

Cognitive Comprehension of “Beyond & Behind”: An Experimental Study of Baghdad University

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Abstract

The present study analyzes two locative English prepositions *behind* and *beyond* from the cognitive semantic point of view. These prepositions pose a problem experienced by Iraqi undergraduates. The complexity of these two prepositions encourages the researcher to use the cognitive linguistics (CL) approach and its insights as developed by Evans and Tyler 2003 to test its validity and help the Iraqi students. The data analysis is quantitatively-based. Seventy second-year university students participate in this experimental study. The pre-test and post-test data are analyzed through SPSS statistical editor and the results show a progress of more than (0.05≤). The results of the questionnaire show a noticeable positive change in the students' attitude toward CL approach and display the main source of difficulty that is related to perplexity in the usage of these prepositions. The effectiveness of CL approach in getting accurate comprehension of the English prepositions *behind* and *beyond* is proved by the results of this experiment.

Keywords: cognitive linguistics, semantic, English prepositions

1. Introduction

As second learners, Iraqi students face the problem of differentiating between *behind* and *beyond*. English prepositions are considered a major challenge for second language (L2) learners (Celce-Murcia & Larsen-Freeman, 1999). They are problematic because their semantics is difficult to be characterized. For example, “the teacher is behind the students” can be interpreted in quiet different ways. It can convey both physical and abstract meanings. These L2 learners are also absent from what Langacker (1987) assumes in his book *Foundation of English Grammar* that the relations coded by prepositions are better represented as being an image-schematic in nature rather than as linguistic prepositions. When dealing with space, linguistics often has focused on “small” words, or closed class forms, such as prepositions, whose meanings are not so easy to define. However, prepositions perform a crucial role in organizing conceptual content (Seskauskiene & Zilinskaite-Sinkuniene, 2015).

CL approach offers a semantic analysis not only for English prepositions, but also for other languages. It elicits the meaning of a preposition in three dimensions: first, it shows a preposition as a schematized representation of a spatial configuration between two entities. Second, it clarifies its abstract notion. Third, it represents the functional element of a preposition (Tyler & Evans, 2003). These visions of CL approach are going to be used in analyzing the English preposition *behind* and *beyond* to investigate the way CL approach is considered accurate and systematic when dealing with the English prepositions in question.

1.1 Aim of the Study

This study aims at testing the extent to which the explanation of CL principles can enhance the Iraqi L2 learners' awareness in apprehending the English prepositions. These learners have been studying English for more than 12 years. They do not have prior knowledge to CL approach, and are instructed about the English prepositions by memorizing them.

1.2 Limitation of the Study

This study is limited to second-year students of intermediate level in the department of English in Baghdad University during the academic year 2017/2018. Seventy students were volunteered to be the participants of this study.

2. Cognitive Linguistics (CL) and the Semantics of English Prepositions

This part of the study provides a comprehensive view of CL approach and its interpretation to the English prepositions. CL approach deals with language as a tool for organizing, processing, and conveying information. It is constructed in the early eighties by George Lakoff, Ron Langacker, and Len Talmy (Geeraerts & Cuyckens, 2010).

Evans (2012) defines CL approach as the study of language, mind, and sociocultural experience which views language as a reflection of general aspects of cognition. It is best studied in the context of use that emerges from it. Evans illustrates the vision of CL approach, saying that meaning and form in the study of language are inseparable. He also clarifies the two main areas of CL concentrations: CL to grammar, which is the study of language organization, and cognitive semantics, which is the study of the conceptual structure of language. Ungerer and Schmid say that CL approach is “based on our experience of the world and the way we perceive and conceptualize it” (Ungerer & Schmid, 2001). In this vein, Rodriguez (2006) maintains that: “Cognitive semantics provides a framework to decompose metonymic and metaphoric language into the conceptual input domains, mappings between elements, organizing relations, and systematic entailments. For complex metaphors, it also helps understand the processes involved in invoking imagery, combining visual and linguistic references, and making inferences in conceptual integration.” Hazrati et al. (2016) mention that “Metaphor refers to the relationship between two semantic areas in which one semantic area is expressed through another; in other words, in metaphor an abstract concept is experienced and understood based on tangible concept”.

Language users develop a system of communicating and expressing meaning that drives dynamic interaction between humans and languages. This interaction is the main concern of CL approach (Verspoor & Boers, 2013). Each language has a unique system of communication that arranges the relations and spatial configuration of objects. The relations among objects create the need for humans to communicate. Humans do not perceive objects and their relations in a mere flat visual array. In order to get a better understanding, CL approach distinguishes the mechanisms of these relations as spatial scene, spatial relations, and spatial configurations. It also perceives physical and abstract views that can detect spatial scenes and metaphorical hints. In the spatial scene, there are a figure and a ground (Tyler et al., 2011).

Meanings do not exist alone by themselves far from the people who create and use them (Tyler & Evans, 2003). Tyler and Evans explain the relation between meanings and people as a proto-scene. The proto-scene is a CL insight that emerges from recurring human experiences with interpretations of the spatial configuration between entities in the world (Evans & Tyler, 2003). Generally, prepositions are polysemous repetitive words; they connect between entities, and pose challenges, especially for L2 learners (Celce-Murica & Larsen-freeman, 1999). Aajami (2018) finds that studying the preposition throughout analyzing their meaning by the CL approach increase their awareness in grasping their polysemy.

In English, prepositions construct the spatial relation among figures and grounds. Prepositions have a polysemy of a semantic network. The multiple meanings associated with English prepositions can be represented as being systematically related within a motivated semantic network (Tyler et al., 2011). Each usage of a preposition may attribute a specific meaning. The same preposition has a different meaning depending on the context (Rice, 1992).

Different spatial relations are extended from a central sense or prototype in systematic ways. For example, prepositions that describe a contact relation are likely to develop “rotated” senses (Boers, 1996, p. 22) (e.g. “the book is on the table > the pen is on the table”, “the dog is under the car > the key is under the car”). In contrast, separated relations cannot develop “rotated” senses.

“The analysis of meaning needs to take into account the complex interplay between the senses of the particle relying on spatial configurations and the senses of the constituent verb stemming from the conceptual metaphor and metonymy” (Milošević & Pavlović, 2017). Figurative senses extend from spatial senses of a preposition through conceptual metaphors. Understanding the spatial senses helps explain why one preposition rather than the other is chosen to express a defined metaphor. A case in point is the hierarchy sense of *under* in “*he served under the Queen*”, which reflects the metaphor of “high status up, low status down” (Boers & Demecheleer, 1998).

Tyler and Evans (2004) emphasize CL approach in the comprehension of prepositions. They assert that CL approach can show the functional elements; the spatial configuration of prepositions can be represented in a schematic form, and it can clarify the encoded abstract notion of prepositions, as in: “the thief is behind the crime”. They find the result that CL approach is more accurate and systematic when analyzing prepositions.

Jacobsen, in her dissertation in (2012), asserts the benefit of CL for L2 learners. She finds that approaching the study of language from the perspective of CL can support that L2 learners get better comprehension and stable teaching practices. She also insists on the importance of CL approach in terms of the inseparability of form and

meaning and the diversity of individuals in analyzing the scenes. CL uniqueness comes from the point that each individual can view and highlight part of the scene. Jacobsen agrees with other researchers on underlying the conceptual view that language can be of a particular use for second language learners.

Zwarts (1995) identifies three areas of meaning that can be modified by the English preposition *behind*. It can be modified by a dimensional adjective as in “*far behind the tree*”; measure phrases as in “*thirty meters behind the station*”; or adverbs as in “*right behind the pine tree*”. These multiple interpretations of *behind* come out of analyzing a region as a set of vectors.

Boers and Demecheleer (1998) find that there are central and figurative senses of *behind*. They also find that the pictorial representation of the preposition is preferable by cognitive semantics. According to Boers and Demecheleer, *behind* has a spatial sense, spatial relations, and a metaphorical sense. In the case of *beyond*, they identify the central meaning as a distance between two entities; one of them serves as a landmark for the other. *Beyond* has metaphorical senses as the **abstract distance**.

Lindstromberg (2010) explains the meaning of the English preposition *behind* as “*in back of*” or “*on the other side of*”, for example, “*Our house is behind/ on the other side of the school*”. *Behind* always refers to a landmark that is relatively close to the subject. The landmark obscures the subject in the case of *behind* as it is mentioned in the following example: “*Our house is behind the school*”. Lindstromberg shows that *behind* is used to refer to a low or flat landmark in a context of emphasis as in “*keep behind the line*”. He also mentions the intrinsic and deictic points of view. Most of the things in the world have faces and backs. When one says, “*the ball is behind the car*”; this vantage point is the intrinsic point of view. It is for the lateral viewer when he is standing in front of the car. Deictic point of view has nothing to do with the intrinsic orientation of an object. This point varies depending on where viewers are, or imagine they are; it is often called a *deictic* point of view. Lindstromberg refers to the metaphorical usage of *behind*. It is used when the agent is obscured or wishes to remain unknown e.g., “*I wonder what the reasons were behind their absence*”. It is also used metaphorically to give support between two entities or between an agent and a land mark; “*there were too much work behind the success of the film*”.

Lindstromberg (2010) defines the English preposition *beyond* as “*far away on the other side of*” or “*on the other side of and then more distance after that*”. *Beyond* entails three locations: the land mark location, the subject location, and the implicit standpoint. For example: A: “*Where is the supermarket?*” B: “*It is beyond the hospital*”. The land mark is the hospital, and the subject is the supermarket. The place where A and B come across each other is the implicit standpoint. Lindstromberg explains the metaphorical usage of *beyond*. For example, “*Lama’s behavior is beyond any excuse*” where *beyond* in this sentence implicates the meaning of “*far from in the other side*”. In terms of time, Lindstromberg shows that *beyond* entails three meanings or forms as indicated in the following examples: “*on the other side of*”, “*at the other end of*”. “*The recession may linger beyond the next three years*”. There is expectation of how much the recession will continue. “*Here, on the other side of Christmas, we find ourselves living in the same old world*”. Here, there are two sides of the Christmas before and after. “*Holi is the festival of color marking the beginning of summer, while at the other end of the year, Diwali marks the onset of winter*”. There are two occasions that mark the beginning and ending of summer and winter.

Sultan (2014) finds that spatial scenes of the locative prepositions *behind* and *beyond* which have horizontal, back, front axes to the lateral viewer have their figurative extensions. These figurative extensions could be facilitated by examples of graded levels of abstraction.

- a. There is a man behind the tree.
- b. The director behind the chaos.

When a land mark obscures the agent, *behind* is used metaphorically to refer to agents that are unknown or that might wish to remain unknown.

- c. There is a hospital beyond the bank.
- d. Her behavior is beyond my expectations.

Beyond means: far from, on the other side, out of the limits. Sultan shows that not all prepositions have a spatial scene. He claims that spatial scenes are made when a preposition offers a physical vantage point that will determine how one conceptualizes the scenes. Each vantage point offers one unique view.

Stasiūnaitė (2016) declares that words such as prepositions do not have meanings by themselves. Their meanings emerge from the context in which they are used. She also finds that CL approach has an essential role in organizing the conceptual content expressed by prepositions.

The importance of cognitive linguistics has been examined in so many parts in the world (Littlemore, 2009; Saez, 2012; Ellis & Wulff, 2012; Kivik & Tamm, 2014). These researchers and others have their own studies in applying CL approach to instruct L2 learners and enlarge their mental and experimental acquisition.

3. Semantic Analysis of *Behind* and *Beyond*

The core point in this section is to elucidate how the cognitive linguistic analysis can help contemplate specific comprehension snags. As mentioned before, spatial sense creates a spatial relation that develops figurative sense and metaphorical language. The central sense of *behind* can be represented by ‘the man is behind the car’. Cognitive semanticists prefer scenic representations of a preposition by seeing the spatial scene physically. No one can deny the importance of pictorial representations of prepositions in classrooms (Lindstromberg, 1996). The central sense of *behind* is often used to describe a situation where an agent is hidden by a landmark (e.g., “it was staying behind the fence”)—Metaphorically, “I see” then means “I know”; vice versa, “I cannot see” means then “I do not know”. This motivates the first figurative sense of *behind*. Example: “What is the reality behind the facade?” (Boers & Demecheleer, 1998). CL analysis of *beyond* also facilitates the comprehension of the metaphorical usage for L2 learners; for example ‘there is airport beyond the city’ where there are two entities; one lays out the boundaries of another. *Beyond* is exceeding the limits of a location and this is the central sense of it (Boers & Demecheleer, 1998). In the central spatial sense of *behind* and *beyond*, there is a moral possibility for L2 learners to grasp their meanings. *Behind* and *beyond* central spatial sense could be represented as in the following.

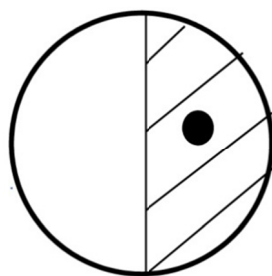


Figure 1. Behind

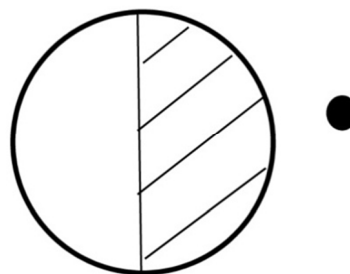


Figure 2. Beyond

Source: These figures are set by the researcher.

The difficulty lays in the extension of a spatial sense into a metaphor. This difficulty is going to be simplified and explained by illustrating accurate examples depending on the forum of Tyler and Evans (2003). To start with *behind*, the second spatial sense occurs when there are two entities; one of them follows the another

Examples: The cat is behind the mouse.

Arsenal is behind Liverpool; as shown in Figure 3.



Figure 3. Behind classifies the rank of the prevailing team

Source: This figure is set by the researcher.

The spatial sense between entities in these two examples shows a kind of rivalry. Then, the figurative sense displays a kind of mental competition;

Example: Hilary was behind Trump in the American election.

The third spatial sense occurs when one entity pushes or moves the other;

Example: The mother is behind the stroller.



Figure 4. Google image

Source: This figure is taken from Google image.

This example contains two metaphorical senses; the first is support and protection as in: “*the people were behind regaining the president in Turkey*”. The second metaphorical sense is the cause of action of moving forward as in: “What is the purpose behind his visit”.

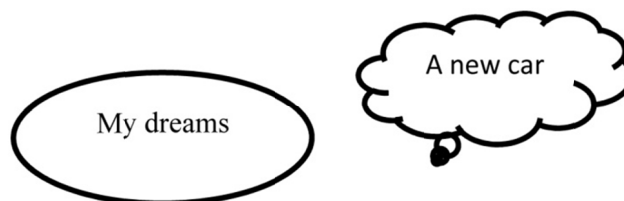
The last spatial sense is when one entity leaves the other behind, as in “*the father died and left three children and a widow behind him*”. Metaphorically, TIME is as a road or a chain that takes one from the past to the future. *Behind* has a time reference and classification as well.



Figure 5. The death of the father let his children and widow continue their life without him

Source: This figure is set by the researcher.

In the case of *beyond*, there are two entities in two separate locations, but they have common limits as in: “*There is a police station beyond the hospital*”. The spatial sense, in this sentence, creates the figurative sense of abstract remoteness as in: “*A new race car is beyond my dreams*”.

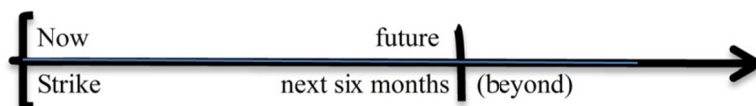
Figure 6. *Beyond* puts a barrier to the mental area of dreams

Another example is “*her rashness was beyond my understanding*”.

Source: This figure is set by the researcher.

There is a spatial sense in “*the goal keeper threw the football beyond the playground*”. Metaphorically, exceeding the limits of a location means getting new achievements as in: “*humans can go beyond the solar system*”.

Beyond can convey time reference as in: “*the strike may continue beyond the next six months*”; *beyond* means that in the next six months, the strike will still exist.

Figure 7. Where *beyond* refers to the expected time

Source: This figure is set by the researcher.

4. Experimental Study

The study aims at enhancing Iraqi students’ awareness of CL and developing their comprehension and ability in interpreting English prepositions. Seventy students participate in this experiment as an experimental group. The researcher tests the students’ information about CL approach when explaining the prepositions through testing items which include pictures and drawings. A questionnaire is distributed before conducting the experiment to

test the students' information, ideas, and attitude toward CL approach. She also arranges an online survey to be filled by the participants before conducting the experiment. This offers the participants more flexibility in participating. To achieve the aim, the researcher prepares an experiment that involves three steps:

- 1) showing the participants videos and power point slides that explain the principles of CL approach and its sights: the spatial scene, spatial relations, figurative sense, and a metaphorical language;
- 2) distributing pictures and asking the participants to identify the spatial scenes and relations using the two locative English prepositions *behind* and *beyond*. The students were asked to apply the meaning of *behind* and *beyond* in real life scenes; and
- 3) asking the participants to rephrase sentences with *behind* and *beyond* that contain physical and abstract views in order to develop their metaphorical languages.

The researcher adopts the quantitative method in collecting and analyzing the data. SPSS statistical editor; paired sample statistics is used to analyze the participants' scores in the pre-test and post-test. In order to save space, the researcher just mentions the result of the analysis of the participants' marks.

4.1 Participants and Procedures

The participants were seventy second-year students who are mostly intermediate level in English language. The students have not been taught anything about CL approach before. They also did not test the polysemy of English prepositions. The procedures were done as shown below:

- 1) The first step: the students were introduced to a brief introduction CL approach and they were further given the definition, principles and insights of the approach;
- 2) In the second step, they were exposed to the pre-test that contains three categories of questions: images to be analyzed, sentences to be rephrased, and gaps to be filled. The pre-test is set in order to check the way the participants treat the two English prepositions in terms of meaning and function;
- 3) In the third step, after the participants have done the experiment, they sat for the post-test which contains the same categories of the pre-test. The experiment continues in order to reveal the change in the participants' awareness as they dive deeper in the experiment; and
- 4) In the last step, there was a questionnaire of three questions to test the extent to which the participants' attitudes toward CL approach were changed. Further, the pre-test and post-test are set to check the participants' progress in grasping CL approach whereas the questionnaire is set to check the participants' attitude toward CL approach.

4.2 Pre-test

Seventy marks were collected by the researcher for the preliminary examination of the students' abilities in interpreting and analyzing the semantics of *behind* and *beyond*. It is clear that the students have simple ability to analyze the meaning of *behind* and *beyond* depending on the entities that are connected via a relation by these prepositions. Their marks also displayed prodigious difficulty in developing the meaning of these prepositions metaphorically. For detailed information about the questions of the pre-test, (see appendix A).

As long as the pre-test is done after the introductory part of the experiment, the result of the pre-test showed that all the students only have a simple clue about CL approach and its sights. It is obvious that most of students, i.e., about 90%, depended on their initial knowledge when rephrasing the sentences or images. All participants, i.e., 100%, failed to differentiate between the spatial and metaphorical senses. Besides, 40% of the participants had right answers regarding the choice between *behind* or *beyond* to complete the sentences. Their random choice of a preposition represents a clear piece of evidence to their lack of cognitive comprehension. The low achievement in the pre-test drives the researcher to pay much more attention to the current methodology to be more effective and clear when clarifying the meaning and usage of CL approach.

4.3 Post-test

After the pre-test, the researcher applied the detailed experiment in eight weeks that involved lectures, workshops, games and tests. Each week, there were three meetings of two hours and half for each session. The sessions were divided in three parts theoretical, practical, and representational. Those eight weeks were enough for the students to be familiar with CL approach. The researcher through the lectures showed videos and explained CL approach using the experiment of Tyler and Evans 2003. She also used schematic diagrams to best represent the meaning of prepositions. After finishing the theoretical part, the students were divided in groups to represent part of the theory theoretically and practically. They chose examples, pictures, and diagrams to illustrate the usage of *behind* and *beyond*. The students worked in groups during the workshops, and they analyzed and identified spatial scenes and relations in sentences and images. They also defined the abstract or the

physical vantage point in a sentence or an image and represented some images in real scenes. Sentences with *behind* and *beyond* were rephrased by the students. During that time, students had a clear idea about CL approach. Then, they practiced developing the physical view to spatial relations and spatial configuration.

The post-test contains questions with images to be analyzed, sentences to be rephrased, and gaps to be filled (see appendix A). The marks were collected through a rubric set by the researcher. Throughout checking the results of the post-test and in comparison with pre-test, the researcher has noticed that the students have a remarkable development in the awareness of CL approach in. All students, i.e., 100% of the participants, could recognize if there is a spatial scene or not in the images and sentences; a matter which reflects that their responsiveness to the first step of comprehension is successfully done. Moreover, 82% of the participants showed important progress in differentiating the metaphorical usage of the prepositions in question. Besides, 95% chose the right choice of *behind* or *beyond* to complete the sentences correctly.

In the Table below, there is an accurate analysis of marks by SPSS statistical editor

Table 1. The difference between pre-test and post- test

T-Test

[DataSet0]

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-test	10.00	70	2.444	.292
	Post-test	13.47	70	1.901	.227
Paired Samples Correlations					
Pair 1	Pre-test & post-test	N	Correlation	Sig.	
		70	.231	.055	

Note. If the difference between both tests is less than (0.05), then, the study is invalid.
If the difference between both tests is more than (0.05), then, the study is valid

Table 1, the SPSS analysis, shows the students' number and the results of both tests, the pre-test and post-test and the difference between them. The number of students is 70 and their average in the pre-test is 10.00 whereas the post-test is 13.47. The students show a progress of 3.47 marks. Since the difference between the two means of both tests shows a progress of more than (0.05); that is, this study is valid. The results are in agreement with the research of Evans and Tyler's (2003). This means that CL approach can make a remarkable positive change in students' comprehension of English prepositions.

5. Questionnaire

The questionnaire is set in order to show the difference of students' attitude toward the cognitive linguistic approach. Further, moving from unfamiliarity to cognition, it seems that the change in the questionnaire's results shows that human experience is enriched. Students' mental perception passes through an experiment that turns their observation about how cognitive linguistics offers a new insight of the semantics of English prepositions *behind* and *beyond*. The questionnaire is distributed before and after the experiment.

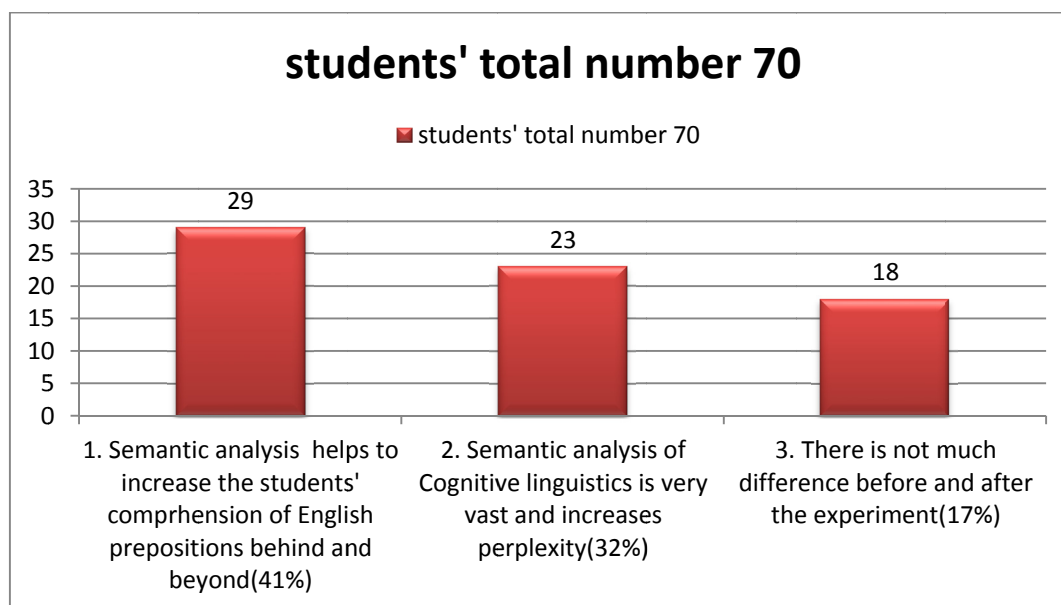


Figure 8. The questionnaire's results before the experiment

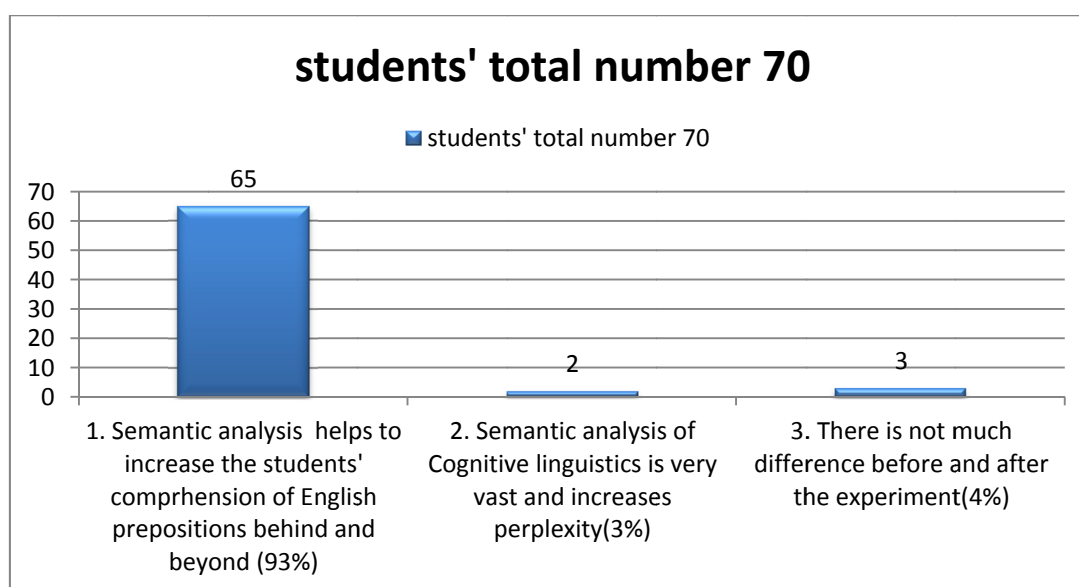


Figure 9. The questionnaire's results after the experiment

The questionnaire shows that 93% of the students which represents 65 out of 70 of the students total number thinks that CL approach helps better up their comprehension of the English preposition *behind* and *beyond*. Besides, 3%, which represents 2 students out of the total number, finds CL approach difficult and ambiguous. Moreover, 7%, which represents 3 students, do not find a big change in their comprehension to *behind* and *beyond* using CL approach. These results of the questionnaire prove the positive change of students' attitude toward using cognitive linguistics approach in dealing with English prepositions.

6. Results and Findings

This study enlightens students' perception in dealing with the locative English preposition *behind* and *beyond*. They acquire new concepts when analyzing these prepositions through their location in the context and identifying what they mean or imply. As long as they practice explaining the meaning of *behind* and *beyond* using objects from real life, they can also practice what they have learnt in real life.

The results of both tests and the questionnaire evidently show a decent progress in students' work and attitude toward CL approach.

7. Conclusion

This study verifies the effectiveness of CL approach in grasping the semantics of English prepositions. Based on the result of pre-test and post-test in addition to the results of the questionnaire, it is quite apparent that students have achieved a significant growth in reaching the semantics of the English prepositions in question with a better aspect. This research recommends the following: First, applying CL approach is a necessity for bettering up the acquisition of English prepositions in classrooms. Second, teachers of English are invited to have a deep systematic view on CL in order to be able to apply the cognitive approach in classrooms. Finally, workshops and lectures should be held periodically with researchers and teachers who are concerned with this approach to always have updated information.

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Appendix A

Name: _____ Date: _____

You are kindly asked to answer the following items:

- A. Select the appropriate preposition (*behind*, *beyond*) that complete the sentence correctly.
1. From the terrace of our house we can see the borders and the mountains ----- it.
 2. The parking area is just ----- the pine trees.
 3. The sun went ----- a big cloud.
 4. Their land is extend ----- the river to the cypress trees.
 5. The dog hid ----- the stove.
 6. Tom is ----- Paul by 6 points.
 7. The outer space ----- our galaxy.
 8. Those standing ----- noticed what the lecturer omitted.
 9. The boss's influence does not extend ----- this department.
 10. She heard a soft step ----- her before she felt a hand caught her waist.
- B. Analyze and identify the relations between the items in the following images using one of the two locative English prepositions *behind* or *beyond*.

1.



2.



3.



4.



5.



6.



C. Rephrase the following sentences in order to clarify the meanings of *behind* and *beyond*. (you are free to express the meaning according to your understanding to CL approach).

1. My house is beyond that bridge.
2. Look behind your car.
3. This work is beyond my power.
4. They left their friend behind.
5. You must not live beyond your means.
6. Alice is still running behind her dreams.

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