

Imagery and verbal coding approaches in Chinese vocabulary instruction

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What is the study about?

The study explores the effect of vocabulary instruction within the framework of Dual Coding Theory (DCT), comparing two instructional approaches, i.e. verbal coding alone and verbal coding plus imagery.

The characteristics of Chinese language are:

- a logographic, tonal language, abundant with homophones.
- words do not have sound-to-spelling correspondence.
- words are formed either by one character, two characters or three characters. Eighty percent of words are bimorphemic (two-character words).
- characters were created in six ways. Pictographs and ideographs were probably first created. About 90% of characters are semantic-phonetic compounds, where one part indicates the meaning and the other hints at the sound of the character.

Dual Coding Theory

DCT, pioneered by Paivio, proposed that verbal and nonverbal systems are independent and yet interconnected. The information was drawn from neuropsychological findings that both hemispheres are involved in verbal and nonverbal thinking and behaviour. According to DCT, processing concrete words and abstract words activates different areas of the left hemisphere. During word processing, concrete words increase activation of the imagery-based system as well as the verbal system. Abstract words activate the area of the brain involved in strategic retrieval of semantic information.

DCT emphasizes two independent memory codes involved in word processing: imagery codes and verbal codes.

Evidence of the study is based on

1. Experiment 1 compares the results of learning concrete* vocabulary (a mix of nouns, verbs and adjectives) under two different instructional conditions: verbal coding only and dual coding plus imagery coding respectively.
2. Experiment 2 compares the outcome of learning abstract** words (a mix of nouns, verbs and adjectives) instructed in verbal coding alone and dual coding respectively.

* Concrete words refer to the words that have direct access to sensory referents such as 黄瓜 (cucumber); abstract words have no direct nonverbal imagery such as 安全 (safe).

** Imagery coding for abstract words involves either pictures/diagrams or pictographs or the etymology of the words or the teacher acting out the meaning of the words.

The findings of the study

1. The effects of the concrete vocabulary learning instructed either verbally alone or by dual coding are equally effective.
2. In the case of learning abstract words, dual coding, compared with verbal coding alone, contributes significantly to vocabulary retention in terms of the writing/spelling and the meaning of the words but not pronunciation.

The conclusion

The study supports dual coding theory and confirms the importance of visual learning in Chinese vocabulary acquisition. According to the author, a number of recent neurophysiological studies on brain functions during language processing support the dual coding theory with findings in the following three aspects:

1. Concrete words that produce visual images are processed simultaneously in verbal and nonverbal coding.
2. Processing concrete and abstract words activates different areas in the brain's left hemisphere.
3. Concrete words are processed faster and more accurately than abstract words in a variety of cognitive tasks.