

Article

# Acquisition of Cognitive Properties of Animal Cultural Words Based on Learners' Understanding and Output Performance

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**Abstract:** The mastery of the cultural connotation behind the language is one of the important criteria to measure the learners' language acquisition. The Cognitive property of words involves the cultural connotation behind the language, so it is necessary to apply the Cognitive property of words to the international Chinese education. This paper takes Chinese learners in Southeast Asian countries as the research object, and explores the Cognitive Properties of words from two aspects of learners' understanding and output. With the help of the corpus and the questionnaire survey method, it was found that Chinese learners have good understanding performance but poor output performance. The reasons are analyzed from the perspectives of mother tongue background, learning process and output environment, and put forward on teaching materials, teaching content and learning effect evaluation of Chinese teaching, in order to provide new ideas for the long-term development of international Chinese education.

**Keywords:** understanding; output; cognitive property; acquisition

## 1. Introduction

The Cognitive property of words refers to the various properties of language users' cognitive experience of the concepts or entities represented by words condensed into the meaning of words (Li&Chen&Chen, 2012)<sup>1</sup>. For example, the Cognitive Properties of "pig" are "stupid, stupid, honest, happy", the Cognitive Properties of "city" are "beautiful, neat and convenient", and the Cognitive Properties of "flower" are "beautiful, charming and brilliant".

Looking at the existing word cognitive attribute research topics roughly have four directions. The first is to study existing language theories and concepts from the perspective of cognitive attributes of words, such as archetypal theory and metaphor (Li&Song&Yin&Qu&Wang, 2016). The second is to study the differences of specific words in modern Chinese from the perspective of cognitive attributes of words, such as unquantitative quantifiers "stars and points" (Cao Yinghao, 2016). The third is to compare and analyze the cognitive attributes of the words of the two languages, such as the comparison of the animal words of Han and Yue (Zhao&Guo&Zhao, 2018). The fourth is to study the collocation of words from the perspective of cognitive attributes of words, such as the structure of deputy name ((Li&Ma&Liu&Tang, 2014)). At present, the academic community tends to combine the cognitive attribute of words with the interpretation and collocation of words. More attention is paid to the research between the cognitive attributes of words and the word ontology, but less attention is paid to the teaching of words, and even

Published: 14 November 2024



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<sup>1</sup> Li Bin, Chen Jiajun, Chen Xiaohe. Internet-based acquisition and analysis of Chinese cognitive attributes [J]. Language application, 2012, (3): 134-143.

less research combines the cognitive attributes of words with vocabulary acquisition in international Chinese education.

The purpose of international Chinese education is to cultivate the learners' ability to communicate Chinese, so the learners' mastery of the daily perception of word will affects the effect of their daily speech communication. Therefore, mastering the Cognitive Properties of words in Chinese culture and daily communication can help Chinese learners to understand the subtle semantics of cultural words in various contexts. When needed, learners can choose appropriate cultural words to accurately express their ideas and make their language appropriate and authentic, which is an important standard to measure the learning effect of Chinese learners. Through the study of the cognitive acquisition characteristics of Chinese animal words, this study provides new ideas and new directions for international Chinese education and teaching.

## 2. Range of Study

### 2.1. Cognitive Property Range

Animals and human beings are closely related, and the Cognitive Properties of animal words are also rich. In Chinese, the Cognitive Properties of animal words are expressed in Chinese. Compared with other cultural words, the Cognitive Properties of animal cultural words are closer to the communication of daily life, so the Cognitive Properties of animal cultural words are selected as the object of investigation.

In this study, author selected five simple and frequent animal culture words in Chinese: "Pig", "Tiger", "Wolf", "Dog" and "Cow".

Based on the "Chinese Cognitive Property Database"<sup>2</sup>, the Cognitive Properties of five animal cultural words were found, which stipulated that the Cognitive property of  $f^3 \geq 10$  was high frequency property, the Cognitive property of  $5 \leq f < 10$  was medium frequency property, and the Cognitive property of  $f < 5$  was low frequency property, forming a hierarchical table of Cognitive Properties<sup>4</sup>.

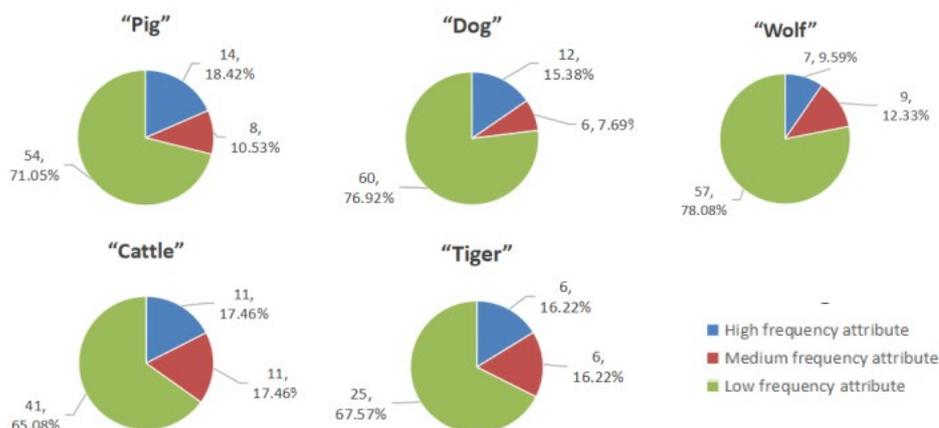


Figure 1. Cognitive property ratio.

The Cognitive property with the largest number of the five animal cultural words was low frequency. The second largest Cognitive Properties of "pig" and "dog" are the high frequency propertys, while the "tiger" and "cow" Cognitive Properties have the same

<sup>2</sup> The Chinese cognitive attribute knowledge base retrieval system Ver1.0 [EB/OL]. www.cognitivebase.com/

<sup>3</sup> "F" is short for "Frequency", meaning "frequency", here using "f" to represent the frequency at which the cognitive attribute of the word appears.

<sup>4</sup> Opening the <https://kdocs.cn/l/cewYk5yrMM2G> link to view the full Cognitive Properties Hierarchy Table file.

number of high frequency propertyts and intermediate frequency propertyts. The frequency and number of Cognitive Properties of "wolves" are inversely proportional, and the number of high-frequency propertyts is the lowest.

## 2.2. Scope of Study Subjects

The subjects of this study are Chinese learners from Southeast Asian countries with middle and advanced Chinese proficiency. Southeast Asian countries are selected because the learners in this region have certain commonness in subject culture, and their grasp of the Cognitive Properties of animal cultural words is influenced by the same or similar cultural elements; secondly, according to the difficulty of animal cultural words and the difficulty of understanding, which is more suitable for middle and senior Chinese learners.

## 3. Methodology

### 3.1. Understanding

#### 3.1.1. Data Collection

This part mainly uses the questionnaire test to investigate the learners' Cognitive Properties of "pig", "tiger", "Wolf", "dog" and "cow". The subjects of this survey are 24 Chinese learners from Southeast Asian countries with advanced Chinese proficiency.

According to the hierarchical table of Cognitive Properties of animal words, three propertyts were selected from low frequency property, medium frequency property and high frequency property. According to the selected Cognitive Properties, the sentences suitable for the use of the Cognitive Properties are designed, and taken as the topic, presented in the format of single choice questions, and set the interference items. The test object is required to select the correct Cognitive Properties of the word in a specific context.

#### 3.1.2. Data Analysis

All data were statistically and analyzed using Excel, yielding results.

Data entry was performed using Excel 2003 software, and the content of each questionnaire was checked three times to ensure that the data were true and effective. Numerical variables analyze the data according to the data distribution characteristics, and the data are presented in the form of a table.

### 3.2. Outputing

#### 3.2.1. Data Collection

Combined with the corpus of "Global Chinese Intermediary Corpus"<sup>5</sup> and "HSK Dynamic Composition Corpus"<sup>6</sup>, the output of Chinese learners in middle and advanced Southeast Asian countries in the Cognitive property of animal cultural words is calculated.

#### 3.2.2. Data Analysis

First of all, choose the "Global Chinese Intermediary Corpus" in the mediation language corpus (all), retrieve five animal words, in the Chinese level options, select the corpus after download input Excel form, select nationality for the corpus of southeast Asian countries, delete because of misuse and use of wrong words and retrieved sentences.

Secondly, choose the corpus in "HSK Dynamic Composition Corpus", using string general retrieval, retrieve five animal words respectively, selected in the Chinese level selection options, download the retrieval results after import Excel form, then screen the learners for southeast Asian countries, delete because of misuse and use of wrong words and retrieved sentences.

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<sup>5</sup> <http://qqk.blcu.edu.cn/>

<sup>6</sup> <http://hsk.blcu.edu.cn/>

According to the previous Cognitive property hierarchy table compiled in combination with the "Chinese Cognitive Property Database", the Cognitive Properties of the words used by learners in their specific context are marked one by one. After the annotation, the visual data is summarized in a form. Taking the Cognitive property system of Chinese native speakers as a reference, the productive knowledge of Cognitive property has been mastered and which has not been mastered. Finally, the data confluence of the two corpora is collated into a Excel table.

#### 4. Findings

##### 4.1. Understanding

**Table 1.** The accuracy rate of understanding test.

Animal words	Frequency	Average accuracy	Total average accuracy
Pig	High frequency	90.28%	85.65%
	Medium frequency	79.17%	
	Low frequency	87.50%	
Tiger	High frequency	68.06%	69.91%
	Medium frequency	72.22%	
	Low frequency	69.44%	
Wolf	High frequency	73.61%	80.91%
	Medium frequency	86.11%	
	Low frequency	83.00%	
Dog	High frequency	77.78%	72.69%
	Medium frequency	63.89%	
	Low frequency	76.39%	
Cattle	High frequency	73.61%	84.37%
	Medium frequency	62.50%	
	Low frequency	83.34%	

In terms of frequency comparison, Chinese learners' understanding and understanding of the Cognitive Properties of animal cultural words are not positively correlated with the occurrence frequency of Cognitive Properties. Among them, "pig" and "dog" performance situation are the average accuracy of high frequency property > the average accuracy of middle frequency property of low frequency property. "Tiger" and "Wolf" show the average accuracy of middle frequency property > low frequency property and the average accuracy of high frequency property. "Niu" shows the average accuracy of the low frequency property > the average accuracy of the high frequency property > the average accuracy of the intermediate frequency property.

In terms of overall accuracy, "pig" had the highest cognitive test test, followed by "cow", "Wolf" and "dog", while "tiger" had the lowest cognitive test, only 69.91%.

##### 4.2. Outputting

**Table 2.** The proportion of output.

Animal words	Meaning	Number of Times	Proportion
Pig	Original meaning	21	87.50%
	Cognitive Properties	3	12.50%
Tiger	Original meaning	10	100%
	Cognitive Properties	0	0
Wolf	Original meaning	106	100%
	Cognitive Properties	0	0
Dog	Original meaning	48	96.00%
	Cognitive Properties	2	4.00%
Cattle	Original meaning	11	91.70%
	Cognitive Properties	1	8.30%

Learners tend to use the words "tiger" and "Wolf", with poor performance of Cognitive Properties and utilization rate of 0. Among the animal cultural words with Cognitive Properties, "pig" has the best output, with the Cognitive Properties of high frequency, followed by "cow" and "dog".

**Table 3.** The Cognitive Properties of output.

Animal words	Cognitive Properties	Chinese level
Pig	To apply the Cognitive Properties of the "fox"	Medium
	Fat	Did not attend
	Lazy	Medium
Dog	Useless / Idle work	Medium
	Void value	Did not attend
	Stupid	Elementary <sup>7</sup>
Cattle	Do everything uncomplainingly	Elementary
	Do everything uncomplainingly	Elementary
	Do everything uncomplainingly	Did not attend

The Chinese level of the output is not concentrated at the advanced level, which is wrong with the impression that the higher the Chinese level, the more likely it is to produce the Cognitive Properties of words. It can be said that the output quantity of the Cognitive property of words is not related to the learners' Chinese level, or there is no absolute positive or negative correlation between the output of the Cognitive property of words and the learners' Chinese level.

## 5. Discussion

### 5.1. Cognitive Properties and Chinese Language Teaching

Mastery in listening, speaking, reading and writing may just be the beginning of learning a language well, and the culture represented by a language represents the soul of a language. Only by understanding and mastering the social and cultural connotation behind the language can learners make themselves communicate naturally in the destination language environment.

The Cognitive property of words is the linguistic expression of people's cognition of things under a culture, so the Cognitive property of words helps Chinese learners to learn the cultural cognitive meaning of Chinese words. Chinese learners can grasp the cultural significance of Chinese words and help Chinese learners to make authentic and appropriate Chinese expression.

### 5.2. Acquisition Characteristics

#### 5.2.1. Understanding

Language learning has two stages: input and output. When learning a language, understanding is the premise of output, and the output can only be effectively understood. From the understanding of learners, we can see that they have mastered the content, and we can see whether Chinese learners have laid a good foundation in the input stage of language learning.

From the perspective of the understanding of each animal word, although Chinese learners have different Cognitive Properties of the five animal cultural words, there is no positive or negative relationship with the use frequency of mother speakers. The frequency of use of Cognitive Properties by mother speakers is the basis for us to predict and evaluate learners' Cognitive Properties of words. For example, Chinese native speakers

<sup>7</sup> Due to the situation that the Chinese level is low but the cognitive attribute is used, and this situation has certain enlightenment on the research, the corpus of the low level learners in the output of "cow" cognitive attribute is also included in the table.

often use Cognitive Properties that are generally familiar with the public, that is, the high-frequency properties defined in this study. Chinese learners should understand more, and Chinese teaching should be more inclined to introduce and explain these Cognitive Properties. Because this is a Cognitive property they often encounter when using Chinese, but the actual performance of the comprehension test is not consistent with the prediction. Therefore, it is speculated that Chinese learners have not been exposed to the systematic learning of the Cognitive Properties of words, and naturally have deviations in the Cognitive Properties of different frequencies in terms of understanding, so they do not show the positive correlation trend of expected assumptions.

On the whole, the total average accuracy rate of the Cognitive property comprehension test is more than 65%, which can be seen that learners in Southeast Asian countries understand the Cognitive property of common animal cultural words well, which belongs to the average level. Chinese learners in Southeast Asian countries are easy to accept and understand the Cognitive Properties commonly used by native speakers, and do not reject the Cognitive Properties given by Chinese native speakers in animal cultural words.

### 5.2.2. Outputting

The output of Cognitive property, namely the output stage, is the stage of examining whether the learner masters and uses Chinese thoroughly.

From the perspective of the proportion of Cognitive property output, Chinese learners in Southeast Asian countries are accustomed to using the original meaning of animal words in their output, but rarely use the Cognitive property of animal words. It can be seen that Chinese learners are more inclined to use these words as simple animal words, without realizing that there are extensive Cognitive Properties behind these animal cultural words. This shows that even Chinese learners whose native language culture is close to Chinese culture are relatively poor in the output of the Cognitive property of Chinese animal cultural words, and learners rarely actively use the Cognitive property of words in the output.

From the perspective of Cognitive property output form, although metaphors, metaphors and fixed animal words all appear in the output form of learners, metaphors and metaphor sentences are the main ones. Therefore, Chinese learners tend to use iconic and fixed format sentences such as explicit metaphors and metaphors. Because the Cognitive Properties of animal words used in these sentences are more inclined to the cognition of animals themselves, it is the cognition generated by people's intuitive feeling of animals and the contact with daily life. However, the Cognitive Properties contained in the fixed animal words are more obscure, with the cultural connotation and cognitive perspective of the Chinese people, such as short-sighted mice. Chinese learners may not have been exposed to these Cognitive Properties, or they are contrary to the Cognitive Properties endowed by their native language culture, so there is no way to produce and skillfully use them as naturally as the Cognitive Properties in metaphors and metaphors.

From the perspective of the Chinese level of the Cognitive property output, Chinese learners in Southeast Asian countries have no direct correlation with the Chinese level of the Cognitive property of animal words, and the use of the Cognitive property of words is more related to communication situations and expression needs to a greater extent. The Cognitive Properties of the five animal words did not have learners with high Chinese level. Even in the previous data combing, it was found that many learners with low Chinese level used the Cognitive Properties of animal words.

### 5.3. Influencing Factors

First, there are differences in the cultural background. The Cognitive Properties of words have obvious national characteristics, which reflect the content and emotion of the daily perception level of Chinese native speakers. Although the cultural background of Chinese learners in Southeast Asian countries is close to that of Chinese, there are still

differences. The differences in cultural background lead to the cognitive deviation of the Cognitive Properties of animal words. Chinese learners have a good understanding of the Cognitive Properties associated by animals themselves, which belongs to the general sense and is easy to produce. However, it will be difficult to understand the Cognitive property of Chinese homophonic association and that with strong national characteristics, let alone produce it.

Secondly, when learning, I are only exposed to the original meaning, but the learning of Cognitive Properties of words. At present, whether in the classroom or in the textbook, teachers are more about teaching the linguistic meaning of words, and the textbook is also more about presenting the linguistic meaning of words. These linguistic meanings are the original meaning of words that can be found by students by consulting the dictionary, but the Cognitive Properties of words are not mentioned in the dictionary, but learners will encounter in the Chinese context. Therefore, the phenomenon of good understanding but poor output may be related to the lack of Cognitive Properties of words in Chinese learning. Learners can guess the Cognitive Properties of words with their own experience in Chinese, so they perform better in the comprehension test. However, because they have not systematically learned the Cognitive Properties of words, many Chinese learners do not know that Chinese animal words can be expressed in this way, so they rarely use the Cognitive Properties of words to express them when producing Chinese words.

Finally, the limitation of output conditions. Chinese learners do well in the understanding of the Cognitive Properties of animal words, but the output of the Cognitive Properties of animal words is not good, which is also limited by the output conditions to some extent. Because most of the collected corpus are composition corpus, Chinese learners may be limited by the time of proposition composition and writing, and lack the natural and random expression of daily expression, which affects the output of Cognitive Properties of words. At the same time, learners with low Chinese level produce Cognitive Properties of words, which may also be the product under the influence of output conditions. The output environment affects learners' use of Cognitive Properties of words when choosing words and sentences.

## 6. Conclusion

The concept of Cognitive property of words provides new ideas and content for international Chinese education. The study on the acquisition of Cognitive Properties of words is based on the discussion in the cultural sense, but it should not stick to this point. Instead, we should focus on the application and the importance of Cognitive Properties of words to Chinese learners to export Chinese, which is an inevitable content of international Chinese education. This study explores Chinese learners' understanding and output of common Chinese animal words in Southeast Asian countries. In terms of understanding, the context was set, and the data of Chinese learners were calculated by online questionnaire test. In terms of output, the "HSK Dynamic Composition Corpus" and "the" global intermediary corpus ". Finally, combined with these two aspects, it is found that learners have good performance in understanding but poor output. Based on the results, we put forward the reasons of cultural background difference, the failure of the content and the limitation of output conditions, and put forward suggestions on teaching materials, teaching content and learning effect detection. It is hoped to provide a variety of effective ideas and methods for the vocabulary teaching in the middle and high stages of international Chinese education, so that Chinese learners can reduce misunderstanding in communicative use and express Chinese more authentic.

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