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**An Empirical Research on English Prepositions Teaching Based on Prototype Theory and Spatial Metaphor Theory**

**by**

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**Under the Supervision of Associate Professor** Li **Xia**

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摘 要

介词在英语中数量不多，使用频率却很高，在英语中地位极为重要，是顺利进行语言输出的前提之一。英语空间介词除其本身的空间意义外，还具有丰富的隐喻意义， 所以英语介词一直是中国学生学习英语的一个难点。原型范畴理论和空间隐喻对英语介词的语义有很强的解释力。因此，作者认为将它们运用于英语介词词义的教学中， 有助于学生更好的掌握介词的词义及其用法。本研究是基于认知语言学中的原型范畴理论和空间隐喻，探讨了介词的语义之间的联系，并通过教学实验对其应用效果进行研究。原型范畴理论是 Rosch 在大量实证研究的基础上提出的，而 Lakoff 和 Johnson 在 *Metaphors We Live By* 一书中将隐喻分为三种基本类型：即空间隐喻（spatial

metaphor）、实体隐喻(ontological metaphor)以及结构隐喻(structural metaphor)。原型范畴理论和空间隐喻能够解读介词的语义拓展，是我们感知介词空间意义和其它抽象意义的有效手段，并为构建英语介词的语义网络之间的联系提供理论支撑，进而也为英语介词教学与习得提供有力的指导与帮助。

本研究选取内蒙古工业大学英语专业11级学生61人为研究对象进行了为期5周的教学实验，采用定性与定量数据分析相结合的方法，以英语中使用频率较高且用法较复杂的五个介词“in”，“with”，“on”，“from”和“over”为切入点，探索如何利用原型范畴理论和空间隐喻来解释介词词义拓展并试图探究将原型范畴理论和空间隐喻应用于英语介词教学中是否比常用的意义加例句的教学方法更有效，更能激发学生对英语介词的学习兴趣，进一步期望其对今后的介词教学有一定的促进作用。在教学实验中，实验班在教学中以原型范畴理论和空间隐喻为指导，而控制班采用常用的释义加例句的介词教学方法。

借助调查问卷、介词教学后测试及介词教学后对实验班学生的访谈等研究工具， 作者发现：1） 运用统计软件 SPSS 对介词教学后测试的成绩做独立样本 t 检验，结果显示，实验班学生的均分高于控制班学生的均分并且两班学生的成绩存在显著差异

（p=0.015<0.05）。因此，作者认为基于原型范畴理论和空间隐喻理论的英语介词教学方法比常用的介词教学方法教学效果好。2） 对调查问卷和访谈问题 3 分析的结果表明：基于原型范畴理论和空间隐喻理论的英语介词教学方法能够激发学生学习英语介

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的兴趣。3）通过分析访谈问题1、2、4，发现基于原型范畴理论和空间隐喻理论的英语介词教学方法有助于学生更好的理解介词的原型意义；更系统的掌握介词的其它语义和用法；更有利于学生运用科学的记忆方法巩固和记忆英语介词。

以认知语言学为理论框架的外语教学研究仍处于初期，而且本实证研究具有一定的局限性。原型范畴理论和空间隐喻对其它介词习得的影响还需做进一步的研究。作者认为该实证研究只是从认知语言学的角度为英语介词教学提供一个行之有效的方法。因此，该实证研究具有一定的实践意义并对介词教学有一定的启示作用。

关键词：原型范畴理论；空间隐喻；英语介词教学

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**Abstract**

English prepositions are small in number, but are widely used with a high frequency. Thus, they occupy an important place in English utterances. Learning prepositions well is one of the necessary prerequisites to language output. Prepositions have plenty of metaphorical senses besides their spatial senses, so they have become one of the most difficult points in English learning. The Prototype Theory and the Spatial Metaphor Theory have the great explanatory power over the various meanings of English prepositions and the internal relationships among them. Therefore, the researcher is convinced that the application of the two theories in the instruction will provide better ways for students to learn English prepositions. The study explores the internal relationships among the various meanings of English prepositions based on the Prototype Theory and the Spatial Metaphor Theory in Cognitive Linguistics. In addition, a teaching experiment is made to examine the effect of the new teaching method.

The Prototype Theory and the Metaphor Theory are two important theoretical pillars in Cognitive Linguistics. The Prototype Theory is proposed by Rosch based on plenty of empirical studies. And Lakoff and Johnson (61) classifies metaphor into three categories in *Metaphors We Live By*, i. e., Structural metaphor, Orientational (Spatial) metaphor and Ontological metaphor. The Prototype Theory and the Spatial Metaphor Theory are the important and effective devices in illustrating the spatial senses and the metaphorical extension of English prepositions. The original or typical meaning of the prepositions and the internal relationship among the prepositional meanings can be found by the two theories. Therefore, the application of the two theories in prepositional instruction will provide new ways for teaching and learning English prepositions.

The researcher conducted a 5-week experiment with 61 English major freshmen from Inner Mongolia University of Technology (IMUT) and took five most commonly used English prepositions (" in"，“with"，”on"，“from" and" over") as examples to seek ways of explaining the metaphorical extension of English prepositions based on the Prototype

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Theory and the Spatial Metaphor Theory. Qualitative and quantitative analyses are combined in this empirical study to testify the teaching effect in the Experimental Class (EC) and the Control Class (CC) after applying different teaching methods in preposition learning. The EC followed the preposition teaching method based on the Prototype Theory and the Metaphor Theory, while the CC followed a conventional one.

Based upon the analyses of a questionnaire, a post-test and an interview, the findings are summarized as follows: 1) By analyzing the post-test scores through an independent samples t-test, it is obvious that the scores of the subjects in EC are higher than the subjects in CC and there is statistically significant difference between the scores in EC and CC (p=0.015<0.05). Thus, the new teaching method is better and more effective than the conventional teaching method in preposition teaching. 2) According to the analyses of the questionnaire and the question 3 listed in the interview, it reveals that the new preposition teaching method can stimulate the Chinese EFL learners' interests in learning English prepositions. 3) After applying the new teaching method in EC, the researcher found several reasons for the improvement of preposition learning efficiency from the interview: easier for them to master prototypical features of prepositions, to set up the semantic network of prepositions and to find a scientific way to learn prepositions.

The study about foreign language teaching based on cognitive linguistics is still in its early stage, and the experimental research presented here has its limitation. Further research would be required to testify the effect of applying the Prototype Theory and the Spatial Metaphor Theory in the instruction of other English prepositions. The researcher thinks this study will help students to improve the learning efficiency of English prepositions. Therefore, the empirical study has some practical significance and important pedagogical implications on English preposition teaching and learning.

**Key words:** Prototype Theory; Spatial Metaphor; English Preposition Teaching

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## **Chapter One Introduction**

The present study is an empirical study about the English preposition teaching based on the Prototype Theory and the Spatial Metaphor Theory in Cognitive Linguistics. This chapter first introduces the background of the study briefly, and then discusses the purpose and significance of the study, which is followed by the layout of the dissertation.

## **1.1** **Background of the Study**

There are more than 100 prepositions in English. They are small in quantity, but very important in English language. According to Talmy (177-178), a famous cognitive linguist," in the English language, the preposition is one of the most important structure based on which lots of other domains are founded". If we compare English to a building, the prepositions should be the steel frame of the building. The bricks and cement will be useless without it. People always express both concrete spatial relations and abstract complicated relations between different things by prepositions. Due to the different cultural background and the language system, it is not easy for Chinese students to master the complex usage of English prepositions. In addition, with the development of the language and human cognition, more and more new semantic items of prepositions are produced day by day, which makes English prepositions learning more difficult for EFL (English as a Foreign Language) learners.

The traditional linguists believe that the complicated senses of prepositions are idiomatic and arbitrary. At present, most English teachers in China are influenced by the traditional scholars of lexicology, so they only emphasize the meaning and function of the prepositions, but ignore the internal relations among the complicated senses. Thus, the prepositions are taught as polysemous words. English teachers usually write all the meanings of a preposition on the blackboard and then illustrate these senses with examples.

After that, Chinese EFL learners acquire the senses and uses of the prepositions by rote. Definitely, the senses and usages cannot be mastered effectively in this way.

The development of cognitive linguistics provided a new perspective to the study of English prepositions. The Prototype Theory was put forward in Eleanor Rosch's research about the internal structure of categories in the mid 1970s. And in 1980, Lakoff and Johnson published a book named *Metaphors We Live By*. In this book, they hold that metaphor is not only a linguistic phenomenon, but also a kind of human thinking mode. In addition, they classify metaphor into three categories, i. e., Structural metaphor, Orientational (Spatial) metaphor and Ontological metaphor. Cognitive linguists believe that the Prototype Theory and the Metaphor Theory can be taken as the central conceptual pillars of cognitive linguistics. We can use the two theories to explain the complex relationships among events.

Similarly, we can apply the Prototype Theory and the Spatial Metaphor Theory to demonstrate the relations among the complicated senses of a preposition. The semantic extension of the prepositions can be understood systematically through the Prototype Theory and the Spatial Metaphor Theory. Many researches have been made both home and abroad on prepositions, but most of these researches are just theoretical analysis. The empirical research of the preposition teaching based on the Prototype Theory and the Spatial Metaphor Theory especially for Chinese EFL learners are rarely seen. On viewing of the above reasons, it is inevitable and significant to carry out a study to investigate the effectiveness of the preposition teaching on the basis of the Prototype Theory and the Spatial Metaphor Theory.

## **1.2** **Purpose of the Study**

The present study is to validate the effect of applying the Prototype Theory and the Spatial Metaphor Theory to the preposition teaching. For this, the researcher adopted two distinct teaching methods in two different classes in Inner Mongolia University of Technology. The Experimental Class (EC) followed the preposition teaching method based on the Prototype Theory and the Metaphor Theory, while the Control Class (CC) followed

A conventional one. The researcher collected all the data from a questionnaire, a post-test and an interview. In addition, it discusses the reasons why the English preposition teaching method on the basis of the two theories is helpful to the semantic acquisition of the English prepositions. Moreover, it aims to propose some pedagogical suggestions for the English teachers in their future preposition teaching. To be specific, the researcher makes an effort to find out the answers of the following three questions:

1. Is the English preposition teaching method based on the Prototype Theory and the Spatial Metaphor Theory more effective than the conventional definition plus example method?

2. If so, why the new English preposition teaching method mentioned above can improve Chinese EFL learners' efficiency for leaning English prepositions?

3. Will the new English preposition teaching method mentioned above stimulate Chinese EFL learners' interest in studying English prepositions?

## **1.3** **Significance of the Study**

English prepositions are able to show the spatial relationship between two entities and the relationship between two abstract concepts. Compared with other types of English words, the number of prepositions is quite small, but prepositions are used more frequently

Than other types of words. The prepositions can be seen as the joints of the English language. If we cannot use prepositions properly, the English utterances will become rigid

And stiff. Accordingly, it is crucial to explore an effective method to help students to master the senses of English prepositions accurately and therefore use them properly.

Theoretically, the study provides an empirical investigation for the exploration of a new method to interpret the relations among the senses of an English preposition based on the Prototype Theory and the Spatial Metaphor Theory in Cognitive Linguistics. The results of this study might show us the efficiency and usefulness of the two theories to English preposition teaching and learning. In addition, the study would also offer us some empirical evidences to test the applicability and adequacy of the two theories to the explanation of English prepositional semantics.

The present study also has great practical significance in the research of preposition teaching and its development. In recent years, the semantics of spatial prepositions has gained much attention by many cognitive linguists. On the one hand, the prepositions cover a small proportion of the vocabulary, but wide range of usage with high frequency; on the other hand, people have to construct abstract conceptual systems through the prepositions. Because of the two aspects above, the preposition is the most difficult word class to master for Chinese EFL learners. There are some problems for Chinese EFL learners even at the very advanced level to acquire the prepositions (Lennon 31-44). The empirical study based on the Prototype Theory and Spatial Metaphor Theory can provide a more systematic explanation on the semantics of English prepositions than traditional approaches. Thus, it will benefit Chinese EFL learners and reduce the Chinese EFL learners' memory burden for prepositions.

More importantly, this study might also provide a more effective method on how to teach English prepositions to Chinese EFL learners. English grammar books often regard the senses of prepositions as idiomatic and arbitrary and do not explain the interrelationships among the different senses and uses of a preposition. But on the basis of the Prototype Theory and the Spatial Metaphor Theory, we can demonstrate the semantic extension of the prepositions. Thus, according to the data-based quantitative analysis of the preposition teaching experiment, we will obtain some pedagogical implications for English preposition teaching.

## **1.4** **Layout of the Dissertation**

This thesis is composed of six chapters.

Chapter one is a brief introduction to this paper, in which the researcher mainly talks about the background of the study and points out the significance and purpose of the research. Finally, the layout of the dissertation is listed.

Chapter two is the literature review. Firstly, the Prototype Theory, the Spatial Metaphor Theory and the preliminary notions of prepositions are introduced in details. Secondly, the English preposition studies made by foreign scholars and domestic scholars

Are reviewed. Finally, some empirical studies on English preposition teaching made by the foreign and domestic scholars are also discussed.

Chapter three gives the detailed explanations of the five most commonly used English prepositions on the basis of the Prototype Theory and the Spatial Metaphor Theory. They are" in"，“with"，”on"，“from" and" over". In this chapter, it is clear that the two theories in Cognitive Linguistics lay a solid foundation for the systematic analysis of the five prepositions.

Chapter four is mainly about the teaching experiment which is carried out to test the efficiency of teaching prepositions based on the Prototype Theory and the Spatial Metaphor Theory. This chapter consists of research questions, subjects, instruments, teaching materials used in the study, experimental procedures and data analysis.

Chapter five focuses on the results and discussions. The researcher uses SPSS and EXCEL to analyze the data collected in the experiment. In this chapter, based on the data gathered from the teaching experiment, answers to the three research questions which are proposed in 1.1 are provided.

Chapter six is the conclusion. It discusses the major findings of the research and then provides some pedagogical implications for English preposition teaching. Finally, the limitation of the present research and the suggestions for the future researchers are provided.

###### **Chapter Two Literature Review**

The thesis adopts the Prototype Theory and the Spatial Metaphor Theory as its theoretical foundation. First, the Prototype Theory and the Spatial Metaphor Theory will be reviewed in this chapter. The Prototype Theory and the Spatial Metaphor Theory are closely related in cognitive linguistics. Then, the researcher introduces some preliminary notions of prepositions. At the end of this chapter, some main studies of foreign scholars and domestic scholars on prepositions and preposition teaching will be presented.

## **2.1** **Theoretical Foundation**

The Prototype Theory and the Metaphor Theory are two important theoretical pillars in Cognitive Linguistic studies. As a branch of the Metaphor Theory, the Spatial Metaphor Theory plays an important role in explaining the metaphorical extension of English prepositions. In this part, the Prototype Theory and the Spatial Metaphor Theory will be reviewed.

### **2.1.1** **Prototype Theory**

#### **2.1.1.1** **Categories and Categorization**

“The categories encoded in a language are motivated, to varying degrees, by a number of factors, by actually existing discontinuities in the world, by the manner in which human beings interact, in a given culture, with the world, and by general cognitive processes of concept formation." (Taylor 99) So we can say that categories are the subjective generalization on the attributes of the world we live in by human cognition; the classification of things in the world is based on the interactions between subjectivity and

objectivity.

Jackendoff (78) pointed out that" the categorization is the outcome of the juxtaposition of two conceptual structures"; Ungerer and Schmid (8) believes that" categorization is the mental process of classification on different things as examples of the same category. All in all, categorization is one of the basic ways for human beings to know the world. The world can be known better by categorization".

Cognitive linguists believe that human cognition depends on people's own experience, and begins from categorization. Its product is the cognitive categories. All the high-level cognitive activities are based on categorization, so it is an important tool to explore the human cognitive process. In brief, the ability of categorization is one of the most important cognitive abilities in human life.

#### **2.1.1.2** **The Introduction to the Prototype Theory**

The study of categorization may date back to Aristotle, who is considered as the representative of the classical approach to categorization. He found the classical theory of categorization 2000 years ago. Aristotle distinguished the category from the essence and the accidents of a thing. The essence is that the fundamental property and accidents are incidental properties.

Taylor (23) concludes the basic assumption of the classical approach:

（1）Categories are defined in terms of a conjunction of necessary and sufficient features.

（2）Features are binary.

（3）Categories have clear boundaries.

（4）All members of a category have equal status.

In the book *Philosophical Investigations*, Wittgenstein strongly criticized a lot of deficiencies about the classical theory of categorization. Wittgenstein's theory on category provides the basis for the establishment of the Prototype Theory.

The Prototype Theory originates in the mid 1970s with Eleanor Rosch's research on the internal structure of categories. It is based on many empirical findings about the ways

In which people categorize things, presenting the principles deferent from those mentioned in the classical theory.

There are several main steps in the development of the Prototype Theory: Wittgenstein's work on family resemblance, Berlin and Kay's studies on colors, Labov's experiment and the research of Rosch. Wittgenstein's family resemblance and his view that the boundary of the category is fuzzy are of great importance to the birth of the Prototype Theory. Berlin and Kay's notion of focal colors now appears as one of the most important steps on the way to the prototype model of categorization. Labov's experiments of categorizing cup-like objects are the explanations and supplement of Wittgenstein's theory. Rosch (36) defined prototype as" the clearest cases of category membership defined operationally by people's judgments of goodness of membership in the category". In other words, the most typical instance of one category is regarded as the prototype of this

category.

Taylor (59) summarizes the two interpretations of prototype:" there are two ways in which to understand the term prototype. We can apply the term to the cluster of central member of a category. Alternatively, the prototype can be understood as a schematic representation of the conceptual core of a category. On this approach, we would say, not that a particular entity is the prototype.”

Ungerer and Schmid (22-23) summarized the nature of prototype categories as follows:

（1）Categories do not represent arbitrary division of the phenomena of the world, but should be seen as based on the cognitive capacities of human mind.

（2）Cognitive categories of colors, shapes, but also of organisms are concrete objects, are anchored in conceptually salient prototypes, which play a crucial part in formation of categories.

（3）The boundaries of cognitive categories are fuzzy.

（4）Between prototypes and boundaries, cognitive categories contain members which can be rates on a typicality scale ranging from good to bad examples.

### **2.1.2** **Spatial Metaphor Theory**

#### **2.1.2.1** **Metaphor**

Traditionally, metaphor was regarded just as a rhetorical device and only rhetoricians and literati showed their interest in it. Aristotle can also be seen as the most well-known researcher in the traditional study of metaphor, and his rhetoric views of metaphor are always held as the classical views for a very long time. But cognitive linguists such as Lakoff and Johnson strongly opposed this traditional view." Conceptual Metaphor" is proposed by them.

In 1980, Lakoff and Johnson published a book named *Metaphors We Live By*. After that, linguists started to review the traditional metaphorical views and found out that metaphor is not only a linguistic phenomenon, but also a kind of human thinking mode. According to their view, metaphor is" the mapping between source domain and target domain, i. e., mapping from a familiar, simple, concrete domain to an unfamiliar, complex and abstract one" (Lakoff" The Contemporary Theory" 218), it is in essence" understanding and experiencing one kind of thing in terms of another. The concept is metaphorically structured, the activity is metaphorically structured, and consequently, the language is metaphorically structured." (Lakoff and Johnson 5)

#### **2.1.2.2** **Spatial Metaphor**

According to the different source domains, Lakoff and Johnson classify metaphor into three categories in *Metaphors We Live By*, i. e., Structural metaphor, Orientational (Spatial) metaphor and Ontological metaphor.

As we live in a gravitational space with receptors and a central nerve system, we at first come to express ourselves and the objects around with spatial terms like up-down, front-back, on-off, in-out and so forth (Bi Hongyan 35-38). Therefore, spatial metaphor is closely related to the use of English propositions. In the following part, the researcher will introduce spatial metaphor in details.

“Spatial metaphor means the metaphor with mappings from spatial orientation as source domain to non-space domain (usually abstract domain) as target domain" (Lakoff and Johnson 27). Since the feeling of space is the basic feeling in human life, people always sense the abstract domains through plenty of spatial metaphors.

Thus, spatial metaphors are essential in understanding the abstract concepts. Take the metaphor HAPPINESS IS UP as an example." Being up" means we are in high spirits. When we feel happy, we usually raise our chin up, throw a chest and sit or stand straight. On the contrary, when we feel depressed or spiritless, we always lower our heads or droop our shoulders. Thus, this metaphor gives the examples of happiness and depression in a vertical orientation. Hence, we use the phrases such as" cheer up"，“lift up one's spirit" to understand the abstract concept more easily and get various metaphorical meanings of this word. Lakoff and Johnson (17-19) notice the following characteristics of spatial metaphors:

1) Most of our fundamental concepts are organized in terms of one or more spatial metaphors.

2) There is an internal systematicity to each spatial metaphor.

3) There is an overall external systematic among the various spatial metaphors, which defines coherence among them.

4) Spatial metaphors are rooted in physical and cultural experience and they are not randomly assigned.

5) In many cases spatialization is so essential a part of a concept that it is difficult for us to imagine any alternative metaphor that might structure the concept.

6) Our physical and cultural experience provides many possible bases for spatial metaphors. Which ones are chosen, and which ones are major, may vary form culture to culture.

## **2.2** **Preliminary Notions of Prepositions**

English prepositions play a very important role in English language. We use prepositions more frequently than other words. A preposition usually indicates the spatial,

Temporal or logical relationship of its object to the rest of the sentence.

The *Longman Dictionary of Contemporary English* (1541-1542) defines a preposition as" a word that is used before a noun, pronoun, or gerund to show that word's connection with another word, such as 'of' in 'a house made of wood' and 'by' in 'we open it by breaking the lock'.“According to Crystal (213)," preposition is a term used in the grammatical classification of words, referring to the closed set of items which precede noun phrases and certain forms to the verbs, to form a single constituent of structure". Generally, it can be classified into three major groups:" simple prepositions, complex prepositions and prepositional phrases". (Quirk 658-659)

The most common type of prepositional expression has three components, a preposition and two nouns (or noun phrases), as in" the book on the desk". For the first noun, its names vary from" located object"，“located entity" or" figure" etc.; however, the second noun is called by several names such as" reference object"，”reference entity" or" ground" etc. According to Langacker's (231) *Cognitive Grammar*, two terminologies called Trajector (TR) and Landmark (LM) are used in this paper. TR is for the first noun (or noun phrase) that is a located element in focus and LM is for the second noun (or noun phrase) that is a located element in background.

## **2.3** **Previous Studies on English Prepositions**

The study on the uses of English prepositions may be one of the major achievements in Lexical Study. In the following part, the English preposition studies made by foreign scholars and domestic scholars will be introduced briefly.

### **2.3.1** **Studies by Foreign Scholars**

In the 1980s, Brugman studied the polysemy of the English preposition" over" from the cognitive perspective. This research was followed by Lakoff (1987), Kreitzer (1997), Langacker (1999) and Tyler and Evans (2003). More recently, Tyler and Evans made a lot of contributions in this area. This thesis simply explores the studies made by Brugman

（1981），Lakoff (1987), Langacker (1999), and Tyler and Evans (2003).

In the 1980s, Brugman studied" over" and she thought that a preposition could form a bond between an element in focus (the figure) and an element not in focus (the ground). Brugman (" Story of OVER") precisely pointed out that prepositions could not be analyzed without syntactic considerations. In her study, she noticed that the verb in a sentence and the nouns before or after a preposition would lead to the meaning changes of the preposition. She presented an analysis with diagrams to explain the senses of prepositions accurately, but paid no attention to the radial network of prepositional senses in her research.

Lakoff (" Women, Fire" 316)“took prepositions as instances to study the polysemy of words. Here polysemy can be defined as a word or phrase with different, but related senses". Lakoff thought that a polysemous lexical item might have a primary sense. The primary sense of the lexical item was more prototypical than other senses. Lakoff followed research made by Brugman and carried out his study on preposition" over". He believed that preposition was a key word class to denote a spatial relation between an element in focus (the figure), and an element not in focus (the ground). In his analysis, Lakoff set up a network model of" over", in which, there was only one basic sense of the preposition" over". The other senses of" over" were more or less closely related to the basic sense. Lakoff illustrated the radial structures of the conceptual category, which consisted of a core member and a network links to other members. As to the metaphorical senses of a preposition, Lakoff believed that the source domain of many metaphorical models is a spatial domain. And he thought conceptual metaphors were essential to explain the metaphorical senses of a preposition. In Lakoff's study of" over", conceptual metaphors" control is up" (e. g., *She had great personal influence and power over her followers.)*," more is up (e. g., *Children over the age of one year start their colds with a sudden high temperature.*)" and" seeing is touching" (e. g., *She ran her eyes over the guest list and sighed.*), were utilized.

Langacker made a systematic study of prepositions from a perspective of cognition. In order to describe things and relations more clearly, he classified English words into

Categories. He deemed that prepositions belonged to the category of describing relations. He also studied carefully on the preposition" of", which was the strong evidence of the cognitive doctrine that" all elements validly posited in grammar have a meaning" (“Grammar and Conceptualization" 73). He suggested that" the meanings of 'of' are from its basic uses, which profiles a relationship between the trajector and the landmark, the former (the trajector) constitutes an inherent and restricted subpart of the latter (the landmark)" (”Grammar and Conceptualization" 74). The trajector here refers to the" figure" (see section 2.2 Preliminary Notions of Prepositions) and the landmark refers to the" ground".

Tyler and Evans (" Reconsidering Prepositional Polysemy Networks") explained and talked about the various senses of" over", which stated to make a radial network of the interrelated senses, with the core sense of the preposition. It was said that the abstract senses were motivated by our spatiotemporal experience. Thus, many others abstract senses could be inferred. For example, some senses of a preposition were context-independent. In 2003, Tyler and Evans proposed an analytical model called Principled Polysemy Network. For determining the primary sense and distinguishing the different senses of a preposition, they present a set of criteria. They thought that our true feelings of the experiential world formed our conceptual system. The meaning of language was based on the construction of the conceptual system. Tyler and Evans believed that we understood prepositions through semantic networks of the prepositions. In their thesis, Tyler and Evans also did a further analysis of the prepositions such as" over"，“above"，”under"，“below", etc.

### **2.3.2** **Studies by Domestic Scholars**

Under the impact of the famous foreign cognitive linguists who studied English prepositions, the domestic cognitive linguists gradually focused on the prepositions. The basic spatial meanings and metaphorical meanings of some prepositions are hotly discussed by domestic scholars.

Nie Yaning studied the cognitive processes in the metaphorical meaning extension of

“Beyond" from its spatial meaning. He used the center-periphery image schema to interpret the metaphorical extension of" beyond". He also came up with the ideas that" image schema is the path to spatial conceptual metaphorical meanings and similarity is the cognitive basis to build those meanings" (Nie Yaning 36).

Tao Wenhao (1997: 31-56, 2000: 13-18) discussed the spatial meanings of" over" and" up" and the cognitive process about the metaphorical extension of them. She analyzed the two prepositions based on the TR and the LM Theory from the angle of cognitive grammar. After exploring the degree of the metaphorical meanings which were stemmed from the spatial meanings of" over" and" up", she tried to put forward the concept of Dimensions of Metaphor.

Based on the framework of cognitive semantics, Yan Chunyan (2006) analyzed the semantic structure of the preposition" on" in a more systematic and comprehensive way by using Tyler and Evans' Principled Polysemy Network.

Hu Meihong and Zhang Dong (2005) did a research on spatial prepositions. Through the examples of" behind"，“beyond" and" under", the study discussed the different translating ways and revealed that" the process of 'being static' converted into 'being dynamic' was also a process in which literal meanings of orientational prepositions were being transferred to their metaphorical meanings" (Hu Meihong and Zhang Dong 52).

## **2.4** **Previous Studies on English Preposition Teaching**

Language teachers and researchers have long recognized that the acquisition of prepositions poses major challenges for second language learners (Tyler 181). Theoretical advances in Cognitive Linguistics and the semantics of spatial language (e. g. Lakoff, 1987; Tyler and Evans, 2003) provided important theoretical frameworks to explain various spatial relations, making this seemingly intractable area more accessible to learners. Based on the frameworks, some of the foreign and domestic scholars did some empirical studies on English preposition teaching.

### **2.4.1** **Studies by Foreign Scholars**

Ijaz played a fundamental role in the study of L2 spatial preposition acquisition and she was perhaps the first person who introduced cognitive factors into this study. On the basis of the Prototype Theory and the semantic dimensions, Ijaz made the comparison between the adult English speakers and the advanced adult ESL (English as a Second Language) learners about their acquisition of prepositions" on"，“onto"，”upon"，“on top of"，”over" and" above" by using a semantic-relatedness test and a cloze-type/sentence-completion test. Finally, she found that" the differences between the adult English speakers and the advanced adult ESL learners were derived from a different weighting of the semantic dimensions of the prepositions. The weighting of the prepositional semantic dimensions by the ESL learners was influenced by native-language transfer" (Ijaz 401). In addition, Ijaz put forward the Semantic Equivalence Hypothesis (SEH), which assumed that in learning spatial semantics of prepositions, learners tended to look for semantic equivalents in the L2 and the L1. Ijaz's research methods and perspective were inspiring other researchers to do further research in this area.

Boers, F. and M. Demecheleer have talked over and generally illustrated two ways that could be helpful in a pedagogical context:" tracing the conceptual links between the different senses of a polysemous item may help us anticipate comprehension problems" (203). They took" behind" as an example to explain this diagnostic purpose. The second way is" motivating metaphorical extensions may help us present the semantics of a polysemous item in a way that facilitates comprehension" (203). They took" beyond" as an example to illustrate this therapeutic purpose.

Recently, Andrea Tyler (181-205) did a study to explore the utility of a teaching method to English prepositions from the perspective of Cognitive Linguistics. The article written by Andrea Tyler listed the fundamental basis of a Cognitive Linguistic (CL) analysis on the semantics of English prepositions and made a quasi-experimental study of 14 very advanced English learners to examine the efficacy of applying a CL approach to the instruction of the semantics of English prepositions" to"，“for" and" at". ”Comparison of pre- and post-test results show significant gain scores (p = 0.0003), indicating that the

Group of 14 advanced learners who received instruction based on a CL perspective experienced substantial improvement in their understanding of the semantics of the three prepositions" (Tyler 181). This study stands for a hopeful step in exploring the efficiency of a CL-based approach to English prepositions teaching by a quasi-experimental study.

### **2.4.2** **Studies by Domestic Scholars**

Findings from the theoretical researches of English prepositions also pave the way for domestic scholars to make the empirical investigations about English preposition acquisition of Chinese EFL learners. Since 2000, the domestic scholars have begun to show their views on spatial prepositions and experiments have been done to seek for good ways to analyze the spatial relations in order to help students understand prepositions better (Ma Shuhong, 173-183; Li Jia and Cai Jinting, 185-193; Wang Chunyan, 1-56; Liu Yan and Li Jinping, 61-64).

Ma Shuhong (173-183) applied the categorization theory in her study and discovered three variables that influenced Chinese EFL learners' learning of English spatial prepositional semantics." The three variables include learners' L2 proficiency, the L2 intralingual factors which refer to semantic similarities and differences between English spatial categories, and the interlingual factors which refer to spatial categorization correspondence and disparities across English and Chinese". (Ma Shuhong 219) The results showed that the cross-linguistic similarities and dissimilarities which refer to the L2 intralingual factors and the interlingual factors in spatial categorization might confuse EFL learners and the interaction of the two variables would make the learning process more difficult. Ma's study is helpful to the English spatial semantic acquisition of Chinese EFL learners and is proved to be an important source for the further research in the field of English preposition learning.

Liu Yan and Li Jinping (61-64) did a study to examine the feasibility of using conceptual metaphor theory to English preposition learning. Based on conceptual metaphor and image schema, the researcher analyzed the spatial and abstract meanings of the English preposition" in". It was found that" awareness of conceptual metaphor facilitates

Preposition learning, enhances long-term retention, and helps learners better predict new senses of the target word" (Liu Yan and Li Jinping 61). Only one analysis on the preposition" in" is not enough to prove the feasibility mentioned above, more empirical studies should be done to testify the possibility of applying conceptual metaphor theory to English preposition learning.

## **2.5** **Summary**

In this chapter, the researcher reviewed the theoretical and empirical studies on English prepositions. The researcher found that most of the previous studies about prepositions are the theoretical analyses; most of the scholars explained the spatial relations between objects and why the relations should be like that at the theoretical level. In addition, the empirical studies of preposition teaching were conducted in many different contexts. In China, many teachers and experts have found that spatial prepositions are difficult to acquire, but the number of the empirical studies on English preposition teaching for Chinese EFL learners is relatively small. Therefore, more empirical studies need to be carried out to investigate the acquisition of English prepositions among Chinese EFL learners. In accordance with the development of the preposition studies, the present research will investigate a new teaching method that is suitable for Chinese EFL learners' acquisition of English prepositions based on the Prototype Theory and the Spatial Metaphor Theory.

###### **Chapter Three**

**The Metaphorical Extensions of" on"“in"”with"“from" and" over”**

According to the data in Brown and LOB Corpus," in"，“with"，”on"，“from" and" over" are five of the most commonly used prepositions in English. Among the fourteen most commonly used English prepositions (Table 3.1)," in" is in the position of number two," with" is number five," on" is number six," from" is number nine and" over" is number thirteen. Thus, it's quite necessary for Chinese EFL learners to master their meanings and usages.

**Table** **3.1** **Fourteen most frequently used preposition in Brown and LOB Corpus (Kennedy 139)**

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Based on the theories discussed in the previous chapter, in this chapter, the researcher will make a detailed and systematic analysis on semantic networks of the prepositions" in"，“with"，”on"，“from" and" over". First, the researcher will identify the prototypical sense of each preposition, and then will try to explain their metaphorical meanings derived from their prototypical meaning on the basis of the Prototype Theory and the Spatial Metaphor Theory. It is worth noting here that all example sentences in this chapter are from *Longman*

*Dictionary of Contemporary English* and *Collins Cobuild English Guides: 1. Prepositions*.

## **3.1** **The Case of**“in”

According to *Longman Dictionary of Contemporary English* (2004) and *Collins Cobuild English Guides: 1. Prepositions* (1991), eleven commonly used senses of" in" are summarized by the researcher. To sum up, they are location, time, state, manner, wearing, aspect and profession. The spatial sense of" in" is listed as the first item of all the senses.

### **3.1.1** **The Spatial Sense of**“in”

There are two spatial senses of" in" listed in *Longman Dictionary of Contemporary English*. They are" used with the name of a container, place, or area to say where someone or something is" and" into a container, place etc" (986). The spatial senses of" in" can be illustrated by Figure 3.1 and Figure 3.2. Figure 3.1 stands for the location of TR, e. g. *My mother was in the kitchen.* In this sentence," my mother" is TR and" the kitchen" is LM. Figure 3.2 stands for the direction of TR, e. g. *He almost drowned when he fell in the river.* In this sentence," he" is TR and" the river" is LM. TR entered into LM step by step. The researcher holds that Spatial Model 2 of preposition" in" is the dynamic form of Spatial Model 1. The first spatial sense is the prototype in the semantic category of" in".

**Figure** **3.1** **Spatial Model 1 of Preposition“in”(Location)**



**Figure** **3.2** **Spatial Model 2 of Preposition“in”(Direction)**



### **3.1.2** **Metaphorical Extension of**“in”

#### 1. Spatial Domain mapped into Time Domain

In light of a time conceptual metaphor called TIME IS SPACE, we can regard time as a 1-dimensional linear model, so it is very common for the spatial domain mapping into the time domain, like in 2012, in a day, in two months' time, etc. This implies that the time sense of preposition" in" directly derived from the spatial sense. The time senses of" in" are" used with the names of months, years, seasons etc to say when something happens"，“during a period of time" and" at the end of a period of time". Consider the following sentences,

（1）I was born in 1910.

According to the sentence," a year" is a relative long unit of time and it can be conceptualized as a container. TR must be in the range of LM just like an object contained in a container. TR is the time of my birth is included in the LM (1910).

（2）I have walked between twenty and thirty miles in a day.

In this sentence TR refers to the beginning time of my walking and the whole day which is like a container is the LM. The walking time must be included in the day.

（3）The car should be here in ten minutes.

In this sentence, the LM" ten minutes" can be seen as a container. While the car is coming as the time goes by, i. e., TR is the process that is inside the container: when the car arrives, the time is over, i. e., the state is outside the container. Thus, preposition" in" is equal to the word" after" here.

#### 2. Spatial Domain mapped into State Domain

Likewise, a certain type of state can also be seen as a container. A person can enter into his container and can also come out of it. If something or somebody is in a particular state, that state means its or his present state." In" can also be applied to talk about the state of someone when he or she does something. For example,

（4）I have a feeling that she is in grave danger.

In sentence (4), the state of danger (LM) is just like a container." She" (TR) was completely surrounded by this dangerous state.

#### 3. Spatial Domain mapped into Direction Domain

According to the spatial sense mentioned above, it can be noticed that there is a static model as well as a dynamic one. TR comes close to LM (the container) gradually and finally reaches the destination. Here," in" indicates the direction that TR moves.

（5）The company called in all old cars.

In this sentence, the cars can be supposed to be the TR and the company to be LM (the container). The cars were approaching the company. The direction is the car coming back to the company from the users.

#### 4. Spatial Domain mapped into Manner Domain

When" in" is used to indicate" using a particular way of talking or writing" instead of their spatial sense, the sense of the preposition extends to the domain of manner. A particular way (LM) can be seen as the container and TR inside of this container thus performs in this particular way, e. g.

（6）A message had been scrawled on the wall in chalk.

In this sentence," the chalk" (TR) functions as a container. Then" the message" is inside the container, i. e., the message is expressed by using the chalk.

#### 5. Spatial Domain mapped into Other Abstract Domains

Wearing sense: if a human body is wrapped in clothes, it means that someone wears them. The phrase *a small girl in a blue dress* can be taken as an example." The blue dress" (LM) is a container." The small girl" (TR) is inside the container. It means that a small girl is wearing a blue dress.

Aspect sense:" in" can indicate a direction, and the direction can be regarded as one of the aspects when describing the subject. For example, *The leaves are rough and gray-green in color.* In this sentence, it points at the color of the leaves, i. e., color is one aspect when we describe the leaves.

Profession sense: when someone always stays in a certain field, what he is doing in this field is his profession. Thus, preposition" in" is always used to describe a profession,

E. g. *She used to be a teacher, but she's in marketing now.*" Marketing" is a kind of field he is involving in now. We can regard it as a container, too.

## **3.2** **The Case of**“with”

Eight most frequently used senses of" with" are summarized based on *Longman Dictionary of Contemporary English* and *Collins Cobuild English Guides: 1. Prepositions*. It can indicate location, time, state, range, cause, manner, supporting, and opposing. Both of the two dictionaries put the usage of location in the first place. The evidence from the two dictionaries actually shows that the original meaning of" with" is to indicate the spatial relation between TR and LM.

### **3.2.1** **The Spatial Sense of**“with”

The spatial sense of" with" is" near someone or something, or in someone's presence" (“Longman Dictionary" 2885). It is the prototypical sense. Figure 3.3 shows the spatial senses of" with" and the spatial relationship between TR and LM, e. g., *I saw Bob in town with his girlfriend*. In this sentence," Bob" is TR and" his girlfriend" is LM. And the distance between TR and LM is almost zero.

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**Figure** **3.3** **Spatial Model of Preposition“with”**

### **3.2.2** **Metaphorical Extension of**“with”

#### 1. Spatial Domain mapped into Time Domain

Just like preposition" in", the spatial domain of" with" can also be mapped into the time domain. The time sense of" with" is" as the same time or rate as something else". The distance between TR and LM in the time axis is almost zero. For example,

（7）The wine improves with age.

According to the sentence, the mellowness of" the wine" (TR) is accompanied by" the age" (LM). That is to say, the change of TR and the passing of time occurs at the same

time.

#### 2. Spatial Domain mapped into State Domain

If something or somebody is in a certain state, that state means its or his present state." With" can be applied to talk about the state of something or someone. It means" having, processing or showing a particular feeling, quality or state". Take the following sentence as an example,

（8）Jack beamed with pleasure when he heard the news.

In sentence (8), Jack (TR) has the state of pleasure (LM). LM has an effect on TR, so TR is happy now.

#### 3. Spatial Domain mapped into Range Domain

In figure 3.3, if TR is a part of LM, TR will be included in LM. Therefore," with" can also be used to talk about" including". As we can see from the following example,

（9）With a tip, the meal cost $30.

In this sentence, we can see the cost as a range and" the tip" (TR) is a part of the total cost (LM).

#### 4. Spatial Domain mapped into Cause Domain

“With" can be used in a metaphorical way to explain the reason of an action or a state. It means" because of or considering the fact of". It is often used after an action or a state and the action or the state is accompanied by the reason. For example,

（10）I was shaking with fatigue.

In sentence (10), the reason of my shaking is fatigue. The existence of" the fatigue" (LM) contributed to" my shake" (TR). The two things happened almost at the same time.

#### 5. Spatial Domain mapped into Manner Domain

If a person and an object stick together, he or she always wants it to do something for him or her. When" with" is used to indicate" by means of something or using it" instead of their spatial sense, the spatial sense of the preposition will extend to the manner domain, e. g.,

（11）Jim broke up the frozen mass with a hammer.

In this sentence, TR is" Jim" and LM is the hammer. TR and LM are in the same

3-dimensional space, i. e., Jim used a hammer to break up the frozen object.

#### 6. Spatial Domain mapped into Other Abstract Domains

If a person gets along with a person or an object for a long time, he will have a positive or negative attitude to them.

Supporting or liking sense: e. g., *When the matter went to the full Cabinet, ministers sided with Mr. Brooke.* We can see that ministers supported Mr. Brooke.

Against or opposing sense: e. g., *We are competing with foreign business.* There is a competing relationship between us and foreign business.

## **3.3** **The Case of**“on”

There are ten common senses of" on". They are location, attachment, near, towards, time, manner, state, living material, cause and concerning.

### **3.3.1** **The Spatial Sense of**“on”

The preposition" on" (“Longman Dictionary" 1363) has four spatial senses: the first spatial sense is" touching or being supported by a particular surface" (Figure 3.4), the second one is" hanging from, supported by or connected to a particular thing" (Figure 3.5), the third one is" at or near a place" (Figure 3.6), the last one is" in a particular direction" (Figure 3.7). The prototypical model of" on" imagines the LM as a line, just focusing on its length; or as a surface, focusing on its length and width and regardless of its height. In brief, preposition" on" has four spatial senses: touching, attachment, close to and towards.

**Figure** **3.4** **Spatial Model 1 of Preposition“on”(Touching or Being Supported by)**





**Figure** **3.5** **Spatial Model 2 of Preposition“on”(Attachment)**

**Figure** **3.6** **Spatial Model 3 of Preposition“on”(Near)**



**Figure** **3.7** **Spatial Model 4 of Preposition“on”(Towards)**



Figure 3.4 manifests the contact between TR and LM, e. g., *On the table were his keys and his pocket-book*. In this sentence," his keys and his pocket-book" is TR and" the table" is LM and TR is supported by LM. Figure 3.5 manifests TR's attachment to LM, e. g. *He notices she is wearing a cross on a chain around her neck*. In this sentence," the cross" is TR and" the chain" is LM and TR is attached to LM. Figure 3.6 manifests that TR is near to LM, e. g. *On my right sat the Chancellor*. In this sentence," the Chancellor" is TR and" I" is LM. Figure 3.7 manifests TR moves towards LM, e. g. *As the troops marched on the city, the leader planned their escape*. In this sentence," the troops" is TR and" the city" is LM and TR comes closer to LM.

### **3.3.2** **Metaphorical Extension of**“on”

#### 1. Spatial Domain mapped into Time Domain

The temporal meaning of" on" is" at some time during a particular day". It shows the contact relation between TR and LM (i. e., the period of time). The TR of" on" (such as

Activity, event, etc.) may be in contact with successive parts of the period lasting." On" is used with special days (like Christmas, Easter, etc.), names of weekdays, dates, referring to a day, a period of time in a day, etc. For Example,

（12）After the annual meeting on November 20

In this phrase, TR is" the meeting" and LM is" November 20". The meeting lasts as long as the whole duration of the period (referred to November 20), i. e., at the beginning, the end or any successive points of the period.

#### 2. Spatial Domain mapped into Manner Domain

As the researcher mentioned above, the touching sense of" on" shows that some parts of the TR are connected with the LM and the LM is a surface to support the TR. When the LM is a means of transportation, operation or living, the spatial domain extends metaphorically to the manner domain. In the manner domain the LM connects with or supports the TR. Considering the following examples,

（13）He had come out on the bus to visit his friend.

（14）He lived on berries and wild herbs.

In sentence (13), we can see" the bottom of the bus" (LM) as a plane. LM upward supported" he" (TR)." On" used here indicates position or motion of the TR. In sentence (14), TR (he) depended on the LM (berries and wild herbs) for a living. The upward support between the LM and the TR transferred from a visible contact (physical support) to an invisible contact (mental support).

#### 3. Spatial Domain mapped into State Domain

The contact sense of" on" can extend to refer to an activity. In this sense, the TR is not surrounded by the activity (LM), but the TR and the LM are sticking to each other. Therefore, the spatial sense of" on" is metaphorically extended to the meaning of" sticking to an activity". For example,

（15）They decided to go on a shopping expedition.

In this sentence, the LM (the shopping expedition) here refers to a dynamic state in which" they" will buy goods. Their final decision (TR) is to buy goods. So, there is a mental contact between TR and LM.

#### 4. Spatial Domain mapped into Cause Domain

“On" can also be used in a metaphorical way to explain the reasons or motivation for doing something. The reason for the action is always a rather particular one. When the LM represents the precondition or reliable basis for the TR, the spatial domain can be mapped into the cause domain. This meaning extension is also derived from prototypical meaning" support", which is metaphorically extended to the meaning" the reason of something happened". For example,

（16）After complimenting me on my work, he informed me of the new arrangements.

In this sentence, the LM (my work) is the reason of the TR (the compliment). The LM is the reliable basis for the TR, so there is a mental contact between TR and LM.

#### 5. Spatial Domain mapped into Aspect Domain

The aspect domain is used to perform specific analyses in the area of concern by the domain experts. If we feel close to something or somebody, we will concern about them. When we map the spatial domain into the aspect domain," on" gets the meaning of" about a particular subject". Consider the following example,

（17）A debate on education

This phrase illustrates abstract relevance between the TR (the debate) and the LM (education)." Education" is an imaged surface which is attached to an imaged object (the debate). The TR and the LM are conceptually very close.

## **3.4** **The Case of**“from”

According to the two dictionaries mentioned above, ten commonly used senses of" from" are summarized by the researcher. They are location, direction, time, state, range, cause, be made of, absence, prevented, deference. The spatial sense of" from" is listed as the first item of all the senses.

### **3.4.1** **The Spatial Sense of**“from”

The spatial sense of" from" (“Longman Dictionary" 779) is" starting at a particular

Place or position" and it can be illustrated by Figure 3.8 and Figure 3.9. Figure 3.8 shows the static spatial relation between the TR and the LM. The TR is the starting point. For example, *He was standing only a few feet away from me*. In this sentence," he" is the TR and" me" is the LM. Figure 3.9 is the dynamic form of Figure 3.8, e. g., *On the day he'd been transferred from bedroom to veranda.* In this sentence," he" is the TR and" veranda" is the LM. The TR is the starting point and LM is the terminal point.

**Figure** **3.8** **Spatial Model 2 of Preposition“from”(Static)**



**Figure** **3.9** **Spatial Model 1 of Preposition“from”(Dynamic)**



### **3.4.2** **Metaphorical Extension of**“from”

#### 1. Spatial Domain mapped into Time Domain

Cognitive linguists believe that doing things always needs some time just as the objects always occupy some space. The relationship between the events and the time is similar to the relationship between the objects and the space. The spatial domain of" from" is mapped into the time domain through metaphorical extension, so" from" has the meaning of" starting at a particular time". For example,

（18）She was to be in New York from June to the late September.

In this sentence," June" (TR) is the starting point of the period that she stayed in New York." The late September" (LM) is the end point. Preposition" from" connects to the starting point of the time here.

#### 2. Spatial Domain mapped into State Domain

According to the viewpoint of localism, we can explain the nature or state of somebody or something by using the viewpoint that an object moves from one place to another place. Thus, the state sense of" from" is" used to say what condition or situation something is in before it changes". For example,

（19）The water turned from brown to gold.

In this sentence," brown" (TR) is the stating point in the process of changing and" gold" (LM) is the final point. That is to say the color of the water is brown at the beginning. Here, the change of the place is mapped into the change of the state.

#### 3. Spatial Domain mapped into Range Domain

People always imagine an abstract scope as a spatial entity and the concept of point, line, surface and volume in the spatial domain can be used to illustrate the size of the abstract scope. The preposition" from" is the symbol to indicate the starting point of the abstract scope. For instance,

（20）Entry fees from 50p to￡5.

In sentence (20), 50p (TR) is the starting point in the range of the entry fee and it is the lowest price. ￡5 (LM) is the highest point in the range of the entry fee." From" is the symbol to show the starting point of the price scope.

#### 4. Spatial Domain mapped into Cause Domain

The spatial sense of" from" shows the starting point of a place or position. When the spatial domain mapped into the cause domain through metaphorical extension," from" can refer to the starting point of the event happening, i. e., the cause of an event. Therefore," from" has the meaning of" the cause of something". For example,

（21）Mothers who are exhausted from all the sleepless nights

In this phrase, the event that the mothers were sleepless for many nights is the TR and the event that the mothers are exhausted is the LM. The TR is the cause of the LM." From" is a word to relate the result with the cause.

#### 5. Spatial Domain mapped into Other Abstract Domains

Lakoff and Johnson stated that" the spatial metaphors are not arbitrary. They have a basis in our physical and cultural experience. Our physical and cultural experience

Provides many possibilities for the metaphorical expressions". (G. Lakoff, M. Johnson, 2003: 16) Thus," from" has a few other metaphorical senses that are originated from the spatial sense but there are many differences between them. These senses are greatly affected by the verb before" from".

Made of something: e. g., *Bread is made from flour, water, and yeast.* The flour, water, and yeast are the raw materials of making bread.

Absence: e. g., *I have a brother, but he's away from home at present.* The person's brother isn't at home now.

Prevented: e. g., *A security guard in a peaked cap stopped me from leaving the building.* The security guard didn't allow the person to leave.

Difference: e. g., *You're quite a bit different from what I expected.* The person was not the same as my expectation.

## **3.5** **The Case of**“over”

There are nine most frequently used senses of" over". They are location, direction, covering, arc passage, time, controlling, more, cause, and manner.

### **3.5.1** **The Spatial Sense of**“over”

The spatial sense of" over" is the foundation for forming and developing its semantic extension. According to the two dictionaries mentioned above, there are three spatial senses for" over". These spatial concepts will be demonstrated in the following part.

The first spatial sense of" over" (“Longman Dictionary" 1395) is" above or higher than something, without touching it" (Figure 3.10). Figure 3.11 is the dynamic form of Figure 3.10. The second spatial sense of" over" (1395) is" on something, so that it is covered" (Figure 3.12). The third spatial sense of" over" (1395) is" from one side of something to the other side of it" (Figure 3.13).

****

**Figure** **3.10** **Spatial Model 1 of Preposition“over”(Static)**

**Figure** **3.11** **Spatial Model 2 of Preposition“over”(Dynamic)**





**Figure** **3.12** **Spatial Model 3 of Preposition“over”(Covering)**

**Figure** **3.13** **Spatial Model 4 of Preposition“over”(Arc Passage)**



Figure 3.10 reveals static spatial relationship between the TR and the LM, e. g., *A lamp hung over the table.* In this sentence," the lamp" is the TR and" the table" is the LM and the TR doesn't have any contact with the LM and there is a space between them. Figure 3.11 reveals the movement of the TR above the LM, e. g., *The balloon is flying over the house.* In this sentence," the balloon" is the TR and" the house" is the LM and the TR doesn't have any contact with the LM, either. Figure 3.12 reveals that the LM is covered by the TR, e. g., *I laid my coat over a nearby barrel*. In this sentence," the coat" is the TR and" the barrel" is the LM and there is no space between them. Figure 3.13 reveals the TR

Walks, comes, goes or runs through the LM following an arc-shaped Path, e. g., *They scrambled away over the rocks*. In this sentence," they" is the TR and" the rocks" is the LM. We can say that the TR has overcome some barriers (LM) when it finally reaches the destination.

### **3.5.2** **Metaphorical Extension of**“over”

#### 1. Spatial Domain mapped into Time Domain

“The models in which the conceptualization of time is cast have all been spatial in nature. The major models include time as linear, time as cynic and time as spiral". (Lan Chun 92) There is a tight correlation in our experience between distance and duration. The longer the distance traversed, the longer the time cost. Therefore," over" has the meaning of" duration". For example,

（22）It would probably go rotten over the weekend.

In this example," the process of rotting" (TR) co-occurs with the temporal LM," the weekend". Here, the" duration" sense of" over" is based on the spatial sense of arc passage, i. e.," from one side of something to the other side of it".

#### 2. Spatial Domain mapped into Power and Society Domain

CONTROL IS UP is a conceptual metaphor and the first spatial sense of" over" is similar to the spatial sense of" up". The physical basis for it is that" physical size typically correlated with physical strength, and the victor in a fight is typically on the top". (Lakoff

And Jonson 17) If it is mapped into power domain, we can get a new sense of" over"—

Control. For example,

（23）She had great personal influence and power over her followers.

Clearly, this sentence does not mean that the TR (she) is higher than but within reach of" her followers", the LM. However, the example shows that the TR exerts influence or control over the LM. There is an experiential correlation between control and vertical elevation.

#### 3. Spatial Domain mapped into Quantity Domain

Vertical elevation and quantity are also related in experiential correlation. The

Conceptual metaphor MORE IS UP can also be applied to non-spatial use of" over".

Usually, the height or level of the entities rises with the increase of the amount. Then we can get another metaphorical extension of" over"—more.

（24）The Japanese were producing over 100 million tons of steel.

In this sentence," 100 million tons of steel" (LM) can be interpreted as some kind of measurement for the amount of steel and the quantity sense is produced in terms of spatial relations through metaphorical mapping. The TR is not actually mentioned and we infer that TR is 100 million and one tons of steel or more.

#### 4. Spatial Domain mapped into Cause Domain

From the" pervasive" meaning of" over", we know that the TR extends to every corner of the LM and covers it. The TR can also be some abstract things, such as fighting, arguing and so on. Then the object of fighting or arguing will act as the role of the LM. We know that the TR covers the LM and touches it, thus" over" has the meaning of" the cause of something".

（25）Starving children were fighting over spilt grain.

Here" the spilt grain" acts as the LM, and" fighting" acts as the TR. If we map the spatial meaning of" on something, so that it is covered" into the cause domain, we can see that" over" means" because of".

#### 5. Spatial Domain mapped into Manner Domain

If the spatial sense denoted by Figure 3.13 is mapped into the abstract domain of manner, the manner can be regard as a path that links the TR and the LM. In most cases," over" is used in the transmission of information from the sender to the receiver. The process can be seen as the motion from the TR to the LM.

（26）I am not prepared to discuss this over the telephone.

In sentence (26)," over" means" transmitted by the phone" and this belongs to the domain of manner. TR is the discussion of this which is able to be across the telephone and be heard by another speaker on the other side of the telephone.

## **3.6** **Summary**

In this chapter, the researcher analyzed the spatial senses and the metaphorical extension of five English prepositions. The above metaphorical meaning analyses of five English prepositions are based on the spatial senses of every preposition. According to Prototype Theory, the first spatial sense of a preposition is the prototypical member in the semantic category of a preposition. The other members in the semantic category share one or more semantic attributes with the prototypical member, so the abstract meanings of a preposition must have adjacent or similar relationship with its prototypical meaning. According to Cognitive Linguistics, metaphor is regarded as a cognitive mechanism, so we can establish the links between two domains by it. Because there are some similarities of the spatial sense and other abstract senses, the spatial domain can be mapped into the non-spatial domains. A lot of abstract domains such as time, state, quantity, cause, power, society and so on are constructed on the basis of spatial domain.

###### **Chapter Four Methodology**

In Chapter 3, the researcher has presented a detailed description on the metaphorical extension of the five prepositions" in"，“with"，”on"，“from" and" over", which may serve as a new thought of English preposition teaching. The major concern of this chapter is the methodology of this empirical study. It will be presented on the detailed design of an empirical study based on the Prototype Theory and the Spatial Metaphor Theory. It consists of five parts: research questions, subjects, instruments and materials, experimental procedures and data analysis.

## **4.1** **Research Questions**

Based on the general objective of the empirical study and the previous analyses, the research questions could be proposed as follows:

1. Is the English preposition teaching method based on the Prototype Theory and the Spatial Metaphor Theory more effective than the conventional definition plus example method?

2. If so, why the new English preposition teaching method mentioned above can improve Chinese EFL learners' efficiency for leaning English prepositions?

3. Will the new English preposition teaching method mentioned above stimulate Chinese EFL learners' interest in studying English prepositions?

## **4.2** **Subjects**

All the subjects participating in this empirical study were freshmen from two classes (Class one and Class three) in the Mongolia University of Technology and they have received English training for at least 6 years. They are all English majors and entered the university in the year of 2011. Class one was the Experiment Class (EC) and Class three

Was the Control Class (CC). There were 21 students in EC and 40 students in CC.

**Table** **4.1: Group Statistics on the Students’ESEC Scores**

| Group Statistics | | | | | |
| --- | --- | --- | --- | --- | --- |
|  | group | N | Mean | Std. Deviation | Std. Error Mean |
| score | 1 | 21 | 108.681 | 20.5313 | 4.4803 |
| 2 | 39 | 108.969 | 16.2687 | 2.6051 |

**Table** **4.2: Independent Samples Test on the Students’ESEC Scores**

| Independent Samples Test | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Levene's Test for  Equality of Variances | | T-test for Equality of Means | | | | |
|  |  |  | |  | | | | |
|  |  | F | Sig. | t | df | Sig.(2-tailed) | | Mean Difference |
| score | Equal variances assumed | 2.347 | .131 | -.060 | 58 | .953 | | -.2883 |
| Equal variances not assumed |  |  | -.056 | 33.778 | .956 | | -.2883 |
| Independent Samples Test | | | | | | | | |
|  |  | T-test for Equality of Means | | | | | | |
|  |  |  | | | 95% Confidence Interval of the difference | | | |
|  |  | Std. Error Difference | | | Lower | | Upper | |
| score | Equal variances assumed | 4.8324 | | | -9.9615 | | 9.3849 | |
| Equal variances not assumed | 5.1826 | | | -10.8232 | | 10.2466 | |

Because the English Scores of Enrollment into College (ESEC) have high reliability and validity, the researcher collected the ESEC of all the subjects from a self-designed questionnaire. All of the participants handed in their questionnaires. The rate of return was 100%. But one participant in CC missed two questions in his questionnaire, so his questionnaire was invalid and the total effective rate is 98.4%. As a result, there were 39 students' ESEC were valid in CC. Through analyzing their ESEC, the researcher found that

There was no significant difference between the scores of the students in the two classes (see table 4.1 and 4.2, the mean score were almost equal and p> 0.05). Therefore, these students almost had the same English level. The teaching experiment was done in the second term of the 2011-2012 School Year. The experiment lasted for five-weeks and it took about 15 minutes each time. The Experimental Class (EC) followed the preposition teaching method based on the Prototype Theory and the Metaphor Theory, while the Control Class (CC) followed a conventional one. The researcher was the instructor during the class. The two classes did not learn the Prototype Theory and the Spatial Metaphor Theory before.

## **4.3** **Instruments**

In order to collect the necessary data for the experimental study and answer the three research questions, the researcher employed three instruments in the present study, including a questionnaire, a post-test and an interview in EC after the post-test.

### **4.3.1** **The Reasons of Selecting the Instruments**

The researcher employed a questionnaire before the teaching experiment. The researcher collected the ESEC and got a better understanding about the prepositional semantic acquisition of the subjects through the questionnaire (see Appendix A). The statistical work of the ESEC was used to prove that there was no obvious difference of the language proficiency level between the students in EC and CC. A post-test combined with an interview was used at the end of the experiment. The post-test was used to test the effects of the two different teaching methods. In order to know more about the views of students in EC towards the preposition teaching method based on the Prototype Theory and the Spatial Metaphor Theory, an interview was conducted after the post-test.

### **4.3.2** **Questionnaire**

There were 8 questions in the questionnaire (see Appendix A). The questionnaire was

Written in Chinese to avoid misunderstanding by the subjects. The instructor stated that the participants should answer the questions honestly and their answers would be kept secret. It was designed to get some information from the following aspects:

The first part was about the basic informations of the subjects which consist of student ID umber, class and their ESEC. The second part was the main part. The researcher could know the English level of all the subjects from the first question. Questions 2, 3, 7 and 8 were related to the learners' understanding and attitudes on prepositions learning. Question 6 was about the ways that the learners memorize English prepositions. There were two questions about their former teachers' method of teaching English prepositions: questions 4 and 5.

There were 5 entries in each question. What's more, a space at the end of some questions was provided for all the subjects to write their own comments or additional ideas, these would be more helpful to the evaluation.

### **4.3.3** **Post-test**

After a five-week instruction, the post-test was conducted by the researcher. She chose some items from the College Entrance Examination Papers of English and the simulated tests for the College Entrance Examination in recent years. These items were used in the post-test for English spatial prepositions. The researcher wanted to see if there is a significant difference between the scores of the students in CC and EC through the post-test. (All details are exhibited in Appendix B).

There are 19 items but 20 blanks in each post-test paper. 20 minutes were given for the subjects to finish the test. They were required to fill the blanks with one of the

Following English prepositions — “in"，”with"，“on"，”from" and" over". The meanings

And uses of these five prepositions have been instructed by the teacher systematically during the experimental weeks. The score difference between the two groups will help to answer research question 1 and prove whether the Prototype Theory and the Spatial Metaphor Theory are effective devices in preposition teaching.

### **4.3.4** **Interview**

In order to ensure the reliability and validity of the experiment and find an answer to research question 2 and 3, an interview was taken by 6 students with high, medium and low English proficiency levels in EC as soon as the post-test ended (see Appendix C). Two students were selected from the scores of 85-100 (Level A), two from 65-80 (Level B) and two from 45-60 (Level C). The purpose of the interview is to know better about the students' attitudes to the English preposition teaching method based on the Prototype Theory and the Spatial Metaphor Theory. In the interview, the students were asked to answer 4 questions within 15 minutes. The researcher took notes of the students' feedbacks. The questions were asked from the following aspects:

1. To investigate the feelings of the students in EC about whether the English preposition teaching method based on the Prototype Theory and the Spatial Metaphor Theory is better and more efficient than the conventional teaching method.

2. To know whether the students in EC have a thorough understanding of the explanations about the five English prepositions based on the two theories and whether they want to use this method to learn English prepositions or not.

3 To inquire the students' view on the reasons that the new preposition teaching method can improve their efficiency for preposition semantic acquisition.

4. To find whether the English preposition teaching method based on Prototype Theory and Spatial Metaphor Theory can stimulate the students' interest to study English prepositions.

## **4.4** **Teaching Materials**

The main teaching material was *Collins Cobuild English Guides: 1. Prepositions*, published by Harper-Collins Publishers in 1991. The choice of this book as the main teaching material for the experiment was on the basis of two criteria: first, this book provided clear and detailed explanations on the use of today's English prepositions, and used the examples derived from" The Bank of English", also called the COBUILD

Database. Second, each of the five prepositions was fully introduced in this book, so it would promote a thorough understanding of prepositions and how they are commonly used today. The researcher chose five of the most commonly used prepositions in this book. They were" in"，“with"，”on"，“from" and" over". During the period of instruction, the researcher used PPT to show the different content of preposition teaching in EC and CC. The teaching materials used in EC were designed based on the Prototype Theory and the Spatial Metaphor Theory which were mentioned in Chapter 2. The students in the CC were taught by rote learning. (Two different teaching materials presented in 4.5 in details.)

## **4.5** **Experimental Procedures**

The empirical study aims to explore whether the application of Prototype Theory and Spatial Metaphor Theory in instruction can bring better results of English preposition learning than the conventional teaching method, as well as stimulating the students' interest to study English prepositions.

There were 61 subjects involved in the entire experimental process. All the subjects were freshmen and major in English and they longed for learning English well. They have received English training for at least 6 years, before entering the university, but most of them were still weak in mastering the use of English prepositions. They could list some commonly used prepositions, such as" at"，“in"，”on" and" to" and so on, but they did not have a clear understanding of the internal relationship among their complex senses and uses. The experiment was made within 5 weeks from May to mid-June of 2012. The researcher prepared the preposition instruction for both EC and CC and acted as the instructor.

At the first step, the researcher investigated the subjects' views on English prepositions, the teaching and learning method of English prepositions by a self-designed questionnaire. Then, the researcher chose" in"，“with"，”on"，“from" and" over" as examples in the whole process of her teaching experiment. In order to reduce the memory load of the subjects, the researcher only introduced one preposition in a class period by using about 15 minutes. And the teaching experiment lasted for five weeks.

For CC, the teaching procedure is carried out as follows (take" on" as an example). The researcher showed many phrases and sentences with the preposition" on" by PPT. Some of the examples were listed as follows:

a. **On** the table were his keys and his pocket-book. (touching or being supported by a particular surface)

b. after the annual meeting **on** November 20 (at some time during a particular day)

c. He had come out **on** the bus to visit his friend. (in a bus, train, aircraft etc.)

d. He lived **on** berries and wild herbs. (used to say what food someone needs to survive)

e. After complimenting me **on** my work, he informed me of the new arrangements. (the reason of something happened)

f. a debate **on** education (about a particular subject)

Then, the instructor asked the students in CC about different Chinese meanings of the preposition “on” in these sentences. If the students could not tell the right meanings of “on” in some sentences, the researcher would explain the uses of “on” together with their Chinese equivalents. After that, the teacher summarized the equivalent Chinese meanings and various uses of “on”. And the students in CC were requested to remember these meanings and uses by rote learning and mechanical drills. Finally, the participants were asked to translate 5 English sentences into Chinese. They were told to pay more attention to the uses of the preposition “on”.

For EC, the Prototype Theory and the Spatial Metaphor Theory were applied to the prepositional instruction. At the beginning, the instructor briefly introduced the concept of prototype to the students. After that, the researcher presented many phrases and sentences by PPT with preposition “on”. Some of the examples were listed as follows:

a. **On** the table were his keys and his pocket-book. (spatial sense)

b. after the annual meeting **on** November 20 (spatial domain mapped into time domain)

c. He had come out **on** the bus to visit his friend. (spatial domain mapped into manner domain)

d. They decided to go **on** a shopping expedition. (spatial domain mapped into state domain)

e. After complimenting me **on** my work, he informed me of the new arrangements. (spatial domain mapped into cause domain)

f. a debate **on** education (spatial domain mapped into aspect domain)

Then, the instructor asked the students in EC to induce the different meanings of “on” in these sentences. Afterwards, the instructor enlightened the students to find the prototypical sense of “on”. After the subjects had a general impression of the prototypical sense, the conception of Landmark (LM) and Trajectory (TR) was introduced to explain the prototypical meaning of “on”. After that, the instructor introduced an important cognitive mechanism called metaphor to the students: the essence of metaphor is that we can understand abstract entities in terms of concrete ones. Then the metaphorical extensions of “on” were taught to the students. During this process, the instructor tried her best to make the students have a clear understanding of the source domain and the target domain and leaded them to find out internal relations between the prototypical sense and the metaphorical senses of “on”. After that, the teacher summarized the relations among the senses of a preposition by a semantic network. Finally, the participants were asked to translate 5 English sentences into Chinese and they were told to pay more attention to the internal relations between the prototypical sense and the metaphorical senses of “on”.

After five weeks’ teaching, all subjects had a post-test which were asked to complete during the class time. They were told that their answers would be strictly confidential and used only for the purpose of the experimental study. The data of the post-test from 61 freshmen of English majors were collected for the data analysis of the researcher. In addition, an interview was conducted in EC after the post-test to get further information about the subjects’ attitudes towards the application of Prototype Theory and the Spatial Metaphor Theory to the preposition teaching in EC. In the interview, the students were asked to answer 4 questions within 15 minutes.

## **4.6** **Data Analysis**

The research was conducted from May of 2012 to mid-June of 2012. The questionnaire was distributed to 61 students on May, 9th, 2012, and required to be finished in 10 minutes. All of the participants handed in their questionnaires. The rate of return was 100%. But one participant missed two questions in his questionnaire, so his questionnaire was invalid and the total effective rate was 98.4%. In order to have detailed statistics on

Each item and categorize the results of the questionnaires, the researcher accounted all the data with EXCEL.

The post-test was organized and supervised by the researcher. The test papers were distributed to 40 students in control class and 21 students experimental class. The post-test was conducted during the class time and the students were required to finish it within 20 minutes. The full score of the post-test was 100 points (5 for each item). 61 participants handed in their papers. The rate of return was 100%. But one participant in CC did not use the given prepositions to fill the blanks, so his paper is invalid and the total effective rate is 98.4%. Therefore, 60 papers are valid. For the purpose of comparing the students' post-test scores in EC and CC after the different teaching treatment and testifying the researcher's hypothesis, the results were put into SPSS 17.0 (Statistical Package for the Social Sciences). All the data were analyzed with independent samples t-test.

An interview was taken after the post-test. For some practical reasons, it was conducted with a limited range and quantity. The purpose of the interview was to collect more comprehensive data for this study. There were 6 students in EC attending the interview. In the interview, students showed their attitude towards the application of the Prototype Theory and the Spatial Metaphor Theory from their perspective, including the confusions and opinions. And some students gave very good answers. The questions are listed in Appendix C.

## **4.7** **Summary**

In this chapter, an empirical research was provided by the researcher, which combined

Prepositions teaching with the Prototype Theory and the Spatial Metaphor Theory. Information was also provided concerning the research questions, subjects, instruments teaching materials, experimental procedures and data analysis.

###### **Chapter Five Results and Discussion**

In the previous chapter, in order to investigate the effect of the application of the Prototype Theory and the Spatial Metaphor Theory in English preposition instruction, a questionnaire, a post-test and an interview are carried out respectively. The data are collected from 60 freshmen of English majors. The results and discussion will be made in this chapter. The researcher will present and discuss the findings on the three research questions put forward in the previous chapter.

## **5.1** **Effectiveness of the New Teaching Method**

In order to investigate the effectiveness of the English preposition teaching method based on the Prototype Theory and the Spatial Metaphor Theory, all the data collected from the post-test are put into SPSS 17.0 and analyze with Independent Samples T-test through comparing the number of correct answers made by the students in CC and the students in EC, we can figure out whether the English preposition teaching method based on the Prototype Theory and the Spatial Metaphor Theory is more effective than the conventional definition plus example method.

All of the students are required to fill the blanks with one of the five English prepositions that were explained in class before. There are 19 items but 20 blanks in the post-test paper (see Appendix B). The full score is 100. The software SPSS 17.0 is used to analyze the scores of students' tests. Because the number of students in the two classes is different, it was suitable to use independent samples t-test to check whether there was a big difference between the students' scores. The results are shown in Table 5.1 and Table 5.2.

**Table** **5.1: Group Statistics on the Students’Post-test Scores**

| Group Statistics | | | | | |
| --- | --- | --- | --- | --- | --- |
|  | group | N | Mean | Std. Deviation | Std. Error Mean |
| score | 1 | 21 | 66.19 | 13.866 | 3.026 |
| 2 | 39 | 57.18 | 12.967 | 2.076 |

**Table** **5.2: Independent Samples Test on the Students’Post-test Scores**

| Independent Samples Test | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Levene's Test for  Equality of Variances | | | T-test for Equality of Means | | | | |
|  |  |  | | |  | | | | |
|  |  | F | Sig. | | t | df | Sig.(2-tailed) | | Mean Difference |
| score | Equal variances assumed | .287 | .594 | | 2.506 | 58 | .015 | | 9.011 |
| Equal variances not assumed |  |  | | 2.455 | 38.750 | .019 | | 9.011 |
| Independent Samples Test | | | | | | | | | |
|  |  | T-test for Equality of Means | | | | | | | |
|  |  |  | | 95% Confidence Interval of the difference | | | | | |
|  |  | Std. Error Difference | | Std. Error Difference | | | | Std. Error Difference | |
| score | Equal variances assumed | 3.596 | | 1.814 | | | | 16.208 | |
| Equal variances not assumed | 3.670 | | 1.587 | | | | 16.435 | |

Table 5.1 shows clearly that the students' mean score of the post-test in EC is 66.19 and that in CC is 57.18. The students' mean score in EC is higher than the students' mean score in CC. For the EC, the highest score is 90, and for the CC, the highest score is 85. The highest score of EC is 5 points higher than that of CC. In addition, for EC, the lowest score is 40, and for CC, the lowest score is 25. The lowest score of CC is 15 points lower than that of EC. However, it is not very persuasive to say that there is a significant deference between the students' score in the two classes.

In order to show the reliability and validity of the post-test, the data are further analyzed with independent samples t-test. First, from Levene's Test for Equality of Variances (Table 5.2), we can see that Sig=0.594> 0.05. Thus, the variances are equal in this independent samples t-test. According to the analysis above, we only need to see the first line of the table named T-test for Equality of Means. It is necessary to examine the 2-tailed Sig. It shows that Sig. (2-tailed) =0.015 in this line. It means that P=0.015<0.05. It is obvious that there is statistically significant difference between EC and CC in the post-test. Therefore, after five weeks' study with the different preposition teaching method, the students in EC mastered the five prepositions better than the students in CC.

The data analysis above testifies that the application of the Prototype Theory and the Spatial Metaphor Theory in preposition teaching can improve the outcome of learning the five prepositions than the conventional definition plus example method. In conclusion, the English preposition teaching method based on the Prototype Theory and the Spatial Metaphor Theory is more effective than the conventional definition plus example method.

## **5.2** **Reasons for the Improvement of Students**’Preposition Learning Efficiency in **EC**

The empirical study shows that the new English preposition teaching method is more effective than the conventional one. That is to say the new English preposition teaching method mentioned above can improve Chinese EFL learners' efficiency for leaning English prepositions.

In order to have a better knowledge of the reasons for the efficiency rising of students' preposition acquisition in EC, the researcher interviewed six students in EC (see the question 3 in Appendix C) and found some possible reasons from the interview.

For Level A students, both of them say they used to learn the senses and uses by rote, but now they can construct the semantic network of every preposition based on the new method, so they have a clear understanding of the internal relations among the senses of a preposition and they can learn these senses systematically.

For level B students, they think after a detailed explanation of the prototypical features about the five prepositions, they know that the spatial sense has the most typical features in the semantic category of a preposition, so the spatial sense is the prototypical sense of a preposition. In addition, the spatial models are simple and accessible. Therefore, it is easier for them to bear in mind the original senses of the prepositions than to learn the different meanings of the prepositions by rote.

For level C students, they mention after the teacher's explanation, they are able to infer some abstract senses of a preposition from its prototypical sense and the context. They needn't remember all the senses of every preposition. Thus, the new approach can help the students to relieve the burden of memorization.

From these answers, the main reasons found for the efficiency rising of students' preposition acquisition by the students in EC are summarized as follows: easier for them to master prototypical features of prepositions, to set up the semantic network of prepositions and to find a scientific way to learn prepositions.

As the Prototype Theory and the Spatial Metaphor Theory are the important and effective devices in perceiving the spatial senses and metaphorical senses of English prepositions, the researcher will explain the reasons mentioned on the basis of the two important theories in Cognitive Linguistics.

The original meaning of each preposition is its spatial meaning. According to the Prototype Theory, the spatial meaning is the prototypical meaning of the preposition in its semantic network. Because human language is economical, people always try their best to use a simple word to express different meanings. Thus, every preposition has many different meanings related to its prototypical meaning by people's innovation. Other members in the semantic category of a preposition shares one or more attributes with its prototypical member, so the abstract meanings of a preposition must have adjacent or similar relationship with its prototypical meaning. Therefore, a preposition has many different meanings. A semantic network can be constructed to show the relations among the senses of a preposition (see figure 5.1)." A" stands for the prototypical sense, A1-A5 stand for intermediate senses and a1-a4 or1-3 stand for the bad examples of the semantic

Category. According to Cognitive Linguistics, metaphor is regarded as a cognitive mechanism, so we can establish the links between two concepts by it. Ultimately, one or more attributes is transferred from the prototypical meaning to the abstract meaning of a preposition by a mapping. A lot of abstract concepts such as emotion, physical state, quantity, social status and so on are structured on the basis of spatial concepts.

****

**Figure** **5.1** **Semantic Network of a Preposition**

In English prepositions teaching or learning, students can use this cognitive ability to infer the abstract meaning of a preposition according to its prototype meaning. In this way, students can learn the meanings of prepositions systematically; the memory burden will be relieved and they will learn more by taking the same amount of time, so the Chinese EFL learners' efficiency for leaning English prepositions are improved.

## **5.3** **Interest Stimulation of Studying English Prepositions**

In order to answer the research question" will the new English preposition teaching method mentioned above stimulate Chinese EFL learners' interest in studying English prepositions", itisnecessarytoinvestigatethe subjects'viewsonprepositionacquisitionandinstructionandtheattitudesofthesubjectsinvolvedintheECtowardsthenewprepositionteachingmethod. Theresearcheremployedtwoinstrumentstomakethedetailedanalysis, aquestionnaireandaninterview. Theresultsaredisplayedasfollows.

### **5.3.1** **Analysis of the Questionnaires**

In the following two figures, we will have an overview of subjects' preposition acquisition in different aspects. Figure 5.2 gives us a statistical graph of the questionnaire collected in EC and Figure 5.3 is the questionnaire analysis of CC.

The Statistical Graph of the Questionaires Collected in EC

100%

80%

60%

40%

20%

A

B C D E

0%

1

2

3

4

5

6

7

8

the title number

**Figure** **5.2** **The Questionnaire Analysis of EC**

Percentage

The Statistical Graph of the Qustionaires Collected in CC

100%

80%

60%

40%

20%

0%

1

2

3

4

5

6

7

8

the title number

A B C D

E

**Figure** **5.3** **The Questionnaire Analysis of CC**

Percentage

From the statistics in Figure 5.2 and Figure 5.3, we know clearly the different views of the students towards preposition acquisition according to the students' choices. The result of each question in the questionnaire is discussed one by one below. The result of the next question is produced on the basis of the previous question.

Question 1: What do you think of your English levelThisquestionistohaveanoverviewabouttheEnglishlevelofthesubjectsinthetwoclasses. FromthestatisticsinFigure5.2andFigure5.3, itisobviousthat95%ofthesubjectsinCCand90%ofthesubjectsinECthinkthattheirEnglishisjustsosoorpoor. Therearemanyreasonsforthe

Results presented above. One of the main reasons may be the students do not have a clear understanding about the senses and usages of the prepositions.

Question 2: Do you think prepositions are very essential in English learning Question2isconcernedmainlyabouttheimportanceoftheprepositions. Thefiguresrevealthat72%ofthesubjectsinCCand61%ofthesubjectsinECconsideritimportanttolearnprepositionswelliftheywanttolearnEnglishwell. 28%ofthesubjectsinCCand39%ofthesubjectsinEChaveaneutralornegativeattitudetowardsquestion2.

Question 3: Is it necessary for undergraduates to learn the senses and usages of the prepositionsQuestion3surveysthenecessityoflearningprepositions. Fromthefigures, aclearconclusioncanbedrawnthat71%and72%ofthesubjectsinECandCCthoughtitnecessarytolearnprepositions. Thenumberofthesubjectswhoholdaneutralornegativeattitudetowardtheviewisnearlyequal(29%and28%).

Question 4: Did your teacher give the special explanation for every preposition in classAsforquestion4, 66%subjectsinECand77%inCCclaimthattheirteachersdonotgivethemthespecialexplanationforprepositions. Someteachersexplainbrieflywhentheymeettheminthetextorletstudentslearnbythemselvesthroughsomeprepositionexcises. Besides, itisafactthat10%and8%ofthesubjectsinECandCCwerenotveryclearaboutwhethertheirteachersgivethespecialexplanationornot.

Question 5: How do you evaluate the preposition teaching method adopted by your teacherQuestion5concernsthestudents'assessmentoftheprepositionteachingmethod. WecanseefromFigure5.2andFigure5.3that34%subjectsinECand15%inCCthinktheprepositionteachingmethodisgood, while66%subjectsinECand85%inCChaveaneutralornegativeattitudetowardthemethod. Thatmeansitiscrucialtoexplorea suitableprepositionteachingmethodforChineseEFLlearners.

Question 6: What method do you usually apply to learn the prepositions by heartQuestion6isaboutthewayhowstudentslearnEnglishprepositions. Studentscanchooseoneormorewaysontheirowncondition. About24%subjectsinECand27%inCCsaythattheylearnEnglishprepositionsmostlybyrote;38%subjectsinECand54%inCCsaythattheyusuallyrecitethetypicalsentenceswithaprepositiontomasteritssensesand

Usages; 10% subjects in EC and 28% in CC learn the prepositions by doing exercises; the same number of subjects in EC and CC chooses other ways to learn the prepositions, such as reading English materials, summarizing the senses and usages of every preposition. Only 24% subjects in EC and 18% in CC tries to find the relations among the senses. The teaching method mentioned above is an influential factor in the way of subjects' preposition acquisition.

Question 7: Do you think it difficult to learn the senses and usages of the prepositionsQuestion7ismainlyaboutthestudents'attitudetowardsprepositionlearning. Wecanseefromthefiguresthat66%subjectsinECthinklearningprepositionsisdifficultand72%subjectsinCCfeelitdifficulttolearntheprepositions. Morethanhalfofthemhavedifficulties. Thereisnogoodteachingmethodorgoodmnemonicsforprepositions, so manystudentsfeelthatprepositionisoneofthemostdifficultpointsinEnglishlearning.

Question 8: Are you interested in learning the senses and usages of the prepositionsQuestion8concernsifthestudentsareinterestedinprepositionlearning. 29%subjectsinECand43%inCCclaimthattheyarenotinterestedinprepositionlearning. 52%ofthesubjectsinECand36%ofthesubjectsinCChaveaneutralattitudetowardsquestion8. Only19%subjectsinECand21%inCCareinterestedinprepositionlearning. Therefore, mostofthestudentsarenotverykeenonprepositionlearning.

To sum up, from the statistics analyzed above, we can get the idea that most of the subjects thought it important and necessary to learn prepositions well, but there is no good teaching method or good mnemonics for prepositions, so they feel learning prepositions is difficult. All the factors mentioned above finally lead to the conclusion that the majority of the subjects in EC and CC have no or little interest in preposition learning before the teaching experiment.

### **5.3.2** **Analysis of the Interviews**

The researcher selects 6 students with high, medium and low English proficiency levels in EC after the post-test. Altogether, there are 4 questions in the interview (see Appendix C). The first question is to investigate students' view about the English

Preposition teaching method based on the Prototype Theory and the Spatial Metaphor Theory. The second question is whether the students in EC have a thorough understanding of explanations about the five English prepositions based on the Prototype Theory and the Spatial Metaphor Theory and whether they want to use this method to learn English prepositions or not. The third question has been analyzed in Section 5.2. The fourth

Question is about the students' opinion on the effectiveness of the new preposition

Teaching method in respect of learning interest.

The students at different levels have different degrees of improvement through five weeks' training with the new method. The researcher summarizes the students' answers as follows.

For level A students, both of them think that the new teaching method is better and more efficient than the conventional teaching method. They have a thorough understanding of explanations about the five English prepositions based on the two theories. They think that the relations among them are just like the trunk and the branches of the tree. The prototypical sense is the trunk and other senses are the branches. When they do exercises with prepositions, the semantic networks they learn in class will come to their mind. They finish the post-test with ease. They say that they will use this method to learn other English prepositions in the future. They have a great interest in studying other English prepositions and exploring the relations among the senses of a preposition.

For level B students, they believe that interest plays an important role in learning a language. However, before entering the university, they did a lot of mock exercises of college entrance examination about prepositions. In order to get high marks in the examination, they have formed a habit of memorizing prepositions in a repeated mechanic way, but the result is unsatisfactory in spite of the long time and energy they spend. When they are in contact with the new method, both of them feel it is good and interesting. One Level B student says:

I feel disappointed. Although I try my best to learn the prepositions well, I always make some mistakes when I do exercises with prepositions. And I think learning by rote is boring. When the teacher introduces this new method to us, most of us feel it is a good

Method for English learning. I'm interested in the spatial models the teacher drew on the blackboard. With the help of the spatial models, I master the prototypical features of the prepositions. I think they are simple, vivid and easy to understand. After learning the new method, I sometimes draw the spatial models of other prepositions. For example, I draw the static and dynamic spatial models of" up" when I learn this preposition by myself (see Figure 5.4).

**Figure** **5.4** **Spatial Models for the Dynamic and Static“up”**



For level C students, they do not like learning English before entering college. Both of them are boys. In fact, they do not regard English as their first choice when selecting majors. Thus, they do not have much interest in English, let alone English prepositions. They consider prepositions as the widely used but complex words. As one Level C student says:

English preposition is a real headache for me. Every preposition has so many senses and the usages are extremely flexible. When I do exercises with prepositions, I often cannot remember the senses exactly, so I often choose the wrong answer. I'm really not interested in learning them. However, the teacher brings us a new method to learn prepositions. She helps us to find the relations among the complicated senses. In addition, a variety of activities are added to the class. The atmosphere is lively and relaxing in class. I start to like learning prepositions and English bit by bit.

In conclusion, from the questionnaire analyzed above, we have a clear idea that most of the students were not interested in learning prepositions and held a negative view towards the prepositions. However, after five weeks teaching with the new method, the students at different levels have interest to learn prepositions with varying degrees. We can

See this from the previous interview analysis. All this certainly proves that the new English preposition teaching method based on the Prototype Theory and the Spatial Metaphor Theory can stimulate the Chinese EFL learner' interest to study English prepositions.

## **5.4** **Summary**

In brief, from the statistics analyzed above, we can get the general idea that the students in EC master the usage of the five prepositions better than the students in CC. In addition, the majority of the subjects in EC hold a positive view towards the new preposition teaching method. And they say that the students will have the benefit of the

New approach for their further study. To some extent, the research questions addressed at

The beginning of chapter four have been answered.

## **Chapter Six Conclusion**

This chapter is divided into three sections: the reflection on the major findings is presented; some pedagogical implications for English teachers are offered; the limitations of the study are listed and suggestions for further research are proposed by the researcher.

## **6.1** **Major Findings of the Study**

In the previous chapters, the researcher has presented the main body of the empirical study. The study provides a detailed and descriptive analysis of the new preposition teaching method based on the Prototype Theory and the Spatial Metaphor Theory and investigates the effect of this method. Through detailed analyses of the post-test, the questionnaire and the interview, the major findings are summarized as follows.

For the purpose of exploring the effectiveness of the English preposition teaching method based on the Prototype Theory and the Spatial Metaphor Theory, the scores of post-test were analyzed. The result of the test shows the mean scores of the subjects in EC are obviously higher than the subjects in CC. It means that the subjects' outcome of preposition learning has improved by the use of the Prototype Theory and the Spatial Metaphor Theory in EC. Besides, all of the subjects in EC tell the researcher that the new teaching method is better and more effective than the conventional teaching method in preposition learning. Thus, the study reveals that the new English preposition teaching method is more effective than the conventional one.

In light of the first major finding, we know that the new English preposition teaching method mentioned above can improve Chinese EFL learners' efficiency for leaning English prepositions. The study further explores the reasons for the improvement of students' preposition learning efficiency in EC. According to the analysis of the interviews, there are three possible reasons. First, in comparison with learning the prepositions by rote, students

Can learn the meanings of prepositions systematically under the guidance of the new teaching method. Second, as the semantics of prepositions are too complex and unsystematic, great efforts should be devoted to the study on prepositions. However, the new preposition teaching method will help students relieve their memory burden. Third, they will learn more by taking the same amount of time and make fewer mistakes in the use of prepositions with this method.

According to the analyses of the questionnaire and the interview, it reveals that the new preposition teaching method can stimulate the Chinese EFL learners' interests in learning English prepositions. We know from the questionnaire that most of the students are not interested in learning preposition before the teaching experiment. But after the teaching experiment, the students in EC at different levels have different degrees of improvement through five weeks' training with the new method. In the interview, they say that they are encouraged to take part in the discussion and classroom activities; the classroom atmosphere is much better than before. That is to say the students show interest in preposition learning at different degrees.

## **6.2** **Pedagogical Implications**

Despite a limited scale and period, the empirical study based on the Prototype Theory and the Spatial Metaphor Theory still has great values to English preposition teaching. It also gives some implications for the English preposition instruction.

Preposition has generally been recognized as one of the difficulties for the L2 learners (Javis and Odlin, 535). And 70% of the subjects in this experiment think it hard to learn prepositions well. However, studies on how to teach English prepositions systematically are rather scarce. With the findings in the empirical research, the researcher will propose some useful tips for the EFL teachers in China.

According to the detailed explanation in Chapter 3, we know that the extended senses of" in"，“with"，”on"，“from" and" over" are based on their prototypical sense, i. e., the first spatial sense. Therefore, the first step of preposition teaching is a detailed introduction to the prototypical sense of each preposition. English teachers can draw spatial models on the

Blackboard or use some objects to show the spatial relations. They should make sure that learners have a clear understanding about the fact that the most prominent meanings of prepositions are in the spatial domain in the teaching process.

After teaching the prototypical sense of prepositions, the second step of preposition teaching focuses on the extended senses of prepositions. It is necessary to help students understand the definition of metaphor. Teachers must illustrate that metaphor is not only a figure of speech but also a cognitive mechanism with examples (e. g., Time is money.). Then, teachers will guide students to understand different senses of each preposition and find the relations between the prototypical sense and other senses. A figure in radial pattern can be showed to the students if necessary. Teachers can hold group discussions during the preposition teaching. Study of learning strategies in second language teaching and learning has suggested that analytic discussion may be positive for language learners. In the classroom, the discussion can focus on the different senses of prepositions, as well as the links that exist among various senses. Teachers can organize other activities about prepositions to help their instruction, such as group discussion, guessing the meaning of a preposition from the context, making dialogues with prepositions, filling the blanks of the missing prepositions in an English song and so on.

After gaining a clear idea about the prototypical sense, various metaphorical senses of each preposition and the relations between them, in the third step, teachers should make the students do some exercises on prepositions taught before, which may include multiple choices of prepositions, cloze or sentence translation etc. The exercises play an important role in consolidating what has been learnt.

## **6.3** **Limitations and Suggestions for Future Research**

Even though the researcher used two different teaching methods in two classes and take strict measures to complete the teaching experiment, there are still some limitations in the study. And the researcher proposed some suggestions for future researches.

First of all, since it is impossible to give a detailed and deep analysis of all the English prepositions in such a short thesis, the researcher only chose five most representative

Prepositions for this empirical study. However, it is uncertain whether the new teaching method is helpful to the acquisition of other prepositions. Therefore, many other prepositions even other word classes need to be studied and the results of the empirical study are necessary to be testified in a broader scale.

Secondly, the sample of the study was relatively small. There are only 60 subjects in two classes participating in the experiment and they are all from the same university. The universality of the results might be influenced by the small sample. Therefore, more participants of different language levels in different universities should be involved in the future studies.

Thirdly, the teaching experiment only lasts for five weeks. It is rather limited in time compared with many great researches in the field of Cognitive Linguistics. And it is believed that a longer period of treatment with the new method will make results more reliable and valid.

Fourthly, the researcher analyzed the usages and senses of the five prepositions, but she neglected to explain the overlapped meanings of different prepositions. Whether the Prototype Theory and the Spatial Metaphor Theory in Cognitive Linguistics are equally effective in distinguishing the overlapped meanings of different prepositions is still unanswered. This can be one question for further studies.

Finally, through analyzing their ESEC, the researcher found that there is no significant difference between the scores of the subjects in two classes. Thus, the participants are almost in the same English level, but their individual understanding of prepositions before the instruction is not strictly investigated. The results may be influenced by this factor. Further research is recommended to do more investigations on students' understanding of prepositions before the preposition teaching.

In conclusion, preposition teaching is far more a complicated issue because many different factors will influence the results of the teaching experiment, such as the individual factors of the learners, teaching methods, learning strategies, etc. All of these factors influence each other, so more experimental data and case study are needed to explore the effective approaches to preposition teaching and learning.

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**Appendix A**

**英语介词学习情况的调查问卷**

班级 学号 高考英语成绩\_

（我们将对你的个人信息保密，请你如实填写，非常感谢你的合作！）亲爱的同学：

你好！本问卷调查仅用于科研目的，不涉及到学生的学业成绩与任何操行评定，敬请同学们请根据实际情况选出你认为最适合你的选项，非常感谢你的合作！

1. 你认为你的英语平如何？

A. 很高 B. 高 C. 一般 D. 低 E. 很低

2. 你认为英语介词在英语学习和应用中的作用

A. 很重要 B. 重要 C. 一般 D. 不重要 E. 说不清

3. 本科生阶段有必要系统地学习介词的各种用法吗？

A. 很有必要 B. 有必要 C. 一般 D. 不太必要 E. 没必要

4. 在课堂上，你的英语老师对介词有专门的讲解吗？

A. 有专门的讲解 B. 不专门讲解，常常是在课文中遇到了稍做讲解

C. 让我们通过做介词习题学习介词的用法 D. 不讲解，让我们自己掌握

E. 说不清

5. 你如何评价你的英语老师现在的介词教学方法？

A. 很好 B. 好 C. 一般 D. 不好 E. 很不好

6. 你通常用哪种或哪几种方法记忆英语介词及其用法？

A. 机械记忆 B. 记忆相关介词的典型例句 C. 做介词练习记忆

D. 探寻介词各义项间的联系，构建网络记忆 E. 其它

7. 你认为学习和记忆英语介词的难度如何？

A. 很难B. 难C. 有点难D. 一般E. 简单

8. 你对学习和记忆英语介词及其各种用法感兴趣吗？

A. 很感兴趣B. 感兴趣C. 一般D. 不太感兴趣E. 不感兴趣再次感谢你的合作！

**Appendix B Post-test**

**Class**   **Student Number Fill in the blanks using *on, over, in, from* and *with***

1. （北京海淀区2011届高三二模）

The woman pulled her hat low down her eyes in order not to be recognized by the angry crowds.

2. （2011重庆卷）

Shirley, a real book lover, often brings home many books to read the library.

3. （江苏省盐城市盐城中学2010届高三第一次测试）

Located the eastern coast of China, the village is fairly new \_ only a small population of less than 3,000.

4. （2011广西玉林、南宁二中9月联考）

--- Shall we visit Jim tonight?

--- OK. To make sure that he's , we'd better call him up in advance.

5. （河北省保定二中2010届高三第一次月考）

He fell a rock in his walk and struggled to his feet.

6. (2011 ft东卷)

I'm sorry I didn't phone you, but I've been very busy the past couple of weeks.

7. （辽宁省东北育才学校2010届高补一模）

his arrival at the airport, he was arrested by the police.

8. （甘肃省兰州一中2010届高三12月月考）

In the 2008 Olympic Games．America beat Argentina men's basketball by 101:81.

9. （安徽师大附中2010届高三第一次摸底考试）

Most of the audience wondered what idea a man who is deaf birth can have of

music.

10. （2012届福建省普通高中毕业班质量检查）

—What made John wild joy?

—Being admitted to his dream university.

11. （2011湖南长沙一中第一次月考）

She is far being pleased about it; she is very angry.

12. （2010 辽宁卷）

I agree to his suggestion the condition that he drops all charges.

13. （2010 海淀区三模）

all kinds of difficulties, the workers have made rapid progress in the construction of the World Expo 2010 Shanghai.

14. （2008潍坊市高三第二次教学质量检测）

The man is on the edge of a serious nervous breakdown because he is unable to deal with pressure daily life.

15. （2002北京卷）

—What do you want those old boxes?

—To put things in when I move to the new flat. 16. （2003上海卷）

The conference has been held to discuss the effects of tourism the wildlife in the area.

17. （2011北京卷）

With new technology, pictures of underwater valleys can be take color.

18. (2009福建省厦门市高三一模)

The new tax policy only affects people on yearly incomes￥120, 000, in other words the very rich.

19. (2009重庆卷)

Try on this red skirt; you will look great it.

**Appendix C**

**访谈提纲**

1. 你对基于原型范畴理论和空间隐喻的英语介词教学方法有何看法？

2. 你是否能完全理解原型范畴理论和空间隐喻对五个介词各义项的解读？你会在学习其它介词时采用这种方法么？

3. 你认为上述教学方法有助于提高学生介词习得能力的原因有哪些？

4. 你对上述教学方法在提高学生英语介词的学习兴趣方面有何见解？