

# The Error Analysis of Chinese Students' Use of English Spatial Prepositions from the Cognitive Perspective

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## **Abstract**

The study analyzes errors in using spatial prepositions IN, ON, and AT by Chinese students. Mistakes related to the three prepositions in CLEC (Chinese Learner English Corpus) are screened out with the help of AntConc. After manual reexamination, 463 results are gotten. Through analysis, it's found that objects with different spatial dimensions between Chinese and English are often collocated with wrong prepositions. And the impact of spatial cognition can be extended to other domains like time, state, and so on. The study holds that negative spatial concept transfer plays an important role in the mistaken use of IN, ON, and AT.

**Key Words:** CLEC; error analysis; English spatial prepositions; spatial cognition

## 1. Introduction

Error is a good window to interlanguage. It can help teachers detect blanks in students' second language learning. Spatial preposition plays an important role in English. Learners need to command them. Through error analysis based on CLEC corpus, the study hopes to find systematic errors in using English spatial prepositions among Chinese students and explore the role of conceptual transfer in error-making. It's hoped that the findings can explain a more deep-rooted cause of the mistaken use of spatial prepositions by Chinese students.

## 2. Literature review

### 2.1 Error analysis and conceptual transfer

In 1967 Corder published the book *The Significance of Learner's Errors*. Corder argued that learners' errors reflect the language system that learners currently have. It can help to understand the language development of learners. Douglas roughly divides the causes of errors into three types: intralingual migration, interlingual migration, and other factors. Interlingual migration error is mainly caused by the negative transfer of the mother tongue and negative transfer is often due to differences between two languages.

Language is the carrier of thinking. Speakers of different language communities often have different thinking patterns. According to Slobin (1993), the unique worldview and way of thinking of mother tongue may affect the acquisition of another language. Language transfer is not only on the formal level but also about concepts and thinking (Wang Wenbin, 2019).

### 2.2 The semantic framework of IN, ON, and AT

Tyler and Evans (2003) proposed that all the meanings of spatial prepositions are systematic and orderly. The semantics of spatial prepositions present a radial network structure with location as the core and expanded through metaphors. Yang Qianhui (2007) summarize the usage of the prepositions IN, ON, and AT based on the BNC corpus. In addition to indicating spatial positions, they also projected into domains like time, action, abstract space, quantity, aspect, and state. Wang Yin(2001) put forward that AT, ON, and IN form a point-plane-solid system. The three prepositions respectively represent one-dimension space, two-dimension space, and three-dimension space.

## 3. Research purpose

The research is to find out how Chinese spatial concepts influence students' use of English spatial prepositions. It's hoped that the research can help teachers better understand Chinese students' difficulties in learning English prepositions and improve their methods in teaching English spatial prepositions.

## 4. Research design

### 4.1 Research questions

- (1) What features of errors present in the use of IN, ON, and AT?
- (2) What's the role of spatial concept transfer in the misuse of IN, ON, and AT?

## 4.2 Corpus

The research is based on CLEC. CLEC is a Chinese English learner corpus with 1070602 tokens. It is composed of Chinese EFL learners' English compositions, from senior high school students to English major students. 61 types of speech errors have been labeled in CLEC. The preposition errors are marked as [pp]. With the help of AntConc, the study collects all IN, ON, and AT tagged with [pp]. 517 results are gotten. Among them, some mistakes are not only about the use of prepositions. For example, the mistake "in future" is also about the use of article. The research only discusses the misuse of prepositions. So, mistakes like "on one hand", "in future", "in world" are all gotten rid of. After reexamination, 463 results are gotten.

## 4.3 Research instruments

### (1) AntConc

AntConc is employed in the research to find out all mistakes concerned with prepositions IN, ON, and AT. It is also used to collect collocates of the three prepositions in the corpus.

### (2) BCC

The research takes BCC modern Chinese corpus as the reference to check whether the misuse of prepositions by Chinese students is influenced by their mother tongue.

## 4.4 Research methods

The corpus-based approach is employed in the research. Corpus provides abundant real language resources. It helps researchers reveal reliable language phenomenon. The approach combines quantitative and qualitative analysis. Quantitative analysis is used to explore patterns behind mistakes. Qualitative analysis is to find the cause behind errors.

## 5. Results and discussion

### 5.1 Distribution of errors

Among all mistakes, 279 of them are related to IN. 111 are related to ON, and 78 are about AT. Referring to the Merriam-Webster dictionary and Yang Qianhui's research on the semantic framework of IN, ON, and AT, the study put errors into different domains. The main domains of errors are presented below.

**TABLE I: THE MAIN DOMAINS OF ERRORS AND THEIR NUMBER**

Separation of meaning		Number
Core meaning	Spatial positions	80
Metaphorical meaning	Time	93
	Idioms	74
	State	32

## 5.2 Collocate analysis

The use of spatial prepositions is critically decided by nouns follows behind. In spatial relations, the position of the target object is always determined by the reference object (Tmlay, 2000). As a result, to understand the errors of spatial prepositions, we need to put them into context. In this study, collocations of the three prepositions are paid particular attention. Collocates of the three prepositions are collected and analyzed.

The study collects both clusters and of In, On, and At. The six highest-ranked clusters are presented below.

**TABLE 2: FREQUENT CLUSTERS AMONG ERRORS**

Cluster	Number
In campus/ in the campus	23
In the other hand/ in other hand/ in one hand	19
In the earth/ in earth	19
In (this/that) day	11
In the same time/ in a long time	10
On my opinion	6

The core meaning of the three prepositions is to indicate spatial positions. IN, ON, and AT refer to the different spatial dimensions. They represent the point, plane, and solid respectively (Wang Yin, 2014). When people judge an item's spatial position, they always depend on a reference object (Tmlay, 2000). The dimension of the reference object directly influences the choice of spatial prepositions. However, spatial cognition is of subjectivity, which can result in a different understanding of spatial relations. The wrong phrase "in the campus" occurs 23 times. In Chinese, the corresponding phrase of "on the campus" is "zai xue xiao li", which can be literally translated into "in the campus". Usually, "in" is followed by something that we can get inside of, while "on" is followed by something with open spaces. In China, the university is always walled. It can be seen as a container and is collocated with "in" as a result. However, in the west, many universities do not have a wall. They can be seen as open spaces, a two-dimensional space. The different cognition of campus and different language usage are very likely leading to high-frequency of "in the campus".

Due to the different temporal cognition between Chinese and English, Chinese students often make mistakes when applying prepositions to the temporal domain. The typical mistake is wrong prepositions collocated with the word "day". "In this/that day" occurs 11 times in the corpus. Besides, the author searches all mistakes concerned with "day" in the corpus and gets 47 results. Parts of the results are presented below. In Chinese, "day", as a period, is seen as a container. "in the day" works while "on the day" is wrong. The author searches "\*tian li" in BCC, which means "on the day" in Chinese, and gets 2472 results. According to Huang Weidong(2007), there're many expressions in Chinese reflecting the concept that time is a container. Day, night, and year can all be followed by

locative “li”. In Chinese, “li” is used in the bounded three-dimension space. The Chinese cognition of temporal dimensions can well explain errors of “In+\*day”.

**TABLE 2: ERRORS IN THE TIME DOMAIN**

Preposition+*day	Number	Frequency
In+*day	34	0.72
On+*day	1	0.02
At+*day	12	0.25

**TABLE 3: SAMPLE OF ERRORS IN TIME DOMAIN**

Sample of errors in the time domain
In Friday
In New Year’s Day
In now days
On last Thursday
At Monday morning

In some set phrases, the meaning of In, On, and At are quite different from their original ones. When using these phrases, students may unconsciously refer to their mother tongue. Set phrases “on the one hand” and “on the other hand” are often mistakenly used according to the data. On is wrongly replaced by “in”. “One the hand” can be translated into “zai shou shang” in Chinese, while “in the hand” is “zai shou li”. By searching in BCC, it’s found that “zai shou li”(in the hand) has 37268 hits while “zai shou shang”(on the hand) only has 3123 hits. The number of “zai shou li”(in the hand) far outweigh “zai shou shang”(on the hand). The author compares the meaning of “hand” in Chinese and English by referring to Merriam-Webster dictionary and Modern Chinese Dictionary. In English, the meaning of ‘hand’ can be extended to “side, part, direction” and “power, control, possession”. In Chinese, ‘hand’ often used to express power or possession, but it cannot indicate direction or side. When “hand” is used to indicate the direction, it’s treated as a two-dimension space. When it’s to express the meaning of ‘possession’, it’s seen as a three-dimension space. By the comparison, we can conclude that in Chinese, “hand” is more likely to be treated as a container. The cognition influences the use of ‘hand’. Some Chinese students tend to use “in the one/other hand instead of “on the one/other hand”. Another example is “on my opinion”. The correct expression is supposed to be “in my opinion”. In Chinese, we seldom put spatial prepositions before words like opinion, view, idea. The author searched prepositions “shang”, “li”, “nei” collocate with “guan dian” in BCC corpus, the counterpart of “opinion” in Chinese. “shang” can be equal to “on” on spatial relation. “li” and “nei” correspond with “in”. There’re 390 results of “guan dian shang”, 17 results of “guan dian li” and none result of “guan dian nei”. It’s convincing that students who used “on my opinion” are influenced by their mother tongue. According to the Modern Chinese Dictionary, “opinion” is the position from

where you observe certain things. The position is more seen as an open space from where you can observe things from different perspectives.

Chinese students extremely like to use In to collocate with the state. Most mistakes concerned with the state are about the mistaken use of In. For example, the collocation “in speed” occurs several times. According to the Modern Chinese Dictionary, a consistent state is collocated with locative “zhong”, which indicates a three-dimensional space. The spatial concept of state is transferred to the use of English spatial prepositions. Among mistakes concerned with the state, an inclination of using In can be detected.

Through the discussion above, it can be found that spatial cognition not only takes effect in spatial domain, but also abstract domains. The use of IN, ON, and AT are all influenced by spatial concepts.

## **5. Conclusion**

The conceptual transfer of the mother tongue can help a lot to explain errors of spatial propositions. Different spatial cognition between two languages interferes the learning of spatial propositions. Chinese students are more inclined to make mistakes when an item has different spatial dimensions between two languages.

The finding can provide some suggestions in teaching Chinese students English spatial prepositions. First, teachers should not only pay attention to the meaning of the preposition itself but also pay attention to its spatial meaning given by the noun. Second, the comparative analysis of the English-Chinese spatial category is necessary for preposition teaching. Teachers should guide students to find similarities and differences of spatial concepts between two languages, to avoid the negative transfer of mother tongue.

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