Application of Cognitive Linguistics Theory in Deep Neural Network Computer Aided Analysis of Vocabulary Knowledge in Higher Vocational Colleges

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Abstract—With the continuous reform and in-depth development of my country's education system, more emphasis has been placed on the cultivation of students' comprehensive English ability, especially in higher vocational English education. Professional and targeted. This paper discusses how college teachers use the relevant theories of the language cognition school, namely, 'prototype category theory', 'conceptual metaphor theory' and 'conceptual integration theory' to teach higher vocational English vocabulary listening, speaking, reading, and writing, and propose specific applications. In order to promote the effective extension and innovation of English vocabulary learning and enhance the effectiveness of vocabulary teaching.

Keywords—Cognitive Linguistics Theory, Deep Neural Network, Vocabulary Knowledge, Higher Vocational Colleges

I. INTRODUCTION

Under the background of the continuous reform of the education system and the changing social development situation, the status of listening and speaking teaching in higher vocational English teaching has been raised to a corresponding height [1], and it has been re-examined and paid attention to. The development time of English education in my country is relatively long, and students have already started to receive English [2] training from kindergarten. However, looking at the overall English education, the output value of students' listening and speaking ability is not optimistic, it has not achieved the expected effect, and it is not in line with modern society [3]. The basic demand for English majors is more obvious in the students of higher vocational colleges [4].

The main reason is that in the continuous development of higher vocational colleges, the policy of expanding enrollment has resulted in an influx of students with far different qualities and abilities [5] in a short period of time. These students have a large gap in their English proficiency. Lack of listening and speaking ability greatly increases the pressure and difficulty of English teaching [6] in higher vocational colleges, and brings unprecedented challenges to English teachers, which not only limits students' English ability, but also affects the development of teaching careers. In recent years, higher vocational education [8], as a form of higher education characterized by emphasizing the practicality of knowledge, has been vigorously developed under the strong support of national policies [9]. Vocational college students with both professional knowledge and practical skills have gradually become an active part of the job market. Especially in recent years, in order to adapt [10] to the rapid development of economic globalization, the job market has put forward higher and higher requirements for the English ability of vocational students [11].

Therefore, higher vocational colleges also gradually pay attention to the cultivation of students' English ability. English ability includes five basic skills of "listening, speaking, reading [12], writing, and translation", and English teaching is mostly carried out around these five abilities, as is the case in higher vocational colleges. However, among these five basic skills [13], the cultivation of English writing ability of vocational college students has not been paid enough attention. According to the training requirements of higher vocational students [14], their English writing should pay more attention to communicativeness and practicality. The content of writing is mostly invitations, notices, leave notes, notes and personal letters [15]. And these articles used to convey information, solve practical problems, and deal with personal affairs can also be called "applied articles". Cultivating students' language ability can improve students' English communication ability. Therefore [16], vocabulary teaching is an important part of English teaching, and vocabulary knowledge is also a key point of language ability. The development of cognitive linguistics has [17] put forward a new perspective and direction for vocabulary teaching, which has had an extremely important impact on English vocabulary learning, and has given new theoretical support and inspiration to English teaching [18].

In English vocabulary learning, the application of cognitive linguistics to seek the cognitive methods behind language facts [19], and to provide a unified interpretation of English language through cognitive methods and structures, is a new development trend in English language research. With the rapid development [20] of modern social economy and science and technology, English vocabulary is updated rapidly, and most new words are [21] given new meanings on this basis. Therefore, the application of cognitive linguistics theory in the deep learning of English vocabulary can make Students have a deep understanding of [22] English vocabulary content and master the key content in English vocabulary learning. Olter proposed the Depth of Individual Word Knowledge Model (hereinafter referred to [23] as the DIWK model), in an attempt to explain the essence and process of second language vocabulary acquisition through the study of the state of D theory vocabulary. This not only [24] expands the theoretical research horizon of vocabulary acquisition from the perspective of cognitive psychology, but also has certain guiding significance for vocabulary learning and teaching. This paper attempts to use the relevant theories of cognitive linguistics to propose a method for in-depth processing of the semantics of words. In this regard, higher vocational colleges should pay full attention to this undesirable phenomenon.

II. THE PROPOSED METHODOLOGY

A. Cognitive Linguistics Theory

This is the basic application principle of cognitive linguistics theory in English listening and speaking teaching. This principle emphasizes the in-depth study of "teaching" in teaching, while "learning" comes from the specific performance of students and their different levels of learning. Psychological changes. The people-oriented principle emphasizes that teachers should actively help students build self-confidence in learning, fully tap students' inner potential, teach students learning skills, and enable students to become
major practitioners, guiding students from traditional passive to current. Take the initiative and strive to create a good learning environment for students. The core of cognitive linguistics is meaning, and meaning is constructed in cognitive linguistics by cognitive science, linguistics and communicative language concepts. From the perspective of the process of cognitive formation, concepts are disciplines formed by dividing and intersecting, which emerged in the 1980s and 1990s.

Cognitive linguistics divides concepts into basic concepts, general concepts, European and American countries, and its core theories include "prototype category theory", "concepts and subordinate concepts", which are similar to Comte's disciplinary division method, conceptual metaphor theory, and intention schema theory and the corresponding cognitive linguistics. We know that the higher the abstraction of the concept, the more legal its level. Compared with functional linguistics, cognitive linguistics is more comprehensive and transparent. Therefore, in the concept level division of cognitive linguistics, the upper level explains the language structure comprehensively. Cognitive linguistics attempts to transcend the level of mind at the highest level, followed by basic concepts, followed by subordinate concepts.

The formal logic of functional linguistics further clarifies language learning and the basic concepts here are conceptual prototypes. As far as the language structure of a single subject's native language and the variable generalization learning during adult foreign language learning are concerned, teachers should teach students basic vocabulary. It is also about the connection between the structures. Wen Xu from Cognitive Linguistics has the idea that "languages are the earliest produced, the shortest, and the earliest learned by people. In the past, when teachers gave semantic explanations, they only briefly introduced the literal meaning and part of speech of words, and did not explain metaphors carefully. This teaching mode is not conducive to students' understanding of the meaning of English words, and it is difficult to arouse students' enthusiasm for learning. In English vocabulary learning, the application of metaphor theory can use the metaphor of English vocabulary as a projection tool, so that students can understand a word in different contexts. The meanings expressed below are also very different. For example: A friend in need is a friend in need. Adversity is true. Through in-depth understanding of English vocabulary, students can understand that a simple English sentence may also have multiple meanings

**B. Vocabulary Knowledge of Higher Vocational English**

In order to better carry out the teaching of listening and speaking, higher vocational English must carry out comprehensive and active reforms, but the premise must be to follow the laws of English itself, conform to the current social development situation, meet the basic needs of modern higher vocational students for English learning, and be based on social development environment, formulate personalized teaching plans, respect the differentiated development of students, take advanced teaching theories as guidelines, carry out modern technology teaching, make full use of the advantages of network technology to improve the overall efficiency and quality of higher vocational English teaching, maximize the To reduce the cost of education, save teaching hours, fully integrate and optimize the teaching structure and resources, and open up a new path of modernization, innovation and individual development.

In addition, it is necessary to strengthen teachers' attention to the quality of teaching, and conduct regular re-education and training for teachers. Teachers should not be allowed to develop too loosely and freely, so as to avoid the phenomenon of extreme people-oriented teaching. There are many English vocabulary, and the words "look" are similar and mean however, it is very different. Therefore, in the in-depth teaching of English vocabulary, the theoretical knowledge of cognitive linguistics can be used to help students understand the semantics and context of vocabulary. Students who learn words out of English situations will only have a one-sided understanding of the general idea of the article, and will form a mindset, which will lead to misunderstanding or confusion in the application of vocabulary. Therefore, teachers should fully guide students to understand the importance of English vocabulary and meaning, cultivate students' flexibility of thinking, and enable students to conduct comprehensive analysis according to specific situations. After specific exercises, students can form a way of thinking that analyzes problems comprehensively, strengthen their understanding and cognition of words, and can actively explain the different meanings of words in different contexts when teachers ask the meaning of words again.

In the deep processing of lexical memory, the prototype category theory has obvious advantages. A number of psychological experiments have shown that: in word memory, the recall with word form as a clue is the least, followed by the recall with voice as a clue; the memory with meaning-related memory is the most.

**C. Deep Neural Network Computer Aided Analysis of English Vocabulary Knowledge**

Teachers should have advanced, innovative and cutting-edge teaching concepts, fully explore teaching materials, expand teaching content, use the rich teaching resources of the Internet, combine with basic teaching tasks, and select relevant content that students are interested in to add to the classroom, so as to inspire students. The subjective initiative of English courses can better help students solve practical English problems, impart the awareness of network learning methods to students, and make the network a magic weapon to improve students' English performance and expand students' knowledge fields, and fully reflect higher vocational English. The characteristics of teaching are people-oriented and cultivate students' independent innovation learning ability. In English vocabulary learning, teachers should strengthen the effective connection between vocabulary and English sentences, and pay attention to the metaphorical meaning of vocabulary. Vocabulary can create a context for English sentences, so it is necessary to understand other meanings of English vocabulary and put the vocabulary into English sentences for specific analysis. English sentences are grammatical and organized, and combining vocabulary with sentences enables students to better understand the meaning of sentences when they master words.

![Fig.1. Vocabulary Knowledge of Higher Vocational English](image)

\[ W[A] = W[A] - \sum_{i=1}^{\text{diff}(A_i)} \]

(1)

\[ \text{RI} = \frac{a + b}{C} \]

(2)

For example: When explaining the word destination, a simple example can be given - "He is going to Beijing.” Students can naturally associate the destination. Under the
influence of the prototype effect, people’s knowledge of things always expands outward from the center of the "prototype". People first recognize the things around them. With the development of society and the increase of human activities, the scope of things continues to expand, so that people’s thinking development is no longer satisfied with the recognition and expression of specific things, but gradually recognizes abstract concepts and ideas. But people can’t add new concepts and create new words endlessly, so the human brain adopts a clever and advanced way - metaphor, that is, using the correlation between one thing and another. The abstract thinking of the new understanding is connected with the known things, and the connection points are found, so as to use the knowledge of the known things to create and express new concepts, thus forming what is called cognitive projection or mapping in cognitive linguistics (cognitive mapping).

III. EXPERIMENT

The application of cognitive linguistics theory in higher vocational English is shown in the figure.

![Diagram showing the application of cognitive linguistics theory in higher vocational English](image)

The deep learning network of vocational English vocabulary knowledge is shown in the figure.

![Diagram showing the deep learning network of vocational English vocabulary knowledge](image)

The deep neural network computer-aided analysis of lexical knowledge is shown in the figure.

![Diagram showing the deep neural network computer-aided analysis of lexical knowledge](image)

CONCLUSION

To sum up, the theory of cognitive linguistics provides a strong reference theoretical basis, teaching ideas and teaching methods for higher vocational English listening and speaking teaching. When applying its theory effectively, higher vocational English teaching should be fully aware of its own Insufficient, understand the many factors affecting the development of English listening and speaking teaching, and fully respect the relevant principles of cognitive linguistics theory, higher vocational colleges should comprehensively increase the importance of listening and speaking English teaching. In addition, it is necessary to constantly change teaching concepts, improve teachers’ quality.

References