Eurasian Journal of Educational Research 73 (2018) 41-58

Eurasian Journal of Educational Research
www.ejer.com.tr

Students' Responses to CL-Based Teaching of English Prepositions*

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ARTICLE INFO

Article History:
Received: 09 Sep.2017
Received in revised form: 25.Dec.2017
Accepted: 08 Jan.2018
DOI: 10.14689/ejer.2018.73.3

Keywords
cognitive linguistics, English prepositions, spatial meanings, conceptual metaphors, domain mapping

ABSTRACT

Purpose: Most EFL textbooks suggest the use of vivid pictures and verbal explanations in teaching English prepositions. However, this word class appears in collocations, and rote-learning does not really help learners retain and use this word class successfully. Cognitive linguistics (CL) has implications for English language teaching as it rests against the relationship between the human mind and language. Several experimental studies have aimed to investigate the effects of CL-based treatment on learners' retention of target foreign or second language. However, most of these studies have not placed an emphasis on the learners' opinions of CL-based teaching. This current study aimed to collect college students' responses to CL-based teaching of English prepositions.

Research Methods: The study was conducted for four weeks, with a 90-minute session each time per week. The students learned the spatial meanings and then the metaphorical meanings of the ten prepositions *above, among, at, behind, beside, between, in, in front of, on,* and *under.* Questionnaires were administered before the study to collect the participants' opinions of the traditional teaching (primarily based on vivid pictures and verbal explanations) and after the study to collect the participants' opinions of the CL-based teaching of the prepositions. The participants' responses to the questionnaires were subject to comparison. Their responses in the interview after the study provided an in-depth qualitative analysis of the quantitative findings from the questionnaires. **Results:** All students generally showed positive opinions of the treatment and believed that the instructions were appropriate and positively affected their memories of the prepositions. They especially appreciated the use of image schemas to teach the semantics of the prepositions. **Implications for Research and Practice:** Most participants became more confident in both understanding and using the prepositions under CL-based teaching.

*This study was part of a doctoral thesis to be presented at Hue University of Foreign Languages, VIETNAM

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Introduction

The Context of the Study

Teaching of English prepositions is primarily based on pictorial illustrations and verbal explanations. However, recent research shows that most EFL students encounter problems in preposition use (Cho, 2010). It is crucial to develop effective methods of teaching prepositions. Contemporary literature shows that the acquisition and learning of an additional language should be based on its semantic properties to a certain extent (Ticio & Avram, 2015). Regarding adult language learning, it is widely accepted that there are connections between language production and memory, as using an additional language requires some cognitive process (Kroll, Dussias, Bice & Perrotti, 2015; Skrzypek & Singleton, 2013). The emergence of cognitive linguistics (CL) has implications for teaching English prepositions as it rests itself against the relationship between the human mind and language. In particular, it suggests the teaching of English prepositions should be meaning-based (Boers, 2011).

Different from other linguistic schools that aim at the output of language, cognitive linguistics explores how the output is generated. Consequently, it has many implications for English language teaching and learning. In terms of prepositions, cognitive linguists believe that humans first experience the physical relations between objects and then express such spatial relations in their language coding, called spatial meanings (Lee, 2001). These meanings can be either prototypical or non-prototypical. The following examples can illustrate the Theory of Prototype:

(1) the cat in the house

(2) the flowers in the vase

(3) the bird in the tree

(4) the finger in the ring

Example (1) shows a prototypical meaning of the preposition *in*. In particular, *the cat* is known as the trajector (the thing mentioned) and *the house* is the landmark or the reference point. Prototypically, the preposition *in* is used to indicate that the trajector is absolutely inside the landmark. Nevertheless, in examples (2), (3), and (4), the landmarks do not absolutely cover the trajectors, namely *the flowers, the bird,* and *the finger*. The preposition *in* used in (3) means that English speakers include the branches of the tree to mean *inside* by the preposition *in* (Lee, 2001).

Previous Research

There have been a number of studies on cognitive linguistics and teaching English prepositions, among which are Hung (2017), Song, Schnotz, and Juchem-Grundmen (2015), Bielak and Pawlak (2013), Tyler, Mueller and Ho (2011), Beréndi (2005), Boers (2000), Kemmerer (2005), and Huong (2005). These are considered relevant studies as they were conducted in EFL contexts, and have several things in

common. First, inspired by the Theory of Image Schemas, the semantics of the target items as CL were presented in the form of image schemas, as CL is a meaning-motivated approach. "An image schema is a relatively abstract conceptual representation that arises directly from our everyday interaction with and observation of the world around us [and it] derive[s] from sensory and perceptual experience" (Evans, 2007, p. 106). That is, humans experience the world through everyday observation and interaction from the senses and form conceptual representations of what they have experienced. Song et al. (2015) constructed two-dimensional image schemas based on the relationship between the trajector and the landmark, their distance, the presence or absence of contact, shape, and size of the trajector and landmark, and the orientation of the trajectory with respect to the landmark. It is also believed that image schemas can be three-dimensional (Hung, 2017). Hung (2017), Song et al. (2015), and Tyler et al. (2011) conducted experimental studies applying image schemas to teaching English prepositions.

Also, explicit formal instruction was applied as CL is a usage-based approach. Recent research in ELT and applied linguistics has also demonstrated that explicit instruction is significant in EFL contexts, where there is a lack of out-of-class exposure to English language use (Ellis, 2008). Bielak et al. (2013), Beréndi (2005), Huong (2005), and Tyler et al. (2011) applied teacher-fronted instructions in their studies and the findings were positive.

Hung (2017), Beréndi (2005), Boers (2000), and Song et al. (2015) also applied the Theory of Conceptual Metaphors and Domain Mapping in their studies. The Theory of Conceptual Metaphors emphasizes humans' experience of the world (Evans, 2007, p. 137; Zhao, 2000). Zhao (2000) further explains that most everyday conversations take advantage of conceptual metaphors. Evans (2007, p. 51-53) and Tyler & Evans (2003) assert that prepositions can transfer from domain to domain. The domain in which prepositions are used with spatial meanings are called source domain and target domain (Figure 1). The spatial domain is usually the source domain and the target domain can be the temporal domain, where prepositions are used to indicate time and/or the abstract domain, where metaphors of prepositions are used.

Spatial Domain		**Abstract Domain**
I am standing in the street.	Transfer →	I could see the joy in his eyes.
The cloth is on the table.	Transfer →	You are on the right track with that suggestion.
John is at the supermarket.	Transfer →	He looked straight at me.

Figure 1. *Cross-domain mapping of the prepositions in, on, and at*

Adapted from Lee, 2001, pp. 4-23.

Several studies were based on basic concepts in cognitive linguistics and proved successful in terms of effectiveness. This study made attempts to extend the previous studies to teaching ten prepositions: *above, among, at, behind, beside, between, in, in front of, on,* and *under*. Also, this study made efforts to provide time for productive skills after instruction. Some of the aforementioned studies did not apply any tasks for productive skills after instruction. However, contemporary literature shows that applying tasks for language production may help learners retain the target items longer (Bielak et al., 2013; Ellis, 2008; Norris & Ortega, 2000).

A number of studies showed positive results of the effectiveness of applying cognitive linguistics in teaching English prepositions. Kemmerer (2005) did several experimental studies and concluded that the spatial and metaphorical meanings of English prepositions could be taught separately.

It is important to know that most of these studies only focused on experimental studies. This study was not to develop nor to test the hypotheses of CL; rather, it was to investigate the participants' opinions of CL-based teaching of the prepositions to provide an alternative in English language teaching and implications for future research and practice.

Research Questions

1. What are the students' responses to CL-based teaching of the spatial meanings of the prepositions?
2. What are the students' responses to CL-based teaching of the metaphorical meanings of the prepositions?

Method

Research Design

The present paper mainly aimed to investigate students' opinions of CL-based teaching of English prepositions. To this aim, the study employed both qualitative and quantitative research designs during the data collection and analysis phases. Similar questionnaires were administered before and after the course. The only difference between them was in wording, in that the pre-questionnaire asked the participants' opinions of the treatment of prepositions and what type of treatment they had previously experienced. The quantitative data collected from the questionnaires were input into SPSS for computation. Also, all the participants were invited for an interview to triangulate the findings. The qualitative data collected from the interview were subject to a theme-based analysis. The recordings of the class performances were used to assure the validity and reliability of the findings.

Research Sample

Twenty-five first-year students from different intact classes at a university in Ho Chi Minh City, Vietnam, were involved in the study. The new enrollees only needed to take four on-campus required courses of four hours a week. Thus, they had time to voluntarily attend one of these experimental classes and were required to take the same number of EFL courses. None of these classes, as scheduled, were constructed in English, which partly prevented incomparable exposure to English language during the study. Finally, they had an online account registered by the school, which helped the researcher communicate with the participants about research-related issues. The selected participants gained a score range of 17 to 23 out of 60, had a similar history of learning English, and a comparable level of motivation for joining the study.

Four EFL teachers voluntarily agreed to participate in this study. To be specific, two EFL (English-as-a-foreign-language) teachers with similar teacher characteristics (comparable experience as EFL teachers, qualifications, and age) volunteered to be involved in the study. Two other EFL teachers with an MTESOL working on campus volunteered to be assistants to the researcher to observe and video-record the class sessions.

Pilot Study

The procedure of the pilot was the same as that of the main study. As the Academic Council of the school agreed to the application of cognitive linguistics to teaching English prepositions to the students in the institution, the teachers involved were aware of how to apply cognitive linguistics, as they had had opportunities to apply the required instructional treatment in previous semesters. Teacher training was unnecessary, but observation was done throughout the four weeks. The factor analysis of the questionnaire showed there was only one component in each of the clusters. After the pilot, there were no amendments to the questionnaire. The participants involved in the pilot study did not participate in the main study.

Research Procedures and Instruments

The CL-based instruction was explicit, inductive, and meaning-focused. The teacher related the spatial and metaphorical meanings by using the same image schemas. In other words, meaningful learning was accommodated in hope that the participants had an opportunity to form a long-term systematic memory.

There were also five main activities in each session. The main difference in teaching the spatial meanings and metaphorical meanings was in the warm-up activity and teacher-fronted instruction. More specifically, in lessons of spatial meanings, the participants were required to gap-fill five sentences depicting five pictures given. The answers to these questions were given in the form of image schemas. In activity 2, each preposition was instructed with three examples, each of which was illustrated by a real-life picture directing the image schema, which

focused on the relation between the trajector and the landmark in the hope that the participants could generalize the semantics of the preposition. Teaching the metaphorical meanings related to the new input to the participants' existing knowledge. The teacher first delivered a review session in which image schemas of the prepositions to teach were displayed with examples of their spatial meanings. Then, instruction on metaphorical meanings of the prepositions was given by the teacher. Each preposition was presented with three examples, leading the participants to the same image schema used in the lessons of spatial meanings.

The questionnaires were based on Harmer (2009), Thornbury (2002), Ur (2009), and Hung (2017). Similar questionnaires were administered before and after the course. The only difference between the questionnaires was in their wording, in that the pre-questionnaire asked the participants about their opinions of the previous treatment they had experienced and what type of treatment they experienced; the post-questionnaire asked about their opinions on the treatment. The questionnaire was composed of a Likert-scale from 1-5 (1= strongly disagree, 2 = disagree, 3 = unsure/neutral, 4 = agree, 5 = strongly agree) with 22 items. Items 1-5 asked about their interest in and appropriacy of CL-based teaching of the spatial meanings of the prepositions, items 6-11 about the effects of the CL-based teaching of spatial meanings, items 12-16 about the interest and appropriacy of CL-based teaching of the metaphorical meanings of the prepositions, and items 17-22 about the effects of CL-based teaching of metaphorical meanings. All the questionnaire items were translated into Vietnamese and then interpreted when administered. The interview questions also applied the framework of the questionnaire, but were open-ended to collect the participants' in-depth responses to the treatment.

Data Analysis

As this study was both qualitative and quantitative, the quantitative data collected from the participants' responses to Part 2 of the pre-questionnaire and post-questionnaire were input into SPSS for quantitative analysis. The findings were then compared to see their opinions of the treatments they had previously received from other teachers (Part 2 of the pre-questionnaire) and CL-based treatment in the course of this study (Part 2 of the post-questionnaire). In addition, their qualitative answers in the interview were thematically analyzed. The presentation of the analysis was divided into clusters for comparisons of results from the pre- and post-questionnaires. Each category included both the quantitative results from the questionnaires and the qualitative responses collected in the interview. Although the translated versions (in Vietnamese) of these instruments were administered, the researcher also explained each item in Vietnamese to avoid the participants' misunderstanding or confusion. In the interview, the researcher prepared some examples of the image schemas and the metaphorical meanings as illustrations. Part 1 of the pre-questionnaire asked about the participants' previous learning experiences and motivation for joining the study. Part 1 of the post-questionnaire asked about the participants' other comments.

Results

Participants' Responses to the Treatments of the Spatial Meanings of the Prepositions

The interest and appropriacy of a teaching method is one of the main categories in evaluation of whether that teaching method should be applied (Hung, 2017). A comparison of the participants' responses to the previous teaching and CL-based teaching of spatial meanings of the prepositions (Tables 1 and 2) showed that CL-based teaching of the spatial meanings was considered more appropriate and interesting than the treatment they previously experienced (primarily based on vivid pictures and verbal explanation, as in responses to the pre-questionnaire). In particular, they appreciated the teacher's instruction and the class activities the most, with a rise of .72 and .60, respectively. However, there was only a slight increase (.32) in whether the instructions clearly presented the spatial meanings of the prepositions. In short, all of the areas that asked about CL-based teaching were highly appreciated by the participants.

A qualitative analysis of the participants' responses in the interview confirmed the findings from the test instruments and questionnaires. While most of the participants provided positive feedback, the responses from the participants coded as C8, C14, C15, and C22 were of concern. All the participants liked the teacher's instructions and believed that the image schemas could clearly represent the meanings of the instructed prepositions, but they doubted the appropriacy of the treatment. Participants C8, C14, and C15 said they could visualize and form the abstract image in their minds themselves, without the teacher's use of the image schemas. They added that the teacher should have made the lessons more interesting by using songs and/or applying a sense of humor. Participant C22 responded that she felt uncomfortable with the teacher and other participants. She revealed that it usually took her two weeks to make friends with new classmates, which was why she did not improve any in the knowledge of spatial meanings. In contrast, participants C6, C10, C20, and C25 provided real enthusiasm and positive responses. They all said that prepositions indicating locations and places should be instructed with visuals rather than words and the use of the image schemas could form generalizations. Participants C6 and C17 were concerned if other prepositions could be instructed with image schemas, as prepositions might have overlapping meanings in use that might cause confusion among learners.

Table 1

Interest and Appropriacy of Teaching of the Spatial Meanings in Previous Learning Experiences

	Item (n=25)	Mean	SD
1	I liked my previous teachers' instructions on the spatial meanings of English prepositions (e.g., *The pen is **on** the desk.).*	3.08	.493
2	My previous teachers' instructions on the spatial meanings of English prepositions were appropriate.	3.12	.526
3	My previous teachers' instructions clearly presented the spatial meanings of English prepositions.	3.20	.500
4	I enjoyed my previous class activities for teaching the spatial meanings of English prepositions.	3.08	.493
5	My previous class activities for teaching the spatial meanings of English prepositions were appropriate.	3.28	.458
	Total	3.15	.202

Table 2

Interest and Appropriacy of CL-Based Teaching of the Spatial Meanings

	Item (n=25)	Mean	SD
1	I liked the teacher's instructions on the spatial meanings of the prepositions (e.g., *The pen is **on** the desk.).*	3.80	.707
2	The teacher's instructions on the spatial meanings of the prepositions were appropriate.	3.52	.770
3	The use of image schemas clearly presented the spatial meanings of the prepositions.	3.52	.586
4	I enjoyed the class activities for teaching the spatial meanings of the prepositions.	3.44	.651
5	The class activities for teaching the spatial meanings of the prepositions were appropriate.	3.88	.726
	Total	3.63	.496

The participants' opinions of the effects of the treatment of the spatial meanings of prepositions that the participants had previously undergone prior to the study and the CL-based teaching of the spatial meanings of the prepositions were compared (Tables 3 & 4). Overall, the respondents believed that CL-based treatment had more positive effects than the traditional treatment. In detail, most of the gains in their responses ranged from .76 to .80, except the retention of the spatial meanings. That is, they generally believed that CL-based teaching helped them understand the meanings, the instructions were effective, and they would like to continue to learn under CL-based instructions. Also, they were able to use the prepositions as a result.

Nonetheless, the treatment that helped them retain the meanings was evaluated the least in comparison with the other items, with a gain of .60, although the participants still thought that CL-based treatment assisted them in retaining the spatial meaning better than the traditional one. In a word, the statistics show that CL-based teaching of the spatial meanings of the prepositions was highly appreciated by the participants in that it was appropriate, interesting, and effective.

A qualitative analysis of the participants' responses in the interview confirmed the effects of CL-based teaching of the spatial meanings of the prepositions according to the analysis of quantitative data collected from the questionnaire. Essentially, the participants who made significant gains in the spatial meanings provided positive responses. Participants C2, C6, C10, C17, C24, and C25 especially provided comparatively positive responses about the effects of the CL-based treatment. In detail, they responded that the use of the image schemas helped them easily understand and retain the spatial meanings. The instructions were clear, concise, and sufficient. They also felt confident enough to use the prepositions and hoped that CL-based teaching would be applied widely. Finally, they addressed a wish to sign up for a similar course.

However, participants C9, C13, and C22 gave both positive and neutral opinions of the CL-based treatment, depending on the items asked. They sometimes showed their hesitation to answer the interview questions. When re-asked, C9 and C13 revealed they were unsure if they could use the prepositions effectively. C22 expressed a feeling that the use of lifelike photos or pictures would have made the lessons more interesting.

Table 3

Effects of Teaching of the Spatial Meanings in Previous Learning Experiences

	Items (n=25)	Mean	SD
6	My previous teachers helped me easily understand the spatial meanings of English prepositions (e.g., *The pen is <u>on</u> the desk*.).	3.28	.458
7	My previous teachers helped me retain the spatial meanings of English prepositions.	3.00	.577
8	My previous teachers' instructions on the spatial meanings of English prepositions were effective.	2.96	.611
9	My previous teachers helped me effectively use the spatial meanings of English prepositions.	3.04	.611
10	I would like to continue to learn the spatial meanings of English prepositions under my previous teachers' instructions.	2.96	.539
11	I believe that other teachers should apply my previous teachers' instructions on the spatial meanings of English prepositions.	3.24	.436
	Total	3.08	.221

Table 4

Effects of CL-Based Teaching of the Spatial Meanings

	Items (n=25)	Mean	SD
6	The use of image schemas helped me easily understand the spatial meanings of the prepositions (e.g., *The pen is **on** the desk*.).	4.08	.759
7	The use of image schemas helped me retain the spatial meanings of the prepositions.	3.60	.577
8	The teacher's instructions on the spatial meanings of the prepositions were effective.	3.76	.663
9	The teacher helped me effectively use the spatial meanings of the prepositions.	3.80	.764
10	I would like to continue to learn the spatial meanings of the prepositions under the type of instruction applied in the study.	3.76	.663
11	I believe that other teachers should apply this CL-based treatment of the spatial meanings of the prepositions.	4.00	.764
	Total	3.83	.502

In summary, the participants' responses were positive. Those with high gains provided positive responses and those with low gains generally gave neutral opinions. Although the scores of the participants anonymously coded C9 and C13 rose by three points each, they believed they could remember the spatial meanings longer. These participants, together with participant C22, were unsure if they had a good sense of spatial meanings. Their responses showed a weakness in using image schemas that are inherently generalized and uncolored. Also, cognitive linguistics is a usage-based approach; that is, the instructions are somewhat teacher-fronted and require learners' attention. Therefore, C22 said that the instructions were not very interesting. However, the class procedure included a group work activity, during which the learners had an opportunity to speak to their peers after the instruction and exercise.

Participants' Responses to the Treatments of the Metaphorical Meanings of the Prepositions

A breakdown of the participants' responses to the interest and appropriacy of the previous teaching and CL-based teaching of the metaphorical meanings of the prepositions was analyzed (Tables 5 and 6). Their responses to the pre-questionnaire revealed that the previous instructions on the metaphorical meanings were mainly based on verbal explanations; that is, the teachers used verbal language and examples to explain them. Overall, they believed that CL-based teaching was more appropriate and interesting than the instructions they had received from their previous teachers. First, the mean scores for most items were below average, ranging from 2.92 to 2.96. In contrast, the mean scores for their responses to the post-questionnaire varied within a range of 3.40 to 3.68, which resulted in a mean score

development of .472 for this whole cluster. Second, they also showed more interest in CL-based teaching than in the instruction in their prior experiences. CL-based teaching was also considered more appropriate than the instructions they had previously received. However, the class activities were considered only slightly better than the ones in their previous classes.

The participants' responses in the interview provided qualitative data about the treatment. Overall, they preferred the CL-based teaching of the metaphorical meanings to the ways of teaching they had experienced from their previous teachers. The data collected from the interview gave in-depth information and were generally in line with what was obtained from the questionnaires. It could be seen from the data analysis that some of the participants who provided general and neutral opinions of the treatment of the spatial meanings believed that the treatment was interesting and appropriate for metaphorical meanings. Of all participants, C6, C9, C11, C17, C19, C20, C21, C22, and C24 provided very positive responses to the treatment. More specifically, they believed that the application was appropriate and they liked the speaking and writing tasks the most. They used different words, such as cubic pictures and abstract pictures, to refer to the image schemas illustrated by the researcher. Their opinions were re-asked and confirmed by the research.

However, participants C1, C5, C10, C13, and C15 revealed that they were unsure about the appropriacy of the treatment, although they generally liked it. They were also impressed with the speaking and writing tasks after instructions in each session.

Table 5

Interest and Appropriacy of Teaching of the Metaphorical Meanings in Previous Learning Experiences

	Items (n=25)	Mean	SD
12	I liked my previous teachers' instructions on the metaphorical meanings of English prepositions (e.g., *I depend **on** my family*).	2.96	.539
13	My previous teachers' instructions on the metaphorical meanings of English prepositions were appropriate.	2.96	.539
14	My previous teachers' instructions clearly presented the metaphorical meanings of English prepositions.	2.92	.572
15	I enjoyed my previous class activities for teaching the metaphorical meanings of English prepositions.	2.96	.611
16	My previous class activities for teaching the metaphorical meanings of English prepositions were appropriate.	3.12	.440
	Total	2.98	.208

Table 6

Interest and Appropriacy of CL-Based Teaching of Metaphorical Meanings

	Items (n=25)	Mean	SD
12	I liked the teacher's instructions on the metaphorical meanings of the prepositions (e.g., *I depend **on** my family*).	3.68	.627
13	The teacher's instructions on the metaphorical meanings of the prepositions were appropriate.	3.48	.586
14	The use of image schemas clearly presented the metaphorical meanings of the prepositions.	3.40	.500
15	I enjoyed the class activities for teaching the metaphorical meanings of the prepositions.	3.44	.583
16	The class activities of teaching the metaphorical meanings of the prepositions were appropriate.	3.44	.507
	Total	3.49	.183

The participants' opinions of the effects of prior teaching and CL-based teaching of the metaphorical meanings of the prepositions are compared (Tables 7 and 8). In general, they thought that CL-based teaching had better effects than the previous instructions they had received. First, they did not believe that the previous instructions were really effective and they did not want to continue to learn under that type of instruction, with mean scores of 2.92 and 2.96, respectively. However, these corresponding categories in CL-based teaching were highly appreciated, with mean scores of 3.32 and 3.48, respectively. Second, the participants responded that they would like to learn under CL-based teaching more than the traditional instructional descriptions. Finally, whether or not CL-based teaching should be widely applied obtained a slight gain (.32).

The theme-based analysis of the qualitative data collected from the interview demonstrate their confirmation of the quantitative data collected from the questionnaires. Generally, the participants' responses were positive. Participants C6, C9, C19, C20, and C21 gave absolutely positive responses. They believed that CL-based teaching of the prepositions helped them remember and retain the meanings longer and the teacher's instructions were clear and concise.

Nonetheless, responses from participants C2, C8, C12, and C14 were both positive and slightly negative, depending on the items asked. They provided positive feedback about most of the items asked, but C2 and C8 revealed that they did not see any matches between the image schemas applied and the metaphorical meanings of the prepositions. C12 and C14 responded that they did not think they could use the metaphorical meanings effectively.

Interestingly, participant C11 gave a slightly positive or at least neutral opinion about the effects of the treatment. He thought that participating in the study for a longer period would make him understand more about the semantics of the prepositions, as the treatment was short.

Table 7

Effects of Teaching of the Metaphorical Meanings in Previous Learning Experience

	Items (n=25)	Mean	SD
17	My previous teachers helped me easily understand the metaphorical meanings of English prepositions (e.g., *I depend **on** my family*.).	3.24	.436
18	My previous teachers helped me retain the metaphorical meanings of English prepositions.	3.00	.577
19	My previous teachers' instructions on the metaphorical meanings of English prepositions were effective.	2.92	.572
20	My previous teachers helped me effectively use the metaphorical meanings of English prepositions.	3.00	.500
21	I would like to continue to learn the metaphorical meanings of English prepositions under my previous teachers' instructions.	2.96	.611
22	I believe that other teachers should apply my previous teachers' instructions on the metaphorical meanings of English prepositions.	3.20	.408
Total		3.05	0.224

Table 8

Effects of CL-Based Teaching of Metaphorical Meanings

	Items (n=25)	Mean	SD
17	The use of image schemas helped me easily understand the metaphorical meanings of the prepositions (e.g., *I depend **on** my family*.).	3.60	.577
18	The use of image schemas helped me retain the metaphorical meanings of the prepositions.	3.40	.500
19	The teacher's instructions on the metaphorical meanings of the prepositions were effective.	3.32	.476
20	The teacher helped me effectively use the metaphorical meanings of the prepositions.	3.40	.500
21	I would like to continue to learn the metaphorical meanings of the prepositions under the teacher's instructions.	3.48	.510
22	I believe that other teachers should apply this CL-based treatment of the metaphorical meanings of the prepositions.	3.52	.510
Total		3.45	.190

In summary, it is obvious from the quantitative and qualitative analyses that the members of the cognitive group believed that CL-based treatment of the prepositions was more appropriate and had better effects on their understanding of both the spatial and metaphorical meanings. They also believed that the CL-based treatment was more applicable for the spatial meanings than the metaphorical meanings. The independent samples t-tests of all four clusters show that the statistics were significant, with p (2-tailed) <.01, and the statistics were quite reliable, with Cronbach's alpha (α) = .676 rounded as .7.

Discussion and Conclusion

Discussion of the Results

Concerning the participants' responses to each category about the treatment of the spatial meanings of the prepositions, all participants believed that the treatment was relatively appropriate for teaching spatial meanings. The participants' responses about the appropriacy of the teacher's instructions, use of the image schemas, and class activities in the post-questionnaire constituted mean scores of 3.52, 3.52, and 3.88, respectively. They also confirmed that the treatment was comparatively appropriate. What is more, they also thought that the treatment was generally interesting. They responded that they liked the teacher's instructions and class activities, with a mean score of 3.80 and 3.44, respectively. It is important to note that the mean score for the interest of class activities was the lowest in this construct. Three out of the 25 participants also wanted the teacher to make the activities more interesting (responses from C8, C14, and C15). Also, the participants thought that the use of the image schemas absolutely helped them understand the spatial meanings and other teachers should apply the treatment to teaching the spatial meanings, with a mean score of 4.08 and 4.00, respectively. All also confirmed this in the interview. Additionally, the treatment was considered effective, amounting to a mean score of 3.76. The issues of concern were about the participants' retention and use of the prepositions, with mean scores lower than the mean score of the whole cluster (3.83). Two out of 25 participants explained that they were not confident in their retention and use of the prepositions, but they admitted that their knowledge and use of the prepositions improved slightly. Overall, the participants responded that the CL-based treatment was appropriate and effective, but it was not very interesting.

It can be seen from the analyses that all the categories about the CL-based treatment received the participants' high appreciation. There was a rise in the mean score of each of the items asked. In general, there was a higher rise in the students' evaluation of the treatment on the spatial meanings than the metaphorical meanings. The mean scores for the appropriacy and interest of the treatment of the spatial and metaphorical meanings were 3.632 and 3.488, respectively. They also appreciated the effects of the treatment on their knowledge of the spatial meanings more highly than the metaphorical meanings, with the mean scores of 3.83 and 3.45, respectively. The participants' responses in the interview confirmed this.

Regarding interest and appropriacy, the participants believed that the CL-based treatment was more interesting than what their previous teachers had applied. There was a higher rise in the mean score of the interest of the instructions on the spatial meanings (.72) than the class activities (.36). The participants' responses also revealed that there was a higher rise in the mean score of the interest of the instructions on the metaphorical meanings (.72) than the class activities (.32). In the interview, some of the participants also said that they would have preferred learning with songs, music, or games to make to class more interesting. However, the appropriacy of the treatment underwent a lower mean score increase. The appropriacy levels of the instructions and the class activities for the spatial meanings improved by .40 and .60, and these figures for the metaphorical meanings were .52 and .32, respectively.

The participants also thought that the CL-based treatment had better effects on their knowledge and use of the prepositions than those they had experienced from their previous teachers. The quantitative analysis of the participants' responses to the questionnaires shows that there were rises in all the items of concern. The participants also believed that the treatment had better effects on their understanding of the spatial meanings (m=3.83) than the metaphorical meanings (3.45). The participants placed the highest appreciation on the use of the image schemas and the effectiveness of the whole treatment of the spatial meanings. The mean scores for these two concerns were 4.08 and 4.00 for the spatial meanings and 3.60 and 3.52 for the metaphorical meanings, respectively. The theme-based analysis of the participants' qualitative responses in the interview also showed that they believed the CL-based treatment was more effective for teaching the spatial meanings than the metaphorical meanings. All the participants wanted to continue to learn under the CL-based treatment of prepositions. Their willingness to remain in the treatment of the spatial and metaphorical meanings increased by .80 and .52, respectively.

In a word, the participants appreciated the use of image schemas in teaching the spatial meanings more than the metaphorical meanings. Most of the items referring to the metaphorical meanings amounted to lower mean scores than those referring to the spatial meanings. It may be important here to return to a conclusion in the study by Kemmerer (2005), that the teaching of the spatial and metaphorical meanings of English prepositions could be impaired.

Research Validity and Reliability

Variables should be an issue of concern with a kind of interference in educational research in order to know how valid and reliable the findings are. The selection of the participants in the present study was based on volunteering. The participants' willingness to join this study and their previous learning experiences revealed that they had a comparable level of motivation to participate and had never experienced CL-based teaching of English prepositions before the study. The questionnaires proved understandable to the participants in the pilot study. To avoid the participants' misunderstanding, the translated versions of the questionnaires were administered. Each item in these instruments was explained in Vietnamese. Also, in the interview the researcher showed the sample image schemas and examples of the

spatial and metaphorical meanings as illustrations to avoid the participants' misunderstanding or confusion of the terms used in the questions. The combination of the questionnaires and the interview was to triangulate the research findings. The researcher effect was also minimized by letting another teacher - instead of the researcher - perform the lessons. The teacher training before the study, the observations, and the video-recordings of the class performances also assured what was intended to be applied in this study.

Implications

It is useful at this point to return to Langacker's (2001, p. 3) suggestion that there should be more experimental results of the effectiveness of pedagogical applications of cognitive linguistics. Kemmerer (2005) believes that applying cognitive linguistics to teaching English prepositions is only an alternative. It is not considered the best nor unique as learners may score higher in one type of meaning, spatial or metaphorical. In other words, the transfer of prepositions from one domain to another is not always direct. As a result, the spatial and metaphorical meanings of English prepositions can be taught separately. It seems that at this point it is definitely too early to address with certainty that cognitive linguistics has passed the test of its implications for English language teaching, or that it has failed, and to recommend on this basis certain modifications of the theory. Referring to the experimental results from previous research (Hung, 2017; Song et al., 2015; Tyler et al., 2011), it is somewhat possible to apply cognitive linguistics to teaching the spatial meanings of English prepositions. Optimism with respect to relatively successful pedagogical application of cognitive linguistics are a confirmation of his words that "extensive pedagogical application remains a long-term goal" (Langacker, 2008, p. 66). In future studies, applications extending to learners in other contexts are expected.

Acknowledgement

The authors would like to send great thanks to the Academic Council at Hue College of Foreign Languages – Hue University for their advice on this research paper. Thanks also go to Ms. Nguyen Binh Phuong Ngan Trang and Nguyen Thi Van at Van Hien University for their work as EFL teachers in this study. Greatest thanks would go to all the participants in this study. Without them, there would have been no chance for this study to be completed.

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