

# A Study of L2 Learner's Knowledge of Metonymic Sense of "Hand"

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Based on a learner corpus Chinese Learner English Corpus (CLEC) and a native speaker corpus Freiburg Brown Corpus of American English (FROWN), this research investigates the differences between Chinese learners of English and English native speakers in their knowledge of the metonymic senses of human body word "hand". Two research questions are raised: (1) What are the features that distinguish Chinese English learners from English native speakers? (2) What are the rules in learners' learning of English metonymic senses? In order to answer these two questions, this paper has investigated the frequencies of the identified senses in two corpora of FROWN and CLEC, and the sequence of learning metonymic senses. The results show that Chinese learner's knowledge of metonymic senses of "hand" is restricted to fixed phrases, especially verb phrases. It is also found that in the process of English learning, learners do have some preferences for basic sense, and then they learn peripheral senses by reciting some fixed phrases.

*Keywords:* metonymic sense of "hand", FROWN, CLEC, type of sense, sequence

## Introduction

Polysemy, as an important language phenomenon, is believed to exist in every language. In linguistics, this category has been studied for many years from different perspectives especially from a perspective of semantics. In second language learning, polysemy is also of great significance, and it is also believed to be a problematic issue in learning a second language because the senses of a word can be highly influenced by natural environment, language background, culture, and human cognition. These differences between two languages can make it rather difficult for a second language learner to learn the senses of a word. With the purpose of investigating the knowledge of Chinese learners of English, this paper will mainly concentrate on the metonymic senses. It is believed that metonymy is a conceptual process in which one conceptual entity, the "target", is made mentally accessible by means of another conceptual entity, the "vehicle" (Panther & Radden, 1999). Metonymic senses, which are senses organized on the basis of the mechanism of metonymy, are highly related to human cognition and cultural background. Consequently, the way by which Chinese English as a Second Language (ESL) learner use metonymic senses can be largely different from the way of English native speakers. With the purpose of describing Chinese learners' knowledge of metonymic senses and to promote ESL education, this paper will investigate the difference between Chinese ESL learners and English native

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speakers in using metonymic senses. Furthermore, this paper will also explore the difference of learners on different levels in order to find the features in learning metonymic senses of "hand".

### **Literature Review**

According to cognitive linguistics, meanings are encyclopedic and prototypical. The senses of a polysemous word can form a radial network, which are organized in relation to a prototype located in the centre of the network. These senses are connected and combined in a radial network. Many researchers (Lakoff & Johnson, 1980; Lakoff, 1987; Taylor, 1989; Langacker, 2000) argue that in terms of polysemy, there is a distinction between the prototypical sense and the peripheral senses. The peripheral senses are generated by cognitive mechanisms such as metaphor and metonymy. This assumption is widely spread and has been employed by many researchers in order to find how senses of a word are formed. However, in the field of second language learning, this assumption is not as popular as in other fields. Researchers (Boers, 2000; Csábi, 2004; Kondaiah, 2004) prefer to prove the effectiveness of metaphor and metonymy in vocabulary teaching by the way of an experiment study. With the development of learners' corpus, some researchers began to look into learners' use of different senses based on learners' corpus. With evidence from the corpus, some researchers (Zhang, 2012; Cheng & Li, 2016; Chen, 2017) hold that by explaining how senses are developed with the help of metaphor and metonymy, learners' lexical knowledge can be largely improved. There are also studies that focus on the comparison between ESL learners and native speakers. By comparing the use of certain words in different corpora, these researchers (Miao, 2015; Shi & Tang, 2018) find that there are big differences between native speakers and ESL learners in their preference of word senses. In 2018, Shi and Tang examined the use of metaphorical senses of human body terms on the basis of two corpora: International Corpus of Learner English (ICLE) and Louvain Corpus of Native English Essays (LOCNESS). The results show that Chinese learners produce fewer metaphoric and metonymic senses than native speakers and are inadequate in producing the low frequency metaphoric senses. However, these researches can be further improved. Previous researches are mainly concerned with metaphoric senses because metaphor is very productive in the formation of word senses. As a result, metonymic senses are ignored by many researchers although metonymy is believed to be more fundamental than metaphor. In terms of research method, the previous researches tend to be introspective but the data from corpora are needed. From the perspective of research purpose, previous researches are more interested in the effectiveness of metonymy in language learning and its explanatory power in the phenomenon of polysemy. Therefore, this paper is designed to compare the use of metonymic senses of hand between Chinese ESL learners and English native speakers.

### **Research Design**

This study is designed to find the difference concerning knowledge of metonymic senses between Chinese ESL learners and English native speakers. In this paper, the human body term "hand" is chosen as the target word in order to look into some details in Chinese learners' knowledge of this word. This research attempts to answer two questions. First, what are the features that characterize Chinese ESL learners' use of metonymic senses? Second, are there any patterns or rules in Chinese learners' learning of these senses? In order to answer these two questions, two corpora are employed in this research: Chinese Learner English Corpus (CLEC) and Freiburg Brown Corpus of American English (FROWN). CLEC is the first Chinese English learner corpus in China, including 1,070,602 words, which is composed of English writings by English learners from high

schools to universities. FROWN is the corpus for English native speakers, and it includes 1,027,323 words, which is very similar to the amount of CLEC. This research will firstly examine the senses of the target word "hand" with the help of dictionaries and then determine the senses that are generated through metonymy. Secondly, the target word will be searched in two corpora by using Word Smith and then produce an index. The target words that occur in these two corpora will be analyzed to determine its senses and the results will be shown in terms of frequency. Thirdly, the metonymic senses used by Chinese English learners at different levels will be compared in order to explore whether there are rules in their learning of metonymic senses.

### Research Results

In this research, the target word "hand" is searched in dictionaries including the Oxford English Dictionary and the Collins Dictionary. Senses of the target word are analyzed, and finally 25 senses have been identified. In the process of identifying metonymic senses, previous researches and the definition of metonymy are employed to serve as the references. According to Wang (2007), metonymy is a cognitive process which reveals the relation between "the part" and "the whole". It means that people can understand or refer to one thing with only part of it. For example, the phrase "Uncle Tom" can be used to refer to all those black people who resign themselves to the white. The above 25 senses of "hand" are analyzed separately, and nine senses can be recognized as the metonymic senses. These senses can be shown in Table 1.

Table 1

*Metonymic Senses of "Hand"*

Hand	1.	Basic sense: part of human body at the end of the arm
	2.	Human (e.g. fall into the wrong hand)
	3.	Submit (e.g. hand in )
	4.	Assistance, help (e.g. give me a hand)
	5.	To transfer, to give (e.g. hand it to)
	6.	Be responsible for, in charge (e.g. in the hand of)
	7.	Clapping (e.g. give them a big hand)
	8.	First hand, second hand (e.g. second hand book)
	9.	Nearby, be close to (e.g. at hand)
	10.	Moral (e.g. dirty one's hand)

From this table, it can be found that the senses of "hand" are very similar to the corresponding Chinese expressions, and most metonymic senses can also be found in Chinese. These similarities make it possible for Chinese learners to learn the knowledge of this word. However, there are also some metonymic senses that cannot be found in Chinese, such as Sense 5, Sense 7, and Sense 9. Consequently, these senses may be not widely used in Chinese learners' English writings.

#### Metonymic Senses of "Hand" in Corpora

The target word is then searched in two corpora FROWN and CLEC. In FROWN, this word occurs for 403 times while it is used for 755 times in CLEC. The results also show that metonymic use of "hand" by English native speakers is 44 times while the metonymic use of "hand" by Chinese English learners is 42 times. The following table can show the frequency of metonymic senses.

Table 2

*The Frequency of Metonymic Senses*

Word	Sense	FROWN		CLEC	
		Frequency	Standardized frequency	Frequency	Standardized frequency
Hand	2	12	1.19	4	0.37
	3	3	0.29	7	0.65
	4	3	0.29	10	0.93
	5	3	0.29	4	0.37
	6	12	1.19	6	0.56
	7	1	0.1	0	0
	8	5	0.49	20	1.87
	9	9	0.88	2	0.19
	10	1	0.1	0	0
	Total	49	4.77	53	4.95

This table shows the difference of using the human-body word "hand" between English native speakers and Chinese English learners. Column 3 and Column 5 show the frequency of the metonymic senses of "hand" in these two corpora. These numbers are then standardized in order to reduce the influence of the data source and keep the stability and scientific nature of this research. The numbers of Column 4 and Column 6 represent the rate of the target word per 100,000 words. From this table, it can be found that people from different language backgrounds are largely different in their knowledge of "hand". Firstly, it is apparent that Chinese English learners use more metonymic senses than English native speakers. In terms of the frequency, native speakers use metonymic senses for 49 times while the corresponding number is 53 times for Chinese English learners. The total of standardized frequency of English native speakers is 4.77, and this corresponding number is 4.85 for Chinese English learners. However, Chinese English learners are limited in the variety of metonymic senses of "hand". In terms of type, all the above senses are used by native English speakers while two senses are never used in CLEC; they are Sense 7 and Sense 10. This difference shows that Chinese English learners are relatively limited in learning the varied senses of a polysemous word. It is found that Chinese English learners tend to ignore the peripheral senses of a polysemous word. Secondly, although the total frequencies of Chinese English learners' use of metonymic senses are far below than that of English native speakers, the frequencies of each sense are varied. For example, in terms of Senses 2, 6, 7, 9, 10, the frequencies of English native speakers are higher. However, this is different for other senses. It shows that Chinese English learners tend to have higher frequency than English native speakers when encountering Senses 3, 4, 5, and 8. These senses are mostly realized by some fixed phrases such as "to give a hand", "first hand", and "second hand". This tendency may be caused by the user's cultural background and the traditional education preference. It is known that in China, traditional English classes tend to focus on the memorization of fixed phrases by asking the learners to recite these formulaic expressions. It's true that such a method can improve the learners' production of a foreign language. On the other hand, cultural background is also accountable to this preference. All of these metonymic senses that are widely employed by Chinese English learners have corresponding expressions in Chinese. While learning these senses, positive transfer from their mother tongue may occur and consequently promote their language learning. On the contrary, most metonymic senses that are used more by English native speakers do not have similar senses in Chinese. Therefore, positive transfer is found to be at work in learning metonymic senses of "hand" for Chinese English learners.

### The Sequence of Learning Metonymic Senses

In order to give a detailed description of English learning of Chinese English learners, this research further examines Chinese learners' knowledge of the metonymic senses of "hand" on the basis of the CLEC. CLEC, as what has been mentioned above, is a learner corpus which consists of writings by Chinese English learners on five stages: ST2 (high school), ST3 (students with CET4), ST4 (students with CET6), ST5 (English majors from junior grades), and ST6 (English majors from senior grades). In this research, the writings of above five stages are compared in order to find the differences among learners of different levels, thus identifying the sequence of Chinese English learners' learning of metonymic senses of "hand". Similar to the comparison between FROWN and CLEC, the target word "hand" is searched in five corpora, and the results are shown in the following table.

Table 3

*The Frequency of Senses of "Hand" by Learners on Five Levels*

Word	Sense	ST2	ST3	ST4	ST5	ST6
Hand	2			1	1	2
	3	3	2	1	1	
	4			2	3	5
	5		1		1	2
	6				2	4
	7					
	8		3		14	3
	9				2	
	10					
Total		3	6	4	24	16

From Table 3, it can be observed that Chinese English learners' knowledge of metonymic senses has undergone an overall sustaining increase in both amount and type. In ST2 corpus, learners' knowledge of "hand" is limited to its basic sense. It can also be found that most learners of ST2 use this word in the form of "on the one hand, on the other hand" or to refer to the part of human body. However, metonymic knowledge of "hand" is improved for university students. Senses that can be observed in ST3 corpus rose to three which suggests that learners began to use more metonymic senses in their writings. However, this number is reduced in the ST4 corpus as Sense 8 disappears. This disappearance is probably due to the difference of writing topics. ST3 corpus is constructed on the basis of College English Test Band 4 (CET4) writings while ST4 corpus consists of university students' College English Test Band 6 (CET6) writings. What's more, the metonymic Sense 8 which occurs for three times in ST2 corpus is all related to "second-hand smoke", suggesting that the occurrence of Sense 8 is determined by the topic of this composition. In terms of ST5 and ST6 stages, which represent English majors of different grades, an obvious increase in the use of metonymic senses can be observed. This great disparity, on the one hand, suggests the effectiveness of English major's language development. On the other hand, it also reflects the deficiency of non-English major students' language development. From what has been shown in Table 2, it can be observed that Chinese learners of English tend to overuse Sense 8 (second hand) since the frequency is five in FROWN and it increases to 20 in CLEC. This overuse can also be found in ST5 corpus. When it comes to ST6 corpus, the situation is to some extent improved. Chinese English learners' use of the various metonymic senses is comparatively balanced and

similar to the use of native English speakers. It can be discovered that the learners tend to learn metonymic senses that are conveyed by fixed verb phrases such as "hand in" and "hand to". After learning these fixed phrases, Chinese English learners will learn more senses that "hand" plays the role of noun, such as Sense 2, Sense 4, and Sense 6, in which "hand" means "human", "assistance", and "responsibility" respectively.

### Discussion

In this study we have explored the frequency of metonymic senses of "hand" in CLEC and FROWN. Our findings reveal that Chinese learners of English are relatively limited in the variety of metonymic sense of "hand", which is in accordance to previous researches. As discovered in previous research, Chinese learners of English use fewer types of metaphorical and metonymic senses (Shi & Tang, 2018). Some senses that are widely used by English native speakers have never been used by Chinese English learners. This finding makes it necessary for Chinese English learners to focus on the peripheral senses of "hand" in their English learning. However, there is an unexpected finding which suggests that Chinese learners of English outnumber English native speakers in terms of the amount of sense. Nevertheless, this difference might be influenced by two factors. Firstly, this difference may be resulted from the corpus. CLEC is mostly composed of Chinese English learners' writings in formal examinations such as CET4 and CET6. In such examinations, the learners' choices of phrases are largely affected by the theme of composition. And this influence is also reflected in the corpus since most learners' use of "first hand" or "second hand" is connected to "second-hand smoking". This situation seems to suggest that Chinese English learners' overuse of Sense 8 in CLEC may be caused by the source of corpus. Secondly, this result may suggest that Chinese English learners overuse some senses such as "first hand" and "second hand", which can also be found in Chinese. This similarity between two languages may promote a negative transfer from Chinese to English. It shows that Chinese English learners' knowledge of the target language can be influenced by their knowledge of mother tongue. This research also suggests a fossilization in learners' knowledge of metonymic senses of "hand". As is shown in Table 3, the learners' knowledge of metonymic senses continues to improve from ST2 to ST5, and seems to be fossilized at the stage of ST6. What's more, the table shows that there is a large difference between ST4 and ST5, which can reflect the difference in language development between English majors and non-English majors. However, further researches involving different techniques or corpora may be necessary to validate our findings.

### Conclusion

This research investigates the use of metonymic senses of "hand" by different groups: Chinese English learners at different levels and English native speakers. With this purpose, two corpora are employed: FROWN and CLEC, for which FROWN serves as the reference corpus. By comparing the distribution of these senses, this research finds a gap between Chinese English learners and English native speakers in their knowledge of metonymic senses. Chinese English learners' knowledge of metonymic senses is relatively limited in terms of its type, and it is restricted to some fixed phrases. Language transfer is found to be at work in using metonymic senses of "hand". The metonymic sense which has a counterpart in Chinese is frequently used, even overused by Chinese English learners. The metonymic sense which has no counterpart in Chinese is rarely used, even never used by Chinese English learners. Chinese English learners do have some preferences for basic sense, and then they learn peripheral senses by reciting some fixed phrases. In order to have a better understanding of Chinese English learners' use of metonymic senses, this research also explores how metonymic senses of "hand"

are used by the learners on different English levels. The results suggest that Chinese English learners' ability to use metonymic senses is first improved and then is fossilized with the enhancement of their English levels. Our findings also suggest a wide gap in using metonymic senses of "hand" between English majors and non-English majors. However, the Chinese English learners corpus employed in this research is confined to formal English compositions of CET 4 and CET 6, which may influence the learners' use of metonymic senses of "hand". Our findings need more evidence from further studies on the use of metonymic sense of a polysemous word.

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