

The Application of Embodied Cognition Theory in English Teaching of Chinese Rural Primary School

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Abstract:

In order to solve the problems currently faced by English teaching in rural primary schools in China, the author attempts to apply the Embodied Cognition Theory to the English teaching in rural primary schools, and conduct experimental verification in English classroom teaching in rural primary schools. Through the analysis of students' English learning interest questionnaire and students' English learning scores, it is concluded that the English teaching based on Embodied Cognition Theory has positive significance for rural primary school teaching, and provides a certain reference perspective for rural primary school English teaching.

Keywords: Embodied Cognition Theory, rural primary school, Teaching Strategy

I. Introduction

The "Primary School English Syllabus" points out that the purpose of primary school English teaching is "to conduct basic listening, speaking, reading and writing training for students through lively classroom teaching activities, so that students can lay a good voice, tone basis, master certain vocabulary and the most basic grammar knowledge, to develop students' basic daily conversation ability and spelling and spelling ability. At the same time, focus on cultivating students' interest in learning English, so that they like to learn English and use English, and lay a preliminary foundation for them to continue to learn English in secondary school. However, compared with urban primary school English education, rural primary school education resources are relatively scarce, there are many problems in English teaching: many students are not active in English learning, lack of interest in English, weak English foundation, not understand English Learning strategies, etc. Therefore, it is imperative to explore a teaching method that not only meets the requirements of English teaching in primary schools, but also stimulates students' enthusiasm and initiative in learning English, and thus effectively improving their English learning ability.

Embodied Cognition Theory is called "second generation cognitive science." The Embodied Cognition Theory of cognition challenges traditional cognitive science, redefining the relationship between cognition, body and environment, and recognizing the role of the body in language cognition. The concept of body-based cognition provides new enlightenment for current foreign language teaching. It has become a hot topic in foreign countries to apply the Embodied Cognition Theory to teaching and practice. However, the domestic research on the application of Embodied Cognition Theory in educational research is still in the initial stage of exploration, and there are few research results. Therefore, the author attempts to provide a new perspective for English teaching in rural primary school from the perspective of Embodied Cognition Theory theory.

2. Embodied Cognition Theory

The first to propose the concept of "Embodied" is Lakoff and Johnson, who believe that the mind is embodied (Lakoff, Johnson, 1999: 111-120). When cognition is deeply dependent on the physical characteristics of the person, that is, when certain aspects of the human body play an important role in

cognitive processing, anthropological cognition occurs. The physical, social, and cultural environment of human beings is not just about the distribution of cognitive processes: they may partially constitute the human cognitive system (Clark, 1998).

Cognitive science believes that in addition to the brain, cognition is deeply dependent on all aspects of the human body. Without physical involvement in perception and action, thoughts will be empty and the spirit will not exhibit the characteristics and attributes they possess. In contrast, Embodied Cognition Theory holds that cognition depends to a large extent on the physical and social environment. Wilson (2002) attempts to elaborate on the specific content of Embodied Cognition Theory: (1) Cognition is contextual. The cognitive activity takes place in the real world environment and involves perception and action itself. (2) Cognition is real-time. Cognition must be understood from the perception of how to operate under the pressure of real-time interaction with the environment. (3) People store cognitive work in the environment. Because people have limited information processing capabilities (such as restrictions on attention and working memory), people use the environment to reduce cognitive workload. (4) The environment is part of the cognitive system. The flow of information between the mind and the world is dense and continuous. (5) The purpose of cognition is to guide the action. (6) Offline cognition is based on the body. Even if it is separated from the environment, the activity of the mind is based on the mechanism of interaction with the environment---the mechanism of sensory processing and motion control.

3. Embodied Cognition Theory Theory and Rural Primary School English Teaching

Primary school students have the following characteristics: First, they are specific intuitive thinking dominates. Their cognition needs to rely on more intuitive and specific things, especially when it comes to memorizing the real words related to its own life experience. It can touch the students' sensory understanding with the use of characteristic physical images, intuitive teaching aids or real objects. Second, primary students pay attention to instability and physical mobility. Their bodies are lively and active. They can't sit still in the classroom for a long time. They love to play and love to sing, love games. Third, they are good at imitating performance. Children's imagination is rich, they like new things, they like to learn language through body movements and other intuitive means, and they have a strong ability to imitate performance. The cognitive view emphasizes that cognitive acquisition depends on the physical attributes of the body. It includes human vision, hearing, touch and kinesthesia, its concept fits the intuitive thinking pattern and active nature of the body of the primary school students. In rural primary school, many students are less active in English learning and have a weaker English foundation. A large part of the reason is that teachers use the "cramming" education method, which leads to students' lack of interest in English and even fear of learning English. According to this, in order to improve the level of English learning, the teaching strategy based on the Embodied Cognition Theory is a good choice.

4. Research Questions

- (1) Can the Embodied Cognition Theory be applied to English teaching in rural primary schools in China?
- (2) What are the teaching strategies based on the Embodied Cognition Theory can be applied?

5. Teaching Strategies Based on Embodied Cognition Theory

5.1 Vocabulary Teaching Strategies Based on Games

Vocabulary is the basis of second language acquisition. The more vocabulary students have, the better their ability to use the language. Based on the cognitive characteristics and psychological characteristics of primary school students, vocabulary teaching in primary school cannot mechanically memorize words through a large number of mechanical reading and memorization. Therefore, teachers must teach students' words through certain creative vocabulary teaching design, so that vocabulary learning can become a source of happiness in the students' hearts, so as to stimulate students' enthusiasm for further oral learning. When teaching some words, the teacher can use rich expressions and exaggerated movements to interpret the meaning of the words, combining the spoken language (spelling of words) with the body language (moving of the limbs) in the demonstration words. For example, when teaching some verbs, like sleep, walk, eat, etc, teachers can be expressed in exaggerated movements, let the students follow. Such vocabulary teaching is vivid, and it is easy to arouse students' interest so that students can impress the vocabulary and help to remember the meaning of the word.

5.2 Embodied English Listening Teaching Strategies

Listening plays an important role in English. The embodied English listening strategy requires teachers to allow students to participate in listening learning through multiple senses, and to sense hearing through the "embodied". There are several ways:

5.2.1 Store listening Content in Body Senses

One difficulty in listening is that it is easy to forget the content when listening. Strengthening the memory of listening content, and thus improving the accumulation of English. Students can try to use the body to understand and memorize what they hear. For example, the teacher can ask students to make corresponding actions according to the information they hear and confirm the content they have heard according to the pictures. In addition, teachers perform some listening games, such as using vivid gestures and expressions to describe things, students to guess, etc. (Zhou Qian, 2013).

5.2.2 Strengthen Listening Comprehension Through Physical Sensory Experience

English listening in primary schools is usually biased towards life. Teachers can guide students to pay attention to the accumulation of their own sensory experience in their daily lives, and use their physical experience to promote the understanding of listening content. For example, an English

listening is about listening to the exercise. Students can promote their understanding of hearing through the senses of hearing, sight, smell and touch during normal exercise.

5.3 Gesture-based Teaching Strategies

Education abroad is trying to apply the latest technological means, such as virtual reality technology and somatosensory interaction technology, to the teaching of embodied teaching. However, from the actual situation in China, many rural schools cannot be equipped with technological equipment comparable to those of foreign countries. Although strong technical support is more conducive to the realization of physical learning, according to previous literature surveys, the author believes that embodied learning can be achieved under the weak technical conditions of traditional classrooms through proper instructional design. It is the gesture action that can play a big role in English classroom teaching.

5.3.1 Indicating Gesture

The gesture indicates the grounding cognition in the physical environment. For example, when a teacher teaches a student a new word, the teacher can use the pointing gesture to point to the real object representing the word or use a similar picture or animation to deepen the student's understanding and perception of the meaning of the word.

5.3.2 Representative Gesture

Representative gestures are used to indicate simulations of motion and perception. Teachers can use it to represent some of the distinctive English knowledge. For example, when teaching the students the pronunciation of "bad" and "bed", the teacher can use a hand to act as a mouth shape. When reading "beg", the hand opens. When reading "bad", the hand opens larger. By doing this, teachers can help students distinguish the pronunciation of these two words.

5.3.3 Metaphor Gesture

Metaphor gestures are used to express metaphors or metaphors based on body-based concepts. Teachers can use this gesture to let students understand some of the meaning of the English language. For example, when learning the sentence "I have no choice", Students can open hands while shrugging shoulders to express the meaning of helplessness in the sentence "I have no choice". Through this metaphor gesture, the primary students will understand this sentence.

6. Teaching Practice Based on the Theory of Embodied Cognition Theory

The author conducted a two-month teaching activity in a rural primary school. During the teaching period, the author tried to use the teaching strategy based on the Embodied Cognition Theory on two classes in the fifth grade (one for the experimental group and one for the control group) for data collection. Since then, the author tried to use the SPSS for statistical analysis.

6.1 Pre-experimental Data Analysis

Table 6 -1 The Pre-experiment Interest Results of the Control Group and the Experimental Group

| Group | Sample | Interest in Vocabulary Mean±Std | Interest in listening and Speaking Mean±Std | Classroom Participation Mean±Std | Learning Attitude Mean±Std |
|---------------|---------------------------|------------------------------------|--|-------------------------------------|-------------------------------|
| Control Group | 28 (Male: 13, Female: 15) | 4.50±0.30 | 3.86±0.34 | 4.41±0.69 | 4.34±0.19 |
| Test Group | 28 (Male: 14, Female:14) | 4.22±0.24 | 3.76±0.30 | 3.80±0.63 | 4.09±0.25 |
| t | | 0.393 | 1.628 | 1.617 | 2.208 |
| p | | 0.703 | 0.128 | 0.136 | 0.045 |

*p<0.05 **P< 0.01 ***<0.001

According to the American psychologist Lewis Aiken's interest in learning and attitude testing tools, the author constructed a primary school English learning interest scale for testing. As shown in Table 6-1, in terms of English learning interest, the vocabulary interest P-value of the control class and the experimental group was 0.703 ($P > 0.05$), indicating that there was no significant difference in vocabulary interest between the two classes. Besides, the P values of the two classes in listening and speaking interest and class participation are 0.128 ($P > 0.05$) and 0.136 ($P > 0.05$), respectively, which shows that they are generally consistent in listening and speaking interest and classroom participation. However, in terms of learning attitude, the P-value of the control group and the experimental group was 0.045 between 0.01 and 0.05, indicating that there was a slight difference between the two classes in the learning attitude.

Table 6 - 2 The English Scores in the Control Group and the Experimental Group Before Experiment

| Group | Sample | Vocabulary scores Mean±Std | Oral scores Mean±Std | Listening Scores Mean±Std | Total score Mean±Std |
|---------------|---------------------------|-------------------------------|-------------------------|------------------------------|-------------------------|
| Control Group | 28 (Male: 13, Female: 15) | 8.95±1.05 | 13.46±1.4 3 | 23.22±2.02 | 92.07±4.93 |
| Test Group | 28 (Male: 14, Female:14) | 8.94±1.22 | 13.46±1.4 3 | 23.30±1.91 | 91.73±6.26 |
| t | | -0.006 | -0.821 | -1.177 | 0.255 |
| p | | 0.414 | 0.996 | 0.860 | 0.800 |

*p<0.05 **P< 0.01 ***<0.001

As shown in Table 6-2, the P values of the vocabulary scores, oral scores, listening scores and total scores of the control group and the experimental group were 0.414 ($P > 0.05$), 0.996 ($P > 0.05$), 0.860 ($P > 0.05$) and 0.800 ($P > 0.05$). Therefore, there is no big difference in vocabulary, oral English, listening and total scores of the two classes, and the conditions are quite equal.

As shown in Table 6-1 and Table 6-2, the conditions of the two classes are quite comparable to the control and experimental groups of the same experiment.

6.2 Data analysis after experiment

Table 6 - 3 Comparison of Differences in English Learning Interest Between the Control Group and the Experimental Group

| Group | | Sample | Before experim ent Mean±Std | After experiment Mean±Std | t | p |
|------------------------------------|---------------|--------|---|---------------------------------|--------|-------|
| Interest in Vocabulary | Control Group | 28 | 4.50±0.30 | 4.12±0.38 | 1.57 | 0.192 |
| | Test Group | 28 | 4.22±0.24 | 4.39±0.11 | -3.414 | 0.027 |
| Interest in listening and Speaking | Control Group | 28 | 3.86±0.34 | 3.95±0.49 | -0.381 | 0.719 |
| | Test Group | 28 | 3.76±0.30 | 4.47±0.29 | -3.218 | 0.023 |
| Classroom Participation | Control Group | 28 | 4.41±0.69 | 4.03±0.47 | -0.648 | 0.545 |
| | Test Group | 28 | 3.80±0.63 | 4.41±0.69 | -4.277 | 0.008 |
| Total score | Control Group | 28 | 4.34±0.19 | 4.38±0.21 | -0.471 | 0.652 |
| | Test Group | 28 | 4.09±0.25 | 4.71±0.17 | -1.266 | 0.000 |

From Table 6-3, we can see that after the experiment, compared with the control group, all aspects of the experimental group were improved, and the vocabulary interest P-value of the experimental group is 0.027 ($0.01 < P < 0.05$), with a significant difference. It indicates that the vocabulary interest of the experimental group has been greatly improved; the P-value of the listening interest is 0.023 ($0.01 < P < 0.05$), which indicates that the vocabulary interest of the experimental group is greatly improved; the P-value of the classroom participation is 0.008 ($0.001 < P < 0.01$) indicates that the classroom participation of the experimental group is significantly improved. The experimental results show that the teaching method based on Embodied Cognition Theory has a certain correlation

with the vocabulary interest, listening and speaking interest, and the increase of classroom participation in rural primary school students, all of which have a significant positive impact.

Table 6 -4 Results of the English learning scores of the control group and the experimental group after the experiment

| Group | Sample | Vocabular y scores Mean±Std | Oral scores Mean±Std | Listening Scores Mean±Std | Total score Mean±Std |
|------------------|------------------------------|-----------------------------------|-------------------------|---------------------------------|-------------------------|
| Control Group | 28 (Male: 13, Female: 15) | 9.27±0.96 | 14.19±1.20 | 23.65±2.77 | 92.77±7.43 |
| Test Group | 28 (Male: 14, Female:14) | 9.73±0.73 | 14.73±0.87 | 24.87±2.12 | 95.94±3.59 |
| t | | -2.31 | -2.22 | -2.43 | -2.34 |
| p | | 0.023 | 0.031 | 0.017 | 0.021 |

As shown in Table 6-5, after the experiment, the vocabulary scores of the experimental group were higher than those of the control group. The P value the experimental group and the control group are 0.023 ($0.01 < P < 0.05$). Thus, there is a significant difference in the vocabulary scores of the experimental group and the control group. The P-value the two groups of oral scores and listening scores are 0.031 ($0.01 < P < 0.05$) and 0.017 ($0.01 < P < 0.05$). There are a significant difference for the oral and listening scores; For the total score, the total score of the experimental group was higher than that of the control group, and the P-value of the two groups was 0.021 ($0.01 < P < 0.05$) with a significant difference. This shows that the teaching based on Embodied Cognition Theory has positively correlated with the vocabulary, oral and listening scores of rural primary school students. Using the teaching strategies based on Embodied Cognition Theory has positive effects on the rural primary school English teaching.

7. Conclusion

This paper explores the relationship between Embodied Cognition Theory and English learning of rural primary school students in China, and try to explore the teaching strategies of rural primary schools in order to improve the English classroom teaching in Chinese rural schools. After the experience and data analysis, the author draws the following conclusion:

1. Primary student's cognition needs to rely on more intuitive and specific things, especially when it comes to memorizing the real words related to its own life experience. It is feasible to apply the Embodied Cognition Theory to rural primary school English teaching.

2. Using the strategies based on Embodied Cognition Theory to teach English in rural primary schools can significantly improve students' vocabulary, speaking and listening performance, and have a positive influence on students' academical performance.

3. The application of the embodied teaching strategy in the English teaching of rural primary schools can stimulate students' interest in English learning, and also help students form a positive learning attitude, arousing their learning enthusiasm.

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