexical items. As the learners use the target language within rich contexts, direct links between L2 forms and their associated meanings gradually develop and strengthen.

Prepositions can be acquired in a number of ways. For the purpose of this paper, five general routes to the acquisition of prepositions will be considered. These will set the stage for the empirical study, reported in the body of the paper, that examined the learners' intuitions regarding their acquisition of prepositions.

The first and perhaps most obvious source of the learners' knowledge is the presentation of prepositional meaning within dictionaries and textbooks. In practice, most textbooks do not systematically address prepositional meaning, and they often fail to teach the patterns of extension of meaning from more central senses. Moreover, the semantics of some prepositional senses can be quite abstract and subtle. In some cases, various functional features combine to sanction the appropriate use of a prepositional sense, in which case, the relevant features may be weighted in terms of their relevance. Complicating matters further, these weightings may be slightly different for L2 prepositional senses that appear to learners to be synonymous with approximately equivalent senses in their L1 (Ijaz, 1986).

Learners can acquire some abstract meaning through implicit learning mechanisms. From a cognitive vantage point, this could involve repeated instances in which an L2 form is processed within the same cognitive window (i.e., within the episodic buffer of working memory) while its associated meaning is also being processed. It is important to note that the learner may not notice the actual pairing of form and meaning. For example, the learner, if asked, may say that the understood meaning of a particular preposition encountered within the input is derived from extralinguistic inferences (and in terms of the learner's actual cognitive processes, this may, in fact, be the case). Yet even in the absence of noticing, the form–meaning mapping may eventually be consolidated through unconscious processes (cf. Williams, 2005, 2009).

In other cases, learners may explicitly notice form–meaning connections within the input. Indeed, Schmidt (1990, 2001) has argued that such conscious noticing is the linchpin of successful L2A. In the case of prepositions, learners may notice an unknown sense of a preposition within input, and as a result of this noticing, the form–meaning mapping may be stored as a fledgling long-term memory representation that is then further consolidated through subsequent encounters of the target sense. In actual practice, explicit learning takes place against a background of constant implicit learning. Each time a target form and associated meaning are processed, a learner's interlanguage system will shift somewhat, often gravitating toward slightly more nativelike representations.

The implicit or explicit learning of prepositions may also involve collocational knowledge. At an unconscious level, certain verb-preposition (e.g., *look at*) or preposition-noun (e.g., *on time*) collocations may occur frequently in the input leading to the storage of the collocations as phonological chunks. In such cases, the individual words (i.e., the preposition and its collocate) may not be processed individually. It should be noted that the development of this sort of collocational knowledge does not rely on conscious noticing. As evidence for this, Vogel Sosa and MacFarlane's (2002) empirical research strongly suggests that even native speakers will predictably process certain noun-preposition collocations (e.g., *kind of*) as unparsed chunks based on specific frequency thresholds.

It is also important to note that collocation-based learning does not equate to acquisition of the particular sense that occurs within a collocation (Mueller, 2011). For example, a student may learn to recognize the collocation *on time* and may even be able to produce this collocation accurately in speech or writing. Even so, the same learner may fail to understand or produce the collocation *on schedule*. Such acquisition patterns are possible in spite of the fact that both collocations in this example include the preposition *on* used with the same sense.

In other cases, collocation learning may be adopted as an intentional strategy. One justification for such a strategy is the observation that about one quarter (Biber et al., 1999) to three quarters (Altenberg, 1990) of native speaker production relies on highly frequent lexical bundles that are likely stored in the mind as formulas (see also Wray, 2002). In a summary of research on the role of formulaic sequences (i.e., collocational learning) in L1 and L2 language acquisition, Mueller (2017) concludes

the following regarding adult L2 learners' acquisition of collocations in immersion contexts:

Late L2 learners in an immersion context seem to retain associative learning mechanisms and are thus able to make contiguous form–form mappings based on massive amounts of input. ... Adults, however, seem to suffer from imprecise interlanguage phonology and syntax, and thus lack L1 speakers' ability to verify congruence of a FS [formulaic sequence] with the target linguistic system. The explicit mechanisms available to adults are also inappropriate for learning some FSs, particularly those that are semantically bleached. When reading, adults also find it more difficult to notice FSs, which lack orthographic salience. (pp. 39–40)

Mueller (2017) summarizes the research on late L2 learners in non-immersion contexts as suggesting that they are “limited by the same problems, which are exacerbated through poverty of input; hence, their acquisition is primarily focused on forms that are phonologically distinguishable and noticeable in the input (often due to the transparency of meaning)” (p. 40). In the quoted passage above, there is a discussion of the L1 speakers' ability to verify congruence of a formulaic sequence with the L1 system. As an example of this, consider the collocation *piece of* as it occurs in the idiom *It's a piece of cake*. In rapid speech, the voiced fricative sound in *of* may be elided, or even when present, may not be heard by a nonnative speaker, who may thereby assume that the collocation is *piece a cake*. A native speaker is likely to recover from such an error (or probably avoid it altogether), especially when writing, due to the difficulty in finding a parsing of the misheard *piece a cake* that fits with English syntax. A nonnative speaker is more likely to accept the misheard collocation as an unparsed chunk.

The five acquisitional routes are not unique to prepositions. Moreover, learners are likely to use all five routes. It should be noted that some of these routes are essentially learning strategies, which can be deliberately employed. Two of the routes, unconscious learning from input and unconscious acquisition of collocations from input, are not part of a deliberate strategy. Even so, learners can engage in certain deliberate language-related tasks that are designed to engage these processes. For example, they may take part in an extensive reading program, which provides massive amounts of input (Nakanishi, 2015; Song & Sardegna, 2014), making the unconscious acquisition of L2 semantics more likely.

METHOD

A questionnaire study was designed to determine adult L2 learners' intuitions regarding their acquisition of prepositions. It should be noted from the outset that learners' reported intuitions regarding their learning strategies do not necessarily coincide with the actual strategies and processes that underlie their learning. Even so, it is important to understand learners' assumptions regarding their learning, as these are likely to affect which approaches they tend to adopt and are also likely to affect their evaluation of the approaches employed by their teachers and textbooks.

For this study, survey data were collected from 90 respondents, who had all learned English as a second language. The questionnaire instrument (see Appendix) was distributed to university students at a large state university in the U.S. and to workers at the Spanish embassy in Washington, D.C. The questionnaire was divided into two sections, the first of which contained questions related to the basic biographical information and the second of which contained questions regarding the respondents' intuitions regarding their learning of English prepositions. Since the target population of the research was adult L2 learners, data from respondents who had lived in an English-speaking country for more than three months prior to the age of 18 were excluded, as were data from respondents whose parents spoke English at home. In total, the data from 11 respondents were excluded from the analysis due to these inclusion criteria or due to the respondent's failure to complete all items on the questionnaire. The data collection was continued until 90 fully completed surveys were obtained from the targeted population, with 30 surveys from Chinese L1 learners, 30 from Korean L1 learners, and 30 from Spanish L1 learners. The respondents' biographical data is shown in Table 1. As can be seen, they were mostly in their late 20s or early 30s and had lived in an English-speaking country for two to seven years on average. There were more women (54) than men (36) who completed the survey.

TABLE 1. Biographical Data from the 90 Respondents

	Chinese L1	Korean L1	Spanish L1
Age (<i>M</i>)	25.5	27.0	35.4
LOR* (<i>M</i>)	29.8	36.5	83.6
Gender**	F = 18, M = 12	F = 14, M = 16	F = 22, M = 8

* Length of residence in an English-speaking society in months ** Gender: F = female, M = male

Table 2 shows the education level of the respondents, with the numbers in the three columns on the right showing whether they were currently enrolled in or had completed a college program at a specific level. As can be seen, the respondents were more highly educated than the general population of their home countries or the U.S. They had all been required to pass English proficiency tests to study in the U.S. or to work in an American-based embassy, so their English level was fairly high and may be estimated to be around B2 or C1 of the CEFR levels (Council of Europe, n.d.).

TABLE 2. Level of Education

L1	High School Diploma	BA	MA	PhD
Chinese	0	8	13	9
Korean	0	13	4	13
Spanish	6	14	7	3

The second section of the questionnaire asked respondents how they thought they learned English prepositions. They were asked to respond on a seven-point Likert scale ranging from *never* to *always*. The items asked about the following five strategies:

1. Use of dictionaries or textbooks
2. Unconscious acquisition from input
3. Conscious noticing of new prepositional senses in the input
4. Deliberate learning of prepositions by memorizing collocations presented in learning materials
5. Unconscious learning of prepositions by memorizing collocations

RESULTS

The responses to the second section of the questionnaire are summarized in Table 3.

TABLE 3. Responses to Strategy Use for Learning Prepositional Senses

Strategy	Chinese <i>M (SD)</i>	Korean <i>M (SD)</i>	Spanish <i>M (SD)</i>	Total <i>M (SD)</i>
Dictionary or textbook	3.0 (1.1)	3.2 (1.0)	3.7 (1.1)	3.3 (1.1)
Unconsciously from input	3.5 (1.0)	3.7 (0.8)	3.6 (1.4)	3.6 (1.1)
Noticing within input	3.9 (0.6)	3.9 (0.8)	4.2 (0.9)	4.0 (0.8)
Deliberate from collocations	3.6 (0.9)	3.3 (0.9)	4.1 (0.8)	3.7 (1.1)
Unconscious from collocations	3.3 (1.0)	4.2 (0.7)	3.5 (1.3)	3.7 (0.8)

As can be seen from Table 3, the most commonly avowed strategy was noticing the semantics of a new prepositional sense when it appeared in the input. This response was especially common among the Spanish L1 respondents. The strategy is likely to be useful when language learners come across prepositional use that is new yet comprehensible based on the situation and sentence context. The Spanish L1 learners also reported relatively frequent use of a strategy in which they deliberately learned prepositional senses based on collocations. As Mueller (2011) notes, this strategy is unlikely to lead to full mastery of prepositional senses, since many verbs and nouns collocate with multiple prepositions, often with a noticeable difference in meaning. Furthermore, many verbs and nouns occur with low frequency, so the strategy of rote memorization for collocation patterns for all the verbs and nouns in a learner's interlanguage is too time-consuming to be practical once learners reach more advanced levels (e.g., beyond the most frequent 5,000 word families), at which point newly learned words occur at low frequencies. The Korean group used the strategy of explicit learning from collocations much less than the Spanish group, as

shown by an independent t test comparing the two groups (with a Bonferroni correction applied to correct for the family-wise error rate), $t(58) = 3.3$, $p = .002$.

Collocational knowledge in both L1A and L2A undoubtedly relies on a great deal of implicit learning. The Korean L1 respondents, in particular, thought that prepositions were acquired through unconscious learning of collocations, whereas the Chinese learners thought that this happened less often. Many learners and much of the public at large are probably unaware of the extent to which patterned associations are acquired unconsciously (as they are in much nonlinguistic category learning), so it comes as little surprise that the Chinese learners did not favor this response.

The low reported use of dictionaries and textbooks for learning prepositional senses is understandable. The participants presumably learned the core meanings of prepositions at an early phase of their English study (e.g., middle school). At more advanced stages of acquisition, learners may find it very time-consuming to find reference materials that provide accurate accounts of noncentral senses of a preposition.

DISCUSSION

The results suggest that learners from different L1 backgrounds may vary in their intuitions regarding the L2 acquisition of prepositions. Most of the respondents indicated relatively little reliance on textbooks and dictionaries to learn the semantics of this word class. This is understandable. After all, many textbooks fail to present the precise semantics of prepositional senses systematically. In fact, many merely provide fill-in-the-blank exercises without any accompanying explanations. Textbook writers apparently presume that learners will learn to associate the target sense with the appropriate preposition through negative feedback when the correct answers are revealed by the instructor. In many textbooks, instruction is based on the assumption that prepositions are best learned through collocations. As one typical example, the *Headway* pre-intermediary student's book (Soars et al., 2019b) provides a fill-in-the-blank exercise for preposition-noun collocations related to time (p. 37), and the intermediate book (Soars et al., 2019a) provides an exercise in which students fill in the blank for a series of unrelated verb-preposition collocations (e.g., *reputation for*, *fluent in*, *laugh at*) and then verify their answer by finding the collocation in an accompanying reading text (p. 25). The textbook thus reinforces some of the learners' mistaken assumption that preposition use is largely unmotivated and can consequently only be learned through rote memorization of collocations. As is often the case with commercial textbooks, the task appears to be unmotivated by any pedagogical principles. For example, it is unclear why students would benefit from scanning a text to check their answers. Another exercise in the pre-intermediate book (Soars et al., 2019b) is more justifiable, perhaps, as it sets up a contrast between the uses of *for* and *since* when used in time expressions (p. 61). Yet even this exercise can only be justified if the learners using the textbook regularly exhibit difficulty with this particular contrast.

With a few exceptions (e.g., Mueller & Tsushima, 2019), research has generally shown that cognitive linguistic (CL) approaches to the teaching of the semantics of abstract constructions and functional words are more effective than conventional approaches (Liu & Qin, 2024), and numerous studies have shown that CL-based instruction is particularly useful for teaching prepositions (Tyler et al., 2011; Wong, 2022; Wong et al., 2018). CL approaches have a number of advantages over conventional treatments. Most importantly, they describe prepositional use as motivated, and thus move learners away from an over-reliance on the rote memorization of collocations. The more fine-grained explanation of prepositional semantics provided in CL-based instruction also helps learners understand the motivation behind certain metaphorical extensions of meaning (Falck & Okonski, 2024). For example, an understanding of the attachment sense of *to* (the sense that appears in the collocations *attached to*, *connected to*, *taped to*, *stapled to*, etc.) makes it easier to acquire metaphorical uses such as *addicted to*, which imply an agent's continued psychological "attachment" to either a concrete or abstract entity (e.g., caffeine or drugs).

To develop effective materials based on a CL approach, more detailed semantic analyses of prepositions need to be conducted. Fortunately, much work has already been done in this area. In addition to Tyler and Evans' (2003) groundbreaking work, there are now semantic analyses of the polysemy network of most frequently occurring prepositions, including *at* (Navarro i Ferrando, 2002), *for* (Mueller, 2016), *into* (Kawaguchi & Kadota, 2022), *on* (Beitel et al., 2001), *to* (Brenda & Mazurkiewicz-Sokołowska, 2022), and *towards* (Le, 2024). Additional studies are needed to model the native speakers' embodied representation of prepositional meaning (Navarro i Ferrando, 2024), to determine the frequency of different senses based on corpus data, and to determine the optimal way to present CL-based analyses to learners (see Tyler, 2012a).

As attempted in this study, future research should provide more detailed examinations of learners' beliefs regarding particular aspects of language and specific target forms. Studies like this one could be expanded upon in various ways. For example, comparative studies could examine differences between learners of varied L1 backgrounds. These differences are likely to be particularly informative in studies that compare countries with markedly different approaches to second language education. Studies could also examine how learners' attitudes change as they progress in their studies and how their attitudes are affected by different learning experiences (e.g., how they change after entering university or after studying abroad). Researchers may also examine how attitudes are affected by learner differences. For example, it would be useful to know if certain learner beliefs are associated with higher motivation or with greater willingness to communicate (MacIntyre et al., 1998).

ACKNOWLEDGMENT

Funding for this research was provided by the Japan Society for the Promotion of Science Grants-in-Aid for Scientific Research (日本学術振興会 科学研究費助成事業 基盤研究(C) 課題番号 21K00653).

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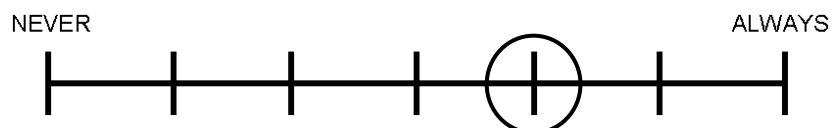
APPENDIX

Questionnaire

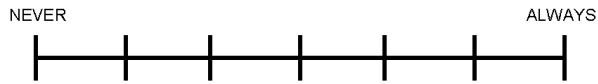
1. What is your first or native language? _____
2. How old are you? _____
3. What sex are you? (Circle the answer.) Female Male
4. What country/countries did you live in before the age of 18? _____
5. Did you live in the U.S. or another English-speaking country for more than three months before you turned 18? (Circle the answer.) Yes No
6. When you were growing up, what language(s) did your parents or other people who lived with you speak when they spoke with you or with each other? _____

7. Do you speak any other languages (besides English and your native language) well enough to hold a conversation in that language? (Circle the answer.) Yes No

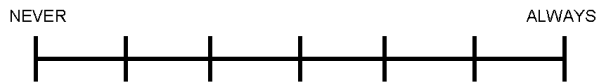
If so, which language(s)? _____
8. How long have you lived in the U.S. or another English-speaking country (include previous visits)?
_____ years _____ months
9. What's your educational background? (Circle the answers.)
High school graduate: Yes No
Undergraduate in college: Freshman, sophomore, junior, senior, graduated
Master's degree: Currently enrolled Completed
PhD degree: Currently enrolled Completed
10. There are many ways to learn English prepositions (for example, words like *in*, *on*, or *at*). Which of the following describe how you learn these words? Circle the place on the line that shows how often you use the strategy. For example, if you circled the fifth mark on the line as shown below, it would mean that you use the strategy fairly often when you learn English prepositions.



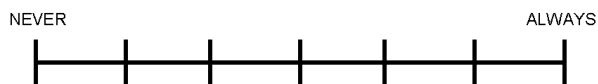
When I don't understand a preposition, I look it up in a dictionary to see what it means in my language.



I have learned prepositions rather unconsciously as I read English and listen to people talk. I don't remember how I learn them. It just seems to happen over time.



When I read or listen to someone talk, I notice a preposition being used in a meaning that I wasn't familiar with. In some cases, this makes me think about the meaning of the preposition as it is being used in the sentence.



When I learn a preposition, I learn from a dictionary or a language book how it is used in combination with other words. For example, when I learn the phrase *in time*, I memorize the meaning of the whole phrase based on the definition or explanation I see in a book or hear from a teacher.



I learn prepositions used in phrases by hearing and seeing them many times. Even though I may not understand why the word *in* is used with *time* in the phrase *in time*, I have heard or seen this combination so many times that it just sounds or looks right to me.

